

Introductory Economics



4. Introductory Economics (HME 100) 2(2+0)

Nature and scope of economics, definition and concepts, divisions of economics, economic systems, approaches to the study of economics. Consumption – theory of consumer behaviour, laws of consumption, classification of goods. Wants – their characteristics and classification, utility and its measurement, cardinal and ordinal, law of diminishing marginal utility, law of equi-marginal utility, indifference curve and its properties, consumer equilibrium. Theory of demand, demand schedule and curve, market demand. Price, income and cross elasticities, Engil’s law of family expenditure – consumer’s surplus. Theory of firm, factors of production – land and its characteristics, labour and division of labour, theories of population. Capital and its characteristics – classification and capital formation. Enterprises – forms of business organization – merits and demerits. Laws or return – law of diminishing marginal return – cost concepts. Law of supply – supply schedule and curve elasticities. Market equilibrium, distribution – theories of rent, wage, interest and profit. Price determination and forecasting under various market structures.

Lecture-1

Learning Objective: Introduction to the economics, Different definitions, Scope, and subject matter

Introduction to Economics

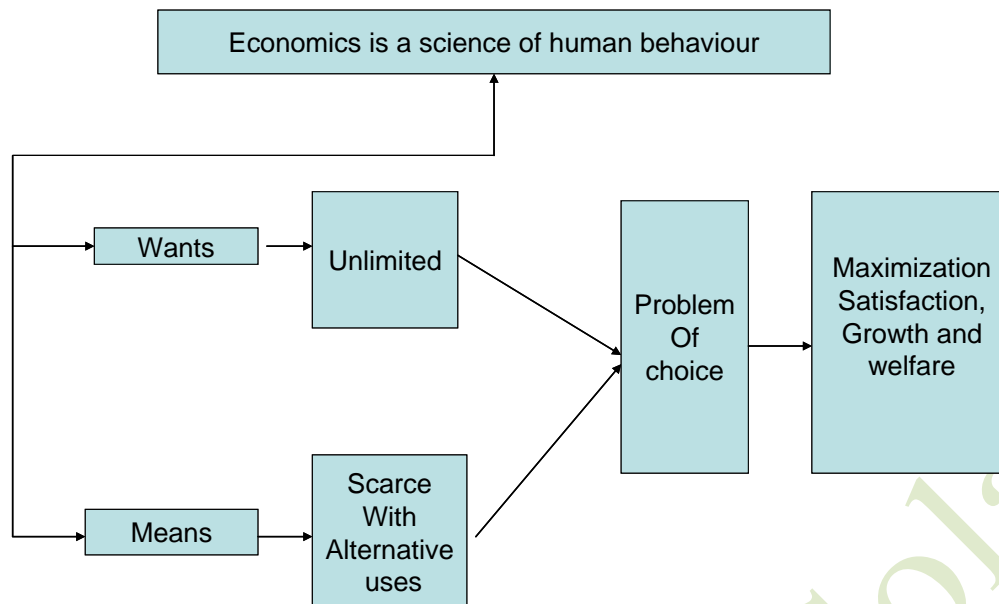
- ❖ As a beginner, before understanding the nature and scope of economics one has to clearly understand what economics is? Or what is the basic thing which necessitated the study of economics.
- ❖ The basic problem of scarcity of resources and unlimited human wants is the starting point of the study of economics.
- ❖ An economy exists because of two facts. Firstly the human wants for goods and services are unlimited, and secondly productive resources with which to produce goods and services are scarce. So economics is the analysis of how to allocate scarce resources among competing uses.
- ❖ Economics is the study of how individual and societies choose to use the scarce resources. It is the behavioral science studying individual choices and more broadly societal choices added up from them. Either you are planning the coming holiday against limited time or slicing a gigantic watermelon with several of your siblings, you are doing economics.

The definitions of economics can be broadly discussed under the following subheads.

- ❖ **(a) Wealth definition- Adam Smith**
- ❖ **(b) Welfare definition - Alfred Marshall**
- ❖ **(c) Scarcity definition - Lionel Robbins**
- ❖ **(d) Growth definition - Paul Samuelson**
- ❖ **Adam Smith**, commonly known as the father of modern economics, defined economics as "**An enquiry into the nature and causes of wealth of nations.**" This definition laid more emphasis on wealth. As wealth is not everything, it only leads to achieve welfare of human. Therefore it is human which is the aim all of the economic activities.
- ❖ Professor **Dr. Alfred Marshall** was the first economist who gave a logical definition of economics. He defined economics as: "A study of mankind in ordinary business of life, it examines that part of individual and social actions which is closely related with attainment and use of material requisites"
- ❖ It is a subject that is concerned with the people living in society. According to Marshall, as the behavior of human beings is not the same all the time therefore principles of economics cannot be formulated like the laws of sciences. Further laws of economics are not as exact as the laws of natural sciences. For this reason it is a social science.
- ❖ **Economics is related to man**; therefore it is a living subject. It discusses economic problems and behavior of man. According to Marshall it studies the behavior of man in ordinary business of life. According to Marshall, wealth is not the ultimate objective of human activities and therefore we do not study wealth, for the sake of wealth. Therefore according to this definition we study wealth as a source of attainment of material welfare. **This definition makes economics welfare oriented subject.** We are concerned only with those economic activities which do not promote material welfare of human beings are out of the scope of economics. However, **Lionel Robbins** and other many economists severely criticized this definition on the following grounds."
- ❖ **Limited to Material Welfare:** In reality both material and non-material aspects of wellbeing are studied in economics.

- ❖ **Vague Concept of Welfare:** The welfare of human beings is not limited to the attainment of material requisites. There are many other factors which affect the human welfare. Further the word "welfare" has different meaning for different persons and different societies. Therefore we cannot define economics using an unclear concept of welfare.
- ❖ **Limited Scope:** This definition has made the scope of economics limited. Only those activities are studied in economics which are aimed at the attainment of material requisites of well being. Further it ignores the economic activities of a person not living in society. Attainment of non material requisites of human well being fall out of the scope of economics. This
- ❖ **Economics and Welfare:** According to Robbins the study of economic activities on the basis of welfare is not good. It is not the duty of an economist to pass verdict that what is conducive to welfare and what is not. Thus according to Robbins "Whatever Economics is concerned with, it is not concerned with causes of material welfare as such.
- ❖ **Moral Judgment:** In this definition Marshall makes economics a subject which considers the right and wrong aspect of economic activities. According to Robbins economics is neutral as regards ends and it is not the function of an economist to pass moral judgments and say what is good and what is bad.
- ❖ **Unrealistic:** This definition appears to be unrealistic as we analyze it critically. The unclear concept of welfare, the division of ends into material and non material, the stress on good and bad, the concept of man living in society etc. all these concepts put unnecessary restrictions and make the scope of economics limited. These ideas make the definition unrealistic.
- ❖ According to Robbins, economics is a science that studies human behavior as a relationship between ends and means which has alternative uses. This definition was criticized by economist like Durbin, Fraser Ely etc. In their opinion Robbins has reduced the economics to simply a theory of value determination or a science of choice making. It has nothing to do with the welfare of the man.
- ❖ **According to Paul Samuelson,** "the study of how men and society choose, with or without the use of money, to employ scarce productive resources which could have alternative uses, to produce various commodities over time, and distribute them for consumption, now and in the future among various people and groups of society". In this definition, element of time, the problem of scarcity of means in relation to unlimited ends and alternative uses and various aspects like production, distribution and consumption were considered.

These definitions have one or the other short coming, however, their systematic synthesis leads to the conclusion that it is the science that studies, for the purpose of achieving maximum satisfaction of wants and increasing of welfare as well as economic growth those activities which are concerned with the efficient consumption, production, exchange and distribution of scarce means having alternative uses. The following illustration makes the definition of economics more clear.



Finally, Economics is rightly considered as the study of allocation of scarce resources (in relation to unlimited ends) and of determinants of income, output, employment and economic growth

Scope of Economics:

The scope of economics is the area or boundary of the study of economics. In scope of economics we answer and analyze the following three main questions.

- (i) What is the subject matter of economics?
- (ii) What is the nature of economics?
- (iii) What are the limitations of economic?

Subject matter of Economics: There is a difference of opinion among economists regarding the subject-matter of Economics.

- ❖ Adam Smith, the father of modern Economic Theory, defined Economics as a subject, which is mainly concerned with the study of nature and causes of generation of wealth of nation.
- ❖ Impressed by the condemnation of the 19th century writers, like Carlyle and Ruskin, Marshall introduced the concept of welfare in the study of Economics. Marshall has shifted the emphasis from wealth to man. He gives primary importance to man and secondary importance to wealth.
- ❖ **The Robbins's concept of the subject-matter of Economics is that "Economics is a science which studies human behavior as a relationship between ends and scarce means which have alternative uses".** According to Robbins (1) human wants are unlimited (2) means at his disposal to satisfy these wants are not only limited, (3) but have alternative uses. Man is always busy in adjusting his limited resources for the satisfaction of unlimited ends. **The problems that centre round such activities constitute the subject-matters of Economics.**
- ❖ **Paul Samuelson, however, included the dynamic aspects of economics in the subject matter.** According to him, Economics is the study of how man and society choose with or without money, to employ productive uses to produce various commodities over time and distribute them for consumption now and in future among various people and groups of society".

Nature of economics: The economists are also divided regarding the nature of economics. The following questions are generally covered in the nature of economics.

- (i) Is economics a science or an art?

(ii) Is it a positive science or a normative science?

Economics as a science or an art: Economics is both a science and an art. Economics is considered as a science because it is a systematic knowledge derived from observation, study and experimentation. However, the degree of perfection of economics laws is less compared with the laws of pure sciences.

An art is the practical application of knowledge for achieving definite ends. A science teaches us to know a phenomenon and an art teaches us to do a thing. For example, there is inflation in India. This information is derived from positive science. The government takes certain fiscal and monetary measures to bring down the general level of prices in the country. The study of these fiscal and monetary measures to bring down inflation makes the subject of economics as an art.

Is economics a positive science or a normative science?

Normative and Positive Economics: A positive science studies the facts as they are and not as they ought to be.

According to Prof. Robbins, economics is a positive science; it studies the fact as they are. The task of economics is simply to explore and explain- knowledge for the sake of knowledge—a study of cause and relationship. Normative science studies the facts not as they are but as they ought to be. It lays down certain norms or objectives and efforts are made to attain them.

Marshall and Pigou assigned to economics the role of normative science. The study of economics is divided into two groups, viz., micro economics and macroeconomics. The study of individuals falls under the microeconomics, whereas, study of the economy as a whole under macro economics.

Nature of Economic Laws:

Economics, like all other sciences, has drawn its own set of generalizations or laws. Economic laws are nothing more than careful conclusions and inferences drawn with the help of reasoning or by the aid of observation of human and physical-nature. In everyday life, we see man is always busy in satisfying his unlimited wants with limited means. In doing so, he acts upon certain principles. These principles or generalizations which an average man usually follows when he is engaged in economic activity-are named “**Economic Laws**”.

Economic laws the statements of general tendencies. According to Marshall, “Economic laws are those social laws which relate to branches of conduct, which the strength of motive chiefly concerned can be measured by money prices”.

Laws of Economics are less exact.

The nature of economic laws is that they are less exact as compared to the laws of natural sciences like Physics, Chemistry, Astronomy, etc. An economist cannot predict with surety as to what will happen in future in the economic domain. He can only say as to what is likely to happen in the near future. The reasons as to why Economic laws are not as exact as that of natural sciences are as follows:

First, Natural sciences deal in matter which are lifeless. While in Economics, we are concerned with man who is endowed with a freedom of acting the way he likes. Nobody can predict with certainty his future actions. This element of uncertainty in human behavior, results in making the laws of economics less exact as compared to laws of natural sciences.

Secondly, in Economics it is very difficult to collect factual data on which economic laws are to be based. Even if the data are collected it may change at any moment due to sudden changes in the tastes of the people or their attitudes.

Thirdly, there are many unknown factors which affect the expected course of action and thus can easily falsify the economic predictions.

Economic laws are essentially hypothetical

Economic laws, writes Seligman, are essentially hypothetical. They are true under certain given conditions. If these conditions are fulfilled, the conclusions drawn from them will be true and exact as those of the laws of physical sciences. From this statement that laws of Economics are hypothetical, we should not conclude that, they are useless or unreal. The hypothetical element is also there in the laws of physical sciences. Take for instance, the law of gravitation. It states that bodies tend to-fall to the ground but the bodies may not fall immediately. Their fall may be retarded by atmospheric pressure. So is the case with the laws of Economics. Take for instance, the law of diminishing marginal utility, It states, other things beings equal, the additional benefit which a person derives from a given increase of his stock of a thing diminishes with every increase in the stock that he already has”, But this may not happen. The utility of an additional unit may increase due to a sudden change in fashions, tastes, etc. The only difference between the laws of Economics and the laws of physical sciences is that the hypothetical element in the former is more permanent as compared to the later. In the words of Samuelson, “Despite the approximate character of economics laws, it is blessed with many valid principles”.

Economic laws are qualitative Laws of economics are qualitative in nature. They are not exactly stated in quantitative terms. They tell the direction of change which is expected rather than the amount of change. For example, according to the law of demand, the quantity demanded varies inversely with price. We do not say that 10% rise in price will lead to 30% fall in the quantity demanded.

Applicable on an average in normal conditions Economic laws do not deal with any particular individual, firm, commodity but takes an average economic unit and lays down its economic behavior.

Laws of economics are more exact than the laws of other social sciences. We do admit that the laws of economics are not 100% exact. They are, however, more exact than the laws of any other social science.

Lecture-2

Learning Objective: Methodology of Economics, Approaches to study economics, and different economic systems

Economics as a science adopts two methods for the discovery of its laws and principles, viz., (a) deductive method and (b) inductive method.

Deductive method:

- ❖ Here, we descend from the general to particular, i.e., we start from certain principles that are self-evident or based on strict observations. Then, we carry them down as a process of pure reasoning to the consequences that they implicitly contain. For instance, traders earn profit in their businesses is a general statement which is accepted even without verifying it with the traders. The deductive method is useful in analyzing complex economic phenomenon where cause and effect are inextricably mixed up. However, the deductive method is useful only if certain assumptions are valid. (Traders earn profit, if the demand for the commodity is more).

Inductive method:

- ❖ This method mounts up from particular to general, i.e., we begin with the observation of particular facts and then proceed with the help of reasoning founded on experience so as to formulate laws and theorems on the basis of observed facts. E.g. Data on consumption of poor, middle and rich income groups of people are collected, classified, analyzed and important conclusions are drawn out from the results.
- ❖ In **deductive** method, we start from certain principles that are either indisputable or based on strict observations and draw inferences about individual cases. In **inductive** method, a particular case is examined to establish a general or universal fact. Both deductive and inductive methods are useful in economic analysis.

Subject Matter of Economics

Economics can be studied through a) traditional approach and (b) modern approach.

a) Traditional Approach: Economics is studied under five major divisions namely consumption, production, exchange, distribution and public finance.

Consumption: The satisfaction of human wants through the use of goods and services is called consumption.

Production: Goods that satisfy human wants are viewed as “bundles of utility”. Hence production would mean creation of utility or producing (or creating) things for satisfying human wants. For production, the resources like land, labour, capital and organization are needed.

Exchange: Goods are produced not only for self-consumption, but also for sales. They are sold to buyers in markets. The process of buying and selling constitutes exchange.

Distribution: The production of any agricultural commodity requires four factors, viz., land, labour, capital and organization. These four factors of production are to be rewarded for their services rendered in the process of production. The land owner gets rent, the labourer earns wage, the capitalist is given with interest and the entrepreneur is rewarded with profit. The process of determining rent, wage, interest and profit is called distribution.

Public finance: It studies how the government gets money and how it spends it. Thus, in public finance, we study about public revenue and public expenditure.

b) Modern Approach

The study of economics is divided into Microeconomics and Macroeconomics.

Microeconomics:

- ❖ This analyses the economic behaviour of any particular decision making unit such as a household or a firm. Microeconomics studies the flow of economic resources or factors of production from the households or resource owners to business firms and flow of goods and services from business firms to households. It studies the behaviour of individual decision making unit with regard to fixation of price and output and its reactions to the changes in demand and supply conditions. Hence, microeconomics is also called price theory.

Macroeconomics:

- ❖ It studies the behaviour of the economic system as a whole or all the decision- making units put together. Macroeconomics deals with the behaviour of aggregates like total employment, gross national product (GNP), national income, general price level, etc. So, macroeconomics is also known as income theory.
- ❖ Microeconomics cannot give an idea of the functioning of the economy as a whole.
- ❖ Similarly, macroeconomics ignores the individual's preference and welfare. What is true of a part or individual may not be true of the whole and what is true of the whole may not apply to the parts or individual decision making units. By studying about a single small- farmer, generalization cannot be made about all small farmers, say in Himachal Pradesh state. Similarly, the general nature of all small farmers in the state need not be true in case of a particular small farmer. Hence, the study of both micro and macroeconomics is essential to understand the whole system of economic activities.

C. ECONOMIC SYSTEMS

Circular Flow of Goods and Money in an Economic System

- ❖ Every economy is a system in which the production of many goods is organized to satisfy many wants of human beings. In an economic system, the two economic units namely households and enterprises are linked by a circular pattern of economic activities as illustrated in Figure 1.1. The choices and decisions of these two main units are the driving forces of economic activity.
- ❖ In their households, people make two sets of decisions: a) selling the inputs they own, primarily their labour and b) buying goods with their incomes. The enterprises or businesses engage in production, using the labour and other inputs bought from households. The goods produced by the firms are sold ultimately to the households.
- ❖ The interactions of households and firms bring together the two sides of economics: demand and supply. The action occurs in two sets of markets; that for inputs and that for outputs. In the input markets, households offer their labour, land and capital. Firms buy these inputs at prices set in the markets. In the output markets, the enterprises sell out the goods and services to the consumers or households.

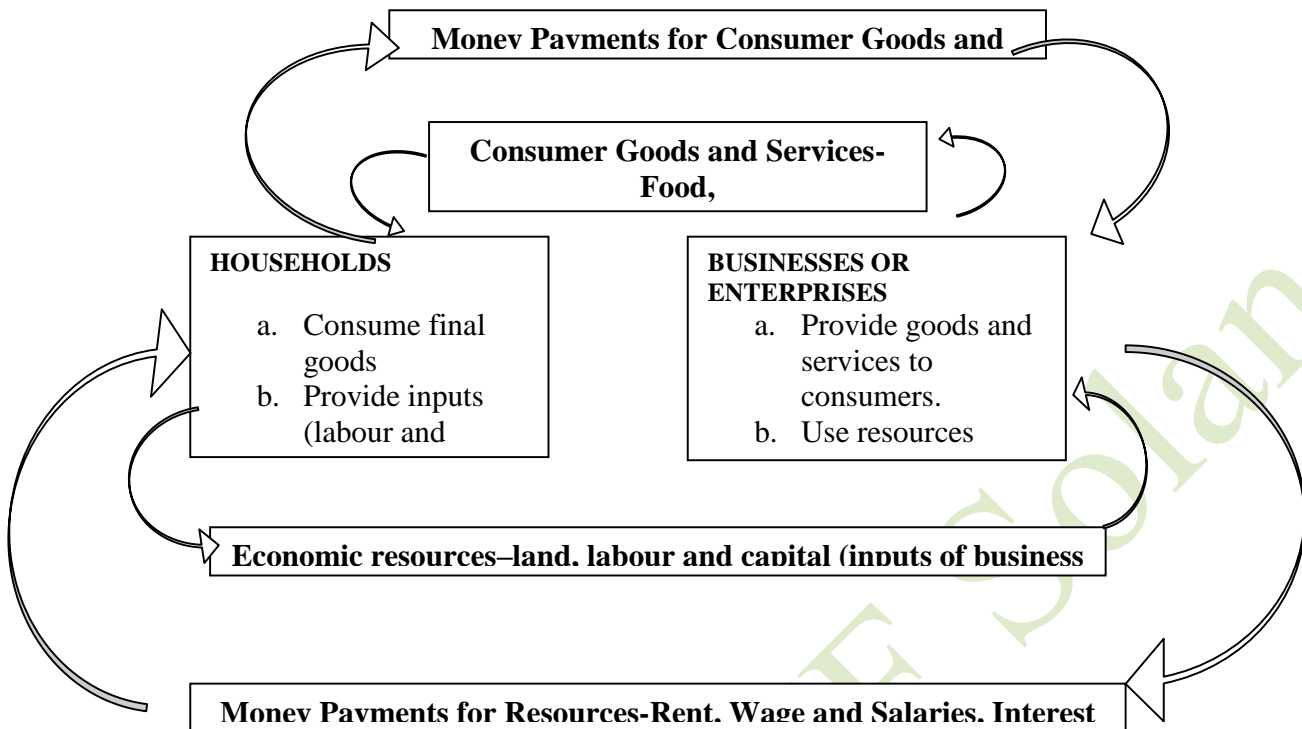


Figure: The flow of Goods, Services, Resources and Money Payments in a Simple Economy

Types of Economy

- ❖ An economy might be designed to depend exclusively either on the market or on government to make the three fundamental decisions of what, how and for whom. The economic system can be broadly categorized into a) capitalism and b) socialism.

a) Capitalism

- ❖ Capitalism is a system of economic organization characterized by the private ownership and use of capital with profit motive. The most important feature of capitalism is the existence of private property. Everyone has the freedom to form any firm anywhere he likes, provided he has the requisite capital and ability. It is based on the doctrine of *laissez faire* which would mean that the state interference in economic activity should be kept down to the minimum.

b) Socialism

- ❖ Socialism is an economic system in which the means of production (capital equipment, buildings and land) are owned by the state. The main aim of socialism is to run the economy for social benefit rather than private profit. It emphasizes on work according to one's ability, and equal opportunities for all regardless of caste, class and inherited privileges.

c) Communism

- ❖ Communism is a form of socialism. It was followed in the erstwhile Soviet Union. Communism means an idealistic system in which all means of production and other forms of properties are owned by the community as a whole, with all members of the community sharing in its work and income. People are supposed to work according to their capacities and get according to their needs. The aim is to create a classless society and the state machinery is utilized to crush all opposition to achieve this end. The main difference between communism and socialism is that the former

believes and adopts violent revolutionary methods to capture the machinery of the government while the latter believes in peaceful and parliamentary methods.

d) Mixed Economy

- ❖ It is neither pure capitalism nor pure socialism but a mixture of the two. In this system, we find the characteristics of both capitalism and socialism. Both private enterprises and public enterprises operate in mixed economy. The government intervenes to regulate private enterprises in several ways. Generally, the basic and heavy industries like industries producing defense equipments, atomic power, heavy engineering goods etc. are put in the public sector. On the other hand, the consumer goods industries, small and cottage industries, agriculture etc. are assigned to the private sector. It is realized that in the under-developed countries, like India, economic development cannot be achieved at the desired rate of growth without any active government help and guidance. Hence, the government in such countries actively participates in economic activities in order to minimize the evils of capitalism and to accelerate economic growth.
- ❖ In capitalistic economy, the entrepreneurs utilize the available resources efficiently, as they have strong initiative to earn profit. But the free functioning of private enterprises results in extreme inequalities of income and wealth. In socialistic economy, the inequalities in income and wealth get reduced to the minimum and the national income is more equitably distributed. But the socialistic economy suffers from the problem of lack of private initiative that result in the lack of inventive ability and enterprising spirit and ultimately these lead to inefficient use of available resources. The mixed economy aims at achieving the goals of both capitalism and socialism (i.e., efficient use of resources and equitable distribution of income and wealth) and at the same time, it emphasizes on the reduction of evils of capitalism and socialism.

Lecture-3

Learning Objective: Introduction to different concepts like consumption, wants and their characteristics, goods and classification of goods

Consumption

- ❖ Consumption means satisfying human wants. It implies destruction of utilities with a view to satisfy human wants. For example eating an apple or wearing clothes is consumption because not only utility is destroyed but want is also fulfilled. Similarly if a house catches fire, no doubt utility has been destroyed but no want has been fulfilled. Therefore it is not consumption in true economic sense.

Kinds of consumption:

- ❖ **Slow and quick:** Consumption in case of perishable commodities like fruits, vegetables is quick, whereas in case of durables it is slow.
- ❖ **Direct and Indirect:** When goods are consumed directly for the satisfaction of human wants like car, scooter etc .is called as **direct consumption**. When goods are consumed for the production of other goods such as use of seed, manure raw material etc then it is known as **indirect consumption**.
- ❖ **Present and postponed consumption:** When wealth is used for the satisfaction of current want –it is called present consumption. When wealth is used to satisfy the future need, it is called as postponed consumption.
- ❖ **Wasteful consumption:** According to some economist, wasteful consumption to be treated as kind of consumption.
- ❖ After having an idea about the consumption it is important to understand clearly what we mean by **wants**, it is important to distinguish between desire and want.
- ❖ Desire arises first. It is a kind of mental and psychological state of mind under which a person desires to consume a thing for his satisfaction. He then procures the means to satisfy the desire, and then it becomes the want.

- ❖ According to the T H Penson, “all those desires for the satisfaction of which a man has the means and willingness to use those means for the satisfaction are called wants.

Characteristics of Human wants:

- ❖ Wants are unlimited
- ❖ Every particular want is limited
- ❖ Wants are competitive
- ❖ Wants are complementary
- ❖ Wants recur again and again
- ❖ Wants become habits.
- ❖ Wants are alternatives
- ❖ Wants vary in intensity.

Classification of Human wants: Prof. Penson has classified the human wants as necessities, comfort and luxuries.

Necessaries:

- ❖ Necessaries are goods and services that are essential for our existence and to maintain our efficiency.
- ❖ There are three kinds of necessities.
 - i) necessities for life
 - ii) necessities for efficiency and
 - iii) conventional necessities.

i. Necessaries for life or Existence

Goods that is essential for our very existence Eg. Food.

ii. Necessaries for efficiency

Goods and services that are essential for maintaining and improving the efficiency Eg. Nutritious food, chair.

iii. Conventional necessities

Goods that are used out of habit or long established customs ,Eg. Coffee, Tea and cigarette.

Comforts

Comforts are goods that lead to easy living and make our life pleasant.

It also increases efficiency. Eg. Ordinary chair (necessary) and cushioned chair (Comforts).

Luxuries

- Goods and services which are generally non-essential and expensive.
- They do not increase efficiency.
- It is consumed to satisfy superfluous wants ,Eg. Costlier Ornaments, silk sarees, bungalow, scent etc

❖ **Goods** Any tangible commodity that satisfies human want is called a good or visible good or material good. These goods can be seen or felt, (E.g.) rice, book, etc.

❖ **Services** A service is any act or performance that one party can offer to another. i.e. essentially intangible and does not result in ownership of anything. Any intangible thing that satisfies human want is called a service or invisible good or immaterial good. e.g. Services of an engineer or a teacher can be sold, but they cannot be seen or felt. Services are intangible, non-material, inseparable, variable, and perishable.

Classification of goods

Based on Supply:

❖ **Free Good:** A good or service that has no price is called a free good. The air that we breathe satisfies us. But we do not pay any price for such goods. So, these goods are free goods and they are not scarce. These goods are the free gift of nature. Their supply is more than the demand and one can get to the extent they need. No efforts are needed to be put forth by humans to secure free goods. They have value in use but no value in exchange. e.g. sunshine, rainfall, air, etc.

❖ **Economic Good:** These are the goods which are produced through human efforts and are to purchase at a given price. Supply is less than demand. They have value in use and value in exchange. E.g. Building, furniture, grains etc. Such goods are called economic goods and these goods are scarce.

Based on Transferability: as given by Marshall, goods are classified external and internal goods.

- ❖ External goods are classified as material and personal goods. Material goods are further classified as transferable (such as land, building, furniture etc) and nontransferable (such as degree certificate, driving license etc.)
- ❖ Personal goods are also classified as transferable(goodwill of business) and nontransferable (friendship, courage etc)
- ❖ Internal goods are nontransferable like personal qualities like ability, intelligence etc.)

Based on consumption

- ❖ **Consumer Goods:** These are the goods from which consumers directly derive the satisfaction. These are otherwise known as goods of first order in view of their ability to give direct satisfaction. Food, cosmetics, cloths, books, pens, etc

- ❖ **Producer Goods:** Those goods which help to produce other goods. These can be used both by consumers as well producers , because it depends how the good is used. From the consumers' point of view they give satisfaction indirectly. The examples are machines, factory buildings, raw material, etc. the chance of a producer good to become a consumer good is possible based on its usage. For instance, electricity when used at home it becomes a consumer good and the same becomes a producer good when used in an industry.

Based on Durability

- ❖ **Mono period Goods:** Those goods which are used only once to satisfy a need are called mono period goods. They cease to exist once their use was over. e.g. all food items and productive resources like seed, fertilizers etc.
- ❖ **Poly period Goods:** Those goods which are used time and again. Relevant examples are machinery, implements, buildings, etc.

Lecture-4

Utility Analysis

Learning Objective: Utility, features of utility, measurements and relationship between total and marginal utility

Utility: The property of the commodity that enables it to satisfy a want is termed as utility. It is known as want satisfying power of the commodity. The units of measurement of utility are called utils.

Or

Utility is the satisfaction, actual or expected, derived from the consumption of a good. Normally it is the expected satisfaction, because we generally purchase first and consume later.

Why does a consumer demand a good /service?

- ❖ The simple answer is that he/she demands a good as it gives him/her utility.
- ❖ Secondly how he/she should spend his/her income on different goods and services so as to maximize his/her satisfaction.

In economics three main theories have been put forward in this regard.

1. Cardinal utility analysis
2. Ordinal utility analysis
3. Revealed preference analysis

Cardinal utility analysis:

- ❖ Neoclassical economist like Dupit, Gossen, Walaras ,Menger and Jevous put this analysis by criticizing the classical thought of Adam Smith, Ricardo and others.
- ❖ According to this approach, utility can be measured in cardinal or definite numbers like 1, 2, 3, etc. Cardinal numbers are those definite numbers which can be added or subtracted.
- ❖ Fisher has used the term **Util** as a measure of utility. For example according to this approach, it can be said that consumption of one apple will give say 5utils and so on.

Features of utility:

- ❖ **Utility is a subjective** because it deals with the mental satisfaction of human beings. A thing may have different utility for different persons.
- ❖ **Utility is relative.** Utility of a good never remains the same. It varies across time and place. For example, Warm clothes have utility in winters not in summers.

- ❖ **Utility is not essentially useful.** A commodity having utility need not be useful. For example cigarettes are not useful however they satisfy the wants of those who smoke.
- ❖ **Utility is independent of morality.** Utility has nothing to do with morality. Use of liquor may be immoral but it has utility those use it.

Types of utility:-

- ❖ **Marginal utility:** Marginal utility (MU) means change in the total utility (TU) derived from the consumption of one more unit of a good i.e. the additional or extra utility received from consuming each additional unit of a commodity is called marginal utility

Mathematically it is calculated as:

$$MU_n = TU_n - TU_{n-1}$$

- ❖ **Total utility;** - Total Utility (TU) is the aggregate of the utility that a consumer derives from the consumption of a certain amount of a commodity. Mathematically, TU can be obtained by the sum of marginal utilities from the consumption of different units of the commodity.

$$\begin{aligned} TU_n &= MU_1 + MU_2 + \dots + MU_n \\ &= \sum MU \end{aligned}$$

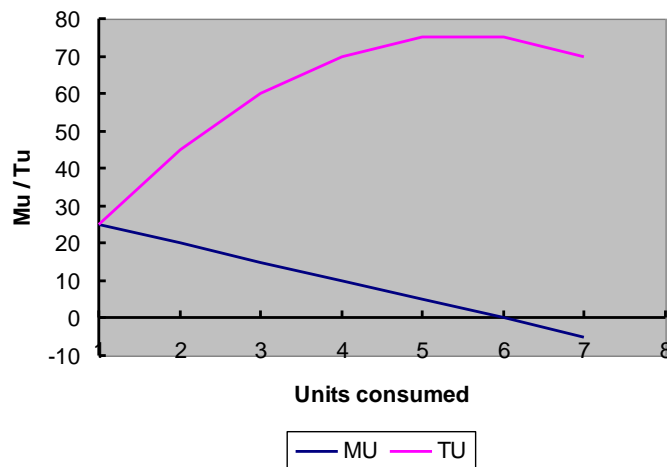
Measurement of utility:-

There are two viewpoints regarding the measurement of utility.

1. **Cardinal utility analysis:-**It means that the utility that a consumer gets from a unit of commodity can be measured in absolute numbers. eg : 1, 2, 3, 4
2. **Ordinal utility analysis:** - It states that the consumer is capable of simply comparing the utility derived from different goods or different units of the same good. It means utility cannot be measured. It can only be compared such as 1st, 2nd, 3rd, 4th etc

Relationship between Total utility and Marginal utility

No. of Units Consumed	Total Utility	Marginal Utility
1	25	25
2	45	20
3	60	15
4	70	10
5	75	5
6	75	0
7	70	- 5



- ✓ When TU increases at diminishing rate MU falls but remains positive
- ✓ When TU becomes maximum & constant MU becomes zero.
- ✓ When TU declines MU is negative

Significance of the Difference between Total and Marginal Utility:

The difference between total and marginal utility has the following practical significance.

- ❖ **Paradox of value or the diamond –water paradox:** Many economists assumed that the price of the commodity was equal to the total utility. Thus goods which give more total utility should have more value and which have less total utility should have less value. But it is not true in the real life situations. One obtains more total utility from water than from diamonds, yet the price of water is less than diamonds. **This is known as Diamond- water paradox.**
- ❖ Price of the commodity is determined by the marginal utility and not the total utility. Water is available in abundance, so its total utility reaches the saturation point i.e. marginal utility becomes zero. Consequently, although the total utility derived from water is exceedingly large because of the great quantity consumed, yet its marginal utility is very low; so price of water is almost zero.
- ❖ On the other hand, availability of diamonds is very rare, so their total utility never reaches the point of saturation. Consequently, although the total utility derived from diamond is low because consumers purchase relatively few of them, yet marginal utility of diamonds remains high and positive. That is why price of diamonds is high.
- ❖ **Consumer Surplus:** Sometimes a consumer is ready and willing to pay for a commodity much more price than its actual price. The difference between the two prices is called consumer surplus.

- ❖ The consumer is prepared to pay the price equivalent to the total utility that he obtains from all the units of the commodity but actually he pays the price equivalent to the marginal utility of the commodity. Marginal unit refers to the additional unit that the consumer is prepared to buy. Each unit preceding the marginal unit (called intra- marginal units) would give the consumer more utility than the utility of the marginal unit.
- ❖ Aggregate of the marginal utilities of these units is called total utility. But the price being equal to the marginal utility, the amount of money actually paid by the consumer will be equivalent to the marginal utility (price) multiplied by the number of units bought. The concept of consumer surplus is thus based on the difference between total utility and marginal utility.

Lecture -5

Learning Objective: Law of diminishing marginal utility, law of equi- marginal utility, consumer's equilibrium in case of one and more than one commodity

Utility Analysis

- Law of diminishing marginal utility,
- law of equi- marginal utility

Law of Diminishing Marginal Utility:

- ❖ Law of Diminishing Marginal Utility states that, as the consumer consumes more and more units of a commodity, the marginal utility of the commodity falls.
- ❖ The law of diminishing marginal utility is a psychological law arrived at by introspection and by empirical evidence. For example, when a consumer drinks water on a hot afternoon; the first glass of water gives him more satisfaction as compared to the second (as the thirst has decreased after consuming one glass of water). The second glass of water gives more satisfaction as compared to the third and so on.
 - ❖ This theory is propounded by professor Marshall. According to him the additional benefit which a person derives from a given increase of his stock of a thing diminishes with every increase in the stock that he already has. It means as the amount consumed of a commodity increases the utility derived by the consumer from the additional units i.e. MU goes on diminishing.
- ❖ According to law of diminishing marginal utility, marginal utility (MU) tends to fall as we consume more and more units of a good. Graphically MU is a downward sloping straight line. It reaches zero (touches X-axis) and then becomes negative. Marginal utility is the rate of change of total utility (TU) i.e. slope of the TU curve. When marginal utility is falling but is positive, total utility (TU) is increasing at a diminishing rate. It reaches the maximum point (saturation point) where MU is zero. It starts falling beyond this point as MU becomes negative.

Saturation Point

- ❖ Saturation point is the point where TU is maximum and MU is zero. At this point the particular want is completely satisfied for the time being.

Assumption of Law of DMU:

- ❖ A consumer should be a rational consumer i.e. He should be willing to maximize his satisfaction.
- ❖ The good should be homogeneous i.e. it should be same in every aspect eg: colour, taste, size etc.
- ❖ The unit of the goods must be standard eg: A glass of water not a cup of water.

- ❖ There should be no change in the taste & preferences of the consumer during the process of consumption.
- ❖ Utility can be measured by absolute numbers.
- ❖ There must be continuity in consumption & if break is needed it should be very short.

Reasons behind operation of Law:

- ❖ **Intensity of desire:** when more & more units of a commodity are consumed, the consumer's intensity of desire decreases the utility derived from additional unit also decreases.
- ❖ **Priority to important use:** - If there are many uses of the commodity the most urgent requirement will be fulfilled first followed by next important use & so on. E.g : Electricity

Exceptions / Limitations to the law of DMU

Law of DMU is not applicable in the following cases:

- ❖ Hobbies
- ❖ Goods of display
- ❖ Intoxicants
- ❖ Money
- ❖ Good books poetry
- ❖ Rare goods etc.

IMPORTANCE OF THE LAW:

BASIS OF LAW OF DEMAND:

- ❖ When a person consumes more units of say oranges he gets less and less satisfaction from the additional units. He will not be prepared to buy the additional units of oranges unless they are offered at lower and lower prices.
- ❖ For the units which give him higher utility the consumer will be prepared to pay more ,and for the units which give him lesser utility the consumer would not like to pay as much,. Thus the law of demand is based on law of diminishing marginal utility.

VARIETY IN CONSUMPTION AND PRODUCTION:

- ❖ The changes in design, pattern and packing of commodities very often brought about by producers are in keeping with this law .We know that the use of same good makes us feel bored ,its utility diminishes. We want variety such as soaps, toothpastes, pens etc. Thus this law helps in bringing variety in consumption and production.

IMPORTANCE IN THEORY OF VALUE:

- ❖ The law helps to explain the phenomenon in value theory that the price of a commodity falls when its supply increases. It is because with the increase in the stock of commodity its marginal utility diminishes.

EXPLANATION OF DIAMOND WATER PARADOX:

- ❖ Because of their relative scarcity, diamond possesses high marginal utility and so a high price. Since water is relatively abundant, it possesses low marginal utility and hence low price even though its total utility is high

IMPORTANCE TO FINANCE MINISTER:

- ❖ The principle of progressive taxation is also based on this law. As a person's income increases, the rate of tax rises because the marginal utility of money to him falls with the rise in his income.

CONSUMER'S EQUILLIBRIUM

- ❖ Consumer's equilibrium means the allocation of income by a consumer on goods and services in such a way that he gets maximum satisfaction
- ❖ It refers to a situation when a consumer gets maximum satisfaction out of his limited income and he has no tendency to make any change in his existing expenditure. In other words consumer's equilibrium refers to a situation where the consumer gets maximum satisfaction out of his scarce resources.

Assumptions

- ❖ The consumer is rational, means he aims at the maximization of utility
- ❖ Consumer's income is given and remains constant.
- ❖ Price of the commodity is given and remains constant.
- ❖ Utility can be measured in terms of cardinal numbers
- ❖ Law of DMU operates
- ❖ MU of money remains constant

Consumer's Equilibrium: Case of a Single Commodity:

- ❖ When consumer is consuming a single commodity he compares utility derived from each unit of the good consumed (MU) with the money paid for it (Price). He consumes the next unit if MU is greater or at least equal to the price. He stops at the point where for the next unit MU is less than the price.

Therefore the necessary conditions in the consumers' equilibrium when he consumes a single commodity are:

$$MU_x = P_x$$

MU_x is less than P_x for the next unit as MU is a downward sloping straight line.

In a single commodity case, a consumer makes purchases only up to the point where marginal utility of the last unit is equal to the price of that unit.

Consumer's equilibrium = $MU_x = P_x$

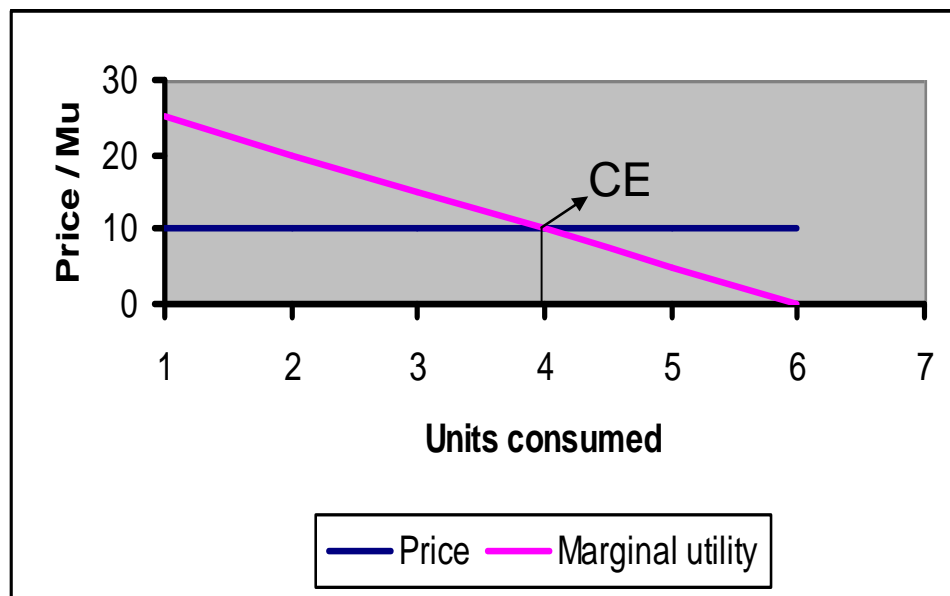
No. Of Units Consumed	P_x	MU	
1	10	25	
2	10	20	
3	10	15	
4	10	10	
5	10	5	
6	10	0	
7	10	- 5	

- ❖ Above table, shows that if $P_x = \text{Rs } 10$ then the consumer will buy 4 units of good x if he purchases less than 4 units say 3 units then the MU he derives from 3 units is worth Rs 15 and the price he pays is Rs10.
- ❖ Since $MU_x > P_x$, he purchases more. In other words since price is less he purchases more which is the logical basis of the law of demand.
- ❖ A consumer will not buy more than 4 units of X this is because if he purchases 5 units of x then the price he pays will be more than the MU he derives which is worth Rs 5. Hence in order to maximize utility a consumer will buy that commodity of good where MU of the good x is equal to the price which he has to pay for it.

Thus at Consumers equilibrium

$$MU_x = P_x$$

The consumer's equilibrium can be explained graphically as given below. The consumer will be at equilibrium at point E where $MU_x = P_x$ The. Equilibrium Price is given at 10 and equilibrium quantity is given as 4.



Consumer's Equilibrium: Case of More than One Commodity:

❖ More realistic is the situation where the consumer consumes more than one commodity. In such a situation the consumer compares MU of last unit of money (e.g. Rupee) spent on different goods, which are calculated by dividing MU of a good by its price. The consumer reaches the equilibrium i.e. gets maximum satisfaction at the point where following two conditions are satisfied.

❖ **Law of Equi-Marginal Utility:** It means MU of last unit of money (e.g. Rupee) spent on each good is same.

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = \text{MU of the last rupee spent on each good}$$

❖ The term 'equi-marginal utility' does not refer to the equalities of marginal utilities (MU_x or MU_y) of different goods, but marginal utility of the last rupee spent on each good, which is calculated by dividing MU of a good by its price.

❖ **Law of Diminishing Marginal Utility**, which states that as the consumer consume more and more units of a commodity the marginal utility of the commodity falls.

$$\text{If } \frac{MU_x}{P_x} > \frac{MU_y}{P_y}$$

- ❖ it means that good 'x' is giving more satisfaction to the consumer as compared to good 'y'. Therefore the consumer would gain satisfaction by consuming more of good 'x' and less of good 'y'.
- ❖ As he consumes more of good 'x', MU_x will fall which would lead to fall in MU_x/P_x . Similarly MU_y will rise as he consumes less of good 'y'. This would increase MU_y/P_y . This process will continue till we reach the equilibrium point where

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = \text{MU of the last rupee spent on each good}$$

Similarly if $\frac{MU_x}{P_x} < \frac{MU_y}{P_y}$

- ❖ The consumer would increase the consumption of good 'y' and reduce the consumption of good 'x' till he reaches the equilibrium point where

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = \text{MU of the last rupee spent on each good}$$

- ❖ **Law of Equi-marginal Utility:** Marshall states the law of equi – marginal utility as under; if a person has thing which he can put to several uses, he will distribute it among these uses in such a way that it has the same marginal utility in all. This law is known as law of equi – marginal utility because when the marginal utility has been equalized through the process of substitution, we derive maximum satisfaction.
- ❖ This law is also known as law of substitution because here we substitute one commodity for another.

ASSUMPTIONS: The law of equi-marginal law is based on the following assumptions:

- ❖ All consumers attempt to maximize their economic satisfaction
- ❖ Consumer has limited money to spend
- ❖ Utility is cardinally measurable
- ❖ Marginal utility of money remains constant
- ❖ Income, habits, attitudes etc of the consumer does not change.

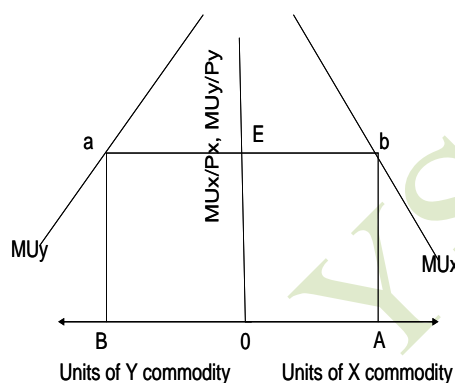
EXPLANATION OF THE LAW

- ❖ With the given income ,the consumer will go on purchasing goods until the marginal utility of expenditure on each good becomes equal and his given income is fully spent.
- ❖ In other words, consumer will maximize his utility by allocating his given income in such a way that the marginal utility of the last rupee spent on each good he consumes is the same. Thus the consumer will be in equilibrium when he is spending his given income in such a manner that the following equation holds good:

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = MU_m \text{ which is constant}$$

This can also be explained with the help of table and graph:

Units	MU _x	MU _y	$\frac{MU_x}{P_x}$	$\frac{MU_y}{P_y}$
1	20	24	10	8
2	18	21	9	7
3	16	18	8	6
4	14	15	7	5
5	12	12	6	4
6	10	9	5	3



- ❖ Let us assume that the prices of good X and Y are Rs. 2 and Rs. 3 respectively and the consumer has Rs. 24 to spend on these two commodities.
- ❖ In order to maximize his utility consumer will equate the Marginal utility of the last rupee spent on these two commodities. In other words he will equate MU_x with MU_y while spending his given income on the two commodities. As it is clear from the above table that MU_x / P_x is equal to 5 utils

when the consumer purchases 6 units of commodity X and MU_y/P_y is equal to 5 utils when he purchases 4 units of commodity Y .

- ❖ Therefore consumer will be in equilibrium when he is buying 6 units of X and 4 units of Y and will be spending Rs. 24($Rs.2 \times 6 + 3 \times 4$) in all. This is the equilibrium position where consumer maximizes his utility. This law can be explained with the help of graph.
- ❖ In the above graph MU_x/P_x and MU_y/P_y are measured on vertical axis. The units of commodity X and Y are measured on horizontal axis. The horizontal line a b satisfies the principle of equi marginal utility. When consumer purchases OA units of X commodity and OB units of Y commodity then MU_x/P_x and MU_y/P_y are equal to EO.

Limitation of EMU:

- ❖ Utility cannot be measured. Thus it is very difficult for the consumer to know the utility derived from a commodity.
- ❖ Habits & custom play a very important role for consumers thus their decisions regarding buying commodity are mainly governed by habits & customs instead of utility.
- ❖ Many consumers are ignorant regarding equilibrium positions & utility derived from the commodities.
- ❖ The demand for expensive & indivisible good he adjusted easily. Thus it is not possible to equate the MV on it.
- ❖ Marginal utility of money is not constant. As the consumer spends more and more of his income in buying more and more units of the commodity the marginal utility of money income rises.

IMPORTANCE OF THE LAW:

- ❖ The law of equi marginal utility helps and guides individuals in spending their limited income. It tells the consumer how to allocate his given income to get maximum satisfaction
- ❖ Law is equally important for producers also. It guides them how to distribute resources to get maximum output. In production the law is known as principle of equi marginal returns.
- ❖ The government too is guided by this law. Its expenditure should be such that the society should get maximum benefit. Government expenditure is therefore guided by the principle of maximum social profit.

Lecture-6

Ordinal Utility Analysis

Learning Objective: Indifference curve, its properties and Consumer equilibrium

Indifference curve:

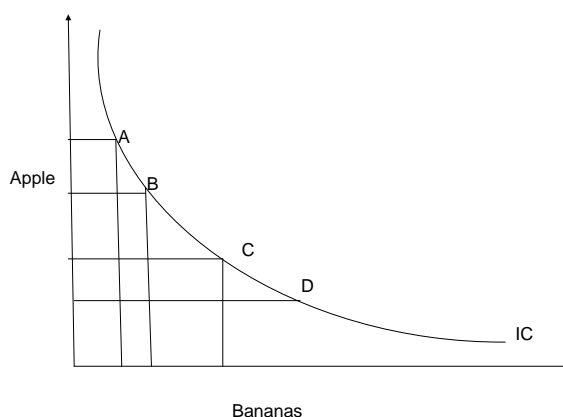
- ❖ This approach is based on ordinal utility.
- ❖ The household can choose among combinations without assigning numerical values to utility. In other words, the term ordinal means, ranked or ordered, first, second and third are ordinal numbers. Hence this implies that indifference curve analysis is based on ordinal measurements.
- ❖ **Indifference curve** is a curve which shows different combinations of two goods which yield equal level of satisfaction to the consumer.
- ❖ It means that different combinations of two goods, yielding same level of satisfaction to the consumer makes him indifferent about his choice among the different combinations. In other words, he gives equal importance to all the combinations on a given indifference curve. Hence an indifference curve represents a set of possible consumption bundles between which the individual is indifferent.
- ❖ **Indifference Schedule:** An indifference schedule may be defined as the schedule of various combinations of goods that will yield equal level of satisfaction to a consumer.

For example

Combination of (Say) Apple and Bananas	Apple	Bananas
A	1	10
B	2	7
C	3	5
D	4	4

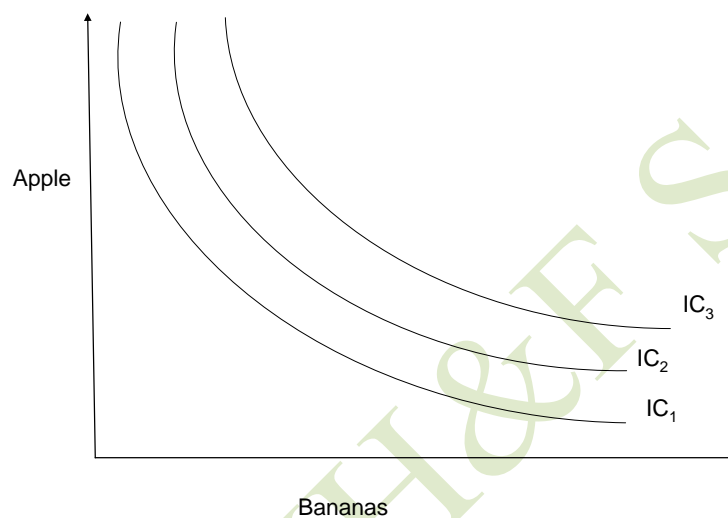
The schedule shows that the consumer gets equal satisfaction from all the four combinations of apple and bananas.

Indifference curve: The diagrammatic presentation of indifference schedule is indifference curve.



- ❖ Different points A, B, C and, D on the indifference curve indicate the different combinations of apple and bananas which yield equal satisfaction to the consumer. This curve is also known as **Iso-Utility curve**.

Indifference map: indifference map is the collection of indifference curves possessed by an individual i.e. a complete description of consumer's taste and preferences. For example IC map is presented in the figure below.



Marginal rate of substitution:

- ❖ An indifference curve shows that a consumer derives equal level of satisfaction by consuming the different combination of goods. If a consumer gets one more unit of good X, he has to give up some units of the other good Y in order to derive the same level of satisfaction.
- ❖ In other words, the exchange for the satisfaction obtained from the additional unit of good X he will have to give up some units of the other good Y whose satisfaction is equal to the additional unit of good X. Hence

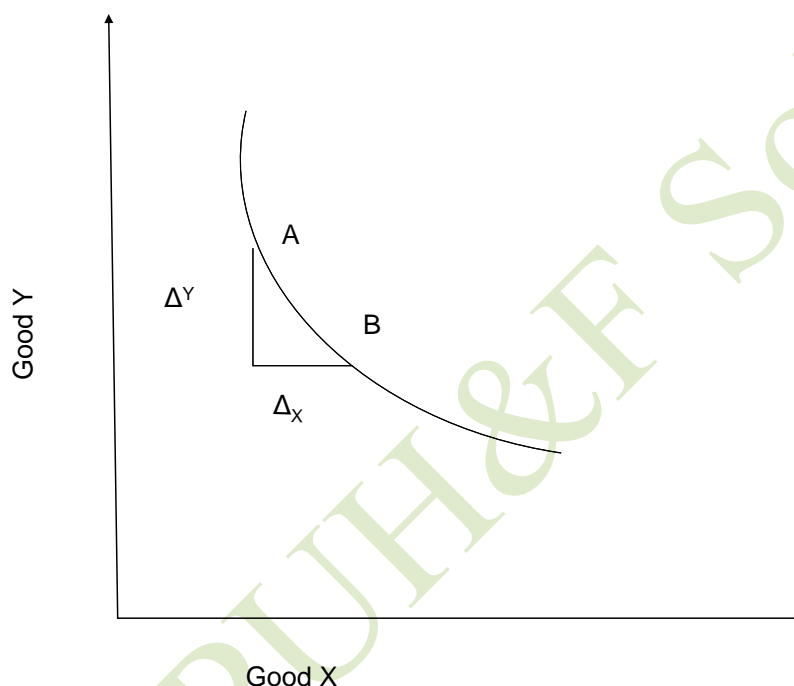
$$\text{Utility gained of Good X} = \text{Utility lost of other good Y}$$

“Marginal rate of substitution is the rate at which the consumer can substitute one good for another good without changing the level of satisfaction. It indicates the slope of the indifference curve.”

Given below is the indifference schedule of a consumer who derives equal level of satisfaction by consuming the different combinations A, B, C., D and E. When the consumer moves from combination B to C on his indifference schedule he foregoes 3 units of Y for the additional one unit of X. Hence marginal rate of substitution of X for Y is 3. and likewise for other combinations.

Indifference Schedule

Combinations of Good X and Y	Good X	ΔX	Good Y	ΔY	MRS_{XY}
A	1		12		
B	2	1	8	4	4
C	3	1	5	3	3
D	4	1	3	2	2
E	5	1	2	1	1



$$MRS_{XY} = \Delta Y / \Delta X$$

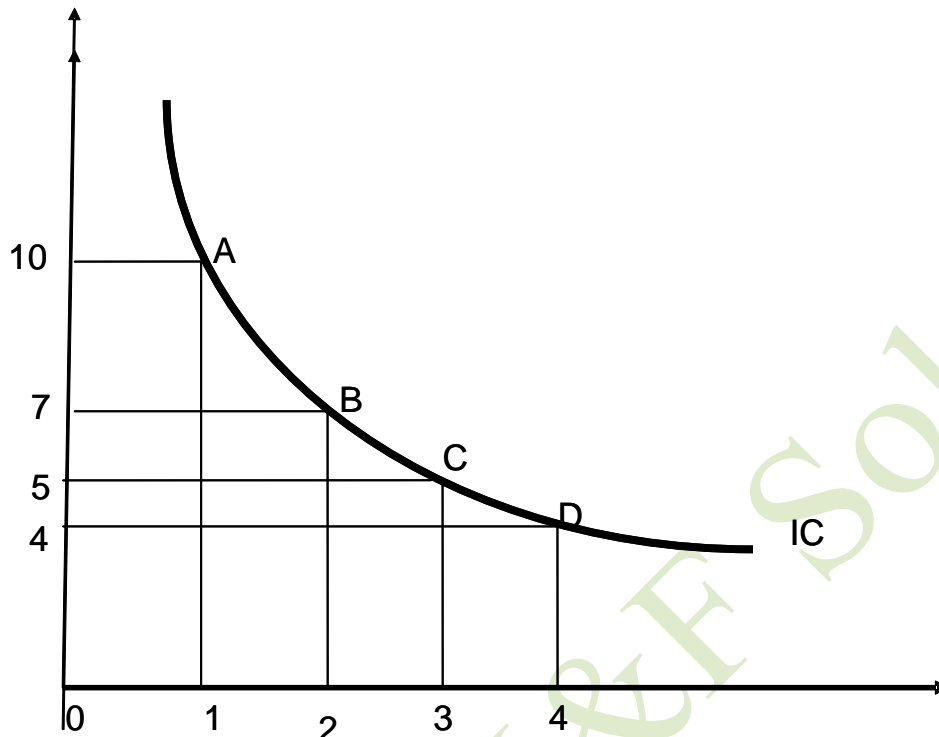
Law of Diminishing Marginal Rate of Substitution:

- ❖ The law of diminishing marginal rate of substitution states that as a consumer gets more and more units of good X, he will be willing to give up less and less of good Y to remain at the same level of satisfaction.

For example marginal rate of substitution of good X for Good Y is shown in the table below.

Combinations	Good X	Good Y	MRS_{XY}
A	1	10	
B	2	7	1:3
C	3	5	1:2
D	4	4	1:1

- ❖ As is evident from this table that consumer will give up 3 units of good Y to get second, then 2 units of good Y to get third unit of good X and so on. This law can also be illustrated through figure shown below.



Now it comes to one's mind what accounts for the diminishing marginal rate of substitution. The following three factors are responsible for diminishing marginal rate of substitution.

- ❖ The want for a particular good is satiable so that as the consumer has more of a good the intensity of his want for that good goes on declining.. it is because of this fall in the intensity of want for good say X, that when its stock increases with the consumer, he is prepared to forego less and less of good Y for every increment in X.
- ❖ The second reason for the decline in marginal rate of substitution is that the goods are imperfect substitutes of each other. If two goods are perfect substitutes of each other then they are to be regarded as one and the same good, and therefore, increase in the quantity of one and decrease in the quantity of the other would not make any difference in the marginal significance of the goods.
- ❖ Thirdly the law of diminishing marginal rate of substitution will hold good only if the increase in the quantity of one good does not increase the want satisfying power of the other good.

Assumptions of Indifference curve

Indifference curve analysis is based on the following assumptions

- ❖ **Rational consumer:** It is assumed that the consumer will behave rationally. It is assumed that consumer has complete information on all matters relevant to consumption decisions. He has knowledge of all the goods and services available in the market, of their prices and his own money income. Given this information the consumer can determine which combination is preferred or which combinations yield equal satisfaction.
- ❖ **Ordinal Utility** This analysis is based on the assumption of ordinal utility, means that consumer can rank their preferences for different combinations.

- ❖ **Diminishing Marginal Rate of substitution:** It means that as the stock of a commodity increases with consumer, he substitute it for other commodity at a diminishing rate.
- ❖ **Non satiety:** This means the consumer does not reach the level of satiety. He always prefers more quantity of a good to less quantity.
- ❖ **Consistency in selection:** Means there is consistency in consumer's behaviour. If at any time consumer prefers combination A of goods over combination B, then at another time he will not prefer B over A.
- ❖ **Transitivity:** It means if a consumer prefers A to B and b to C combinations, then he will definitely prefer A to C combination.

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Lecture-7

Ordinal Utility Analysis

Learning Objective: Properties of indifference curves, budget line and consumer equilibrium

Before discussing the properties of indifference curves, it is important to understand the assumptions which are made regarding the psychology of the consumer.

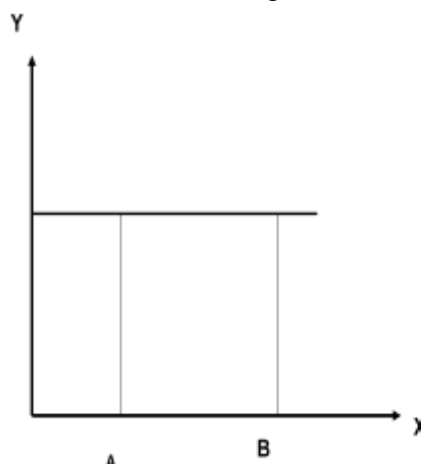
Assumption 1 : Non-satiety It is assumed that the consumer will always prefer large amount of a good to a smaller amount of that good, provided the amount of other good at his disposal remains unchanged.

Assumption II: Transitivity: Say there are three combinations A,B and C of two goods. If the consumer is indifferent between A& B and B & C then it is assumed that he will be indifferent between A and C also. This implies the consumer's tastes are quite consistent.

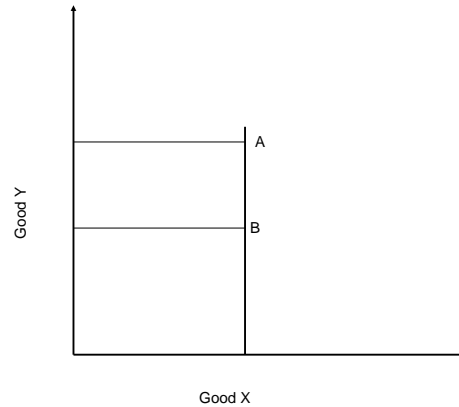
Assumption III : Diminishing marginal rate of substitution It is assumed that if more and more of good X is substituted for good Y, consumer will be willing to give up less and less of the Y good for each incremental increase in the good X

Property I: Indifference curves slope downward to the right.

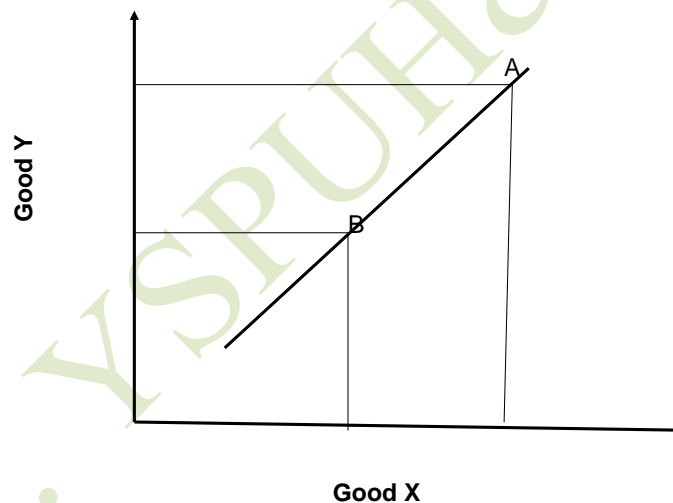
- ❖ This is based on assumption I. Indifference curve being downward sloping means when the amount of one good in the combination is increased; the amount of the other good is reduced. This must be so if the level of satisfaction is to remain the same on an indifference curve.
- ❖ If for example the amount of good X is increased in the combination, while the amount of good Y remains the same, new combination will be preferable to the original one and the two combinations will not lie on the same indifference curve. Hence an indifference curve on which different combinations of two goods yield the same level of satisfaction to the consumer cannot assume a slope other than the downward sloping to the right.
- ❖ If the indifference curve is horizontal straight line (parallel to the X-axis) as shown below, that would mean as the amount of the good X is increased, the amount of good Y remained unchanged. But it cannot be so as per the assumption I.
- ❖ According to this a consumer prefers a large amount of good to the smaller amount, other things being the same. If indifference curve is horizontal as shown in Fig. it means that combination A and B yield same level of satisfaction which is not true as in combination B there are more units of good X as compared to A



- ❖ Similarly if the shape of indifference curve is vertical (parallel to Y-axis) combination A represent more of good Y with same units of good X compared with combination B. Consequently A yield more satisfaction than B. So indifference curve cannot be vertical to Y-axis because different combination on same curve yields different satisfaction.

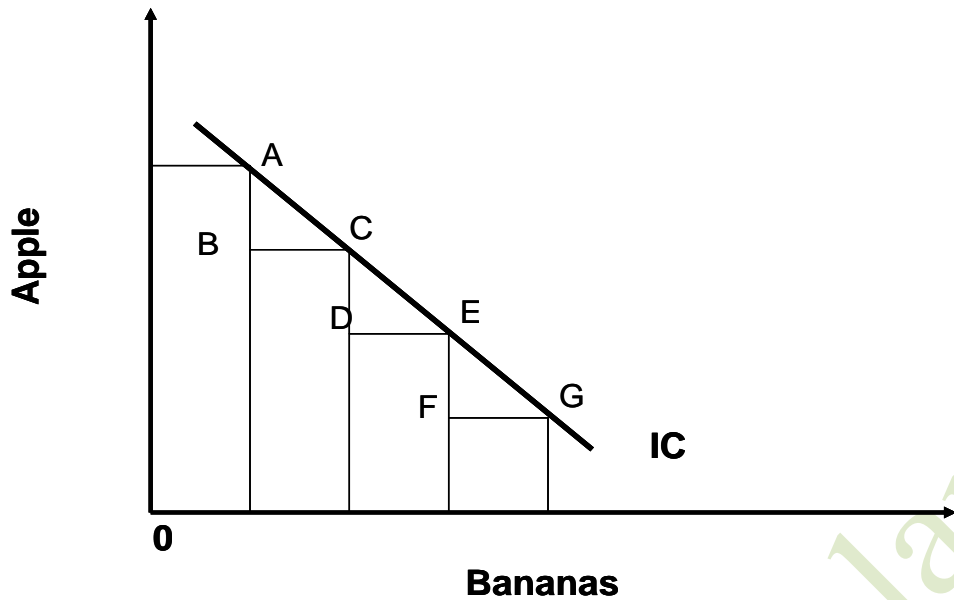


- ❖ Consequently an indifference curve cannot be upward sloping as shown below. Combination A which has more units of both the goods shows higher level of satisfaction as compared to combination B but these two combination lie on the same curve yielding different level of satisfaction . Hence indifference curve is downward sloping from left to right only

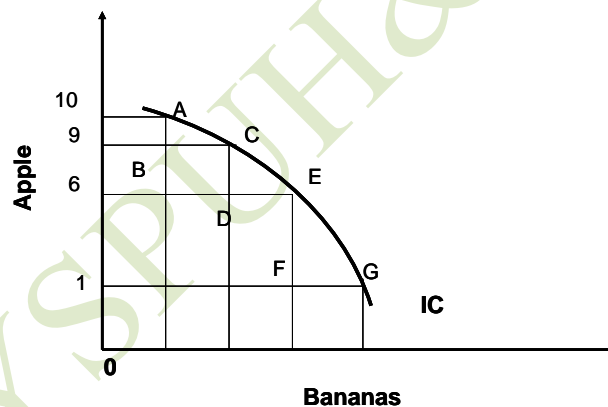


Property II: Indifference curve will ordinarily convex to the point of origin.

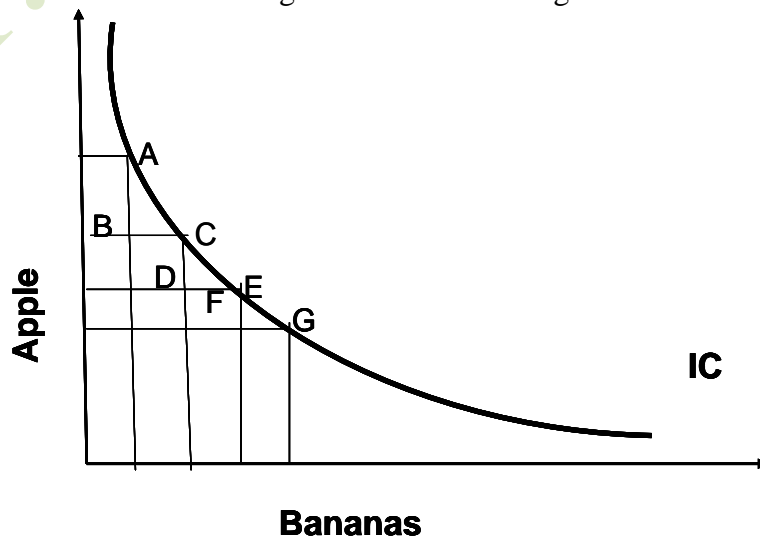
- ❖ If indifference curve is not convex it can be straight line or concave to the origin. If it is straight line then it signifies constant marginal rate of substitution and such an indifference curve can only be when goods are perfect substitutes. It shows that marginal rate of substitution of apple for bananas remains constant as $AB = CD = EF$



- ❖ If indifference curve is concave to the origin as shown in the figure below, it signifies the increasing marginal rate of substitution. Initially the consumer is willing to give up one apple for an additional banana, and then he gives up 3 apples to get an additional banana and so on. This means that as the quantity of bananas is increasing its significance is also increasing which does not occur in real life.

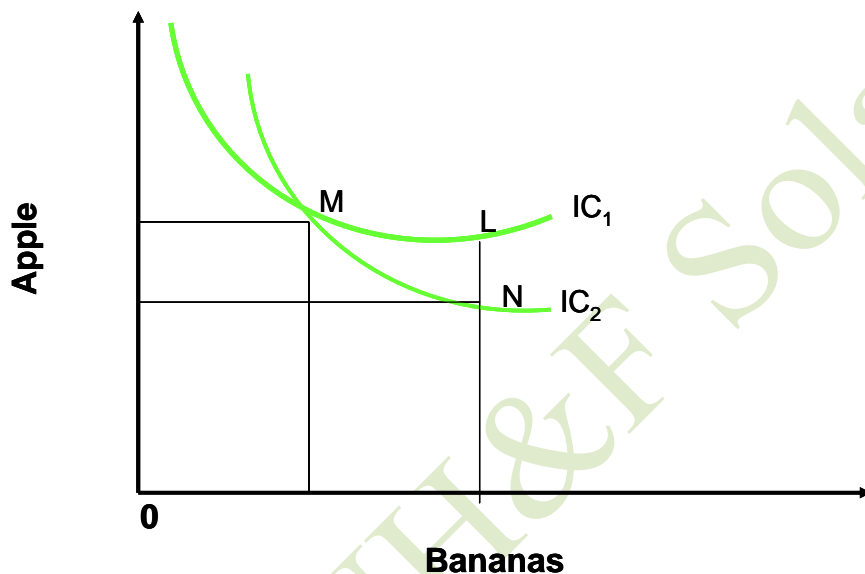


So indifference curve is convex to origin as shown in the figure below.

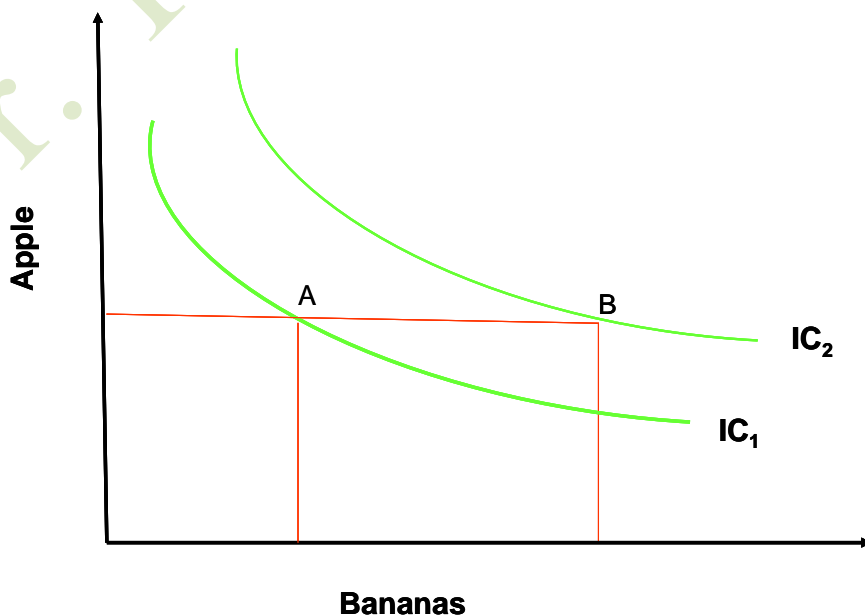


Property III: Indifference curves cannot intersect each other

- ❖ Each indifference curve represents different levels of satisfaction so they do not intersect or touch each other. In figure two indifference curve IC_1 and IC_2 have shown intersecting each other at point M, but it is not possible.
- ❖ Points M and L lies on IC_1 represent combinations of equal satisfaction. Similarly Points M and N are on IC_2 yielding equal level of satisfaction. This implies that point L and N also yield equal level of satisfaction, but it is not possible, since L and N lie on two different indifference curves yielding different level of satisfaction. Hence two indifference curve cannot intersect each other.



Property IV: Higher indifference curve represent higher level of satisfaction than lower the lower indifference curve



- ❖ It can be seen from the figure that combinations A and B which lies on IC_1 and IC_2 have same units of apple but different units of bananas. Combination B has more units

of banana gives higher level of satisfaction as compared to combination A. Hence it is evident that higher the indifference curve higher is the level of satisfaction.

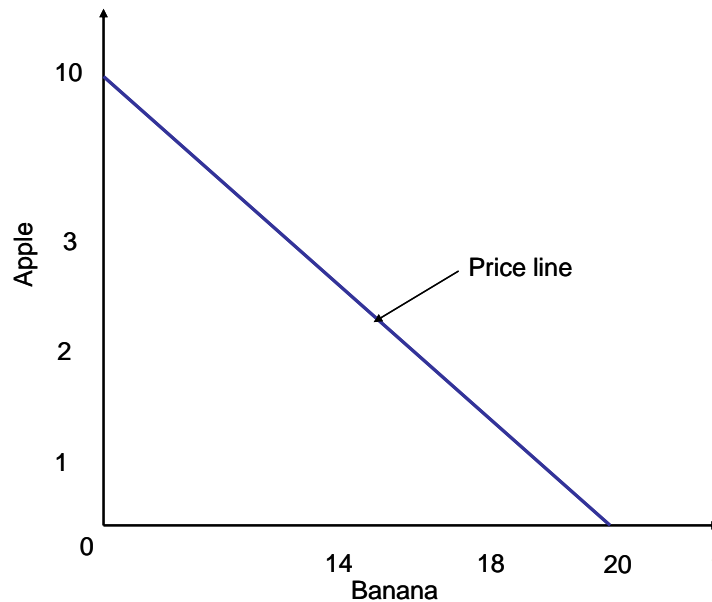
Budget line

Understanding of the concept of price line or budget line is essential for understanding the theory of consumer's equilibrium. As explained above, a higher indifference curve shows a higher level of satisfaction than a lower one. Therefore, a consumer in his attempt to maximize his satisfaction will try to reach the highest possible indifference curve. But in his pursuit of buying more and more goods and thus obtaining more and more satisfaction he has to work under two' constraints: firstly, he has to pay the prices for the goods and, secondly, he has a limited money income with which to purchase the goods. Thus, how far he would go in his purchases depend upon the prices of the goods and the money income which he has to spend on the goods. As explained above, indifference map represents consumer's scale of preferences between two goods. Now, in order to explain consumer's equilibrium there is also the need for introducing into the indifference diagram the price line which represents the prices of the goods and consumer's money income.

- ❖ The budget line is an important component when analyzing consumer behaviour. The budget line illustrates all the possible combinations of two goods that can be purchased at given prices and for a given consumer budget. Remember, that the amount of a good that a person can buy will depend upon their income and the price of the good. With given budget and prices of two goods budget line can be drawn. For example a consumer has Rs 100 to be spent on two goods (say apple and banana) whose prices are Rs 10 and Rs 5.

Possible combinations which can be consumed with given budget as well as prices

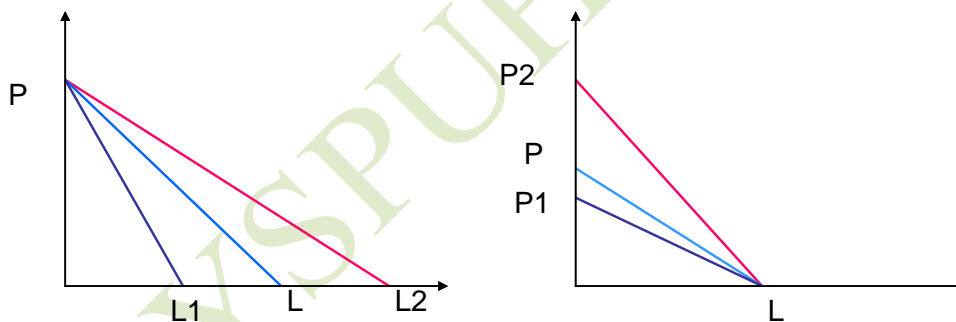
Combinations	Apple Price= Rs 10	Banana Price= Rs 5
A	0	20
B	1	18
C	2	16
D	3	14



- ❖ The possible schedule of purchase given the prices as well as income of the consumer is presented in table. The graphic presentation is as shown above. Price line shows the different combinations of two goods which consumer can buy.

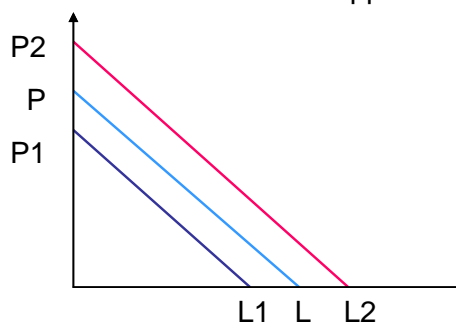
What happens to the price line if either the price of goods changes or the income changes.

Effect of price/ income change on the price line



Price of Banana changes

Price of Apple changes



Change in Price line as result of change in consumer's income

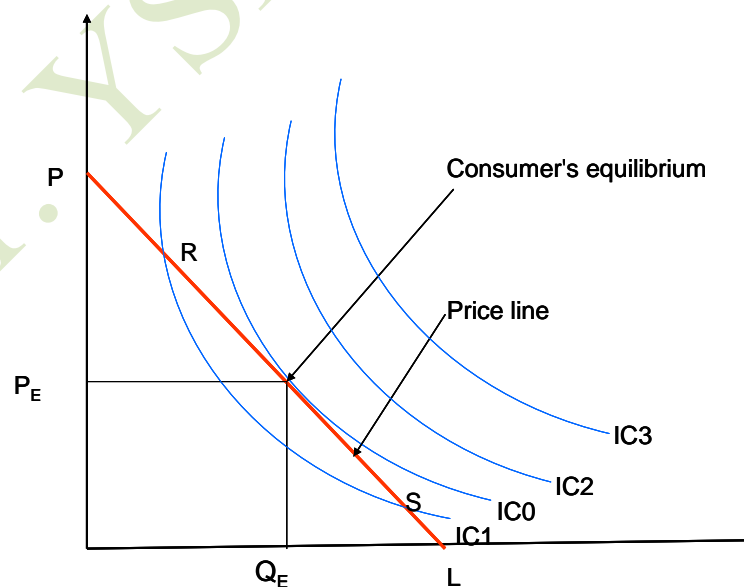
- ❖ Suppose the price of banana falls from Rs 5 to Rs 3 , then consumer can buy more bananas (Price line PL2) and if the price increases then he will buy less (price line PL1) Similarly for apple as shown in the graph.

- ❖ But when the income of the consumer changes and the prices of the goods remain constant then price line shift upward (P2L2) or downward P1L1) and is parallel to original price line PL.

Consumer's equilibrium

We are now in a position to explain with the help of indifference curves how a consumer reaches equilibrium position. A consumer is said to be in equilibrium when he is buying such a combination of goods as leaves him with no tendency to rearrange his purchases of goods. He is then in a position of balance in regard to the allocation of his money expenditure among various goods. In the indifference curve technique the consumer's equilibrium is discussed in respect of the purchases of two goods by the consumer. It is assumed that consumer is rational and tries to maximize his satisfaction. For this following assumptions are made:

1. The consumer has a given indifference map exhibiting his scale of preferences for various combination of two goods Say Apple and banana.
2. He has a fixed amount of money to spend on the two goods. He has to spent whole of his given money on the two goods.
3. Prices of the goods are given and constant for him.
4. Goods are homogeneous and divisible.



- ❖ It can be seen from the graph above that indifference map shows the scale of preferences of the consumer between various combinations of two goods, while the

price line PL shows the various combinations of two goods which he can afford with his money income and given prices of two goods.

- ❖ In order to maximize his level of satisfaction consumer will try to reach the highest indifference curve which he could with a given expenditure of money at given prices. The highest indifference curve to which consumer can reach is the curve to which price line PL is tangent (IC₀).
- ❖ In figure, Points R and S also lie on the price line but they are on a IC which is lower than IC₀. It is thus clear that of all possible combinations lying on PL combination Q_E yields the maximum satisfaction to the consumer. At tangency point the slope of price line and indifference curve are equal.

$$MRS_{XY} = P_X / P_Y$$

- ❖ When the MRS_{XY} of X for Y is greater than or less than the price ratio between two goods it is advantageous for the consumer to substitute one good for the other. Thus at point R marginal rate of substitution is greater than the price ratio, so consumer will substitute good X for Y and will come down along the price line till it becomes equal to the MRS_{XY}.
- ❖ At point S MRS_{XY} is less than the given price ratio, consumer will substitute good Y for good X and accordingly move up along the price line till it becomes equal to marginal rate of substitution .

Lecture-8

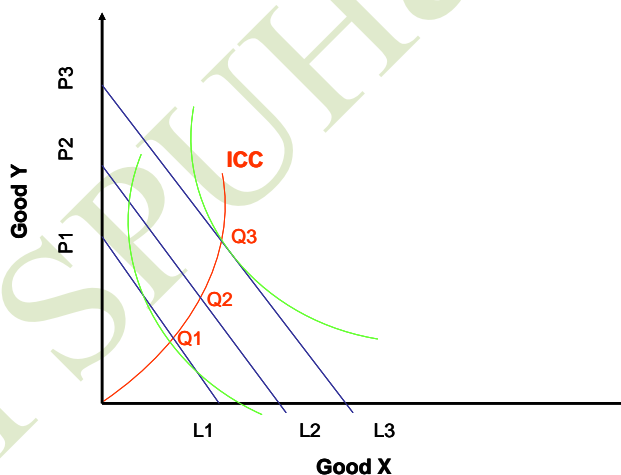
Ordinal Utility Analysis

Learning Objective: Indifference Curve Analysis: Income, Substitution and Price Effects and Engel's Law

Income Effect: Income Consumption Curve:

- ❖ With given money income to spend on goods, given prices of goods, and indifference map (which portrays the tastes and preferences of the consumer), the consumer will be in equilibrium on the IC map.
- ❖ Now we are interested to know the effect of change of consumer's income on his purchases when the prices of the goods remain unchanged.

Income effect means the change in consumers; purchases of the goods as results of change in his money income (Fig).



- ❖ With given prices and income consumer is in equilibrium at Q1 (tangency point of price line and IC). Now with the increased income and prices of the commodities being the same consumer is in equilibrium at Q2. Similarly Q3 and so on, it can be noted that an increase in the income of the consumer, he goes to higher IC to have higher level of satisfaction with more of the two goods. Such goods are known as **Normal Goods**.
- ❖ Curve joining the points Q1, Q2 and Q3 is called as **Income Consumption Curve**. The change in consumer's purchases of the goods as a result of a change in his money income is called **income effect**.

- ❖ Income effect can be either positive or negative. Income effect for a good is positive when with the increase in the income; the consumption of the good also increases. Such goods are known as **Normal Goods**. When the income effect of **both** the goods represented on both the axes of the figure is positive, the income consumption curve (ICC) will slope upward to the right as shown in figure above.
- ❖ When increase in the income of the consumer, results in the decreased consumption of the good, then the good is known as **inferior good**. In case of inferior goods, indifference map would be such as to yield income consumption curve which either slopes backward (i.e. upward to left) or downward to the right as shown in the figures below.

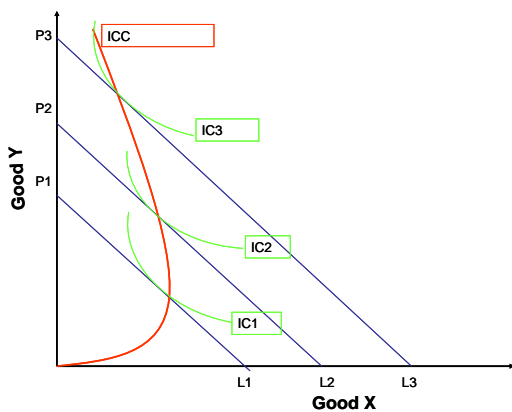


Fig. 1

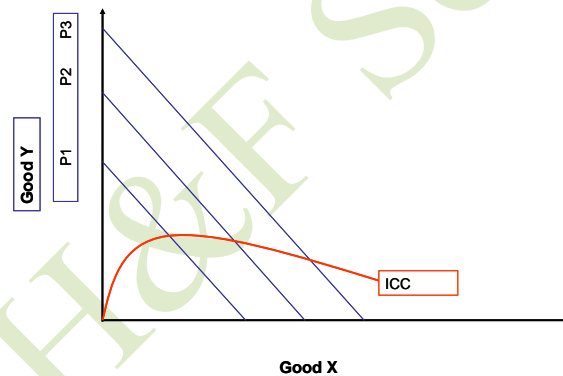


Fig.2

- ❖ In figure 1, ICC slopes backward (upward to the left) i.e. bends towards Y- axis. This shows good X to be an inferior good. Similarly, in figure 2, ICC slopes downward to the right i.e. bends towards X-axis. This shows good Y to be an inferior good.

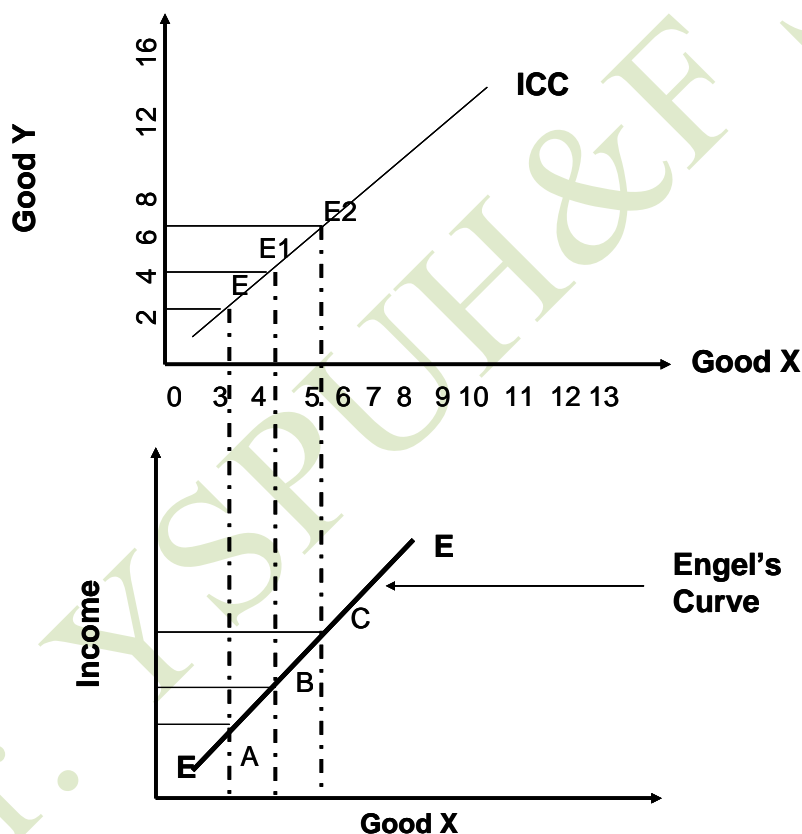
Engel's Law:

The income-consumption curve can be used to derive the relationship between the level of income and the optimum quantity purchased of each good. German economist Ernest Engel was the first to show this relationship therefore this curve is named after him as **Engel curve**.

- ❖ An Engel's curve is a curve which shows optimum quantity of a commodity purchased at different levels of income. Engel's curve indicates how much quantity of a commodity a consumer will consume at different levels of his income in order to be in equilibrium. These curves are important for applied studies of economic welfare and for the study of family expenditure patterns.
- ❖ It explains how consumer spending varies among income groups. It can be drawn with the help of income-consumption curve. In figure A below, good X and good Y are shown on X-axis and Y-axis, whereas in figure B income on Y-axis and good X on X-axis.

- ❖ Suppose the price of good X is Re. 1 and of good Y Re. 0.50. When the income of the consumer is Rs 4, he buys 3 units of good X and 2 units of good Y as shown on point E on ICC in figure A. Say his income increases to Rs 6, he can now buy 4 units of good X and 4 units of good Y, as shown at point E1 on ICC. Similarly if his income increases to Rs. 8, he buys 5 units of good X and 6 units of good Y.

Corresponding to these three levels of income, three perpendiculars have been drawn on X-axis of figure B. Point A shows that at an income of Rs 4 the consumer purchases 3 units of commodity X. At income level of Rs 6, he buys 4 units of good X as shown at point B on figure B. Similarly at income level of Rs 8, he buys 5 units of good X. By joining points, A, B and C the curve EE known as **Engel's curve** which shows equilibrium quantities of good X purchased at different levels of money income.



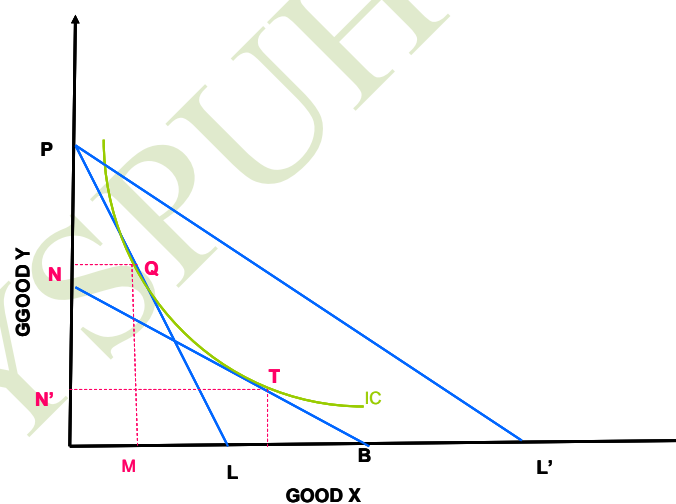
Substitution Effect:

- ❖ The change in the purchases of a good as a consequence of a change in relative prices alone, real income remains constant.

- ❖ As the price of good changes; real income or purchasing power of the consumer also changes. To keep the real income of the consumer constant so that the effect of relative price alone may be known, price change is compensated by a simultaneous change in income.
- ❖ Suppose the price of good X falls, real income of the consumer would increase. In order to find out the substitution effect i. e. change in the quantity of X purchased due to the change in relative price, the consumer's income must be reduced by an amount so as to cancel out the gain in the real income.
- ❖ There are two concepts of substitution effect.

Hicks-Allen Substitution effect:

- ❖ According to this concept, price change is accompanied by so much change in money income that the consumer is neither better off nor worse off than before.
- ❖ This means that the money income of the consumer is changed in such a way that consumer remains on the same indifference curve on which he was before the change.
- ❖ The amount by which the money income of the consumer is changed so that he is neither better off nor worse off than before is called **Compensating variations in income**.



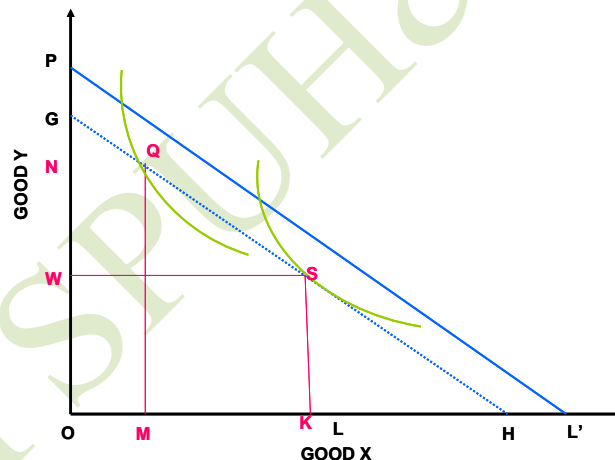
Hicks' Allen Substitution Effect

- ❖ Say with given money income and price of the goods, consumer is in equilibrium at Q as shown in the figure.
- ❖ Now suppose that the price of good X falls (Price of good Y remaining the same), so price line PL shifts to PL'. With the fall in the price of X, real income of the consumer has increased.
- ❖ To find out the substitution effect, this gain in real income is reduced in such a way that the consumer remains at the same indifference curve as shown by the price line which is tangent at T.

- ❖ Now consumer rearranges his purchases by substituting X for Y which has become cheaper. So movement from Q to T depicts the **substitution effect**.

Slustsky substitution effect:

- ❖ According to this concept, consumers' income is reduced in such a way that he is still able to purchase the old combination of the two goods if he wishes to do so. That is the income is changed by the difference between the costs of the amount of good X purchased at old price and the cost of the same quantity of X at new price.
- ❖ Income is then said to be changed by the **cost difference**. Thus, in Slustky substitution effect, income is changed not by compensation variations but by the cost difference.
- ❖ A consumer is in equilibrium with his given money income and prices of two goods at Q by purchasing ON of Y and OM of good X.
- ❖ Now suppose the price of good X falls and PL' is the new price line. According to Slustky effect GH price line parallel to PL' is drawn in such a way that the consumer is able to buy old combination of the goods. However this price line is tangent at a higher indifference curve at S. This movement from Q to S is **Slustky substitution effect** (Fig.).

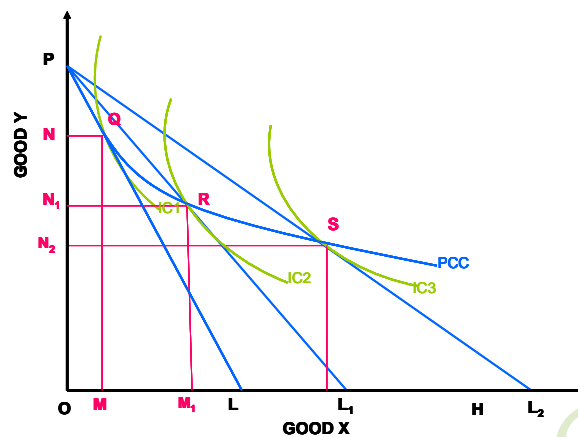


Slustkys' substitution effect (for a fall in price)

Price effect: Price consumption curve:

- ❖ Consumers' reaction to changes in the price of a good, his money income, tastes and price of other good remain the same. When the prices of goods changes, the consumer would be either better off or worse off than before, depending upon whether prices falls or rise.
- ❖ In other words, as a result of change in price of good, his equilibrium position would lie at a lower indifference curve in case of rise in price and at a higher indifference curve in case of fall in price.
- ❖ With the given prices of goods and given money income consumer is in equilibrium at Q on IC1 with ON of Y and OM of X. As a result of price fall price line shifts to PL_2 and consumer is in

equilibrium at R at a higher indifference curve and so on (Fig.) When all the points such as Q, R, and S are joined together, we get a curve called **Price consumption curve**.



- ❖ Price consumption curve traces out the price effect. It shows how the changes in the price of good X affect the consumers' purchases of X, price of Y, his tastes and money income remains unchanged.
- ❖ Price consumption curve can have different shapes. Upward sloping Price consumption curve for X means that when the price of X falls, the quantity of both X and Y rises. This type of curve is found when the demand for good X is **less elastic**.
- ❖ Price consumption curve can be backward sloping when the price of X falls, smaller quantity of it is demanded. This is true in case of **Giffen goods**.
- ❖ Price consumption curve can also take horizontal shape too. It means when the price of good X falls its quantity purchased rises proportionately but the quantity purchased of good Y remains the same.

Lecture-9 Demand Analysis

Learning Objective: Theory of demand, demand schedule and curve, and market demand price

DEMAND:

- ❖ Demand indicates desire to buy backed by adequate purchasing power, willingness to buy and ability to buy. Thus demand for a product refers to the amount of it which will be bought per unit of time at a particular price.

DEMAND SCHEDULE: The demand schedule lists possible prices, along with quantity demanded at each price.

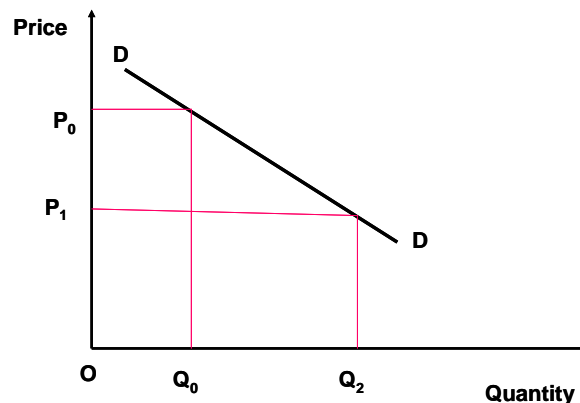
Demand Schedule

Price (Rs)	Quantity Kgs.)
10	20
8	25
6	30
5	35
4	40

- ❖ The diagrammatic representation of demand schedule is **demand curve**.
- ❖ Individual demand refers to the demand for a commodity by an individual consumer. Whereas, **market demand**, is the sum of the individual demands of all consumers in the market.
- ❖ Demand schedule enables to ascertain the likely changes in the demand as a result of price change. It also enables to understand easily and correctly the law of demand and elasticity of demand. From a practical point of view the market demand schedule proves of great use to businessmen, especially to monopolists.

LAW of DEMAND:

- ❖ Law of says that quantity demanded varies inversely with price, other things constant i. e. higher the price, the smaller the quantity demanded or lower the price, the larger the quantity demanded (Alfred Marshall)



Exception to the law of demand:

Other things remaining the same are very important assumption of the law of demand. These assumption or exceptions are:

- ❖ **Scarcity:** In times of scarcity, although prices are rising, yet people tend to buy more of the scarce goods.
- ❖ **Necessaries of life:** Some goods are essential and consumer must consume them at all costs.
- ❖ **Ignorance:** Some time consumers buy more things at high price out of ignorance.
- ❖ **Self Display:** Certain things are used for self display as in case of diamonds, , the higher the price, greater may be their attractiveness.
- ❖ **Giffens; Paredox :** Giffens; Paredox provides an exception to the law of demand. It is said when the price of Giffen goods/ inferior goods fall, the demand for such goods also falls and risr with a rise in the ir prices.

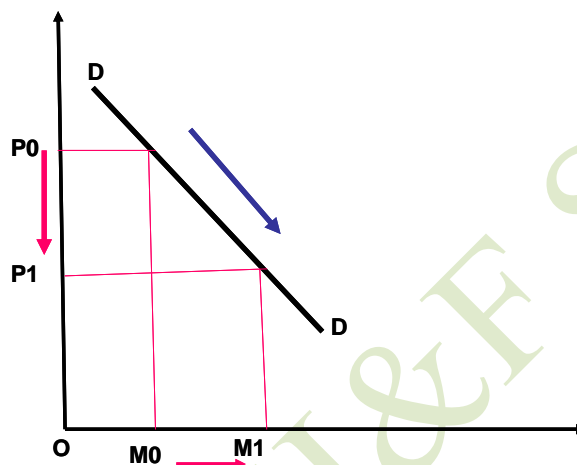
Factors affecting the demand:

There are many factors which affect the demand for a good. The main factors are price of substitutes, income, consumers' taste, season, population, technology, distribution of wealth etc.

- ❖ **Substitution Effect:** When the price of a good *falls*, its relative price makes consumers more willing to purchase this good and when the price of a good *increases*, its relative price makes consumers less willing to purchase this good. The changes in the relative prices – the price of one good compared to the prices of other goods – causes the substitution effect
- ❖ **Income Effect:** Money income means number of 'r' received per period of time whereas; real income means income measured in terms of the goods and services it can buy. When the price of good decreases, real income increases and when the

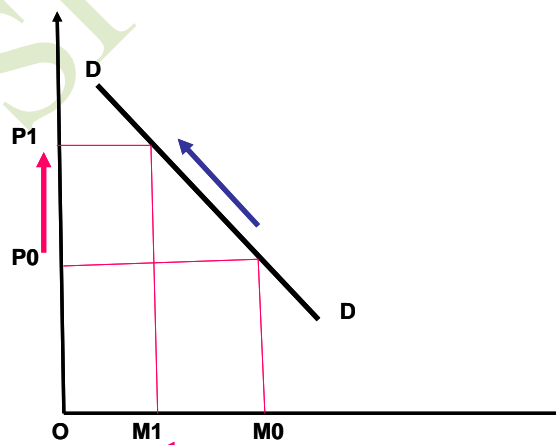
- ❖ price of good increases, real income declines. When there is fall in the price of a good, money income of the consumer goes up so he can either purchase more with the same amount of money or the same quantity with less of money. This is known as income effect of price fall.
- ❖ **Change in Quantity demanded** means the movement along the same demand. A movement along a demand curve occurs when own price changes, holding other factors as constant. This result into

a. Extension of Demand



When price fall from P_0 to P_1 , then quantity demanded increases from OM_0 to OM_1 . This is known as extension in demand.

- b. Contraction of demand:** When price increases say from P_0 to P_1 then quantity demanded decreases from OM_0 to OM_1 . This is called contraction in demand.



Change in demand: Whenever demand change on account of other factors like income, fashion, population etc.

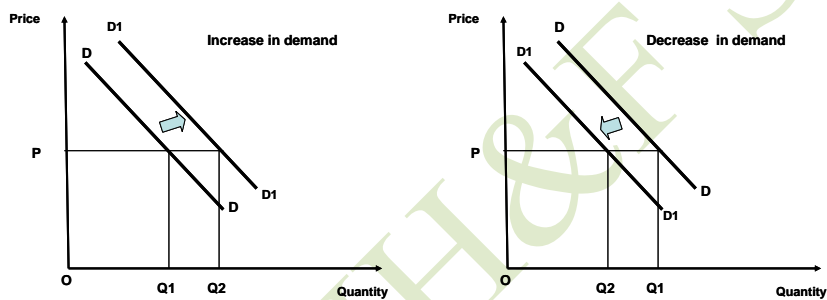
Types of changes in demand

- a. Increase in demand:** With an increase in income, the demand curve shifts to the right. With this demand curve shifts to the right, the quantity demanded increases for all prices. In most cases,

an increase in income shifts the demand curve to the right. In this case, the good is called as a **normal good**.

- b. Decrease in demand:** As income increases consumers tend to buy less of the inferior goods as they can now afford more expensive normal goods. That is, an increase in income shifts the demand curve for an inferior good to the left.

Change in Demand

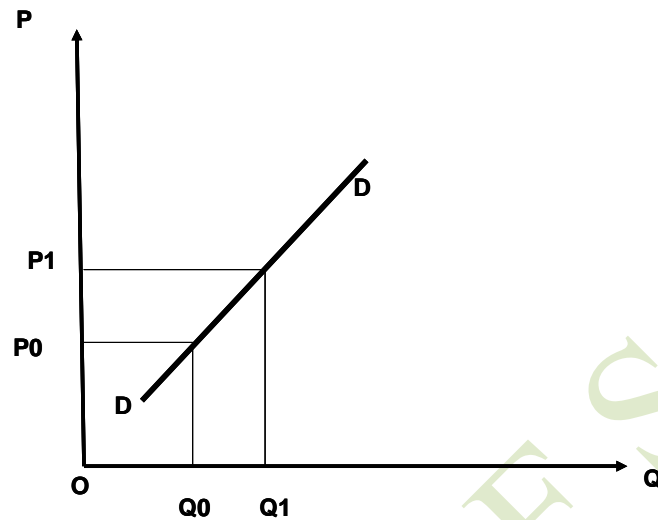


Price	Quantity	Effect on Demand
10	50	Extension in demand
8	75	
10	50	Increase in demand
10	75	

Price	Quantity	Effect on Demand
10	50	Contraction in demand
15	30	
10	50	Decrease in demand
10	40	

Exceptional demand curve: (Geffen's' paradox)

- ❖ The Giffen Paradox holds that the demand increases when the price rises and vice versa. This behaviour is observed in the following four cases.



- ❖ The good may be a necessary item for life.
- ❖ Expected shortage in the future
- ❖ Adds prestige to the owner and
- ❖ Out of sheer ignorance

Types of demand:

1. Price demand :

- ❖ Demand is only related with price of the product, keeping other factors constant. Price is indirectly proportionately related with quantity demanded

2. Income demand :

- ❖ $D = f(y / \text{other factors held constant})$. When income increases, the demand for superior goods increases and vice versa

3. Cross demand :

- ❖ $D = f(\text{price of related commodity} / \text{other factors held constant})$ e.g. Demand for tea in relation to the prices of coffee

4. Derived Demand:

- ❖ The demand for raw material depends on the demand for final good at the consumer level. The demand for the raw material at the producer level is known as derived demand. (E.g.). More demand for paper will reflect the higher demand for pulpwood

5. Composite demand :

- ❖ A commodity can be put to several uses and that commodity may be demanded to satisfy any one or more of such uses; (E.g.) Electricity may be demanded for several of the household, industrial and decorating purposes

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Lecture-10

Demand Analysis

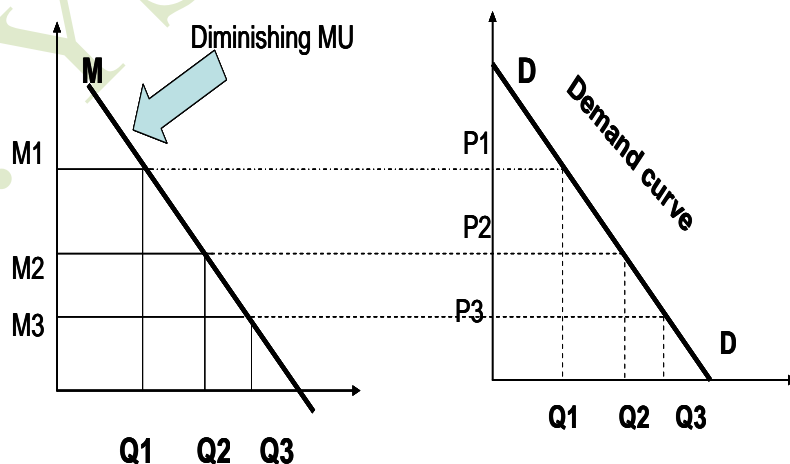
Learning Objective: Derivation of Demand Curve through the Law of Diminishing Marginal Utility and Equi marginal Utility

The law of demand or the demand curve can be derived in two ways:

- firstly, with the aid of law of diminishing marginal utility, and
- secondly, with the help of law of equi-marginal utility

Derivation of Demand curve through Law of Diminishing Marginal Utility

- ❖ The price that a consumer pays for a commodity is equal to the marginal utility. According to the Law of Diminishing Marginal Utility, as a consumer goes on purchasing more and more units of a commodity, its marginal utility goes on diminishing
- ❖ As such consumer will buy more units of a commodity only when its price goes down. When marginal utility is expressed in money, in that case positive part of marginal utility curve is demand curve
- ❖ In the words of Lipsey, "When the consumption of all but one product is held constant, the marginal utility schedule for the variable product is the product's demand curve".
- ❖ When marginal utility is shown on OY-axis then the curve obtained will be called marginal utility curve. In case, price is shown on Y-axis then the curve obtained will be called demand curve, as is indicated in Fig. below.



Derivation of Demand Curve through the Law Equi marginal Utility:

- ❖ Demand curve can also be drawn with the help of Law of Equi- Marginal Utility. Suppose A consumer buys two goods say X and Y with MU_x and MU_y having P_x and P_y prices. Then he will be in equilibrium

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = \text{MU of the last rupee spent on each good}$$

This can further be explained with the help of table given below.

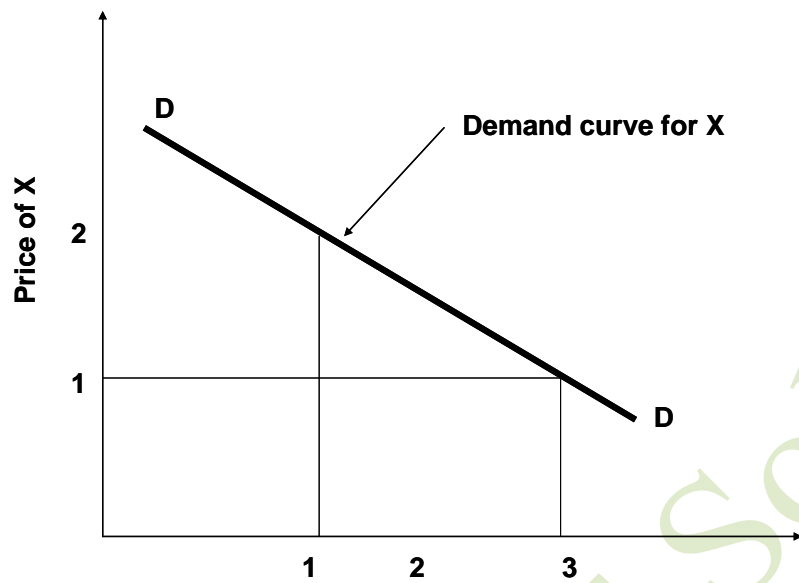
Quantity	MU_x	MU_y
1	12	10
2	10	8
3	8	6
4	6	4
5	4	2

- ❖ Suppose the price of good X and Y be Re. one and consumer has a budget of Rs 5 to spend on these two goods. It can be seen from the table that he will spend Rs3 on X and Rs 2 on Y. In other words, at price of Re. 1 he will buy 3 units of X and 2 units of Y. The last unit of money so spent on these two yields him equal marginal utility (8 utils).
- ❖ The term 'equi-marginal utility' does not refer to the equalities of marginal utilities (MU_x or MU_y) of different goods, but marginal utility of the last rupee spent on each good, which is calculated by dividing MU of a good by its price.
- ❖ Suppose the price of X rises to Rs. 2.00 per unit. While the income of the consumer and the price of Y (Re. 1 per unit.) remains unchanged. The consumer will so adjust the demand for both the commodities that the marginal utility per rupee of each commodity becomes equal.

$$MUX (12)/ 2 = MU6/1$$

Thus at Rs. 2.00 per unit the consumer buys only one unit of X whereas at Re. 1.00 he was buying 3 unit of X. To be in equilibrium, the consumer will buy 1 unit of X and 3 of Y, because then alone the marginal utility per rupee of X and Y becomes equal (6 utils). On the basis of the above data regarding change in the prices of X and consequent changes in its demand the following Demand Schedule and Demand Curve for X is drawn.

Price	Units demanded of X
1	3
2	1



Dr. YSPUH&F Solan

Lecture-11 Demand Analysis

Learning Objective : Elasticity of demand-price, income and cross elasticity – estimation – point and arc elasticity

Elasticity of demand:

- ❖ Elasticity of demand refers the degree of responsiveness of quantity demanded to changes in variables such as price, income, tastes and preferences, price of substitutes etc. Elasticity is simply a ratio between a cause and an effect, always in percentage. The percentage change in effect is divided by percentage change in cause.

Types of elasticity:

Price elasticity
Income elasticity and
Cross elasticity.

I. Price elasticity of demand

- ❖ It is a measure of change in quantity of a commodity demanded in response to change in the price of that commodity

$$\epsilon = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}$$

Example:

- ❖ Suppose the price of Apple falls from Rs.10 to Rs.8 and the quantity demanded rises from 30 to 40Apple; find out the price elasticity of demand. Then

$$\begin{aligned} &= \epsilon = \frac{5}{3} \\ &= 1.667 \end{aligned}$$

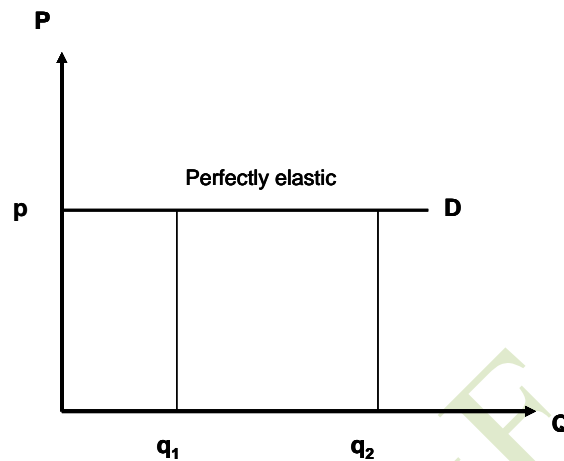
This means that for one per cent change, there is 1.667 per cent change in quantity demand.

Degrees of Price elasticity of demand:

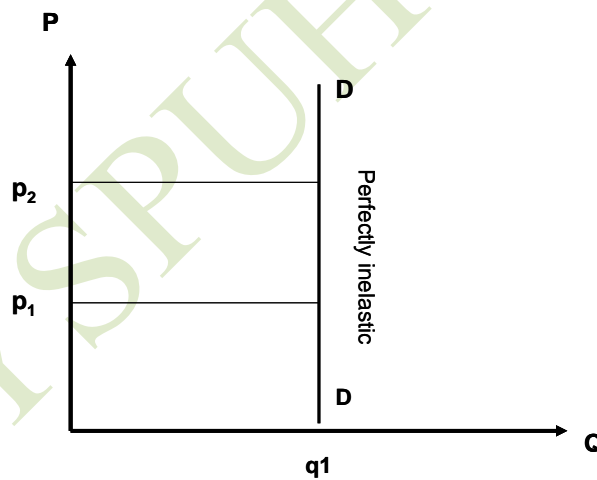
- ❖ Price elasticity of demand is classified into five types:

- Perfectly elastic
- Perfectly inelastic
- Unitary elastic
- Greater than unitary elastic
- Less than unitary inelastic

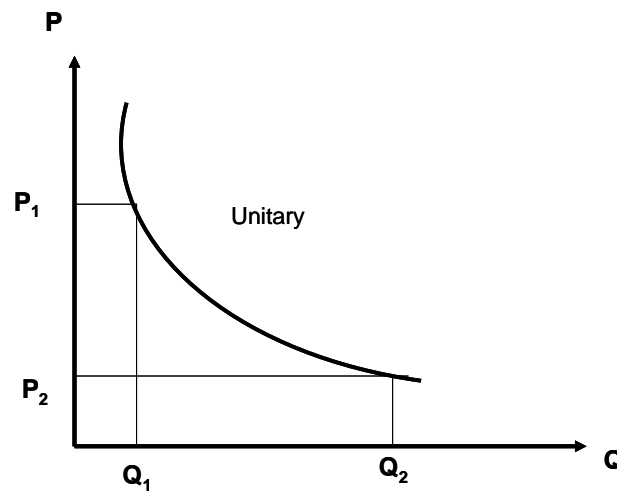
- ❖ **Perfectly elastic demand or infinite elasticity:** Even a very small change in price leads to a very large change in quantity demanded it is said to be perfectly elastic. A perfectly elastic demand is one in which any quantity will be bought at the prevailing price, but any rise in price will cause quantity demanded to fall to zero.



- ❖ **Perfectly inelastic demand ($e_p=0$):** If demand remains unchanged to any amount of change in price, demand is said to be perfectly inelastic.

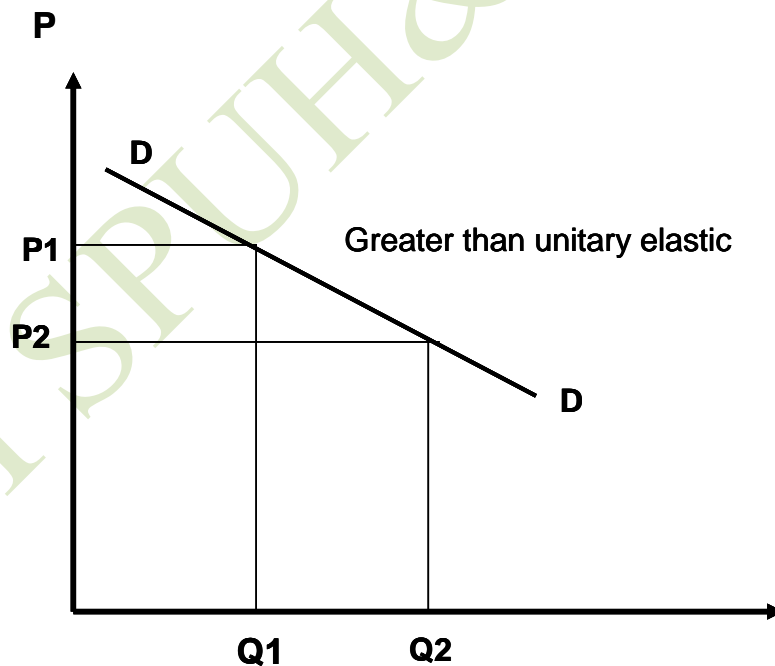


- ❖ **Unitary elastic demand (Equal to one):** When numerical value of elasticity of demand is equal to one is known as unitary elastic demand. It means that both price and quantity demanded change in the same proportion.

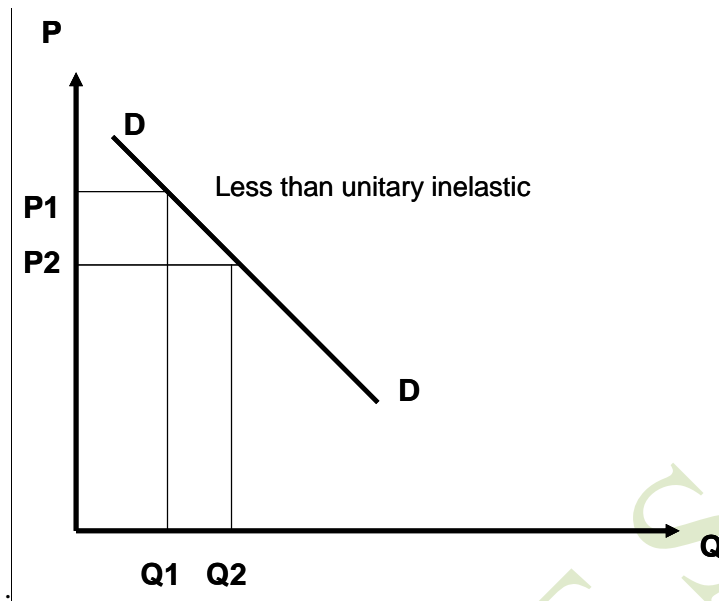


❖ **Greater than unitary elastic, elastic demand (greater than one):**

Demand is said to be elastic when the numerical value of elasticity is greater than one or unity. It means that percentage change in quantity demanded is larger than the percentage change in price.



❖ **Less than unitary elastic, inelastic demand (less than one):** If the numerical value of elasticity of demand is less than one or unity, it is called inelastic demand. I.e. percentage change in quantity demanded is lesser than the percentage change in price.



ii) Income Elasticity of demand: It is the magnitude of change in quantity demanded in response to change in the income of the consumer. It is calculated by the formula.

$$e_i = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in income}}$$

- ❖ Luxuries have high income elasticity and necessities have low income elasticity

iii) Cross elasticity of demand : It is a measure of change in quantity demanded in response to change in prices of other related commodities

$$e_c = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price of related good}}$$

- ❖ In case of substitutes, (Tea and Coffee) the cross elasticity of demand is positive and large. In case of complementary goods (Tea and Sugar) the rise in price of one commodity brings about the fall in the demand of the other (Eg. Car and Petrol) and hence it is negative.

Measurement of Price elasticity of demand:

There are five methods of measuring price elasticity of demand. These are

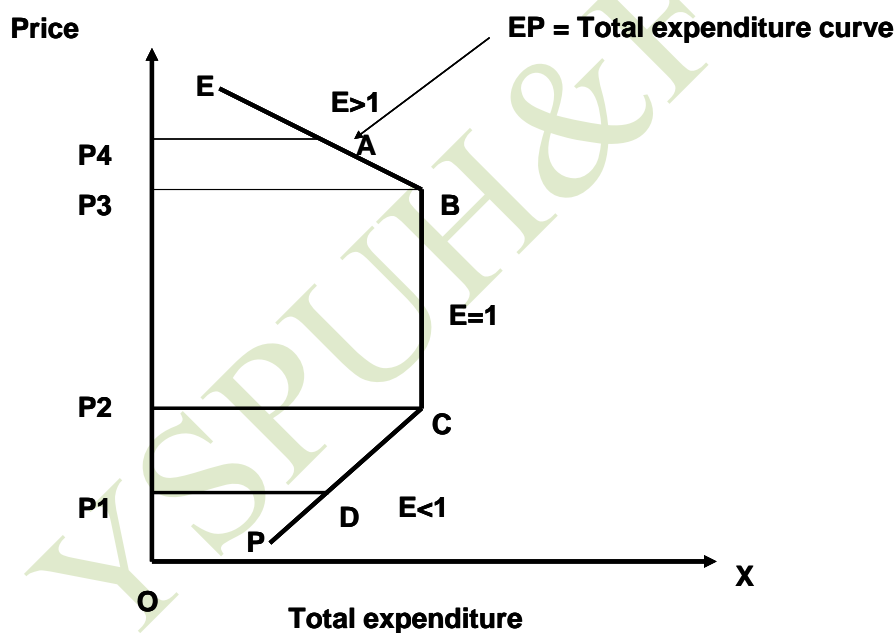
1. Total expenditure method
2. Percentage method
3. Point method
4. Arc elasticity method
5. Revenue method

Total expenditure method:

- ❖ This method was developed by Dr. Marshall. According to this method in order to measure the elasticity of demand it is essential to know how much and in what direction the total expenditure has changed as a result of change in the price of a commodity.

Price Elasticity	How total expenditure changes as result of price change	
	Price rise	Price decrease
Less than unitary or inelastic	Total expenditure increases	Total expenditure decreases
Unitary elastic	No change in total expenditure	
Elastic or greater than unitary	Total expenditure decreases	Total expenditure increases

This method can also be explained with the following diagram.



- ❖ In this figure total expenditure is shown on X-axis and price on Y-axis. EP is the total expenditure curve. The BC segment of this curve shows the unitary elasticity as when price rises from P2 to P3 total expenditure remains the same. Similarly, EB segment shows the greater than unitary elasticity since as the price increases from P3 to P4 total expenditure decreases from P3B to P4A. PC segment of the expenditure curve shows less than unitary elasticity as when price increases from P1 to P2 total expenditure increases from P1D to P2C.
- ❖ **Prof. Leibhafasky** has made use of the following formulae to measure price elasticity of demand from total expenditure method.

$E_d = 1 - \Delta \text{Exp.} / D_0 \Delta P$ where
 $\Delta \text{Exp.}$ = change in expenditure
 D_0 = initial demand
 ΔP = change in price

Suppose $P = \text{Rs } 10$ $D_0 = 50$ $\text{Exp.} = 10 \times 50 = 500$
 $P_1 = \text{Rs } 20$ $D_1 = 40$ $\text{Exp.} = 20 \times 40 = 800$

Then E_d $= 1 - \frac{300}{50 \times 10} = 1 - \frac{3}{5}$
 $= \frac{2}{5} = 0.40$ i.e. less than unitary.

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Lecture-12

Demand Analysis

Learning Objective: Measurement of Price elasticity of demand

Percentage method:

$$E_d = (-) \frac{\text{percentage change in quantity demanded}}{\text{percentage change in price}}$$

$$E_d = (-) \frac{\Delta Q / Q}{\Delta P / P}$$

$$E_d = (-) \frac{P \Delta Q}{Q \Delta P}$$

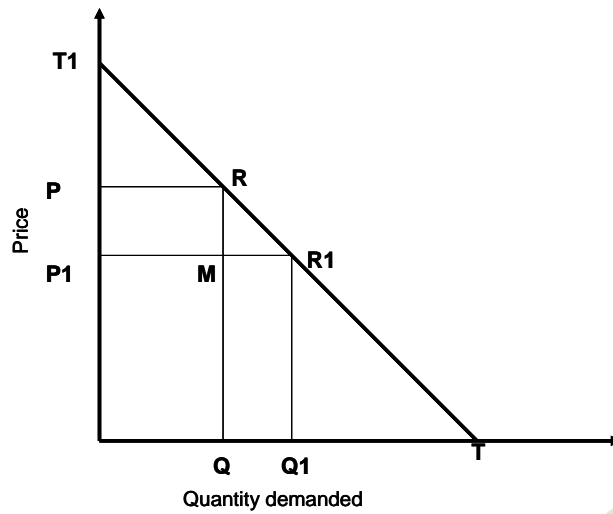
Point elasticity of demand:

Price elasticity is the proportionate change in quantity demanded to the proportionate change in price.

$$E_p = \frac{\Delta Q/Q}{\Delta P/P}$$

$$= \Delta Q/Q \times P/\Delta P \text{ ----- (i)}$$

In the figure below, when price falls from OP to OP1, quantity demanded rises from OQ to OQ1. This change in price by PP1 causes change in quantity demanded by QQ1. Substituting these in equation (i) above, we get,



$$E_p = \frac{QQ_1}{PP_1} \times \frac{OP}{OQ}$$

Since in figure below $QQ_1 = MR_1$ and $PP_1 = RM$ and $OP = QR$

Therefore $E_p = \frac{MR_1}{RM} \times \frac{QR}{OQ}$ ----- (ii)

Now take triangles RMR_1 and RQT

$$\angle MR_1R = \angle QRT \quad (\text{Corresponding } \angle\text{s})$$

$$\angle RMR_1 = \angle RQT \quad (\text{right } \angle\text{s})$$

$$\angle MRR_1 = \angle RQT \quad (\text{Common } \angle\text{s})$$

Therefore triangles RMR_1 and RQT are similar; a property of similar triangles is that their corresponding sides are proportional to each other. From this it follows that:

$$\frac{MR_1}{RM} = \frac{QT}{QR}$$

Writing QT/QR in place of MR_1/RM in equation (ii) we get

$$E_p = \frac{QT}{QR} \times \frac{QR}{OQ} \\ = \frac{QT}{OQ}$$

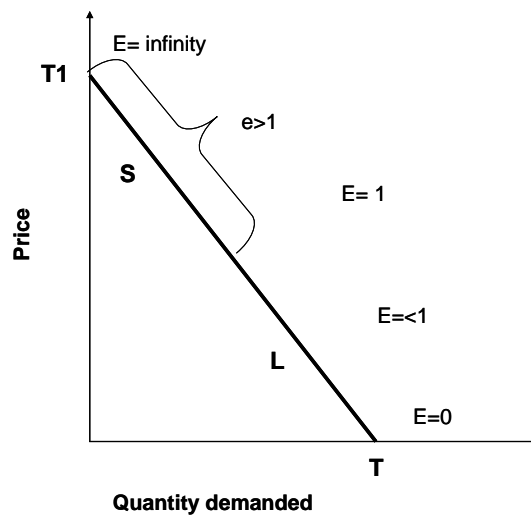
Now, in triangle OT_1T QT is parallel to OT_1 , therefore,

$$\frac{QT}{OQ} = \frac{RT}{RT_1}$$

$$E_p = \frac{QT}{OQ} = \frac{RT}{RT_1}$$

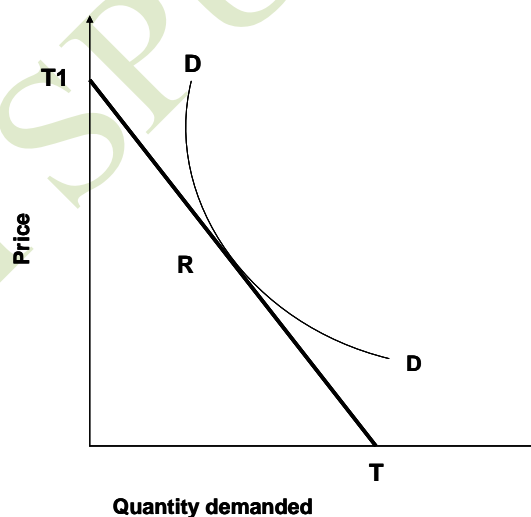
Hence from above it is found that price elasticity at point R on the straight line demand curve T_1T is $= \frac{RT}{RT_1} = \text{Lower segment/Upper segment}$

If the point R exactly lies in the middle of the demand curve (as shown in figure below)



the elasticity at this point will be equal to one. If the point lies above the middle point R say S then elasticity at this point will be $ST/RT1$ i.e. more than one. Similarly if this point lies below the middle point R then it will be less than one. At point T it will be zero and at point T1 it will be infinity.

- ❖ If the demand curve is non linear as shown in the figure below then elasticity at a point R is measure by drawing a tangent line to the given point R. It is equal to $RT/T1R$.



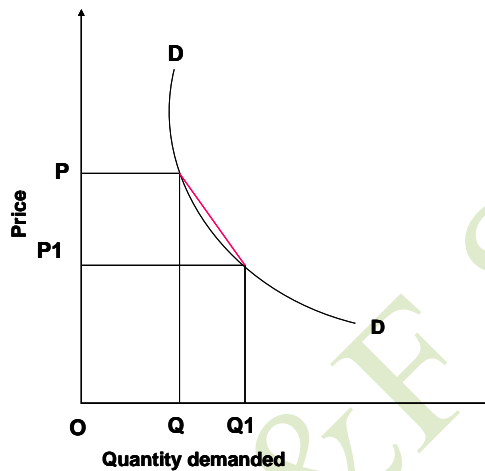
Arc Elasticity Method :

- ❖ When the price change is somewhat large or we want to measure elasticity over an arc of the demand curve rather than on a specific point, then the measure is called Arc elasticity method. Say we are interested to measure elasticity of demand between points A and B as shown in the figure below on the demand curve DD. For such cases concept of Arc elasticity is used in which we use the average of two prices i.e. original as well subsequent and average of two quantities i. e. original as well as subsequent. Thus the formula for elasticity is as given below.

$$E_p = \frac{\Delta Q/Q + Q_1/2}{\Delta P/P + P_1/2}$$

$$E_p = \Delta Q/Q + Q_1/2 \times P + P_1/ \Delta P \text{ or } \Delta Q/ \Delta P \times P + P_1/ Q + Q_1$$

$$\Delta Q(P + P_1) / \Delta P(Q + Q_1)$$



Revenue Method:

- ❖ Price elasticity of demand can also be measured with the help of average and marginal revenue curves with the following formula.

$$E_p = A / A - M \text{ where } A = \text{average revenue, } M = \text{marginal revenue}$$

- ❖ In the figure below, revenue is shown on Y-axis and quantity on X-axis AB is the average revenue curve or demand curve and AN marginal revenue curve At point P elasticity of demand is calculated as

$$E_d = \text{Lower portion} / \text{upper portion or } PB/PA$$

ΔPMB and ΔAEP are similar, so ratio of their sides is also equal

$$E_d = PB/PA = PM/AE \text{ ----- (i)}$$

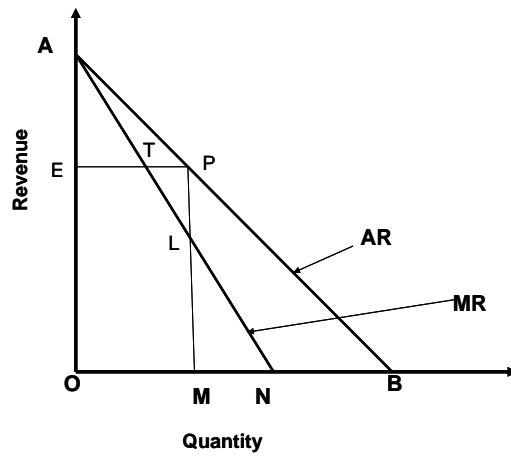
ΔAET and ΔTPL are congruent triangles, so $PL = AE$. By substituting PL in place of AE in equation (i)

$$E_d = PM/PL$$

Because $PL = PM - LM$, hence

$$E_d = PM / PM - LM, \text{ where}$$

$PM = AR$ and $LM = MR$, so $E_d = A/A - M$ So if the value of E_d is one it means elasticity is unitary, if it is more than one, then elasticity is more than one and if less than one then less than unitary.



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Lecture-13

SUPPLY

Learning Objective: Supply, Supply schedule and curve, law of supply and elasticity of supply

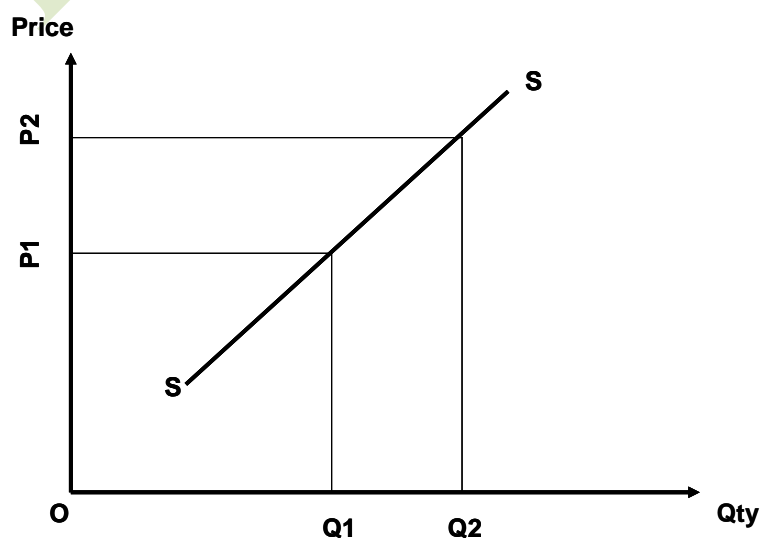
- ❖ Supply means the quantity offered at certain in a certain market at a particular time. The term stock means the total amount of a commodity in existence, whereas, supply means that part of stock which is offered for sale at a certain price at a certain time in a certain market.

Supply Schedule and Supply Curve:

- ❖ A supply schedule means a table which shows quantities of a given commodity offered for sale at all possible prices at a given time in a certain market. For example supply schedule is shown as below.

Price	Quantity
30	150
45	200
50	250
80	300

The graphic presentation of a supply schedule is called supply curve. The supply curve represents the maximum quantities per unit of time that will be offered for sale at various prices. The quantity supplied varies directly with the price.



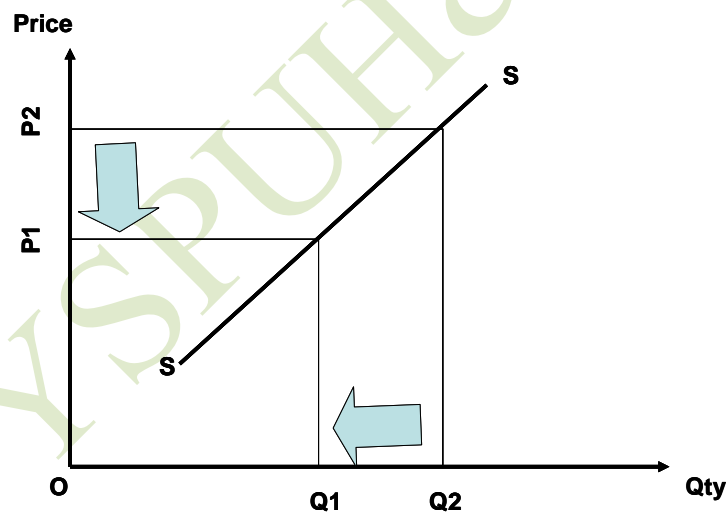
Law of Supply:

❖ As price rises, other things remaining the same, the quantity offered for the sale tends to increase, and as price falls, the quantity offered for the sale will tend to decrease. This tendency of the changes in supply as a result of changes in price is called law of supply. There are some exceptions to this law, which are:

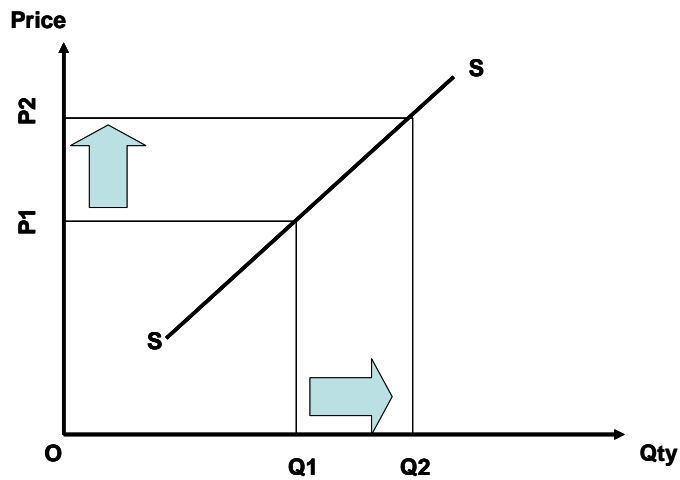
1. During depression, when prices fall, the producers may sell more in order to avoid losses
2. Some time more is sold in order to finish old stocks.
3. At time of auction, goods may be sold at any price and law of supply does not apply.

Increase/ Decrease and extension/ contraction of supply:

- ❖ The variations in the price of a commodity cause extension or contraction of supply. As price of a commodity rises quantity supplied also increases.
- ❖ Similarly, with fall in price, quantity offered for sale decreases. The movement along the same supply curve with variations in price results into extension or contraction in supply.

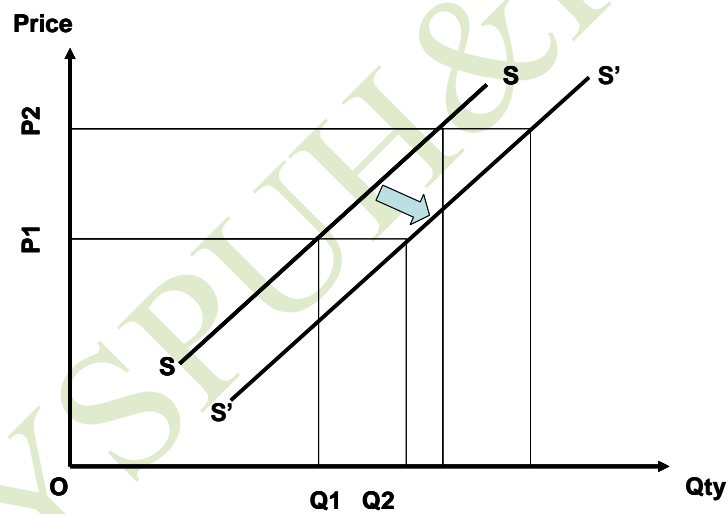


Contraction in supply

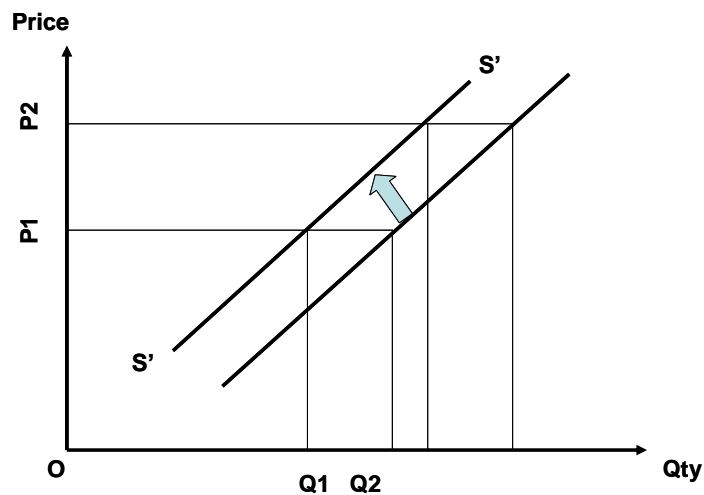


Extension in supply

- ❖ When supply changes on account of variations in other factors such as cost of production, changes in the production technology, weather etc, it is called shift in supply or increase or decrease in supply.



Increase in supply



Decrease in supply

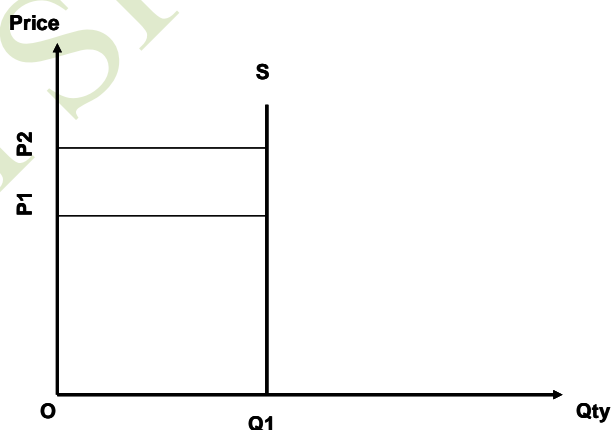
Elasticity of supply:

- ❖ Extension or contraction in supply takes place as result of changes in the price. This extension or contraction of supply caused by price changes is called elasticity of supply.

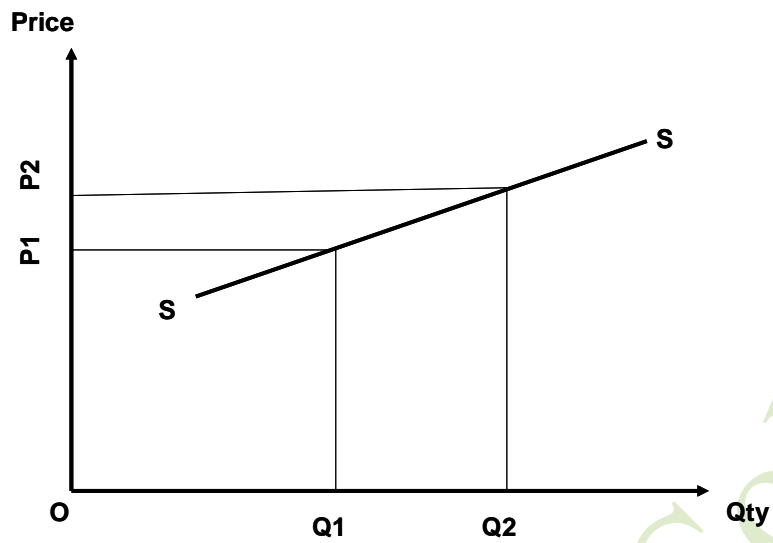
$$\text{Elasticity of supply} = \frac{\% \text{ change in quantity supplied}}{\% \text{ change in price}}$$

Degrees of elasticity of supply:

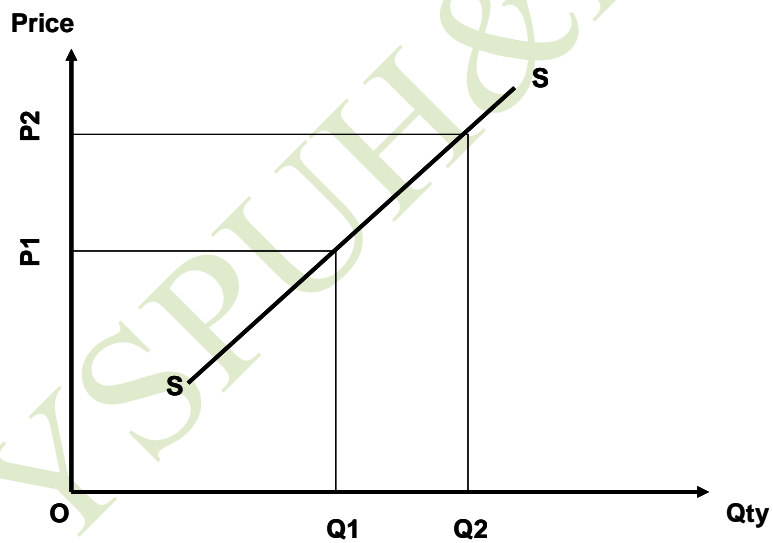
- ❖ The elasticity of supply is equal to zero, when there is no change in supply as a result of change in price. The supply curve is perpendicular or vertical to Y-axis as shown below.



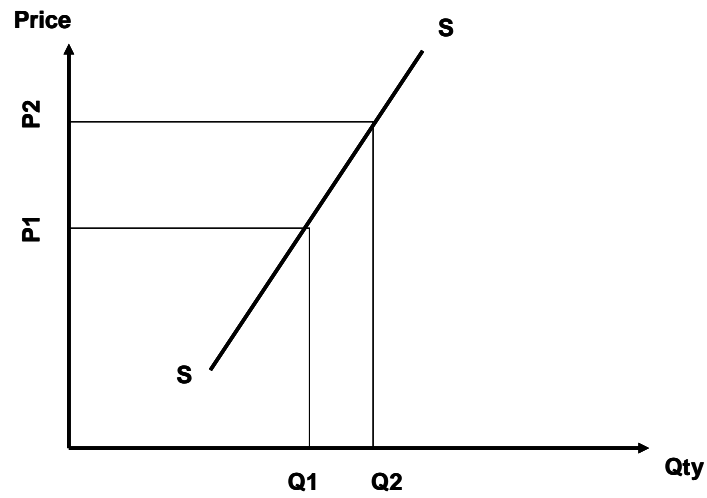
- ❖ The elasticity of supply is more than one, when with a small change in price, there is considerable or more than proportionate change in supply. It is called highly elastic supply.



- ❖ The elasticity of supply is equal to one, when there is proportionate change in supply as a result of change in price. • It is called elastic supply.



- ❖ The elasticity of supply is less than one, when with the considerable change in price, there is little or less than proportionate change in supply.



- ❖ The elasticity of supply is infinite or perfectly elastic, when any amount or quantity of a commodity can be supplied at the same price. Under these conditions supply curve is horizontal to X-axis.



Lecture-14

COST CONCEPTS

Learning Objective: Introduction to cost concepts

- ❖ Cost plays an important role in farm decision making. The producers are concerned about the cost of cultivation or production of a commodity as it affects the level of their farm activity or an enterprise. Therefore, decision on producing an additional unit of output crucially rests on the cost of producing an additional unit of output. A farmer or a producer can increase his/her income either by increasing production or by reducing the cost of production. Since the prices are not under the direct control of producers in the competitive market, the alternative to reduce the cost through rationalization of resource use is an important option. This however, can be done only if the individual has the necessary knowledge of the basic cost concepts and the skills to utilize this knowledge effectively in farm business.
- ❖ Cost is the value of the inputs that get used up in producing an output and hence the inputs are not available for alternate use anymore, i.e. the expenses incurred on different inputs in producing a given amount of a product in a particular time period. As for example, the cost of producing a unit of apple or tomato may work out to be Rs 5/kg or Rs 3/kg, etc. based on the valuation of the value of seed, fertilizers, plant protection chemicals, labour for different operations, irrigation, etc.
- ❖ In order to understand cost concepts, it is important to be familiar with the terminology used in cost theory. Economists use different names for cost components under different contexts. Some of the terms with the brief description are given as under.

1. EXPLICIT v/s IMPLICIT COSTS

- ❖ Computation of cost of cultivation of a crop or production of a product must consider all components of the costs. Often some of the items of cost are easy to comprehend and are considered in the estimation of total costs. However, as economists, it is important that the true costs of production of a unit of output must be ascertained. For this, it becomes important to take due note of the indirect costs that often get neglected in the simple financial analysis. So it is important to understand the two components of the total economic costs which are termed as the explicit and the implicit costs.

- ❖ There are some inputs or resources that are used in production of an output after they are procured from the market. When we purchase these inputs from the market we pay a given amount for its acquisition as per the prevailing market price. These cash costs of the factors of production are the prices at which farmer can make the purchase. Since such costs that are paid in cash are therefore termed as **explicit costs**. These costs are also known as accounting costs or cash costs. The examples of explicit costs are the cost of seed, fertilizers, wages for hired labour, etc.
- ❖ On the other hand, there exists a cost component for which direct cash payments are not made. These non-cash costs such as depreciation of buildings, machinery and equipments and cost of factors that are both owned and employed by the farmer are termed as **implicit costs**. These costs are also known as non cash costs. Examples of this cost component are the non-cash costs on account of depreciation of durable inputs such as farm machinery and equipments, family labour used, farm yard manure from owned sources etc. which are used in the production. The values of the inputs or services are accounted for in terms of depreciation, farmer's own labour and capital, etc.

2. OPPORTUNITY COSTS

- ❖ All economic resources are productive and have alternate uses. It is the scarcity part or characteristic of the resource that makes us decide where to use the resource. Naturally, based on our best judgment the resource is used in one or the other activity. By not using the resource in a given activity we cannot get the return from that activity. Now the value of the returns sacrificed or foregone from the next best alternative is called opportunity cost. In farming, farmers don't have to pay for their owned resources, viz., family labour, owned bullock labour, owned machinery, owned seed, etc. but in cost analysis the value of these owned resources are considered on the basis of opportunity costs.

3. REAL COSTS:

- ❖ Costs expressed at constant prices are called the real costs.

4. NOMINAL /MONEY COSTS:

- ❖ Per unit costs of production of output at current market prices are called nominal or money costs.

5. ECONOMIC COSTS:

- ❖ The economic costs are the sum total of the direct and indirect cost of production of a unit of the product. In the above mentioned terminology the economic costs would be stated as under.

$$\text{Economic costs} = \text{Explicit costs} + \text{Implicit costs}$$

6. DEFLATED COSTS:

- ❖ If the costs are deflated by general price index, then they are known as deflated costs.

7. SOCIAL COSTS:

- ❖ Generally, the economic activities may result in some activities or phenomena that may be detrimental to the society at large. As for example various production activities may lead to increased water, air or noise pollution, degradation of forest and rangelands and general environment, health hazards etc. All this would result in some additional costs to the society at large. These costs are known as social costs or externalities.

8. HISTORICAL COSTS:

- ❖ Costs involved in the purchase of durable goods like land, building, machinery and equipments are known as historical costs.

9. REPLACEMENT COSTS:

- ❖ The replacements are the costs, required to be incurred to replace an old but in use asset or the equipment today at its market price. The difference between original purchase price and current price of the asset is called replacement cost. For example if a power sprayer, purchased 10 years ago at Rs 50,000 now costs Rs 75,000 at its market price, the difference of Rs 25,000 would be the replacement cost.

10. ESTABLISHMENT COSTS

- ❖ Construction of plant in any business activity entails some costs. Such costs are called establishment costs. They are also called first phase costs. For example, cost on account of establishment of a new factory, or cost of planting a new orchard, etc. would be termed as the establishment costs.

- ❖ Economic production processes require time to mature. Knowledge of cost function thus is a pre-requisite for optimal management of factors of production in planning periods.
- ❖ The planning period, in economic parlance, are categorized as the **short** and the **long run**.
- ❖ A period of time which is long enough to permit desired changes in output without altering the size of farm or the firm is called the short run or the short period. In the short run, pricing and output decisions are based on short run costs.
- ❖ On the other hand, a period of time which is sufficiently long for output to be altered by varying either the size of farm or making more intensive or a less intensive utilization of the farm is known as long run period. The long run cost curves have the crucial implications for the farm development and investment policies. Therefore, depending upon the length of planning periods the costs are also classified as short run costs and long run costs.

Lecture-15 Cost analysis

Learning Objective : Short term cost concepts such as fixed cost, variable cost total cost
Average cost concepts and relationships

SHORT RUN COSTS: Short run costs are classified as fixed and variable costs.

Total Fixed Cost (TFC)

All costs associated with the fixed inputs. These costs do not vary with the level of production. They remain invariant in the short run, but in long run there are no fixed costs. These are also called **overhead or sunk costs**. Since total fixed cost remains constant irrespective of the level of output, the total fixed cost curve is parallel to the X-axis (Fig. 1).

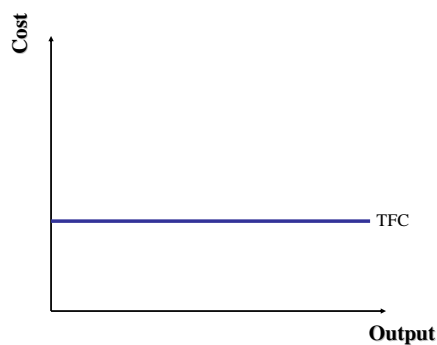


Fig. 1

- Incur even if the resource is not used.
- Does not change as the level of production changes (in the short run)
- Exist only in the short run.
- Not under the control of the manager in the short run.
- The only way to avoid fixed cost is to sell the item.

Examples: insurance, depreciation, mortgage, interest, etc.

Average Fixed Cost (AFC)

Cost per unit of output is called as average fixed cost. Since fixed cost is constant, as more output is produced, average fixed cost fall continuously, but at a decreasing rate. Therefore, AFC curve slopes downward throughout its length. Mathematically speaking, AFC curve becomes asymptotic to both the axes (Fig. 2).

$$\text{AFC} = \frac{\text{TFC}}{\text{Output}}$$

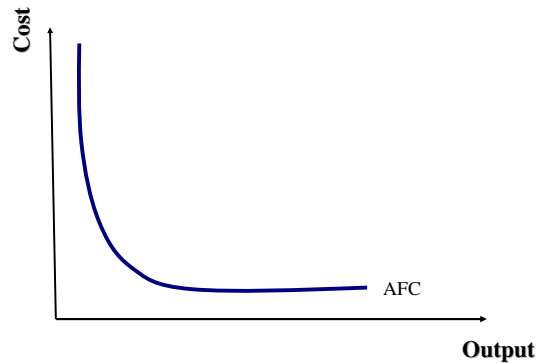


Fig. 2

Variable Cost (VC)

Variable costs (VC) are the costs that vary or change with the change in output. Variable costs are also known as *operating costs*, *prime costs*, *on costs* and *direct costs*. The variable costs vary directly with the level of output. Some of the characteristics of the variable costs are as under.

- Can be increased or decreased by the manager.
- $\text{VC} = (\text{the quantity of the input}) \times (\text{price of the inputs.})$
- Increases as production increases.
- Total Variable cost (TVC) is the summation of the individual variable costs.
- Variable costs exist in the short-run as well as in long-run.
- In fact, all costs are considered to be variable in the long run.

Some examples of variable versus fixed costs:

- Fertilizer is a variable cost until it has been purchased and applied.
- Labour and cash rent contracts have to be considered fixed costs during the duration of the contract.
- Irrigation water is generally variable, but can have a fixed component.

Total Variable Cost (TVC)

All costs associated with the variable inputs.

$$TVC = P_x * X,$$

Where,

P_x = cost of a variable input

X = variable input

The nature of the total variable cost is shown in Fig. 3.

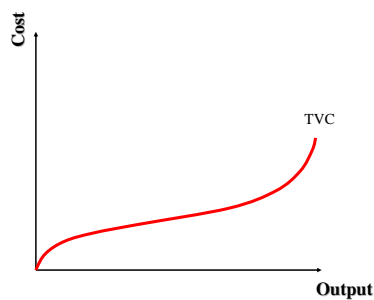


Fig. 3

- ❖ The total variable cost curve rises upward as the level of output increases. This shows that as the output is increased the total variable cost also increases. Total variable cost curve starts from the origin which implies that when the output is zero the total variable cost is also zero.

Average Variable Cost (AVC)

- ❖ Average variable cost is the cost per unit of output i.e. total cost divided by the number of units of output produced (Fig. 4). Thus average variable cost (AVC) is variable cost per unit of output.

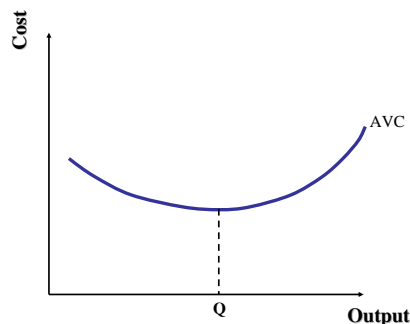


Fig. 4

$$AVC = \frac{TVC}{\text{Output}}$$

Output

The AVC curve is linked with the Average Production (AP) curve of the variable input.

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

$$AVC = \frac{P_x * X}{Y} \quad (\text{Because } TVC = P_x * X)$$

$$= \frac{P_x}{Y/X}$$

But Y/X is average product (AP) of variable input X . Thus,

$$AVC = \frac{P_x}{AP}$$

- ❖ This shows that there is inverse relationship between AP and AVC. So as when AP is increasing AVC is decreasing, and when AP is decreasing, AVC is increasing. When AP is at maximum AVC is at its minimum (Fig. 5).

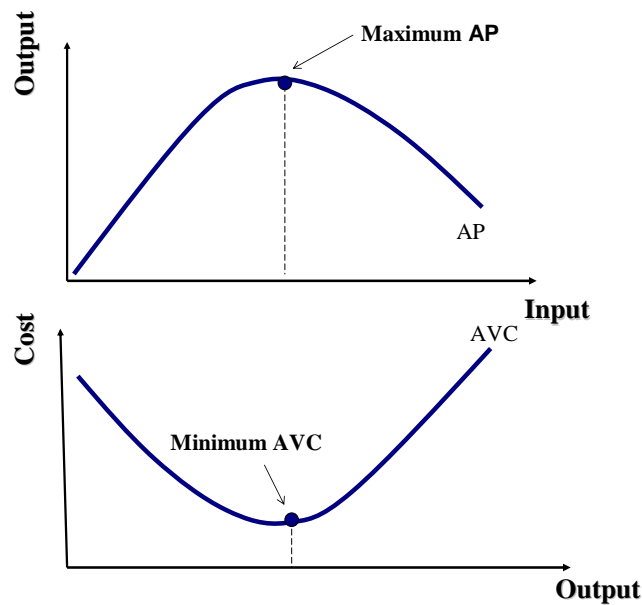


Fig. 5

Total Cost (TC)

- ❖ As the name implies, the sum of total fixed cost (TFC) and total variable cost (TVC) is called the total cost (TC) as shown in Fig. 6.

$$\begin{aligned}
 TC &= TFC + TVC \\
 &= K + P_x * X
 \end{aligned}$$

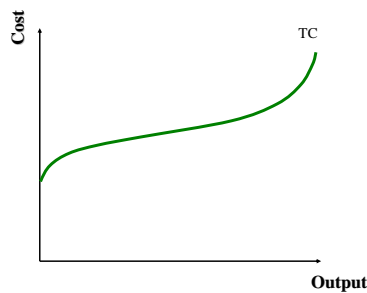


Fig. 6

- ❖ In the short run TC will increase as only the TVC increases, since TFC is constant or fixed. TVC rises with the increase in output because the output can be increased only by the increase in the amount of variable input. So as output increases with the increase in the TVC, the TC must also rise, i.e. the TC is a function of output. Total cost curve is obtained by adding vertically TFC and

TVC curves. Thus the vertical difference between TVC and TC curve is nothing but the TFC (Fig. 7). Thus we summarize;

- TFC is constant and unaffected by output level.
- TVC is always increasing:
 - ✓ First at a decreasing rate.
 - ✓ Then at an increasing rate.
- TC is parallel to TVC:
 - ✓ TC is higher than TVC by a distance equal to TFC.

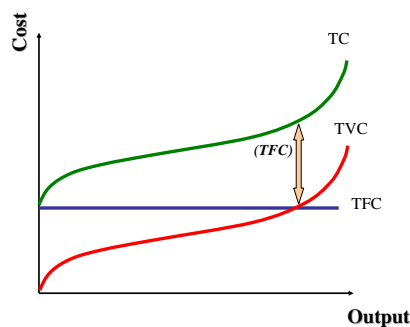


Fig. 7

Average Total Cost (ATC)

- ❖ Average total cost refers to the average of all costs per unit of output i.e.,

$$ATC = AFC + AVC \quad \text{or}$$

$$ATC = \frac{TC}{\text{Output}}$$

$$= \frac{TFC + TVC}{Y}$$

- ❖ Average total cost (ATC) or average cost (AC) is also known as **unit cost**, since it is the cost per unit of output produced (Fig. 8). ATC or AC reaches at a low point but at a higher output than AVC curve. The AC falls over a greater range of output than AVC because of the flattening/lowering influence of AFC. For a range beyond the minimum of AVC curve, AFC falls at a faster

rate than the increase in AVC and this causes AC to continue to fall beyond the minimum of AVC curve. The ATC curve starts rising when the rate of decrease of AFC curve is less than the rate of increase of AVC curve.

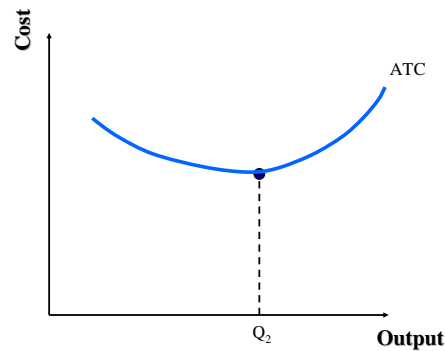


Fig. 8

Marginal Cost (MC)

❖ Marginal cost (MC) (Fig. 9) is the cost of producing an additional unit of output.

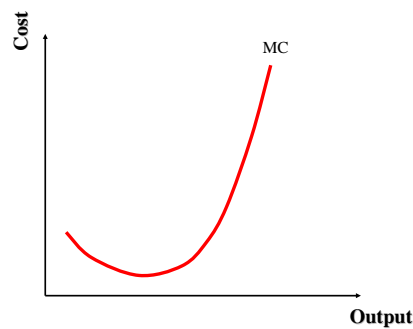


Fig. 9

$$\text{Marginal Cost} = \frac{\text{Change in the total costs}}{\text{Change in the output}}$$

$$MC = \frac{\Delta TC}{\Delta Q}$$

Marginal cost is independent of fixed cost.

$$\begin{aligned} MC_n &= TC_n - TC_{n-1} && \text{or} \\ &= (TVC_n + TFC_n) - (TVC_{n-1} + TFC_{n-1}) \\ & && \text{or} \\ &= TVC_n - TVC_{n-1} \end{aligned}$$

(Because TFC_n and TFC_{n-1} are same as the fixed cost is constant)

Hence marginal cost is the addition to the total variable cost when output is increased from 'n-1' units to 'n' units of output. Marginal cost is inversely related to marginal product (MP) of the variable input (Fig. 10).

Mathematically,

$$MC = \frac{\Delta TC}{\Delta Y}$$

Or

$$MC = \frac{\Delta TVC}{\Delta Y}$$

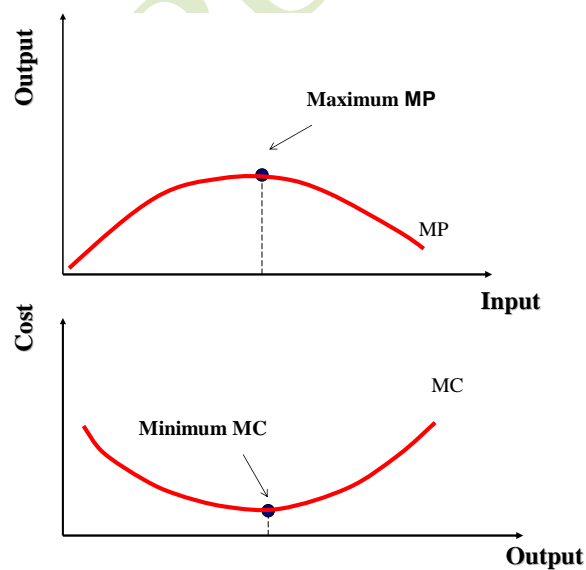


Fig. 10

$$MC = \frac{P_x * \Delta X}{\Delta Y} \quad (\text{Because } \Delta TVC = P_x * \Delta X)$$

$$MC = \frac{P_x}{\Delta Y / \Delta X} \quad (\text{Because } \Delta Y / \Delta X = MP)$$

$$MC = \frac{P_x}{MP}$$

TYPICAL AVERAGE AND MARGINAL COST CURVES AND THEIR SELECTED ATTRIBUTES

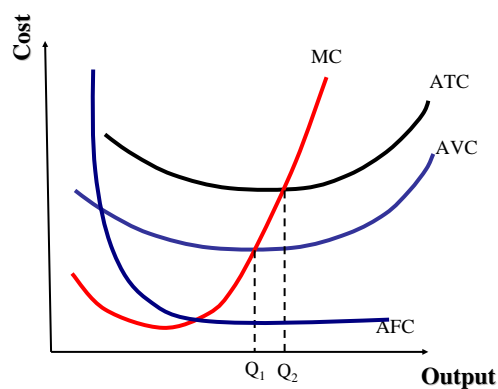


Fig. 11

- AFC is always declining at a decreasing rate.
- ATC and AVC decline at first, reach a minimum, and then increase at higher levels of output.
- The difference between ATC and AVC is equal to AFC.
- MC crosses ATC and AVC at their minimum points.
- If MC is below the average cost value; Average cost value will be decreasing.
- If MC is above the average cost value; Average cost value will be increasing.

RELATIONSHIP BETWEEN AVERAGE AND MARGINAL COST

If $MC < AC$, then AC is falling
 If $MC > AC$, then AC is rising
 If $MC = AC$, then AC is constant

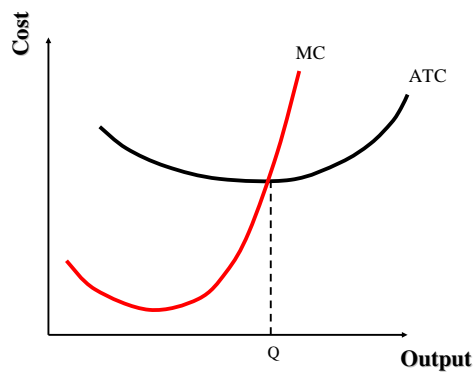


Fig. 12

Mathematically, these relationships can be worked out as follow.

$$MC = \frac{\partial TC}{\partial Y}$$

$$= \frac{\partial ATC * Y}{\partial Y} \quad (\text{Be cause } TC = ATC * Y)$$

$$= Y * \frac{\partial ATC}{\partial Y} + AC$$

$\frac{\partial AC}{\partial Y}$ is the slope of the Average cost curve.

If $\frac{\partial AC}{\partial Y} < 0$ then $MC < AC$

If $\frac{\partial AC}{\partial Y} > 0$ then

MC > AC

and

If $\frac{\partial AC}{\partial Y} = 0$ then

MC = AC

PRODUCTION RULES FOR THE SHORT RUN

Case 1:

- If expected selling price > minimum ATC (which implies total revenue (TR) > TC): A profit can be made.
- Maximize profit by producing where,

$$MR = MC$$

Case 2:

If expected selling price < minimum ATC but > minimum AVC: (Which implies TR > TVC but < TC), then;

- A loss cannot be avoided.
- Minimize loss by producing where,

$$MR = MC$$

Case 3:

If expected selling price < minimum AVC (which implies TR < TVC) then;

- A loss cannot be avoided.
- Minimize loss by not producing.
- The loss will be equal to total fixed cost (TFC).

Lecture-16

Cost Analysis (LONG RUN COSTS)

Learning Objective: Long Run Average Cost, long run marginal cost curve

Long Run Average Cost (LRAC)

- ❖ In the long run all the factors are assumed to become variable. The behavior of long run costs curves is almost the same as that of short run, but for the flatness.
- ❖ The long run average cost (LRAC) is derived from short run cost curves. Each point on the Long run average cost curve corresponds to a point on short run cost curve which is tangent to Long run average cost at that point.
- ❖ Long run average cost curve is also called **envelope curve**, because it envelopes all short run average cost curves (Fig. 13). In another words it envelops the short run production points or the production levels. Since this long run cost curve allows us to learn from the short run experiences, it is also called as the **planning curve** in the sense that it is a guide to entrepreneur in his/her decisions to plan the future expansion of the output.

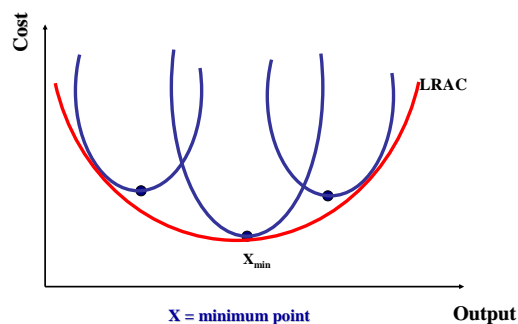


Fig.13

- ❖ The shape of Long run average cost reflects the law of returns to scale. According to the law, the unit cost of production decreases as plant size increases due to the economies of scale which large plant size make possible.
- ❖ The traditional theory assumes that economies of scale exist only up to a certain size of plant, known as optimum plant size, because with this plant size all possible economies of scale are exploited. Hence,

- The Long Run Average Cost Curve is usually shown as U-shaped.
- The downward sloping phase of the curve is described as economies of scale. Economies of scale results from:
 - ✓ Full utilization of labour, machinery, buildings.
 - ✓ Ability to afford specialized labour and machinery and new technology.
 - ✓ Price discounts for volume purchasing of inputs.
 - ✓ Price advantages when selling large amounts of output.
- The upward sloping phase of the curve is described as diseconomies of scale. Diseconomies of scale result from:
 - ✓ Lack of sufficient managerial skill.
 - ✓ Need to hire, train, supervise, and coordinate larger labour force.
 - ✓ Dispersion over a larger geographical area.
 - ✓ Disease control, waste disposal.
- In practice economies of scale may not be exhausted until a large level of output is achieved.
- So the LRAC will be continuously downward sloping over that range of output.

LONG RUN AVERAGE COST: Other Possible Shapes

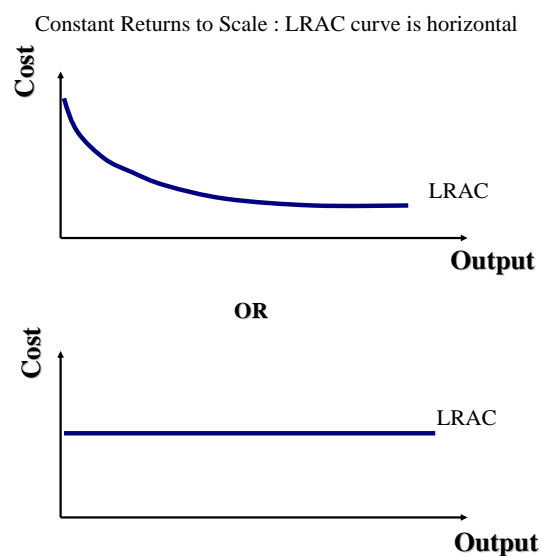
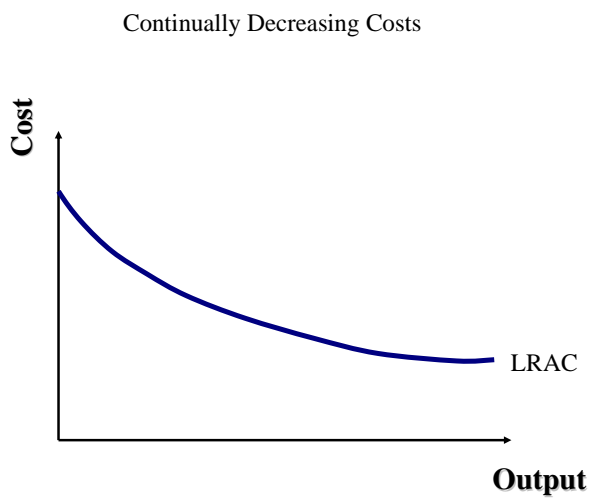


Fig.14



Long Run Marginal Cost (LRMC)

- ❖ Long run marginal cost is derived from short run marginal cost curves, but does not envelope them. The long run marginal cost is formed from points of intersection of short run marginal cost curves with vertical lines (to the x-axis) drawn from the point of tangency of the corresponding short run average cost curves and long run average cost curve. The long run marginal cost must be equal to short run marginal cost for the output at which the corresponding short run average cost is tangent to long run average cost curve (Fig.16).

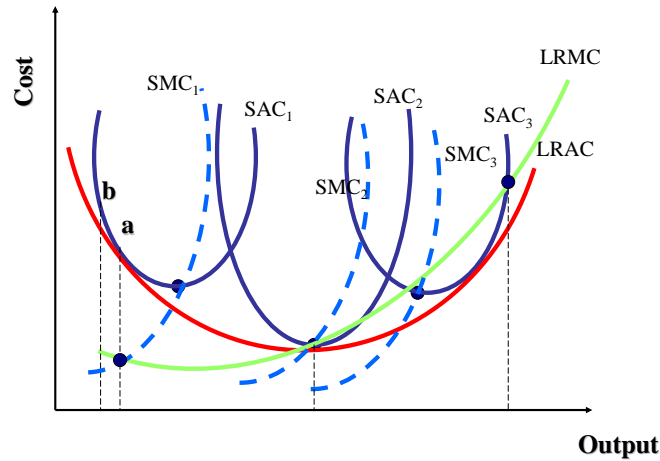


Fig.16

- ❖ For levels of output to the left of tangency 'a' the short run average cost is greater than long run average cost. At the point of tangency $SAC_1 = LRAC$. As we move from point 'b' to 'a', we actually move from a position of inequality of SAC_1 and $LRAC$ to a position of equality. Hence the change in total cost (i.e. the MC) must be smaller for the short run curve than for the long run curve. Thus $LRMC > SMC_1$ to the left of 'a'.

TYPICAL LONG RUN AVERAGE COST AND MARGINAL COST CURVES AND THEIR ATTRIBUTES

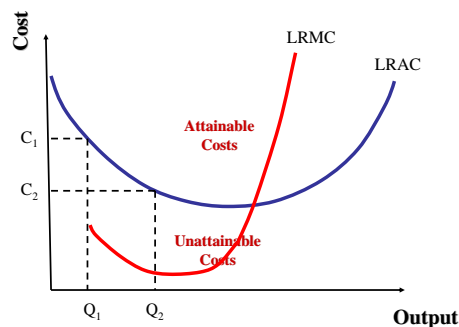


Fig.17

- LRAC curve is normally U-shaped.
- The downward sloping phase of LRAC curve describes economies of scale, whereas upward sloping phase describes diseconomies of scale.
- LRMC lies below the LRAC, LRAC curve is falling and when LRMC lies above the LRAC, long run average cost curve will be rising.
- When LRMC equals LRAC, LRAC curve is at minimum.

PRODUCTION RULES FOR THE LONG-RUN

- If selling price $>$ ATC (or $TR > TC$):
 - Continue to produce.
 - Maximize profit by producing where
 $MR = MC$
- If selling price $<$ ATC (or $TR < TC$):
 - There will be a continual loss.
 - Sell the fixed assets to eliminate fixed costs.
 - Reinvest money in a more profitable alternative.

Lecture-17 Consumer's Surplus

Learning objective: concept of consumer surplus, Measurements of consumer's surplus(Marshallian approach and Hicksian approach) and importance of consumer surplus

- ❖ The concept of consumer's surplus was first of all evolved by Dr Alfred Marshall.
- ❖ According to him consumer surplus is “**Excess of price which a consumer would be willing to pay, rather than go without a thing over that which he actually does pay.**”
- ❖ The amount of money which a person is prepared to pay for good indicate the amount of utility he derives from that good, the greater the amount of money he is willing to pay, greater the utility he will obtain the good. Therefore the marginal utility of a unit of a good determines the price a consumer will be prepared to pay for that unit.
- ❖ The total utility will get from a good will be given by the sum of marginal utilities of the units of good purchased and the total price which he actually pay is equal to the price per unit multiplied by the number of units purchased, thus,

Consumer Surplus =what a consumer is prepared to pay minus what he actually pays

=Sum of marginal utilities _ (price X No. of units purchased)

Measurements of consumer's surplus:

There are two approaches to measure the consumer surplus;

- i) Marshallian approach
- ii) Hicksian approach

Marshallian approach:

- ❖ This approach is based on cardinal utility approach. The concept is based on the difference between total utility and marginal utility. A will stop buying a commodity at a point where the sacrifice made by him in terms of the price of the commodity is equal to its marginal utility.

Assumptions: Concept of consumer's surplus is based on the following assumptions.

- a. Utility can be measured in cardinal numbers
- b. Marginal utility of money remains constant and utility of a commodity can be expressed in terms of money.
- c. Every commodity is an independent commodity or it has no substitute. It means utility of a commodity is not influenced by the utility of another commodity.
- d. Income, fashion, custom, taste etc. of the consumer remains constant.
- e. Concept of consumer's surplus is based on demand curve or marginal utility. Thus all the assumptions of demand curve also apply to this concept.

Explanation:

The concept of consumer's surplus can be explained with the help of following table and figure.

Units of a good	MU/ Price	Actual price	Consumer's surplus
First unit	50	25	25
Second unit	40	25	15
Third unit	35	25	10
Fourth unit	25	25	0
Total	150	100	50

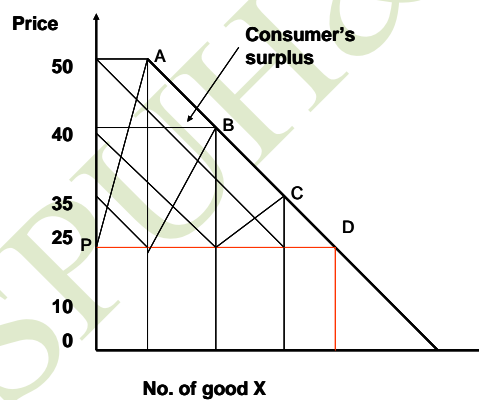
From this table it can be seen that

Total utility = $50+40+35+25 = 150$

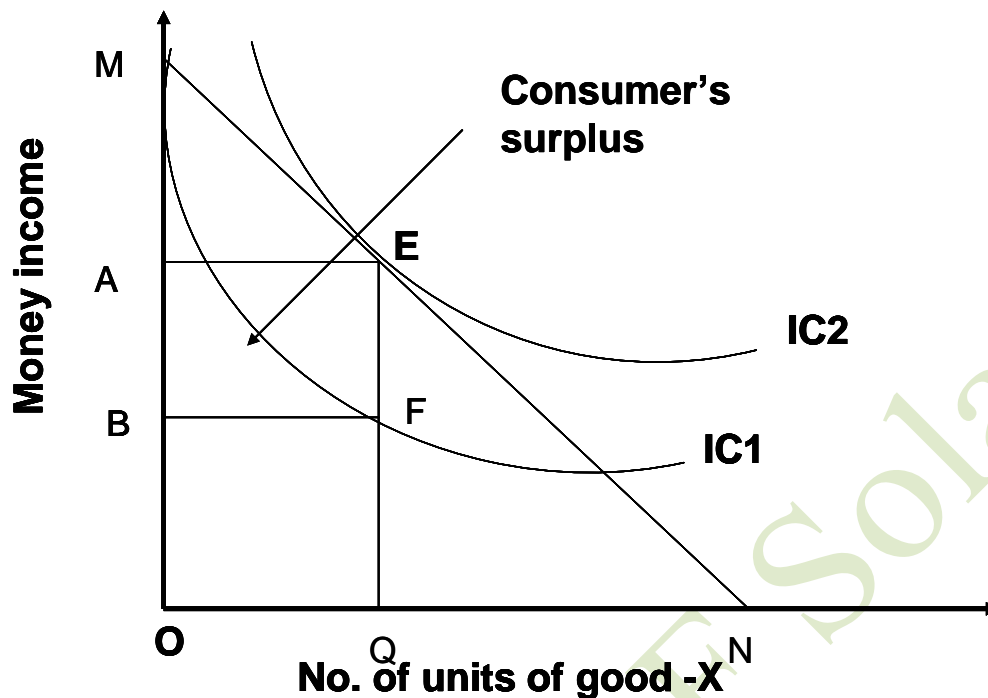
Price or marginal utility sacrificed = $25 \times 4 = 100$

Consumer's surplus = $150-100 = 50$.

In figure below in which number of units of good X are shown on X-axis and price on Y-axis. The consumer is willing to pay 50 paisa for the first unit of good X and 40 for the second unit and so on. Hence he is willing to pay OABCD price, however, he actually pays OPCD price. Hence area equal to ABCP is consumer's surplus.



Hicksian Concept of Consumer's Surplus: Prof Hicks has attempted to measure consumer's surplus with the help of ordinal utility (indifference curves). It is illustrated as below in the figure.



- ❖ In the figure, units of good X are shown on X-axis and money income of the consumer on Y-axis. Suppose the income of the consumer is OM. With this money he can buy ON units of good X, therefore MN is the price line. Slope of price line OM/ ON expresses the price per unit. Price line is tangent to IC2 at E i.e. consumer is at equilibrium.
- ❖ He buys OQ units of good X by paying MA units of money.
- ❖ Supposing the consumer does not know the price prevailing in the market. In order to get OQ units of good X the price he would be willing to pay can be ascertained from indifference curve IC1 touching point M. It is evident from the indifference curve IC1 that to buy OQ units of good X the consumer is willing to pay MB units of money, whereas he does actually pay MA units of money income. Thus the consumer is getting a surplus of (MB-MA) equal to AB amount of money.

Importance of consumer's surplus concept: The concept of consumer's surplus has both theoretical as well as practical importance.

1. Conjectural Advantages

- ❖ The concept enables us to compare the advantages of environment and opportunities or conjectural benefits. The conjectural benefits derived by people enable us to compare the standards of living in different parts of the world. If consumers' surplus is more in any country, then living standards of the people are high and vice – versa. For example, the living standards of the people of USA or Japan is certainly more when compared to India because in those countries

the national output, national income and per capita income of the people are high Thus, it helps to measure the volume of economic welfare of the people who live in different parts of the world.

2. Use in cost benefit analysis

- ❖ Today the concept is extensively used in estimating the cost benefits of various investment projects both in the private and public sectors. Costs and benefits do not merely mean money costs and monetary benefits but also real costs and real benefits in terms of satisfaction and the amount of resource utilization. The quantum of consumers' surplus derived from social projects like railways, roads, bridges, dams, flyovers, parks, libraries, water and electricity supply etc by consumers are definitely higher when compared to the amount of money spent on them. For example, a consumer would pay a very little amount of money to travel in a public transport vehicle than what he has to pay if he were to travel in an auto-rickshaw or taxi. The cost savings from these projects are directly derived from consumers' surplus.

3. Use in public Finance

- ❖ It is the basis to impose taxes on people. If consumer's surplus is high in case of any product or service, then the finance minister can impose higher taxes on them and vice – versa. This is because people are ready to pay more prices for such products rather than go without them. It is the basis to declare whether taxation policy of a government is good or bad. If the gain to the government on account of tax collection is greater than the losses to the consumers on account of tax payment, it is a good taxation policy and vice – versa.
- ❖ In this case, the total tax amount collected by the government is greater than that of the total amount of sacrifice made by the people on account of tax payments.
- ❖ It is the basis to grant subsidy by the government to private entrepreneurs. If the amount of gain to the people on account of subsidy is greater than the financial loss to the government owing to the grant of subsidy, we can justify such subsidy and vice – versa. For example, if government grants subsidy to sugar, market price of sugar declines and consequently, more consumers would buy more quantity of sugar and enjoy greater amount of satisfaction.

4. Pricing of public utilities.

- ❖ The concept helps in determining prices of public utilities. In case of construction of railway lines, air ports, roads, bridges, generation and supply of electricity, water supply etc, and people enjoy enormous amount of surplus satisfaction. While fixing the prices of these services, or commodities, the government does not look into its production and supply cost. As they are public utilities, the government follows the policy of price discrimination.

5. Helps to resolve the paradox of value

- ❖ Generally speaking market value of product depends on its demand and supply. In case of certain essential commodities like water etc supply will be more and as such its market price will be low. In these cases, marginal utility will be low whatever may be the value of total utility.
- ❖ In case, there is scarcity of a product in the market, its price would go up. In this case, marginal utility will be high whatever may be value of total utility.
- ❖ Commodities which have more value in use give more satisfaction than others which have more value in exchange. For example, in case of salt, match box, news paper etc total utility is more but marginal utility is less and as such we pay much less money for them. Value in use in case of such goods is much higher than their value in exchange.
- ❖ Commodities which have more value in exchange give less satisfaction than others which have more value in use. For example, in case of diamond, value in –exchange is more than value in use because in these cases, marginal utility is higher than total utility. Thus, the concept helps to distinguish between value in use and value in –exchange.

6. Use monopoly Pricing

- ❖ It helps the monopolist to practice price discrimination. If consumers' surplus is high, in case of any commodity or service, then the monopolist can charge higher prices and vice – versa.

7. Use in international Trade

- ❖ It is the basis to import certain items from other countries. If consumers' surplus is more in case of imported goods than domestically manufactured goods, in that case it is better to import.
- ❖ Similarly, if consumers' surplus is low with in the country and high in other nations, in that case, it is better to export them to other nations.

8. Use in welfare Economics

- ❖ It is used as a tool in welfare economics. The doctrine emphasis the advantages derived due to a fall in the prices of the commodities.
- ❖ Fall in price leads to rise in the real income of the consumer and this will definitely raise the level of welfare of the people, the level of economic well being of the people is higher in those countries.
- ❖ According to Dr. Little, the government should adopt those economic policies which promote consumers' surplus. Such policies will certainly help to increase the economic welfare of the people to the maximum extent.

9. Use in introduction of new products

- ❖ If consumers' surplus is greater in the case of introduction of a new product than the disappearance of the old product, we can justify the introduction of a new product into the market.

This helps the consumers to maximize their satisfaction. Thus the concept of consumers' surplus has great practical application in all most all fields of economic activities.

Dr. YSPUH&F Solan

Lecture-18

Theory of production

Learning objective: basic concepts of production

- ❖ Whatever the objective of business firms, achieving optimum efficiency in production or minimizing cost for a given production is one of the prime concerns of the business managers. Thus, survival of a production firm in a competitive market depends on their ability to produce at a competitive cost.
- ❖ Business managers in their efforts to minimize the cost of production, are confronted with the questions such as, how can production be optimized or cost minimized?
- ❖ How does output behave when quantity of inputs/ technology of production changes? How can the least cost combination of inputs be achieved?
- ❖ Theory of production provides a theoretical answer to these questions. Let us first discuss some of basic concepts used in production analysis

Some Basic Concepts:

Meaning of Production:

- ❖ Production means transforming inputs (labour, machines, raw materials, time, etc) into an output. This concept of production is however, limited to manufacturing.
- ❖ In economic sense production process may take variety of forms other than manufacturing. For example, transporting a commodity from one place to another, besides, production process does not necessarily involve physical conversion of raw material into tangible goods. Some kinds of production involve an intangible input to produce. For example doctors, lawyers, social workers consultants, musicians etc. all are engaged in producing intangible goods.

Input:

- ❖ An input is a good or service that goes into the process of production.
- ❖ According to Baumol, an input is simply anything which the firm buys for use in its production or other process.
- ❖ Inputs are classified as fixed and variable inputs both in economic as well as in technical sense.

Fixed Input:

- ❖ In economic terms, a fixed input is one whose supply is inelastic in the short run. This implies that all of its user together cannot buy more of it in the short run. In technical sense, a fixed input is one that remains constant for a certain level of output.

Variable input:

- ❖ A variable input is one whose supply in the short run is elastic e.g. labour, raw material etc. Technically a variable input is one that changes with the change in the output. In the long run all the inputs are variable.

Short-Run and long –Run:

- ❖ The reference to time period in production process is important concept. The short run refers to the period of time in which supply of some of the inputs is fixed/ inelastic. For example, plant, building, machinery etc. The long run refers to the period of time in which supply of all the inputs is elastic/ variable.

Flow and Stock inputs:

- ❖ There are some inputs, if their services are not used; these cannot be stored such as labour, building, etc. If the services of labour are not used today, they cannot be stored until next day, next month or year. Such services are known as flow inputs/ resources.
- ❖ Some resources such as seed, fertilizer, feeds are however entirely used up in the production process. If these are not used in one period of production, they can be stored for later period. These are known as stock inputs/resources.

Output: An output is any good or service that comes out of production process.

Production function:

- ❖ The relation between inputs and outputs is production function. Production function is thus, a technical and mathematical relationship describing the manner and extent to which a particular product depends upon the quantities of input (s) or service(s) of input used.
- ❖ In production function, output is dependent on or determined by or related to or is the function of input(s) or use of resource(s). Production function is of two types; continuous and discrete.

Continuous production function:

- ❖ Continuous production function can be explained by response of yield to fertilizer or seeds where the doses of inputs and output can be split up to small units' e. g. fertilizer can be applied to a hectare of land in quantities ranging from a fraction of kilogram up to hundreds of kilograms.

Discontinuous or discrete function:

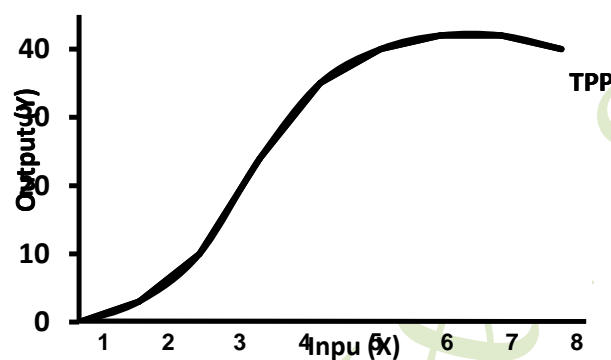
- ❖ Such a function is obtained for inputs which are used in whole number such as a number of ploughings.

Production in short run:

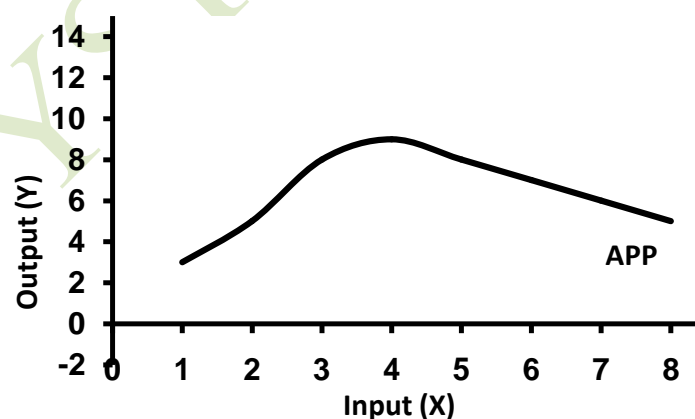
- ❖ In short run, more or less units of a variable input are applied to a given quantity of a fixed input to produce different units of output of a product. There are three important concepts of product in this connection.

- 1 Total product
- 2 Average product
- 3 Marginal product

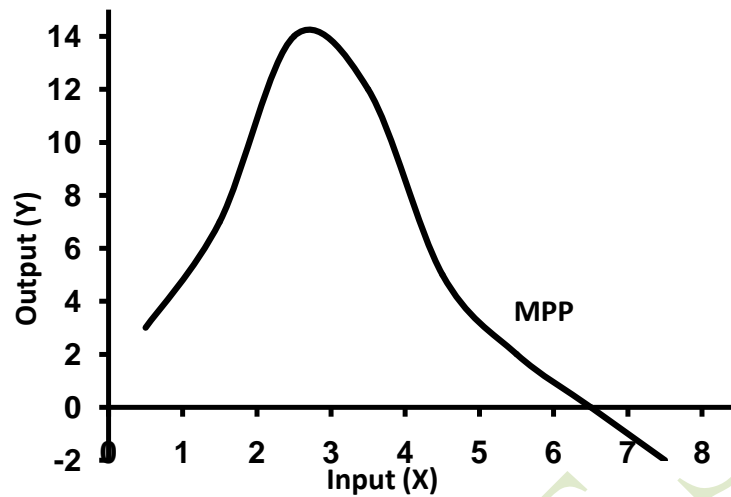
❖ Total product of a variable factor is the maximum output produced by combining a given input of that factor with the fixed factor.



❖ Average product of a variable factor is simply the total product of the factor divided by the total units of the variable factor i.e. average output per unit of the factor.



❖ Marginal Product is the change in the total product resulting from the use of one more or less unit of the variable factor. In other words marginal product measure the rate at which output changes as a result of change in variable factor.



Input Used	Total product	Average Product	Marginal Product
1	50	$50 \div 1 = 50$	-
2	90	$90 \div 2 = 45$	40
3	120	$120 \div 3 = 60$	30
4	140	$140 \div 4 = 35$	20
5	150	$150 \div 5 = 30$	10
6	150	$150 \div 6 = 25$	0
7	140	$140 \div 7 = 20$	-10
8	120	$120 \div 8 = 15$	-20

The Laws of Production:

- ❖ The law of production describes the ways which are technically possible to increase the level of production.
- ❖ The traditional production theory studies the marginal input output relationships under short as well long run conditions. In the short run input output relations are studied with one variable input, other inputs held constant.
- ❖ The law of production under these conditions is called 'The law of Variable Proportions or The Laws of Returns to a Variable Input.

- ❖ On the other hand in the long run output can be increased by increasing all the factors. The response of output to changes in the size or scale of all the factors) in the same proportion) is called Returns to Scale.

Returns to a Factor or Production with one variable Input:

“The proportional relationship between production and variable factor of production is known as returns to a factor.”

- ❖ On account of change in proportion of factors there will also be a change in total output but at different rates. Initially, when more units of variable factor are employed on fixed factor, output may increase at the increasing rate, and subsequently total output may increase at constant rate. But a stage must come when ultimately total output will increase at decreasing rate. Thus return to a factor exhibits three phases.

Increasing Return to factor:

- ❖ In short period, if with constant units of fixed factor, more units of variable factor are increased, then total output rises at an increasing rate, then this is called as increasing return to factor.

Constant Return to Factor:

- ❖ In short period, if with constant units of a factor, more units of the variable factors are increased, and then if total output rises at a constant rate, then it will known as constant return to factor. In this case marginal production remains constant.

Decreasing Return to a Factor:

- ❖ If with constant units of a fixed factor, more units of variable factor are added, with the result that total production increases at a decreasing rate, and then it will be known as decreasing return to a factor.

Lecture-19

Theory of production

Learning objective: Law of Variable Proportion,

- ❖ This law states that as the proportion of factors is changed, the total production at first increases more than proportionately, then equi- proportionately and finally less than proportionately.
- ❖ The classical economist called this as the **Law of Diminishing Returns**. They derived it by applying more and more labour to a fixed acreage of land, and thought of it as associated particularly with agriculture.
- ❖ But it is general principle that can be applied to any production operation. It is now usually called as **Law of Variable proportions**.

Assumptions: The law has following main assumptions

- ❖ One of the factors is variable, while others are fixed.
- ❖ All units of the variable factor are homogenous.
- ❖ The technology of production is constant.
- ❖ The factors of production can be used in different proportions.

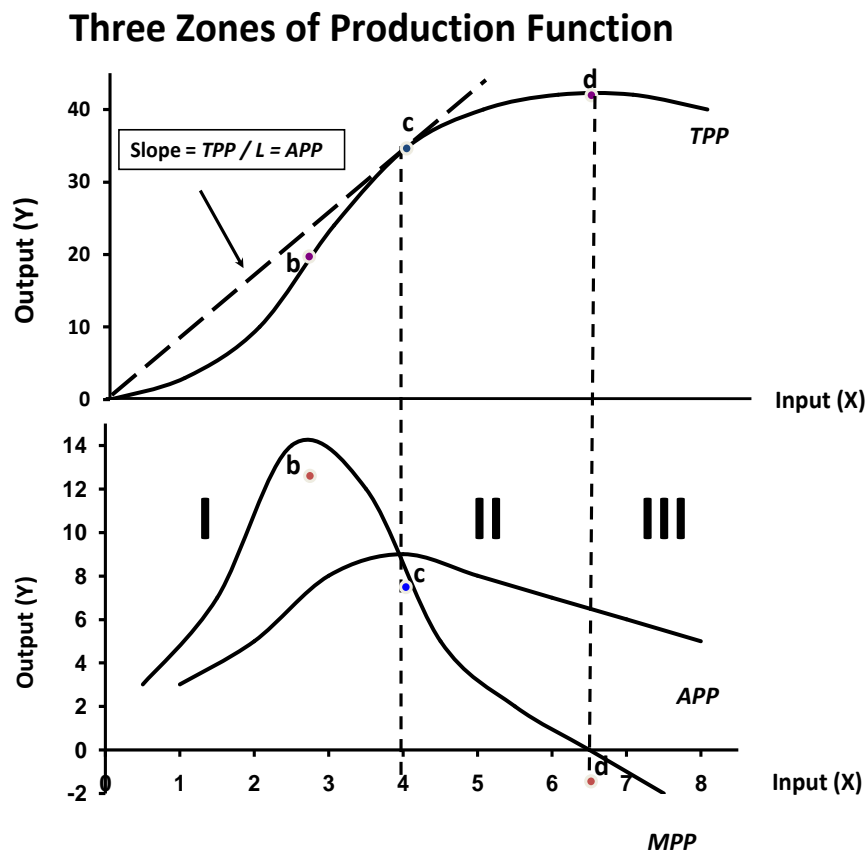
Explanation of the law:

- ❖ This law can be explained with the help of following table and figure.

Units of land (Fixed input)	Units of labour (Variable input)	Total product (TP)	Marginal Product (MP)	Average Product(AP)	
(1)	(2)	(3)	(4)	(5)	
1	1	2	-	2.0	at increasing rate
1	2	5	3	2.5	
1	3	9	4	3.0	
1	4	12	3	3.0	at decreasing rate
1	5	14	2	2.8	
1	6	15	1	2.5	
1	7	15	0	2.1	
1	8	15	0	1.8	

- ❖ Suppose a farmer has one hectare farm and possess all the inputs of production. He wants to grow say tomato. He wants to decide about the number of labourers to be used, keeping other factors constant. So as the number of labourers is increased, the Total product, Marginal product and Average product is as shown in the table. Column 1 of the table shows the fixed factor i.e. land, whereas column 2 shows the variable factor labour. By using one more unit of labour whatever addition is made to the total production is called marginal product. (Column 4). Column 5 shows the average product.
- ❖ The table shows that if increasing units of labour are added to a fixed quantity of land, the total product first increases at increasing rate upto 3 units of labour afterwards it increases at

decreasing rate. When 6 units of labour are used the total product is maximum. The marginal product of 7th unit of labour is zero and of 8th unit is negative. Average product of labour first increases and start the declining gradually. Average product becomes equal to marginal product, then later starts declining. The same thing is shown in the figure as below.



Three Stages of Production: From the Table as well as figure, drawn above on the assumption that production obeys the law of variable proportions, one can easily discern three stages of production as shown in the table below.

Stages	Total Product (TP)	Marginal Product (MP)	Average Product (AP)
Stage-1	Increasing	Increasing	Increasing
Stage-II	Increasing at Decreasing	Decreasing	Decreasing
Stage-III	Decreasing	Negative	Decreasing

Stage of Rational Decision: In order to achieve maximum profits, the rational decision of purely competitive firm will have to operate in stage -1. In stage-1, average returns to the variable input are increasing but the fixed input is being used uneconomically. Hence, as output increases, total profit also increases, thus the firm/farm will have an incentive to produce more through stage -1. A rational firm/farm never operates in stage -1. In this stage there is actual decline in the volume of the total production. In the words of Ferguson, “Even if the units of variable input were free, a rational producer would not employ them beyond the point of zero marginal products because their use entails a reduction in the total output.”

Causes of Application of Law: This law operates because of the indivisibility of inputs, change in their proportion and imperfect substitutes.

- ❖ **Indivisibility of inputs:** The main cause of the stage of increasing returns is that some inputs of production are indivisible. It means in order to produce goods up to a given limit, at least one unit of the fixed is indispensable. In the initial stages of production, fixed inputs (Land) remains underutilized and needs application of variable input (labour). Moreover additional application of variable input facilitates process based division of labour that raises the efficiency of this input. It also tends to improve the degree of co-ordination between fixed as well as variable inputs. Hence output increases at an increasing rate.
- ❖ **Change in input ratio:** The main cause of decreasing returns is that one of the inputs of production is variable, while other are fixed. When variable input is used with fixed inputs, their ratio compared to variable input falls. Production is the result of co-operation of all inputs. When as additional unit of variable input is combined with the fixed relatively less units of fixed inputs, the marginal return of variable input decline. For example in an area of 4 hectare 2 labourers are used to fully utilize the area. If number of labourers is increased to say 4, the land to labour ratio falls from 2:1 to 1:1. It is clear that one labour per hectare produces less as compared to 2 per hectare. Hence marginal production of labour diminishes.
- ❖ **Imperfect substitutes:** According to Mrs. Joan Robinson, imperfect substitution of inputs is mainly responsible for the operation of diminishing returns. Had perfect substitution among the inputs been possible then after the optimum use of fixed input, as the units of variable input are increased, the amount of fixed input could be increased by making use of substitutes. But in real life inputs are imperfect substitutes and hence one input cannot be substituted by another input indefinitely.

Lecture20

Factors of Production

Learning objective: Introduction to factors of production and Land and its characteristics

- ❖ Production means a creation of value in the goods. Production consists in creating utility in goods for the satisfaction of human wants.
- ❖ Production activity helps in transforming a set of inputs into goods and services. It essentially means a transforming of one set of goods into another. The output which comes out of production has greater utility over the inputs combined in the production process. The inputs that are used in production of goods may be provided by the nature and/or by other industries. According to Adam Smith the production of a thing is complete only when it is in the hands of the consumers. According to Dr. F.G. Fairchild production consists of the creation of utility in wealth.
- ❖ The factors of production means the production resources required to produce a given product.
- ❖ Fraser defined factors of production as “*a group or class of original productive resources*”.
- ❖ The factors of production have been traditionally classified as Land, Labour, Capital and Organization.
- ❖ In the theory of production; it is assumed that the entrepreneur aims at maximizing his profits. A profit- maximizing entrepreneur will seek to minimize his cost for producing a given output, or to put it in another way; he will maximize his output for a given level of outlay.

Land

- ❖ Land, as ordinarily understood, refers to earth’s surface. But in economics, the term land is used in a very wider sense. It does not mean surface soil only but includes all those which are the free gifts of nature.
- ❖ Marshall defined land as “the materials and forces which nature gives freely for man’s aid in land and water, in air and light and heat”.
- ❖ Land refers to those natural resources that are useful and scarce. In other words, land stands for all natural resources, which yield an income or have an exchange value.
- ❖ In land we include all those natural forces which are above or over the earth like air, light, rainfall, sunshine, etc; which are on the earth like rivers, forests, lakes, vegetables, etc; and which are beneath the earth like coal, iron, copper, oil, minerals, etc.

Characteristics Features of Land:

Land as a factor of production has the following characteristic features:

- ❖ Land is a free gift of nature. Labour efforts, howsoever great, cannot create even an inch of land. It is given to us free of charge by nature.
- ❖ Land is limited in supply. We cannot increase the supply of it. If our needs for it neither increase, nor can we decrease the supply of it, if our needs for it decrease.
- ❖ All the lands are equally well or ill situated. Some lands are situated near the market and other away from it.
- ❖ Land is immobile i.e. it cannot be transported from one place to another. Products of land are mobile (wheat, cotton, jute, etc. can be transported from one place to another), but land itself is immobile.
- ❖ Land has original and indestructible qualities. These cannot be destroyed because these are given by nature. It is, no doubt, true the man tries to improve upon its qualities- according to his abilities but the basic qualities cannot be changed or destroyed.
- ❖ Land is a passive factor of production because it cannot produce anything by itself. Man has to invest money and apply labour to produce something out of it.
- ❖ The price of land depends upon its situation. Lands which are near the water (rivers and canals) or near cities command higher prices than lands situated away from water or cities.

Land and its productivity

Productivity of land means the capacity of the land to produce. It is also called the efficiency of land, which depends on the following factors

- ❖ Relief
- ❖ Climate
- ❖ Rainfall
- ❖ Situation
- ❖ External factors
- ❖ Soil structure
- ❖ Irrigation
- ❖ Capital
- ❖ Organization
- ❖ Proper use
- ❖ State patronage
- ❖ Before studying the different theories of factor of production, let us discuss the characteristics of different factors

Lecture-21

Factors of production

Learning objective: Labour and its characteristics

- ❖ The labour has wide and diversified meaning in economics. Labour would mean any work, manual or mental, which is done for a reward. It includes the work done by farmers, workers, the services of teachers, doctors, actors, etc.
- ❖ Marshall defined labour as “*any exertion of mind or body undergone partly or wholly with a view to some good other than the pleasure derived directly from the work*”.
- ❖ Any work that is done for the pleasure does not come under labour. A person who is working in his rose-garden as a hobby is not a labourer. But, if he works in rose garden, which is cultivated for sales, then he is a labourer.
- ❖ Labour like land is treated as the basic factor of production.
- ❖ Land and labour when combined in right proportion produce wealth. In fact, land or any other factor of production is of little use till labour is applied.

Characteristics of Labour

- ❖ *Labour is inseparable from Labourer:* The worker has to sell his labour in person and he has to be physically present, while delivering the work. He cannot deliver the work in absentia. It varies from labourer to labourer depending on races, climate, physical and mental alertness of labourer. Labour cannot be separated from the labourer.
- ❖ *Labour is perishable:* Labour cannot be preserved which means that labourer has no reserve price. He has to sell the work without really minding the wages, for, a day's work lost is a loss forever. In other words, it is a flow resource.
- ❖ *Labour has very Weak Bargaining Power:* Perishability of labour is a prime factor for the labourer, which rather forces him to accept whatever the wage that is offered. The weak bargaining power of the labourer is taken as an advantage by the employer.
- ❖ *Lack of Free Mobility:* Compared to capital, labour is less mobile. No doubt that labourers move from one place to another and from one occupation to another, but it is not a common feature. Thus, labour, lacks horizontal and geographical mobility. This leads to a variation in wages among the occupations as well as spatially.

- ❖ *Supply of Labour is Independent of Demand:* Supply of labour depends on the population in a country. Population is one factor which can neither be increased nor decreased overnight. The increase or decrease is a slow process and supply of labour is independent of demand.
- ❖ *Supply of Labour Peculiarly Changes with the wages:* Normally the seller of a good sells more when the price per unit of commodity is higher and vice versa. But regarding labour a fall in wages leads to an increased supply of labour. A fall in wages leads to reduction of their incomes, so to make good this fall in income, family members who were not working earlier work to supplement the family income.
- ❖ *Different Efficiency:* Labourers are of different efficiency. Some are more efficient on account of their ability, training and skill, others are less efficient on account of their illiteracy and ignorance. Efficient labourers work better.
- ❖ *Means and End:* Labourer is a means of production as well as an end because he is the consumer also. It is different from land and capital as they are only the means of production and not an end. Whatever is produced is also consumed by the labour force. Therefore, labour is both a means and an end of production.
- ❖ *Active Factor:* Labour is a more active factor of production than the land which is a passive factor of production. Labour is also an essential factor because without labour land, natural resources or capital are of no use.
- ❖ *Different from Capital:* The nature of labour is different from the nature of the other factors of production. Labour has its own likes and dislikes, feelings, desire to take rest. It is influenced by the behaviour of employer and in turn influences him. It is not easy to estimate the cost of producing the labour force in a country – whereas capital has no such problems. Therefore, labour is different from capital.

Division of Labour

- ❖ When the making of an article is split up into several processes and each process is entrusted to a separate set of workers, it is called division of labour.
- ❖ Division of labour is associated with the labour efficiency and it helps in large scale production. For instance, making the number of chairs will be more, if the process is split up into different parts like making seat, back-rest, legs and then assembling the parts instead of making the chairs individually.

Division of labour is meant to improve the efficiency of labourer. There are three different types of division of labour:

- ❖ Simple Division of Labour
- ❖ Complex Division of Labour
- ❖ Territorial Division of Labour

Simple Division of Labour:

- ❖ It is also known as occupational specialization. This means that people in a society undertake various occupations to make their livelihood.
- ❖ The choice of an occupation depends on the suitability of an individual serving the society. That is how we have in community, some are doctors, others are lawyers, some others are teachers and we have blacksmiths and other craftsman. They execute duties regularly and help the society to develop by helping themselves through their professions.
- ❖ The division of labour is fast growing with full adoption of requisite technology and providing employment to millions of people.

Complex Division of Labour:

It is the assigning the work by task. The task here is a sub-process that is found in producing a commodity. Each group of people is given a task in which it is considered as specialist. For example, in making silk cloth, many sub-processes such as reeling, weaving, dyeing, etc., are involved and for all these sub-processes we require sophisticated technology and trained people to run the silk industry.

Territorial Division of Labour:

- ❖ It refers to localization of industries. Certain areas or regions specialize in production of a commodity. The examples are textile mills in Bombay and Ahmedabad, silk sarees in Kanchi, jute mills in Kolkata, leather in Kanpur, etc.

Advantages of Division of Labour:

- *Increases productivity:* As the individual worker concentrates on only one process of the work, he is able to do it quickly and thus, the productivity of labour increases.
- *Increases dexterity and skill:* The worker becomes an expert due to repetitive performance of the same work (process).
- *Large scale production:* Division of labour improves production not only in terms of quantity but also in quality since goods are made by specialists.
- *Right man in the right place:* Under division of labour, workers are so distributed among various works that each worker is put according to his ability.

- *Saving of Time:* Since the worker is concentrating in only one activity there is a saving time, which otherwise would have been wasted, had he been attending to several activities in the manufacturing of a commodity.
- *Saving Tools and Implements:* As a worker has to perform a specific function, he needs only a particular type of implements. In construction of farm ponds, formation of bunds, digging off wells, etc., the labourers' should be provided with suitable implements and machinery for turning out the work efficiently with minimum cost and time.

Disadvantages of Division of Labour:

- *Monotony:* As the worker repeats the same work for a long time, it becomes monotonous to the worker and soon he lacks interest in his work.
- *Risk of unemployment:* If a worker (specialist) happens to lose his present job, he may not be able to get similar job elsewhere immediately.
- *Retards Human Development:* Continuous performance of same work narrows his overall outlook. Since his faculties are tuned to perform a set work, his overall growth is stunted.
- *Lack of General Responsibility:* Since many people are involved in producing a good, nobody takes the general responsibility in correcting a defect, it occurs. Everybody thinks that it is not his duty. Thus workers become careless and irresponsible.
- *Problem of Distribution:* Several people involve in production of a product. Based on the contribution, they should get their due share of product which is not an easy task. This complicates the problems of distribution. This means distribution of dividend/bonus should be done scrupulously for satisfying the labour working in various divisions.

Lecture-22

Factors of production

Learning objective: Capital and its Characteristics

- ❖ Capital is a man-made material. Man produces capital equipments or goods to help him in the production of other goods and services.
- ❖ Capital is, therefore, defined as “the produced means of further production”. The word ‘capital’ is often interchangeably used for concepts like money, wealth and land. Hence, the definition of capital is made clearer in the following section:

Capital and Money: Money can be used to buy consumer goods (rice) as well as capital goods (tractor). Money used to buy capital goods is also called capital, while money used to buy consumer goods is not capital.

Capital and Wealth: Wealth includes both consumer goods and capital goods. Hence, all capital is wealth, but all wealth is not capital.

Capital and Land: Land is a free gift of nature but capital is man-made. Capital is perishable, i.e., it can be destroyed. But land is indestructible and permanent. Capital is mobile when compared with land. The quantity of capital can be changed depending upon its price. But the land area is fixed and limited in supply.

Characteristics of Capital

- Capital is man-made (artificial). Capital is not a free gift of nature. Machinery, implements, etc. are considered as capital goods.
- It increases the productivity of resources. Capital is a productive, as it helps in enhancing the overall productivity of all the resources employed in the production process. Invested capital also fetches interest for its productive capacity. Farm machinery when used with the skilled labourers enhances the productivity of land. Irrigation dam is considered as the capital good and with its water; we can bring out complementary effect on the productivity of other resources such as fertilizers, seeds, etc.
- Supply of capital is elastic. It can be produced in large quantity when its requirement increases. Its supply can be altered according to the need. Based on the demand, supply of the capital goods can be changed.
- Capital is perishable as it can be destroyed.

- Capital is highly mobile as it possesses the characteristics of territorial mobility. For example, capital goods like tractor can be taken to different places of work and can be used for a variety of works.
- It is also prospective as its accumulation rewards income in future. Savings and investment in the economy leads to growth and development of the economy due to accumulation of capital overtime. This leads to a rise in nation's income and consequently individual's income.
- Capital is a passive factor of production. Unless it is combined with labour, capital is of no use and remains idle.

Types of Capital

Fixed capital and working capital:

- ❖ Fixed capital can be used many times in the production process. The level of fixed capital does not vary with the level of production in a very short period, (E.g.) farm buildings, tractors, farm tools, etc.
- ❖ Working capital or variable capital or circulating capital can be used only once and they are not available for further use. The level of working capital increases (decreases) with the increase (decrease) in the level of production, (E.g.) raw cotton or lint used to spin yarn, fertilizer used to produce paddy, etc.

Sunken capital and floating capital:

- ❖ Sunken capital is meant only for a specific purpose, (E.g.) cane crusher, paddy thrasher etc. They cannot be used for any other purpose. Floating capital can be employed for any use, (E.g.) money.

Social capital and private capital:

- ❖ Private capital is owned by individuals and the income or benefit derived from these assets are available only to the individuals who own them (E.g.) tractors, private factories etc.
- ❖ Social capital is owned by the society as a whole and the benefits derived from these assets are shared among the members of the society, E.g. bridge, dam, government owned factories, etc.

Capital Formation:

- ❖ Capital formation or capital accumulation means the increase in the stock of real capital in a country. In other words, capital formation involves making of more capital goods such as machines, tools, etc, which are all used for further production of goods. Capital formation creates employment at two stages. First, when the capital is produced, some workers have to be employed to make capital goods like machineries, tools, etc. Secondly, more labour has to be employed when capital has to be used for producing other goods.

Phases of capital formation: There are three phases in the process of capital formation or capital accumulation.

Creation of savings:

- ❖ In order to accumulate capital goods some current consumption has to be sacrificed. If people are willing to reduce their present consumption, they can devote more resources to build up capital goods for the use in future. The level of savings in a country depends upon the power to save and the will to save.
- ❖ The power to save depends upon the level of income of people. The higher the level of income, the greater will be the amount of saving. Apart from the power to save, the total amount of savings also depends upon the will to save.

People save in order to provide financial security against their old age and unforeseen emergencies. People also save to start business or make provision for their children's education, marriage, etc. Savings may be either voluntary or forced. Voluntary savings are those, which people do of their own free will. Voluntary savings depend upon the interest rate, power to save and will to save.

- ❖ On the other hand, taxes by the Government represent forced savings. Savings may be done not only by households but also by business enterprises and government. Government savings constitute the money collected as taxes and the profits of public undertakings. Foreign capital also forms another source of investment. Foreign capital can be of 1) direct private investment by foreigners, 2) loans or grants by foreign governments and 3) loans by international agencies like the World Bank, International Monetary Fund (IMF), etc.

Mobilization of capital:

- ❖ The savings must be mobilized and transferred to businessmen or entrepreneurs who require them for making investment. In the capital market, funds are supplied by the individual investors (share holders), banks, investment trusts, insurance companies, government, etc.

Investment of savings in real capital:

- ❖ Investment is done by entrepreneurs. The level of investment or capital accumulation is determined by the cost or supply price of capital (interest and other cost of acquiring capital), the expectations of profits and the size of market for goods to be produced.

Lecture-23

Factors of production

Learning objective: Enterprise or Organization and its Characteristics

- ❖ An entrepreneur is the co-coordinator of all other factors of production. He has to plan, organize and direct other factors of production arrange for marketing the produce and take risks and uncertainties.

Functions of an Entrepreneur

Function of initiation

- ❖ An entrepreneur makes proper assessment of markets (both input and output markets) and decides upon what, when and how with regard to production and marketing of a commodity.

Function of choice of location

- ❖ He decides upon the particular place to locate the concern or unit where facilities regarding production and marketing are available.

Function of co-ordination:

- ❖ The entrepreneur has to co-ordinate, direct and supervises the functioning of other factors of production.

Function of innovation:

- ❖ The entrepreneur has to introduce new technologies, machineries and tools in order to increase the labour productivity and also to reduce the cost of production.

Function of bearing risk and uncertainty:

- ❖ Taking risks means accepting a probability that things will turn out badly. Under risk the occurrence of future events can be predicted fairly accurately by specifying the level of probability, E.g. prediction on monsoon rain, storm, etc. In the case of uncertainty, the future occurrences of an event cannot be predicted accurately. E.g. price fluctuation. In both cases, the entrepreneur may likely to incur losses. So, he has to anticipate risk and uncertainties and provide necessary alternatives to face them.

Forms of Business Organization

- ❖ Business organization is a trading concern or producing unit. A business organization may be owned either by a single person or by many people. The primary aim of a business organization may be either earning profit or promotion of general welfare of the people. On the

basis of the above two criteria, business organizations can be classified into five categories as follows:

Individual Entrepreneur (Individual Proprietary System)

- ❖ A business organization owned by a single person is known as the individual proprietary system. In this case, personal attention on all consumers by the proprietor is possible. He himself takes the entire risks and hence, wastage of all kinds is eliminated. However, large-scale business is not possible, as the capital at the command of the sole proprietor is generally meager.
- ❖ In the event of failure, not only the assets of business but also the other private assets and properties of the proprietor can be claimed against by creditors. E.g. Retail shops. The individual enterprise is the most common form of business organization.

Merits:

- The owner of business enjoys absolute freedom without interference of anybody in the business.
- The owner or proprietor enjoys all the profits received from the business.
- Capital requirement is less. Capital is supplied from the owner's funds.
- This type of business is more flexible allowing changes in various business decisions like investment, sales, diversifying the business activities. Expanding size of business, etc.
- This type of business is easy to start and easy to terminate.

Demerits:

- Limited capital for the business to expand as the owner funds are by far the sole source of funds.
- In the event of failure of the business, creditors (lenders) are empowered to exercise every right to attach not only the assets of business but also the personal property of the owner to make the good the unpaid debts.
- The continuity of business is questioned as the death of owner brings the business to a grinding halt.

Partnership

- ❖ In this case, two or more person join together; contribute share capital and share profit or loss in agreed proportions. It establishes wider personal contacts and hence, large-scale production is possible. The existence of unlimited liability curbs the speculative or risky tendencies of the partners and prevents the starting of risky enterprises. However, unlimited liability makes the business un enterprising, because all partners are liable for the firm's debts irrespective of the amount of capital each has invested. Further, in actual practice, partners behave in a selfish manner, i.e., doing the minimum and trying to get the maximum out of the business. Any action taken by one partner is legally binding on all other partners and this makes the business more complex. E.g. Small transport operators, textiles business firms, etc.

Merits:

- Generation of greater financial resources coupled with diversified managerial talents.
- Simplicity of the business.
- Enjoys freedom from the govt. control.
- Less business risk as risk is shared by all partners.

Demerits:

- Unlimited liability
- Limited size of business and uncertain life.
- Difficulty in convincing all the partners on certain decisions.

Joint - Stock Company

❖ The joint-stock company is owned by a large number of share holders who contribute to the share capital. They are entitled to get the profits (dividends) of the company. The share holders elect a board of directors among themselves. The board appoints one of its members as the managing director. The board directs and supervises the affairs of the company. The joint stock company is based on the principle of limited liability. That is, each share holder is liable for the debts of the company only up to the value of the share he has bought from the company. His other properties cannot be attached by the creditors of the company. Hence, the word 'Limited' (Ltd) is written after

the name of any joint stock company. Shares are transferable from one person to another through stock exchanges. In general, there are two types of shares: 1) ordinary share and 2) preference share. There is no special privilege attached to the ordinary share and the ordinary share holder gets a dividend out of the net profits of the company. The preference shares are guaranteed by a certain fixed dividend, which is paid out of the net profits before dividends are paid on any other kind of shares. Joint stock companies are of two kinds, viz., private and public. A private company has to satisfy the following conditions:

- Neither share holders nor debenture holders exceed fifty in number.
- Shares are not offered for sales by public issue;
- Directors can disapprove any proposed transfer of shares;
- Nobody outside the company is in a position to control its policies.

❖ Besides the shares, the companies usually raise funds by floating ‘debentures’. Debentures or security bonds are not shares of the company but they are promissory notes on the basis of which the company raises additional funds in the form of loans. The debenture holders are the company’s creditors and they must be paid the agreed rate of interest whether the company makes profit or not.

Merits:

- As the company can raise a large sum of capital, large-scale production is possible.
- As the company is based on the principle of limited liability, the share holder’s risk is reduced.
- It promotes research and development facilities in order to improve the quality of goods and to minimize the costs.
- Shares can easily be transferred through stock exchanges. A share holder can withdraw whenever he likes without disturbing the company.

Demerits:

- Directors are practically self appointed and the share holders do not have much influence in the decisions taken by the company.
- Share capital is owned by the share holders but risk is taken by the board of directors. Hence, some directors start risky enterprises and this result in inevitable losses to the company.
- The liability being limited and the shares being transferable, the share holders take no interest in development of the company.

Co-operative Enterprises

- ❖ Co-operation is a form of economic organization where people voluntarily work together for a business purpose on the basis of mutual benefit. It is a voluntary organization designed to promote economic interests of its members. Members have equal rights and responsibilities. The co-operative society has the motto of 'each for all and all for each'. Co-operation is supposed to teach virtues like self-sacrifice, discipline, honesty and fairness in dealings, mutual help and self-reliance. The basic objective of co-operation is protecting weaker sections of the society so that they fulfill their needs. e.g. Primary Agricultural Co-operative Credit Society. Various types of co-operatives societies are: a) Consumers' co-operatives b) Producers' co-operatives c) Credit co-operatives.

Merits:

- Membership is open to every person. None can prevent any person willing to join the societies.
- Management of the co-operative is democratic. The members among themselves elect the board of management. Every member has equal right in electing the members irrespective of number of shares.
- The co-operative purchase goods from producers directly and sell them to consumers directly. In this process the middlemen are eliminated.
- The motto of co-operative is service, but no profits. Co-operatives aim at spreading the virtues of discipline, integrity, honesty, mutual help, fairness in dealings, etc.

Demerits:

- Suffers from timely and capital inadequacies. Societies aim at the betterment of weaker section and shares raised them all are of small magnitude. This limitation stands in the way of initiating a large scale enterprise.
- Since there is no bar in entering into a society for anybody, the members are drawn from different sections of the society. This creates lack of understanding among the members. The members as a result do not take much interest and leaves everything to paid workers.

- The transactions of the society are in cash and no credit sales are allowed. Since the members come from poorer sections of the society, they cannot always transact them to buy their requirements.
- Societies function under the regulation of the Government. Govt. even nominates members of the management committee. In nominating the members of political parties take a major role and the business environment suffers.
- There is a lack of incentive and initiative.
- Business leadership is lacking in co-operatives.

State Enterprises

❖ A commercial undertaking owned and controlled by the government is public undertaking or state enterprise. Entire investment or major part of the investment is done by the Government. The major considerations for the States to undertake the business are heavy investment requirements, need to protect weaker sections against economically strong and when private traders are hesitant to venture into the enterprise. State enterprise is found in manufacturing, trading and service activities. The Government programmes are implemented through State enterprises. Public undertakings have been started for the following reasons:

- It brings about rapid economic development.
- It ensures that the benefits of development are shared by all the people.
- The state can raise huge capital, which could not be raised by the private sector.
- As a monopoly enterprise, it enjoys several advantages.

Merits:

- Industrial development is possible through State enterprises. Private sector does not show much concern for initiating projects requiring huge capital and long gestation period.
- Planned and balanced growth is possible through the entry of Government. Private enterprises show their preference for establishing industries in developed areas. Government is prepared to establish industries even in underdeveloped areas which ensure balanced growth in all spheres of activities.
- Government takes over the sick units and run them as State enterprises in the interest of the nation.

- The profit obtained by the State enterprise, are ploughed back into the business for further expansion and diversification and also the welfare of the community in general.
- Government enterprise encourage socialistic pattern of society which reduce economic disparities.
- There is an attraction for the aspiring qualified individuals to join the Government service. It commands superior talents.
- The employees feel greatly secured in Government service.

Demerits:

- State enterprise when compared with private enterprise is not run and managed efficiently.
- Red-tapism and lack of initiative are prevalent.
- Inefficient management of the administrators results in loss of under utilization of resources.
- The proposed projects by the Government are plagued by undue delays. This is due to the complicated procedural formalities coupled with non-release of funds in time. These delays make the planned estimates go topsy-turvy, consequently the expected benefits would not be forthcoming timely.
- The security of the job of an employee in a State organization makes him not to bother too much to deliver the goods, for he gets his pay regularly.
- Manpower planning is a lacuna in the State enterprises and they employ persons disproportionate to their needs. This result in overstaffing leading to inefficiency.
- These are by the service oriented rather than profit oriented.
- Another demerit of public concern is high overhead costs. These arise out of large amounts of expenditure on unproductive items coupled with high investment on amenities for employees even before the profit is earned.

Lecture-24

Market

Learning objective: Market, its component, and types of market

- ❖ The firm's price and output decisions are made in a given market. The term market is used indifferent ways. The word market comes from the Latin word "marcatus" which means merchandise or trade or a place where business is conducted.
- ❖ The market, in economic sense, refers not necessarily to a place but to a commodity or commodities, and buyers and sellers of the same, who are in direct competition with other.
- ❖ According to Cournot, "Economists understand by the term Market not any particular place, in which things are bought and sold, but the whole of any region in which buyers and sellers are in free intercourse with one another that the prices of same goods tend to equality easily and quickly.

Components of a market:

For a market to exist, certain conditions must be satisfied. These conditions should be both necessary and sufficient. They may also be termed as the components of a market.

- ❖ The existence of a good or commodity for transactions (Physical existence is, however, not necessary).
- ❖ The existence of buyers and sellers.
- ❖ Business relationship or intercourse between buyers and sellers; and
- ❖ Demarcation of area such as place, region, country or the whole world.

The existence of a perfect competition or uniform price is not necessary.

Types of markets:

Markets may be classified on the basis of dimensions like area, time, commodities, volume and competition.

On the basis of area:

On the basis of area from which buyers and sellers usually come for transactions, markets may classify into the following four classes:

a) Local or Village markets: A market in which the buying and selling activities are confined among the buyers and sellers drawn from the same village or nearby villages. The village market exists mostly for perishable commodities.

b) Regional Markets: A market in which buyers and sellers for a commodity are drawn from a larger area than the local markets. Regional markets in India usually exist for food

c) National Markets: A market in which buyers and sellers are at the national level. National markets are found for durable goods like jute and tea.

d) World Market: A market in which the buyers and sellers are drawn from the whole world. These are the biggest markets from the area point of view. These markets exist in the commodities, which have a worldwide demand and or supply such as coffee, machinery, gold, silver etc.

The storage facility, transportation preservation and processing techniques used can enhance the area dimension of market for a commodity. e.g. turkishroom local to wider area by dehydration; milk – pasteurization enhances the area dimension from local to regional.

On the basis of time span

a) Short period Markets: The markets, which are held only for a few hours we called short period markets. The products dealt with in these markets are of a highly perishable nature, such as fish, vegetables, milk and flowers. In these markets, the prices of commodities are mainly governed by the extent of demand for, rather than by the supply of the commodity.

b. Long-period markets: These markets are held for a longer period than the short period markets. The commodities traded in these markets are less perishable and can be stored for some time e.g. food grains and oil seeds. The prices are governed both by the supply and demand forces.

c. Secular -Markets: These are markets of a permanent nature. The commodities traded in these markets are durable in nature and can be stored for many years. Example is markets for machinery and manufactured goods.

On the basis of Number of commodities

A market may be general or specialized on the basis of the number of commodities in which transactions are completed.

a. General Markets: A market in which all types of commodities, such as food grains, oil seeds, fibre crops, gur etc. are bought and sold is known as general markets. These markets deal in a large number of commodities.

b. Specialized Markets: A market in which transactions take place only in one or two commodities are known as specialized market. For every group of commodities, separate markets exist. The examples are food grain markets, vegetable market, wool market and cotton market.

On the basis of nature of commodities

On the basis of the type of goods dealt in markets may be classified into the following categories.

a. Commodity Markets: A market which deals in goods and raw materials such as wheat, barley, cotton, fertilizer seed, gold etc. are formed as commodity markets.

b. Capital Markets: The markets in which bonds, shares and securities are bought and sold are called capital markets, for example, money market and share market.

On the basis of volume of transactions:

There are two types of markets on the basis of volume of transactions at a time.

a. Wholesale Markets: A wholesale market is one in which commodities are bought and sold in large lots or in bulk. Transaction in these markets takes place mainly between traders.

b. Retail Markets: A retail market is one in which commodities are bought and sold to the consumers as per their requirements. Transactions in these markets take place between retailers and consumers. The retailers purchase in wholesale markets and sell in small lots to the consumers. These markets are very near to the consumers.

On the basis of degree of competition:

On the basis of competition, markets may be classified into the following categories.

a. Perfect Markets A perfect market is one in which the following conditions hold good.

- There are a large number of buyers and sellers.
- All the buyers and sellers in the market have perfect knowledge of demand, supply and prices.
- Prices at any one time are uniform over a geographical area, plus or minus the cost of getting supplies from surplus to deficit areas.
- The prices are uniform at anyone place, over periods of time, plus or minus the cost of storage from one period to another.
- The prices of different forms of a product are uniform plus or minus the cost of converting the product from one form to another.

b. Imperfect Markets the markets in which the conditions of perfect competition are lacking are characterized as imperfect markets. The following situations, each based on the degree of imperfect, may be identified.

i) Monopoly Market: Monopoly is a market situation in which there is only one seller of a commodity. He exercises sole control over the quantity or price of the commodity. e.g. Railways.

ii. Duopoly Market: A duopoly market is one, which has only two sellers of a commodity, e.g. two retailers in a village.

iii) Oligopoly Market: A market in which there are more than two but still a few sellers of a commodity is termed as an oligopoly market e.g. different air lines operating in our country.

iv) Monopolistic Competition: When a large number of sellers deal in heterogeneous and differentiated form of a commodity, the situation is called monopolistic competition. e.g. Tea and Coffee by different companies, pump sets, fertilizers etc.

On the basis of stage of marketing

On the basis of the stage of marketing, markets may be classified into two categories

a. Producing markets: Those markets which mainly assemble the commodity for further distribution to other markets are termed as producing markets. Such markets are located in producing areas.

b. Consuming Markets: Markets which collect the produce for final disposal to consuming population are called consuming markets. Such markets are generally located in areas where production is inadequate, or in thickly populated urban centers.

On the basis of extent of public intervention

Based on the extent of public intervention, markets may be place in any one of the following classes.

a. Regulated markets: These are those markets in which business is done in accordance with the rules and regulations framed by statutory market organization representing different sections involved in markets. The marketing costs in such markets are standardized and practices are regularized.

b. Unregulated markets: these are the markets in which business is conducted without any set rules and regulations. Traders frame the rules for the conduct of the business and run the market. These markets suffer from many ills ranging from unstandardized charges for marketing functions to imperfections for farm products.

On the basis of population served

On the basis of population served by a market, it can be classified as either urban or rural market:

a. Urban market: A market which serves mainly the population residing in an urban area is called an urban market. The nature and quantum of demand for agricultural products arising from the urban population is characterized as urban market for farm products.

b. Rural market: the world rural market usually refers to the demand originating from the rural population. There is considerable difference in the nature of embedded services required with a farm product between urban and rural demands.

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Lecture-25 Markets

Learning objective: Market Classification per degree of competition, basis of classification and Characteristics of different types of markets

Classification of markets as per degree of competition

Market Structure	No. of firms or producers or sellers	Degree of product differentiation	Firm's degree of control over price	Part of economy where prevalent
Perfect competition	Many sellers	Homogenous product	No control over price	Farm commodities
Imperfect competition				
Monopoly	One seller	Product with no close substitutes	Considerable control over price	Railways, posts, electricity etc.
Pure Oligopoly	Few sellers	Homogenous product	Some control over price	Steel, chemicals, etc.
Differentiated Oligopoly	Few sellers	Differentiated product	Some control over price	Automobiles, computers, etc.
Monopolistic competition	Many sellers	Differentiated product	Some control over price	Retail trade

Basis of Market Classification

The principal basis of market classification as per degree of competition is:

- 1) Number of buyers and sellers
- 2) Nature of the commodity
- 3) Degree of price control
- 4) Knowledge of the market
- 5) Mobility of factors

Market Classification

On the basis of degree of competition the market is classified into Perfect Competition and Imperfect Competition.

Perfect competition

Perfect competition is a form of market where there is large number of buyers and sellers of a commodity. Homogenous product is sold with no control over price by an individual firm.

Characteristics of perfect competition:

Following are the characteristics of the perfect competition:

1. **Large Number of Buyers and Sellers:** Perfectly competitive market is comprised by the presence of large number of buyers and sellers. Though a firm (seller) is large, but its supply is only a small part of the total quantity offered for the sale in the market. Similarly, each buyer's demands is relatively small to the market demand. Since no seller or buyer is large influence the market price, they take

the market price as a given parameter beyond their control. The economic agents (sellers and buyers) are the price takers and quantity adjusters. There is no rivalry among buyers and sellers. The demand curve of a firm in the perfectly competitive market is infinitely elastic implying that the firm can sell any amount of output at the prevailing market price.

2. **Homogenous Product:** The commodity transacted in perfectly competitive market is identical. There is no way to differentiate the goods produced by the different firms. The buyers have no preference of the commodity supplied by sellers and the sellers have no preference among the buyers.
3. **Free Entry and Exit of Firms:** There is no barrier on the entry and exit of the firms from the industry. A firm can leave the industry if it cannot withstand losses.
4. **No Government Regulations:** Government does not place any restriction, on price, output, entry of the firms, etc. There is no government intervention in the market.
5. **Perfect Mobility of Resources:** the factors of production can move from one firm to another. Workers can move from one job to another and from one place to another. The owners of manmade and natural resources are free to use them in those economic activities where they get higher returns. There exists perfect competition in the markets of factors of production.
6. **Perfect Knowledge:** It is assumed that all economic agents (sellers and buyers) have complete knowledge of the conditions prevailing in the market. Both buyers and sellers are aware of the nature of product and prevailing market price. Therefore, no buyer will offer a price higher than the prevailing one and no seller is willing to sell the product at the price, lower than the prevailing one. As a result, single price for the product prevails in the market.

The concept of pure competition is distinguished from that of perfect competition. The pure competition relaxes the assumptions of perfect mobility of resources and perfect knowledge. The first four characteristics are common to both perfect competition and pure competition. Markets for the various farm commodities can be cited as an example for perfect competition.

Imperfect competition

Imperfect competition is a market in which firms can appreciably affect the market price of the product. It implies that imperfect competition; the individual sellers have some degree of control over prices of the products. In imperfect competition intense rivalry exists among the firms. Under imperfect competition, market is classified into:

- Monopoly
- Oligopoly
- Monopolistic competition

Monopoly

It is that market situation in which there is a single seller of a product with no close substitutes in the market. There are legal, natural and technical barriers to the entry of new firm in the monopoly market.

Characteristics of monopoly

Following are the characteristics of monopoly:

1. **One Seller and Large Number of Buyers:** Under monopoly, there should be a single producer of the commodity. He may be alone, or there may be a group of partners or a joint stock company. Thus,

there is only one firm under monopoly. But the buyers of the product are in large number. Consequently, no buyers can influence the price of the product.

2. **Restrictions on the Entry of the New Firms:** Under monopoly, there are some restrictions on the entry of new firms into monopoly industry. As for instance, there are patent rights or exclusive control over technique or raw material.
3. **No Close Substitutes:** A monopoly firm produces a commodity that has no close substitutes.
4. **Full Control over Prices:** Since firm alone produces the commodity in the market, a monopolist has full control over its price. A monopolist thus, is price maker. He can fix whatever price he wishes to fix for his product.
5. **Possibility of Price Discrimination:** Many a time, a monopolist charges different prices form different consumers. It is called price discrimination. *Price discrimination refers to the practice by a seller of charging different prices from different buyers for the same good.*” In monopoly, there is a possibility of price discrimination.

Oligopoly:

It represents the presence of a few firms in the market, producing either a homogenous product or products which are close but not perfect substitutes to each other. Oligopoly can be divided into two forms, viz., perfect oligopoly wherein a few firms produce a homogenous product and imperfect oligopoly wherein there are a few firms producing heterogeneous products. The examples are TV, two wheelers, four wheelers, cigarettes, textiles, etc.

Characteristics of oligopoly

Following are the characteristics of oligopoly:

1. **Presence of Few Sellers:** an important feature of oligopoly is the presence of few sellers. The product here is homogenous or heterogeneous in nature. Since the number of sellers is few, each firm commands a sizeable market share of a product.
2. **Interdependence:** Due to few numbers of firms in the industry, no single firm can afford to ignore the reaction of other firms to its actions. Suppose a given firm is contemplating to bring some changes in its price and output policies, it duly considers the counter actions of the other firms. Thus, the fortune of one firm are decided upon by the policies of the other firms.
3. **Indeterminate Demand:** The interdependence of firms under oligopoly creates uncertain atmosphere. The price and output policies resorted to by a give firm and its consequent sales of other firms can not be estimated with any amount of certainty. Suppose a firm would like to lower the price for increasing sales, the anticipated increase may not take place, for other firms too would have lowered the price by still a higher margin. This reaction of the other firms is a difficult proposition to be assessed. Hence the demand or revenue curve is indeterminate.
4. **Conflicting Attitude of Firms:** the firms in oligopoly behave as arch rivals and like to be independent to get maximum profit. By their actions and counteractions, they create an atmosphere of uncertainty. Against this action, at times they behave differently by cooperating each other to eliminate uncertainty arising out of mutual competition. By this way they join together for maximizing their profit. Certainly it is a conflicting attitude of the firms reflected by the competition and co-operation.
5. **Competition:** There is always a battle among the firms in oligopoly. This rivalry continues as long as firm exists in the business.
6. **Features of monopoly:** Oligopoly is characterized by presence of few firms, product differentiation and a large market share. It enjoys the superiority of a monopoly in the business as a differentiated

product produced by oligopolist attracts the consumers rather consumers are more attract to it. The possibilities are plenty for the firms to unite and done the role of monopoly to enjoy the liberties.

7. **Price Rigidity:** Alongside competition, and monopoly element in oligopoly, price rigidity is another feature. The rivals are more passive for bringing the changes in prices, for such changes may affect the sales and consequently the revenue. The firms are well aware of the fact that any reduction or rise in price leads price war or loss of sales. This impending danger forces them to keep quiet rather than an exception in oligopoly.
8. **Lack of Uniformity in the Size of the Firm:** Size of the firms in oligopoly differs considerably. Some may be very large, while others very small.

Monopolistic Competition

In real life, it is monopolistic competitive market that generally exists. It is that situation of the market wherein there are many sellers of the product, but the product of each seller is a bit different from the products of other sellers. This product differentiation manifests itself in trade mark, name of the brand, quality differentiation or in different facilities and services offered to the consumers. There are many examples relating to this kind of market. Firms producing different brands of toothpaste, as Pepsodent, Colgate, Close-up, etc. are operating under monopolistic competition.

As a matter of fact, monopolistic competition is a mid-way situation between perfect competition and monopoly.

Characteristics of monopolistic competition:

Following are the characteristics of monopolistic competition:

1. **Large Number of Sellers and Buyers:** as under perfect competition, there are large number of buyers and firms. Also the size of each firm under monopolistic competition is small. Each firm has a limited share of the market.
2. **Product Differentiation:** The distinct feature of monopolistic competition is a product differentiation. Though the number of firms is large, but their products different from one another, in colour, shape, brand, quality, durability, etc. These products are close substitutes. Because of product differentiation, each firm can decide its price policy independently. So that each firm has a partial control over price of its product.
3. **Freedom of Entry and Exit of Firms:** Firms are free to enter into, or exit from the industry. But new firms have no absolute freedom of entry into industry. They may have to face several difficulties. Products of some firms may be legally patented. New firms can not produce those products. No rival firm can produce or sell a patented item.
4. **Selling Cost:** Each firm has to spend a lot on the advertisement of its products. In order to sell more units of the product, it gives a wide publicity of its product in newspapers, journals, radio, TV, etc. The expenses on advertisement and publicity are called selling costs.
5. **Less Mobility:** there is no perfect mobility of factors, goods and services.
6. **Lack of Perfect Knowledge:** Sellers and buyers of products and owners of factors of production do not have perfect knowledge about the prices of the products and factor services. It is so because due to product differentiation, it is not possible to compare the price of different products. Likewise, factors of production are also not fully aware of the price being paid by different firms for the services of the factors.
7. **Non-Price Competition:** Another feature of monopolistic competition is that firms may compete with one another without changing the price of their products. Firms compete in attracting potential buyers by offering them, gifts and other services. In short, they compete on other than price front. The consumer develop liking for a particular product. They would buy that very product even if its price is higher than products of other firms.

Lecture 26 Markets

Learning objective: Price Determination under Perfect Competition and monopoly market structure

- ❖ Under perfect competition price of a commodity is not determined by any individual seller or a firm. It is, determined ermined by the forces of market supply and market demand for a commodity.
- ❖ In other words Equilibrium price of a commodity is determined at that point where the market demand equals market supply. It can be explained with the help of the table as well figure given below.

Market supply	Price per unit	Market demand
50	5	10
40	4	20
30	3	30
20	2	40
10	1	50

Table 1 shows that when price of good-X is Rs.5.00 per dozen, its supply is of 50 dozens and demand is for 10 dozens. Since supply is more than demand, there will be competition among the sellers of good-X. Due to this competition, price of good-X will fall. Fall in price will contract supply but extend demand. When price falls to Rs. 3.00 per dozen, then the demand becomes equal to supply. Thus Rs 3 per dozen is the equilibrium price of good X. If due to certain reasons price falls to Rs 2 then demand will be more than supply. It will lead to competition among buyers. As a result, price will begin to rise till it reaches Rs. 3.00 per dozen. At this price once again equilibrium between demand and supply will be established

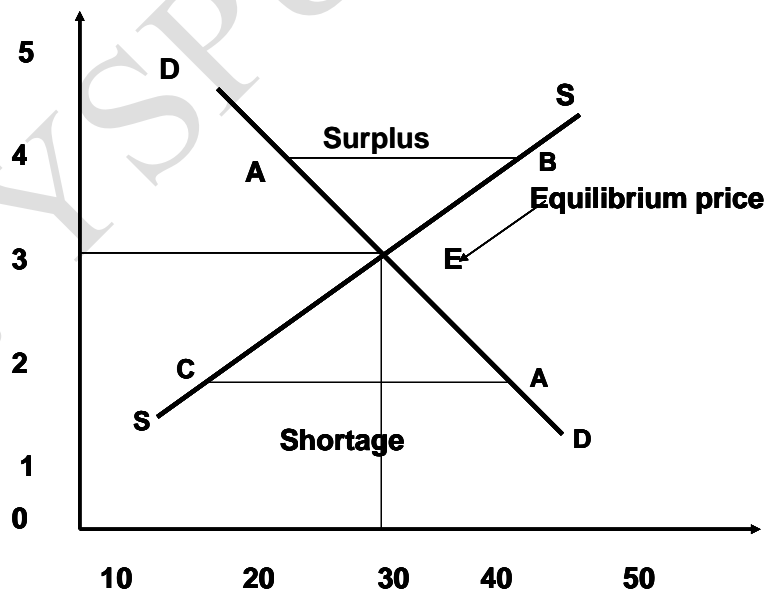


Fig:1

- ❖ In Fig units of good-X are shown on OX-axis and price on OY- axis. DD is the total demand curve. It slopes downward from left to right. SS is the supply curve of industry. It slopes upward from left to right. Supply curve (SS) and demand curve (DD) intersect each other at point E.

- ❖ In other words, supply and demand are equal (30 dozens) at point E. Thus, Rs. 3.00 will be the equilibrium price and equilibrium quantity is 30 dozens. If price rises to Rs. 5 then, supply (50 dozen) will become more than the demand (10 dozen). It is clear from the diagram that at Rs. 5 the excess supply is equal to AB. In this situation supply being more than demand, there will be a tendency for the price to fall and it will revert back to equilibrium price of Rs. 3.
- ❖ In case price falls to Rs. 2, then supply (20 dozens) will be less than demand (40 dozens) Demand being more than supply, there will be a tendency for the price to rise. CD represents shortage in the figure. This shortage or excess demand will push the price back to equilibrium level i.e. Rs.3.

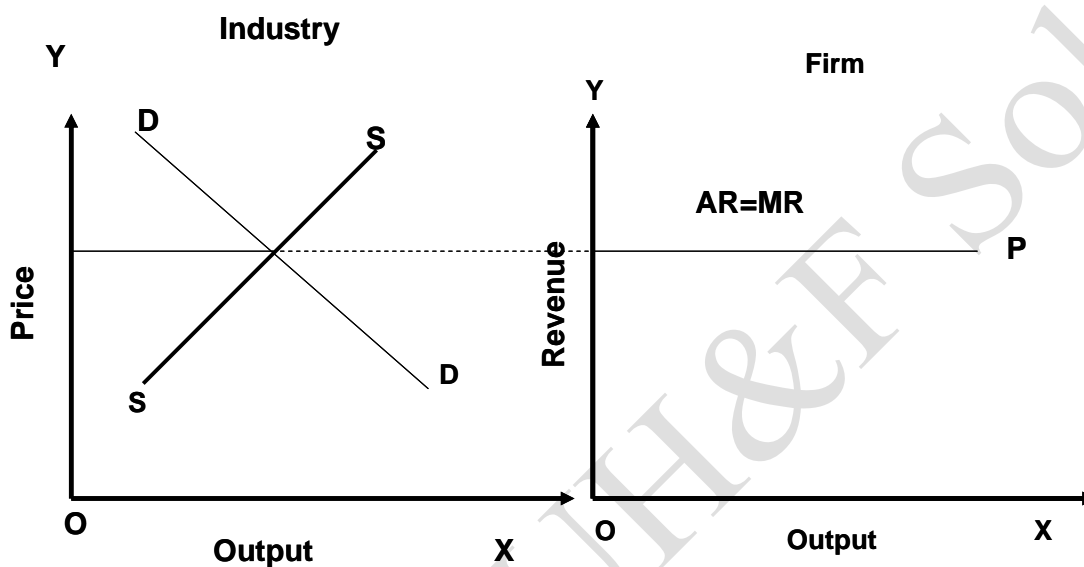


Fig:2(A)

Fig:2(B)

- ❖ Fig. 1 indicates that price of good-X is determined by the industry at that point where demand is equal to supply. Price of the good, under perfect competition is, therefore, determined by the industry and each firm has to sell its product at this very price. It is shown by Fig. 2 (A) and 2 (B).
- ❖ In Fig. 2(A) market demand curve DD intersects market supply curve SS at point E. Thus, point E is the equilibrium point and OP is the equilibrium price. Fig. 2(B) refers to firm's demand curve. The firm will have to sell all its output at the prevailing price OP. It may sell more units or fewer units, but it will charge OP price only. The firm can neither increase nor decrease this price, because price is determined by the industry and not by the firm. Firm is a price-taker and not price-maker. As such, firm's demand curve (PP) will be parallel to X-axis, signifying that the firm can sell any number of units at OP price. Firm's demand curve PP is also its average revenue and marginal revenue curve. Under conditions of perfect competition $AR = MR$ (as AR is constant for a firm) and their curves coincide with each other.

Price Determination under Monopoly:

- ❖ Short-run refers to that period in which time is so short that a monopolist cannot change fixed factors like machinery, plant etc. Monopolist can increase his output in response to increase in demand by changing his variable factors.

- ❖ No doubt fixed factors will also be utilized to their maximum capacity to increase the output. Similarly, when demand decreases the monopolist will reduce his output by reducing variable factors and by slowing down the use of fixed factors.
- ❖ A monopolist will be in equilibrium when he produces that amount of output at which marginal cost is equal to marginal revenue and marginal cost curve cuts marginal revenue curve from below.
- ❖ A monopolist in equilibrium may face three situations in the short run, viz., (1) Super Normal Profit (2) Normal Profit and (3) Minimum, These are described with the help of the follow diagrams.

Super Normal Profit:

- ❖ If the price (AR) fixed by the monopolist in equilibrium is more than his average cost (AC) then he will get super normal profits. The monopolist will produce up to the extent where $MC = MR$ and MC curve cuts MR curve from below. This limit will indicate equilibrium output.
- ❖ If the price of equilibrium output is more than average cost ($AR > AC$) then the monopolist will earn super-normal profits. It is shown in Fig. 3. In this figure, the monopolist is in equilibrium at point E, because at this point marginal cost is equal to marginal revenue and MC curve is cutting M R curve from below.
- ❖ The monopolist will produce OM units of output and sell it at MB price which is more than average cost AM, by BA per unit. ($BM - AM = BA$). Thus in this situation the total super normal profit of the monopolist will be ACPB.

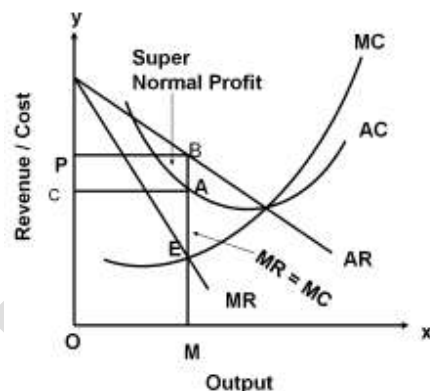
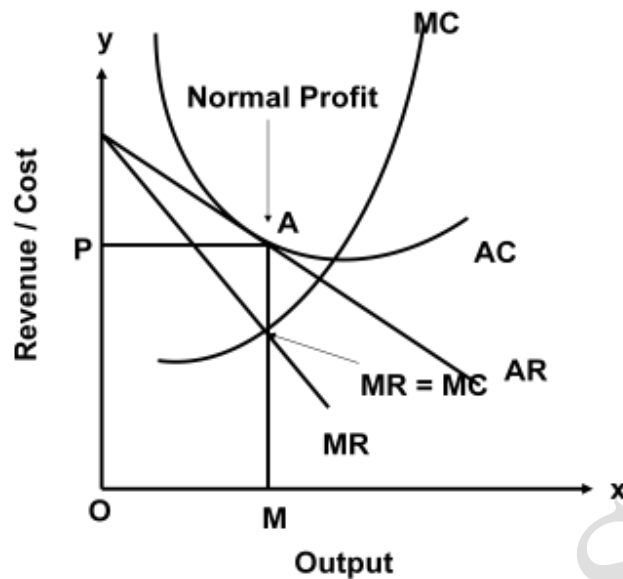


Fig:3

Normal Profit:

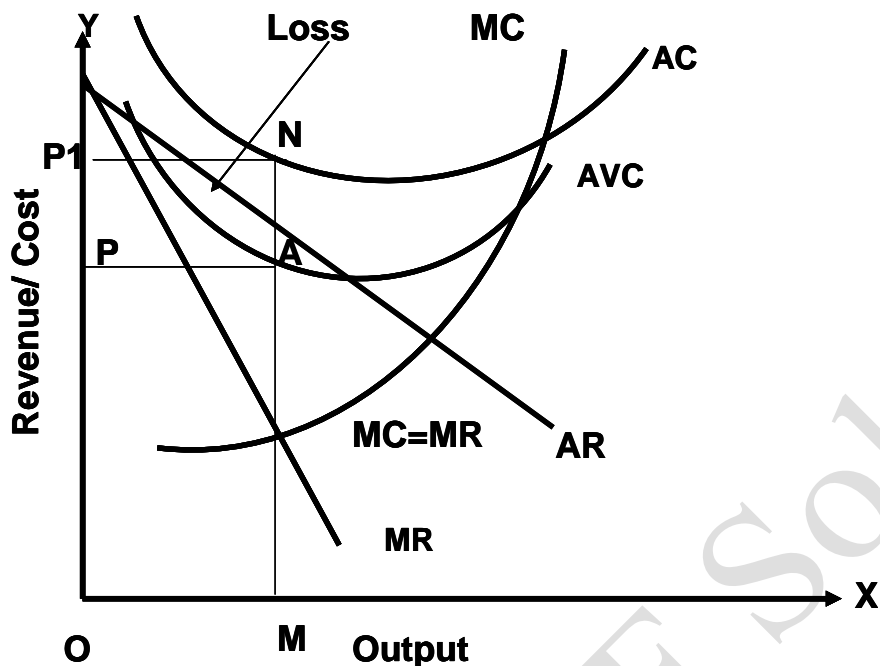
- ❖ If in the short run equilibrium ($MC = MR$) the monopolist price (AR) is equal to its average cost (AC) i.e. $AR = AC$, then he will earn only normal profit.
- ❖ It is shown in Fig. 4. In this figure, the firm is in equilibrium at point E where $MC = MR$ and MC curve is cutting MR curve from below. OM is the equilibrium output. At this output, average cost (AC) curve touches average revenue (AR) curve at point A. Thus, at point 'A' price OP (AR) is equal to the average cost (AM) of the product. Monopoly firm, therefore, earns only normal profit in equilibrium situation, as at equilibrium output its $AC = AR$



(3) Minimum Loss:

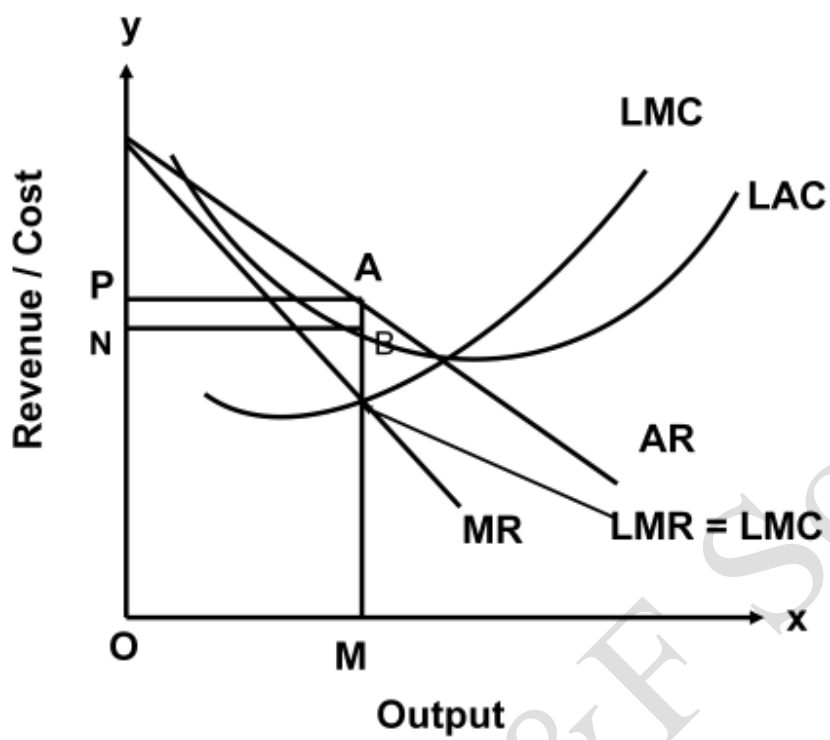
- ❖ In the short run, the monopolist may incur loss also. If in the short-run price fall due to depression or fall in demand, the monopolist may continue his production so long as the low price covers his average variable cost (AVC). In case the monopolist is obliged to fix a price which is less than average variable cost, then he will prefer to stop production or shut down.
- ❖ Accordingly, a monopolist in equilibrium, in the short period, may bear minimum loss equivalent to fixed costs. In this situation equilibrium price (AR) is equal to average variable cost (AVC) and the monopolist bears the loss of fixed costs.
- ❖ The monopolist will have to bear this loss even if he chooses to discontinue production in the short period. Thus, minimum loss = $AR - AVC = AFC$. This situation of equilibrium is shown in fig. 4. According to this figure, the monopolist is in equilibrium at point E where $MC = MR$ and MC curve cuts

MR curve from below. He produces OM output. The price of equilibrium output OM is fixed at OP (AM). At this price, average variable cost (AVC) curve touches AR curve at point A. It means that the firm will cover only average variable cost from the prevailing price. The firm will bear the loss of fixed costs, or AN per unit. The firm will bear total loss equivalent to NAPPI as shown in fig. It will constitute minimum loss to the firm. If the monopolist is obliged to fix a price lower than OP he would prefer to discontinue production.



Determination of Long-run Price or Long-run Equilibrium

- ❖ In the long-run, the monopolist will be in equilibrium at a point where his long-run marginal cost is equal to marginal revenue ($LMC = MR$). In the long run because of sufficiently long period at the disposal of the monopoly firm, all costs can be varied and supply can be increased in response to increase in demand. In the short run, equilibrium price can be more than, equal to or less than the average cost but in long-run, price (AR) is generally more than the long-run average cost. If price is less than long-run average cost, the monopolist would like to close down the unit rather than suffer the loss. In the long-run, a monopolist generally earns super normal profit. It is due to the fact that unlike perfect competition no firm can enter into the market. Thus even when a monopolist earns super normal profit in the long-run, no other producer can enter the market in the hope of sharing whatever super normal profit potential exists. Therefore super normal profits are not eliminated even in the long-run.
- ❖ Lack of entry into the industry as well as lack of substitutes in the market, means that the monopolist does not have to have an optimum size plant in the long-run or have to use it at optimum capacity. The size of his plant and the degree of utilisation of any given plant size depend entirely on the market demand. Under some market conditions, optimum capacity will be reached. Under others, the monopolist may produce sub-optimally and certain conditions may lead even to over utilisation. It will all depend on the market demand. In Fig. 5 the long-run equilibrium of the monopolist is explained, when the market size does not permit the monopolist to expand to the minimum size of LAC which is the usual case.
- ❖ In this figure, point E indicates the equilibrium of the monopolist. At point E, $MR = LMC$ and LMC curve cuts MR curve from below, hence OM is the equilibrium output and $OP (= AM)$ is the equilibrium price. BM is the long-run average cost. Price (average revenue) AM being more than long-run average cost BM ($AR > LAC$) the monopolist will get super-normal profits. Accordingly the monopolist earns $AM - BM = AB$ super normal profit per unit. His total super-normal profit will equal to APBN.



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Lecture-27

Theory of Factor Pricing

Learning objective: Introduction to theory of factor pricing

- ❖ The theory of factor pricing deals with the prices paid for factor services (land, labour, capital, entrepreneur) and received by the sellers of factor services. It deals with wage rate, interest rate specific rent and profit.
- ❖ In short theory of factor pricing studies how rent of land, wages of labour interest on capital and profit of entrepreneur is determined.

Why factor pricing is not studied along with product pricing

- ❖ Theory of factor pricing deals with determination of prices of services of different factors of production, whereas theory of value deals with the determination of prices of goods produced. In both the theories prices are determined by the intersection of demand and supply curves. Therefore a question arises that why a separate study of factor pricing?
- ❖ This is because of the fact that the nature of demand and supply of factors and that of commodities. The difference in nature of demand and supply are as follows:

Difference in demand of factors and commodities: There are three main differences in the demand for factors and commodities. These are:

- ❖ **Derived Demand** Factors are demanded to produce commodities to satisfy consumer's demand. Thus demand for factors is derived demand which is derived from the demand of commodities in the production of which it is used. For example demand for bricks, cement iron etc. is derived from the demand for a building.
- ❖ **Joint Demand:** Demand for factors is joint demand i.e. more than one factor is needed jointly to produce the commodity. For example one factor (labour) alone cannot produce apple. It is the outcome of efforts of Land, labour, capital and entrepreneur jointly.
- ❖ **Dependability:** The demand for factors depends upon their marginal productivities, while the demand for commodities depends upon their marginal utilities

Difference in supply of factors and commodities: There are two factors of difference between supply of factors and commodities:

Cost of production:

- ❖ Supply of commodities depends on its cost of production. But land has no cost of production to an economy. Also it is not possible to estimate the cost of production of labour.
- ❖ According to Modern economists supply of factors depend on their opportunity cost.

Relationship between price and supply

- ❖ There is positive relationship between price and supply of commodities, but there is no definite relation between price and supply of factors. Thus due to these differences, there is need for a separate theory for factor pricing.

Aspects of Marginal Productivity:

The three different aspects of marginal productivity are:

1 Marginal Physical Productivity (MPP)

2 Marginal Revenue Productivity (MRP)

3 Value of Marginal Productivity (VMP)

1 Marginal Physical Productivity (MPP): In the words of M. J. Ulmer, "Marginal Physical Productivity may be defined as the addition to total production resulting from the employment of one more unit of a factor of production, all other things being constant." It means marginal physical productivity measures productivity in physical terms. Suppose 5 labourer produce 20 meters of cloth and 6 labourers produce 24 meters of cloth. Thus, the marginal physical productivity of 6th labourer is 4 (24-20) meters. Marginal Physical Productivity can be expressed through the following formula:

$$MPP = TPP_n - TPP_{n-1}$$

Where, MPP = 1 Marginal Physical Productivity

TPP_n = Total physical productivity of 'n' units of factor

TPP_{n-1} = Total physical productivity of 'n-1' units of factor

2 Marginal Revenue Productivity (MRP) :

- ❖ In the words of M. J. Ulmer, "Marginal Revenue Productivity may be defined as the addition to total revenue resulting from the employment of one more unit of a factor of production, all other things being constant." It measures productivity in monetary terms. It can be expressed as the product of marginal physical product (MPP) and marginal revenue (MR). It can be written as

$$MRP_a = MPP_a * MP_x$$

Where, a is a factor and x is a commodity

Suppose an additional labourer produces 4 meters of cloth and an additional meter of cloth fetches the additional revenue of Rs. 20. Then, the marginal revenue productivity is Rs. 80 (20 *4).

3 Value of Marginal Productivity (VMP) :

- ❖ In the words of Ferguson, "the value of marginal product of a variable factor is equal to its marginal product multiplied by the market price of the commodity in question." Thus the value of marginal physical productivity is the product of marginal physical product and average revenue (price).

$$VMP_a = MPP_a * XAR_x$$

Suppose an additional labourer produce 4 metre of cloth and the market price of cloth is Rs 25, then VMP is 4x25=100.

- ❖ Since the firm can sell any amount of commodities at the given market price under perfect competition, average revenue is equal to marginal revenue. Thus under perfect competition, MRP is equal to VMP. While under monopoly and monopolistic completion, average revenue is greater than marginal revenue. Thus VMP is greater than MRP under these two market conditions.

Marginal Productivity Theory:

- ❖ The marginal productivity theory contends that in equilibrium each productive agent will be rewarded in accordance with marginal productivity.

Assumptions:

- 1) There is perfect competition in the commodity and factor market
 - 2) All units of a factor are homogenous
 - 3) The proportion in which factor are combined can be changed
 - 4) Each firm is guided by the objective of profit maximization
- ❖ Given the assumption that firm is guided by the objective of profit maximization, it will employ additional units of factor as long as addition made by it to the total product is more than its price. Thus firm will employ additional units of a factor as long as its marginal revenue product is greater than the price. Therefore the equilibrium of the profit making firm will be establish at the point where $MRP = Price$.
 - ❖ As each firm wants to maximize its profit, it will produce its output with least cost combination. It occurs when the isoquant is tangent to iso cost line. Thus firm will employ factors where Slope of iso quant = Slope of iso cost line
 - ❖ Slope of the iso quant is the marginal rate of technical substitution and slope of iso cost line is equal to the ratio of the price paid to the factors.

$$MRTPS = Pa / Pb$$

$$MPa / MPb = Pa / Pb$$

Where MRTPS= Marginal rate of technical substitution

MPa =Marginal productivity of factor a

MPb = Marginal productivity of factor b

Pa = price of factor a

Pb =Price of factor b

Thus the profit maximizing firm will employ factors of production in such a way that the ratio of marginal productivity of all factor to their prices are equal.

- ❖ Under perfect competition, wage rate is determined by the industry or the combined forces of demand and supply. The only decision that a firm can take is about the number of labourers that it employ at the given wage rate.
- ❖ According to this theory a firm under perfect competition will employ that number at which price is equal to the value of its marginal product (VMP). Other things remaining the same, a firm will employ more and more labourers, their marginal physical productivity goes on diminishing. As price($AR=MR$)of the product under perfect competition is constant, so when marginal physical productivity of labour go on diminishing ,marginal revenue product will also go on diminishing.
- ❖ In order to achieve the objective of profit maximization, a firm will employ labourer up to the point where their MRP is equal to wage rate (price). This can be explained with the following example.

No of labourer	MPP	Price of the product (AR=MR)	MRP=MPPXMR	Wage Rate(Rs)
1	10	2	10X2=20	8
2	8	2	16	8
3	6	2	12	8
4	4	2	8	8
5	2	2	4	8

It can be seen from the table that firm will employ 4 units of labour as at this point marginal revenue productivity is equal to wage rate of Rs 8.

Criticism of the theory: This theory has been criticised on the following grounds.

- 1) It is based on unrealistic assumption of perfect competition
- 2) Theory assumes that all the units of factor are homogenous which is wrong. In reality different units of factor are heterogeneous.
- 3) The measurement of marginal productivity of any factor is not possible in practical life.
- 4) It ignores the influence of other factors on the productivity.
- 5) As per theory if wage rate is higher, a firm will employ less ,however in reality, while employing labourer, a firm does not only take into consideration the wage rate alone but also consider many other factors such as amount of profit, demand of the product etc.
- 6) According to Keynes, it holds good only under static condition when there is no change.

Lecture-28

Theory of Rent

Learning objective: concept of rent and Ricardian Theory

In economics, use of rent is restricted to the payments made to the factors of production which are in imperfectly elastic supply. The different concepts of rent are:

Ricardian concept of rent:

- ❖ According to David Ricardo, rent is that portion of the produce of earth, which is paid to the land lord for the use of the original and indestructible power of the soil. Thus rent is the payment for the use of land only

Joan Robinson's concept of economic rent:

- ❖ Payment made to the factor of production which is in excess of the minimum amount required to keep that factor in its present employment. In other words, economic rent is the surplus that arises due to the difference between the actual earning and the transfer earning of the factor. Thus the concept of rent is applicable to only to land but to all factors of production.

Alfred Marshall's concept of Quasi-rent:

- ❖ Marshall extended the concept of rent to manmade machines and appliances, whose supply is fixed in the short run but variable in the long run. In the short run, when their demand increases, they earn income over and above their normal price, **which A Marshall termed as Quasi-rent.**
- ❖ Hence, Quasi-rent is defined as the extra payment made to those factors of production, whose supply is fixed in the short run, but variable in the long run. Quasi-rent is a short run phenomenon and in the long run it disappears.

Classical Theory of Rent

- ❖ Classical economist like, David Ricardo, West, Malthus Torrens formulated the differential theory of rent, though their ideas of rent were fundamentally the same.
- ❖ However, David Ricardo gave comprehensive theory of rent in his book: **Principle of Political Economy and Taxation**” According to him, rent is that portion of the produce of earth, which is paid to the land lord for the use of the original and indestructible power of the soil.
- ❖ He stated that the payment made to the landlord by the tenant is the contract or gross rent. It includes the price paid for the capital invested by the landlord. The remaining portion of the payment is called pure rent which is made to the landlord for the use of only land or the original and indestructible power of the soil.

Assumption of the Theory:

David Ricardo made the following assumptions to explain the theory.

1. Land has certain original and indestructible powers and rent is the payment for the use of these powers,
2. There are different grades of land that differ in respect of fertility and location
3. He assumed marginal or no rent land The rent of the superior land is measured above from this no rent land.
4. Superior land s cultivated first and then next grade land is cultivated. The most inferior land is cultivated in the last.
5. The supply of land is perfectly inelastic from the point of view of the society as a whole.
6. There is perfect competition in the market for land. In other words, there are large numbers of landlord, who are willing to give their land on rent and there are large numbers of farmers who are will to get the land for agricultural purposes.
7. The law of Diminishing return operates in agriculture.
8. Cost of cultivation is same in term of land and labour, whether it is superior or inferior land. In other words, it is same for each grade of land.
9. Land is used for the cultivation of corn and there is no alternative use of land.
10. Rent arises due to difference in quality of various lands in term of fertility and location.

Ricardo explained the theory in two situations i.e. **under extensive cultivation** and **intensive cultivation**.

Emergence of rent under extensive cultivation:

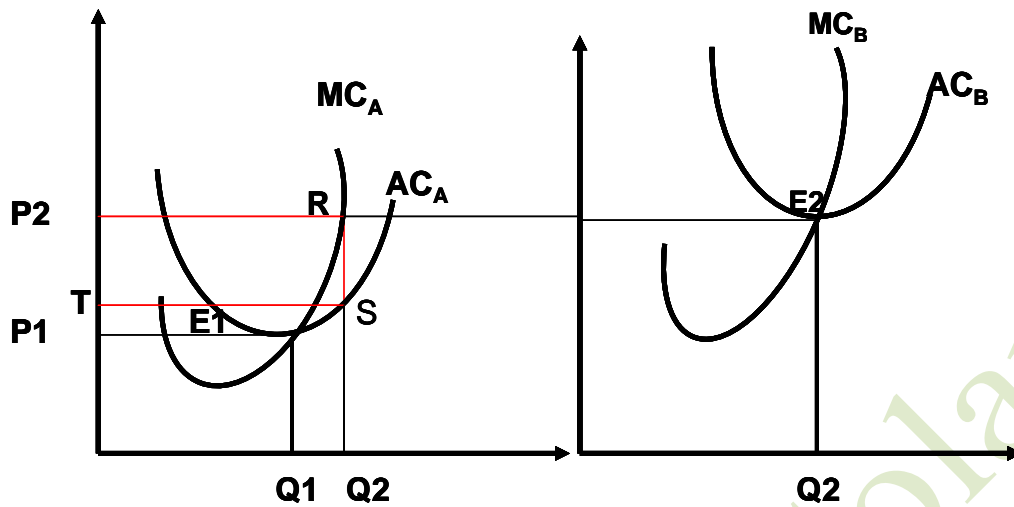
- ❖ When more land is used to increase the production, it is called as extensive cultivation. Ricardo explained the concept of rent under extensive cultivation with the help of newly colonized country.
- ❖ Let us assume there are three grade of land in a country i.e. Grade A, grade B and grade C. Grade A land is the superior land followed by grade B and Grade C is the most inferior land. Suppose one hectare of grade A land produces 10 quintal of corn by employing certain amount of labour and capital which costs Rs 480. As far as demand for corn is met by cultivating grade A land only, rent will not arise on it. If the demand for corn increases with the increase in the population of the country, grade B land is brought under cultivation. Suppose by employing same amount of labour and capital, one hectare of grade B land produces 8 quintals of corn it means that grade A land can produce 2 quintals of corn more than grade B land. Thus the price

of corn will be Rs 60 (Rs 480/8). Hence the rent on one hectare of grade A land is equal to the market value of 2 quintals of corn.e.120 (2X60).

- ❖ Grade B land is marginal and thus earns no rent. Now suppose that demand for corn increases further, so that grade C land is brought under cultivation. Suppose by employing same amount of labour and capital, one hectare of grade C land produces 6 quintals of corn. It means that grade A can produce 4 quintals of corn more than grade C land. Now the price of corn will be Rs 80 (Rs480/6) Hence the rent on one hectare of grade A land is equal to the market value of 4 quintals of corn.e.1320 (4X80). Rent on one hectare of grade B land is equal to the market value of 2 quintals of corn i.e. 160 (2X80).Grade C is marginal land and earns no rent.
- ❖ The same can also be shown graphical in the figure below. In the figure AC_A , AC_B AC_C are the grade wise average cost curves and MC_A , MC_B and MC_C marginal cost curves. When demand for corn is initially less, only grade A land is put under cultivation. Since there is perfect competition in the market, equilibrium price will be where AC_A and MC_A are equal to the price of corn. This condition is satisfied at point E1, giving OP1 as equilibrium price.
- ❖ Now suppose that the demand for corn increases due to increase in the population and grade B land is brought under cultivation. Now the price of corn is determined by the average and marginal cost curves of grade B land. New equilibrium takes place at point E2 giving OP2 as equilibrium price. At this point grade B land has no rent whereas rent arises on grade A land.

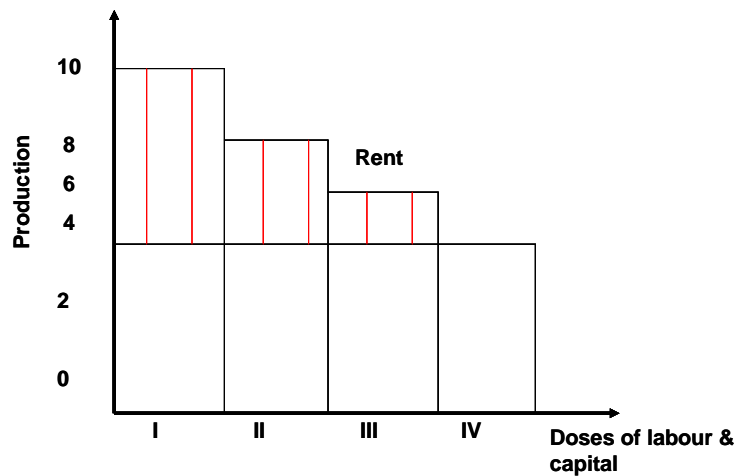
$$\begin{aligned}
 \text{Rent on grade A land} &= \text{Total Revenue} - \text{Total Cost (on grade A land)} \\
 &= \text{Price} \times \text{Output} - \text{Average cost} \times \text{output} \\
 &= \text{OP2} \times \text{OQ2} - \text{SQ2} \times \text{OQ2} \\
 &= \text{OP2RQ2} - \text{OTSQ2} \\
 &= \text{TP2RS}
 \end{aligned}$$

Similarly it can further be extended to grade C land and so on.



Emergence of rent under intensive cultivation:

- ❖ Intensive cultivation means applying more and more units of capital and labour on the same piece of land. As it assumed that Law of Diminishing Returns operate in agriculture, every additional unit of labour and capital yield less and less return. Thus a farmer will employ more and more units of labour and capital till the marginal return obtained from these units is equal to their marginal cost. The unit of labour and capital whose marginal return is equal to marginal cost is called as **marginal dose**.
- ❖ And all the units prior to marginal dose are called as intra-**marginal doses**. All the intra marginal doses yield rent which is equal to surplus output by these doses over the marginal dose. This concept can be explained with the help of figure as shown below. X-axis measures the successive units of labour and capital whereas output is presented on Y-axis. First dose of labour and capital produces 10 quintals of corn. Second, third and fourth dose produce 8, 6, 4 quintals of corn respectively.
- ❖ Let us suppose that fourth dose is marginal. As stated above, rent is equal to the surplus output by the intra marginal doses over the marginal dose. Thus, rent on first, second and third dose will be 6, 4 and 2 quintals respectively.



Emergence of rent under extensive and intensive cultivation:

- ❖ Let us suppose that grade A land is put under cultivation to meet the demand for corn. If the demand for corn increases two course of action can be adopted. Grade B land can be brought under cultivation or grade A land can be cultivate intensively.
- ❖ The farmer will bring grade B land under cultivation if the increased price of corn will cover the cost of production on grade B land. In other words if the price is lower than the average cost of production on grade B land, farmer will not cultivate Grade B land. If the farmer are just covering the cost of cultivation by bringing the grade B land, then grade B land is on the **extensive margin of cultivation**.
- ❖ Besides extending the margin of cultivation on **grade B land farmer** will also use grade A land more intensively by employing more and more units of labour and capital. In other words margin of intensive cultivation will be pushed forward. Thus in reality, both intensive and extensive margins are pushed simultaneously in order to meet the increase in demand.

Criticism of Ricardian theory of rent:

The theory has been criticized on the following points.

1. Fertility of land is neither original nor indestructible
2. Ricardo considered that there exists marginal or no rent land in each country but critics' points out that in a thickly populated country even marginal land fetches rent due to scarcity.
3. Rent does not enter into the price. According to Ricardo, rent is earning over and above the cost of production, as rent does not enter into cost of production, it does not determine price. Critics point out that rent must be considered as part of cost of production and thus rent enters into the price also.
4. According to Ricardo, rent is paid only on land but according to modern economists, like Robinson, rent is paid not only for the use of land but also for the use of scarce factors of production

5. Ricardo assumed perfect competition among landlords and tenants. But this assumption is not correct as in real world perfect competition does not exist.
6. Alternative uses of land were not considered in the theory. Hence transfer earning of land are considered zero.
7. According to Ricardo, rent arises on account of differences in the fertility of land, but critics point out that rent does not arise due to differences in fertility but due to scarcity of land. Thus, if land is scarce, rent will arise even if all lands are of homogenous quality.

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Lecture-29

Wages and Theory of Labour

Learning objective: concept of wages and marginal productivity theory of labour

Wages:

- ❖ Price paid for the use of labour is called as wage in economics. The term labour refers to all those mental and physical activities which are under taken to earn income. According to Prof. Benham, A wage may be defined as a sum total of money paid under contract by an employer to a worker for services rendered.

Nominal and Real wages:

- ❖ Nominal wages refers to those wages which are paid to the labourer in term of money. Whereas real wages refers to the quantities of goods and services which a labourer gets in return of his money wages.
- ❖ Real wages are purchasing power of money wages. Purchasing power of nominal wages is called real wages.

Factors affecting real wages:

Money Wages: Others things remaining the same, if money wages are higher, real wages are also higher.

Price level: If prices are rising or purchasing power of money is falling, the real wages will also fall and vice versa.

Supplementary income: Real wages will be more if in addition to fixed money wage a labourer has additional income. Similarly, hours of work, working condition, trade expenses, period and cost of training, employment of dependents and social status also affect the real wages.

Marginal Productivity Theory of wage determination:

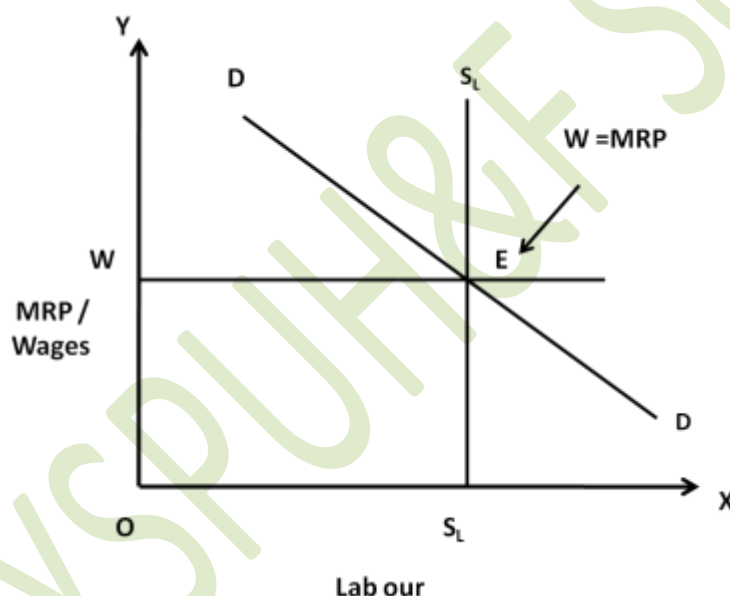
- ❖ According to this theory under perfect competition and in long run a labourer gets wages equal to his marginal and average productivity. Marginal productivity refers to the addition made to the total revenue by employing one more unit of labourer

Assumption of the theory: Marginal productivity theory of wage determination is based on the following assumptions;

- ❖ Perfect competition in product and factor market
- ❖ Marginal productivity of labourer is subject to law of diminishing returns
- ❖ All labourers are homogenous and so perfect substitute for one another
- ❖ Full employment situation is found in the economy
- ❖ It applies in the long run
- ❖ Techniques of production remain constant
- ❖ Each unit of labour is perfectly mobile. As a result of it wage rate will remain the same in different occupations

Analysis of the theory from the point of view of industry:

- ❖ Price of labourer is determined by industry at the level where its demand equals supply of labour.
- ❖ Marginal productivity theory is based on the assumption of full employment. On this assumption supply of labourer is fixed. As such wage rate will be determined by the demand for labour.
- ❖ Demand curve of industry can be estimated by lateral summation of the demand curve of the firms in the industry.
- ❖ Since under perfect competition number of firm in the long run is not constant, so it is not possible to have lateral summation of their marginal productivity curves. However the demand curve of the industry will correspond to the demand curve of the firms i.e.it will be downward sloping from left to right.
- ❖ Under perfect competition, marginal wage and average wage rate are equal ($MW=AW$). Hence in the long run, an industry will give marginal or average wage to the labourers equal to their marginal productivity.



In this diagram units of labourers are shown on X-axis and wage and marginal productivity of labour (MRP) on Y-axis. DD curve represents industry's demand curve for labour or marginal productivity curve. It slopes downward from left to right. $S_L S_L$ is the supply curve of labour which is parallel to OY-axis. It means that supply of labour $O S_L$ remains fixed under condition of full employment. Demand and supply curves of labour intersect each other at point 'E'. Hence, point 'E' is the equilibrium point. Demand for and supply of labour are equal at this point and equilibrium wage-rate is OW . This wage-rate is equal to the marginal productivity ($OW = ES_L = MRP$) of labour.

Criticism of the theory: This theory has been criticised on the following grounds.

- ❖ It is based on unrealistic assumption of perfect competition
- ❖ It assumes that all units of a factors are homogenous, but in reality it is not true
- ❖ The measurement of marginal productivity of any factor is not possible in practical life.

- ❖ It ignores the influence of other factors on the productivity.
- ❖ As per theory if wage rate is higher, a firm will employ less ,however in reality, while employing labourer, a firm does not only take into consideration the wage rate alone but also consider many other factors such as amount of profit, demand of the product etc.
- ❖ According to Keynes, it holds good only under static condition when there is no change

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Lecture-30

Capital and Keynes's liquidity preference theory of interest

Learning objective: concept of capital and Keynes theory of interest

- ❖ Term Capital is used to denote machines, raw material, buildings, factory premises, hard cash or money. Payment made for all these diverse services of capital is not called interest. Term interest is used for the payment made only for the use of monetary capital for a specific period. The person who lends it is called lender and the one who borrows it is called a borrower.
- ❖ According to **Mc Connell**, Interest is the payment for the use of money or the use of loan able funds.

Two terms of interest are used. ::
- ❖ **Gross interest includes** payments for the loan of capital, payment to cover risks of loss which may be personal or business risk, payment for inconvenience of the investment and payment for the work and worry included in watching investment, calling them and investing them. Gross interest includes reward for net interest, reward for risk, personal risk, reward for management and inconvenience.
- ❖ **Net Interest** refers to that amount which is paid for the use of money alone. There are different theories to determine the rate of interest such as classical theory, neo-classical and liquidity preference theory. The Keynes's liquidity preference theory of interest is discussed here under.

KEYNES'S LIQUIDITY PREFERENCE THEORY OF INTEREST

- ❖ Lord Keynes gave a new view of interest. According to him, "interest is the reward for parting with liquidity for a specified period.
- ❖ A man with a given income has to decide first how much he is to consume and how much to save. The former will depend on, what Keynes calls, the propensity to consume. Given this propensity to consume, the individual will save a certain proportion of his given income. He now has to make another decision
- ❖ . Should he hold his savings? How much of his resources will he hold in the form of ready money (cash or non-interest-paying bank deposits) and how much will he part with or lend depend upon what Keynes calls his "**liquidity preference**".
- ❖ Liquidity preference means the demand for money to hold or the desire of the public to hold cash
- ❖ **Demand for Money or Motives for Liquidity Preference:** Liquidity preference of a particular individual depends upon several considerations. The question why should people hold their resources liquid or in the form of ready money, when they can, get interest by lending such resources? The desire for liquidity arises because of three motives: (i) **the transactions motive**, (ii) **the precautionary motive**, and (iii) **the speculative motive**

Transactions Motive:

- ❖ The transactions motive relates to the demand for money or need for cash for the current transactions of individual and business exchanges.
- ❖ Individuals hold cash in order "to bridge the interval between the receipt of income and its expenditure". This is called the '**Income Motive**'.
- ❖ Most of the people receive their incomes by the week or the month, while the expenditure goes on day by day. A certain amount of ready money, therefore, is kept in hand to make current payments. This

amount will depend upon the size of the individual's income, the interval at which the income is received and the methods of payments currently in use in the society.

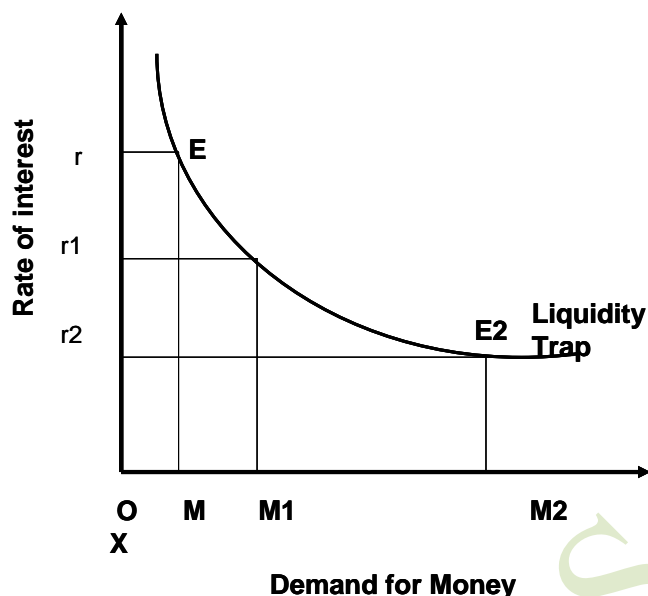
- ❖ The businessmen and the entrepreneurs also have to keep a proportion of their resources in ready cash in order to meet current needs of various kinds. They need money all the time in order to pay for raw materials and transport, to pay wages and salaries and to meet all other current expenses incurred by any business of exchange. Keynes calls this '**Business Motive for keeping money**'. It is clear that the amount of money held under this business motive will depend to a very large extent on the turnover (i.e., the volume of trade of the firm in question). The larger the turnover, the larger, in general, will be the amount of money needed to cover current expenses.

Precautionary Motive:

- ❖ Precautionary motive for holding money refers to the desire of the people to hold cash balances for unforeseen contingencies. People hold a certain amount of money to provide for the danger of unemployment, sickness, accidents, and the other uncertain perils. The amount of money held under this motive will depend on the nature of the individual and on the conditions in which he lives.

Speculative Motive:

- ❖ The speculative motive relates to the desire to hold one's resources in liquid form in order to take advantage of market movements regarding the future changes in the rate of interest (or bond prices).
- ❖ The notion of holding money for speculative motive is a new typically Keynesian idea. Money held under the speculative motive serves as a store of value as money held under the precautionary motive does. But it is a store of money meant for a different purpose.
- ❖ The cash held under this motive is used to make speculative gains by dealing in bonds whose prices fluctuate. If bond prices are expected to rise, which, in other words, means that the rate of interest is expected to fall, businessmen will buy bonds to sell when their prices actually rise. If, however, bond prices are expected to fall, i.e., the rate of interest is expected to rise, businessmen will sell bonds to avoid capital losses. Nothing being certain in this dynamic world, where guesses about the future course of events are made on precarious basis. Business men keep cash to speculate on the probable future changes in bond prices (or the rate of interest) with a view to making profits.
- ❖ Given the expectations about the changes in the rate of interest in future" less money will be held under the speculative motive at a higher 'Current or prevailing r
- ❖ Rate of interest and more money will be held under this motive at a lower current rate of interest. The reason for this inverse correlation between money held for speculative motive and the prevailing rate of interest is that at a lower rate of interest less is lost by not lending money or investing it, that is, by holding on to money, while at a higher rate of interest holders of cash balances would lose more by not lending or investing.
- ❖ Thus, the demand for money under speculative motive is a function of the current rate of interest, increasing as the interest rate falls and decreasing as the interest rate rises. Thus, demand for money under this motive is a decreasing function of the rate of interest as shown in the figure.



- ❖ Along X-axis is represented the speculative demand for money and along Y-axis the rate of interest. The liquidity preference curve LP is a downward sloping towards the right signifying that the higher the rate of interest, the lower the demand for speculative motive, and vice versa. Thus at the high current rate of interest O_r , a very small amount OM is held for speculative motive. This is because at a high current rate of interest much money would have been lent out or used for buying bonds and therefore less money will be kept as inactive balances.
- ❖ If the rate of interest falls to O_r1 , then a greater amount OM_1 is held under speculative motive. With the further fall in the rate of interest to O_r2 money held under speculative motive increases to OM_2 . It will be seen in Fig. that the liquidity preference curve LP becomes quite flat i.e., perfectly elastic at a very low rate of interest; it is horizontal line beyond point E_2 towards the right.
- ❖ This perfectly elastic portion of liquidity preference curve indicates the position of absolute liquidity preference of the people. That is, at a very low rate of interest people will hold with them as inactive balances any amount of money they come to have. This portion of liquidity preference curve with absolute liquidity preference is called liquidity trap by some economists.
- ❖ But the demand for money to satisfy the speculative motive does not depend so much upon what the current rate of interest is, as on expectations of changes in the rate of interest. If there is a change in the expectations regarding the future rate of interest, the whole curve or schedule of liquidity preference for speculative motive will change accordingly.
- ❖ Thus, if the public on balance expect the rate of interest to be higher (i.e., bond prices to be lower) in the future than had been previously supposed, the speculative demand for money will increase and the whole liquidity preference curve for speculative motive will shift upward.
- ❖ If the total supply of money is represented by M , we may refer to that part of M held for transactions and precautionary motive as M_1 and to that part held for the speculative motive as M_2 . Thus $M = M_1 + M_2$.
- ❖ The money held under the transactions and precautionary motives, i.e. M_1 is completely interest-inelastic unless the interest rate is very high. The amount of money held as M_1 , that is, for transactions and precautionary motive, is mainly a function of the size of income and business transactions together with the contingencies growing out of the conduct of personal and business affairs. We can write this in a functional form as follows: $M_1 = L_1(Y)$. ----- (i)

Where Y stands for income, L_1 for liquidity preference function, and M_1 for money held under the transactions and precautionary motive.

- ❖ The above function implies that money held under the transaction and precautionary motive is a function of income. On the other hand, money demanded for speculative motive, i.e., M_2 , as explained above, is primarily a function of the rate of interest.

This can be written as:

$$M_2 = L_2(r) \dots (ii)$$

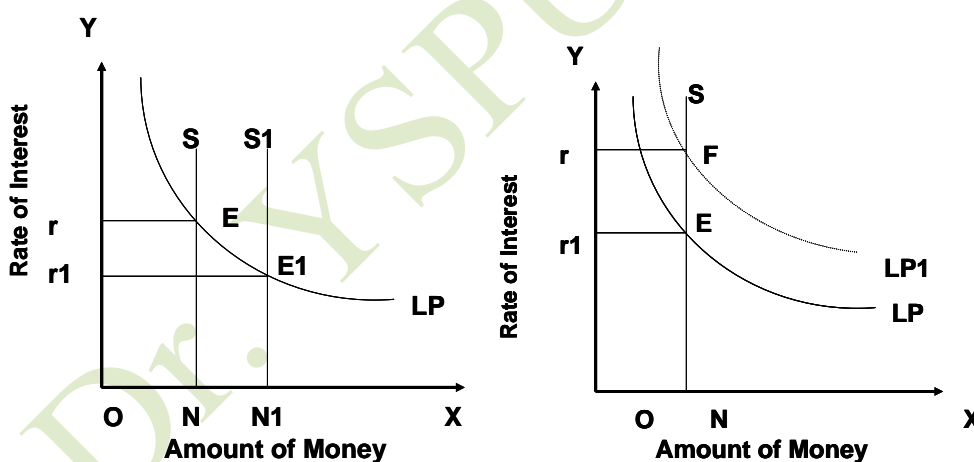
Where r stands for the rate of interest, L_2 for liquidity preference function for speculative motive. Since total supply of money $M = M_1 + M_2$, we get from (i) and (ii) above

$$M = L_1(Y) + L_2(r) \dots (iii)$$

It follows from (iii) above that given the supply of money M (and also income) the rate of interest will be determined by the liquidity preference.

Determination of the Rate of Interest: Interaction of Liquidity Preference and the Supply of Money:

- ❖ According to Keynes, the demand for money, i.e., the liquidity preference and supply of money determine the rate of interest.
- ❖ It is in fact the liquidity preference for speculative motive which along with the quantity of money determines the rate of interest. We have explained above the speculative demand for money in detail. As for the supply of money, it is determined by the policies of the Government and the Central Bank of the country. The total supply of money consists of coins plus notes plus bank deposits. How the rate of interest is determined by the equilibrium between the liquidity preference for speculative motive and the supply of money is shown in Fig. below.



- ❖ In Fig. LP is the curve of liquidity preference for speculative motive. In other words LP curve shows the demand for money for speculative motive.
- ❖ To begin with, ON is the quantity of money available for satisfying liquidity preference for speculative motive. Rate of interest will be determined where the speculative demand for money is in balance or

equal to the fixed supply of money ON . It is clear from the figure that speculative demand for money is equal to ON quantity of money at $O r$ rate of interest.

- ❖ Hence $O r$ is the equilibrium rate of interest. Assuming no change in expectations, an increase in the quantity of money (via open market operations) for the speculative motive will lower the rate of interest.
- ❖ In Fig when the quantity of money increases from ON to ON_1 , the rate of interest falls from $O r$ to $O r_1$ because the new quantity of money ON_1 is in balance with the speculative demand for money at $O r_1$ rate of interest. In this case we move down the curve. Thus given the schedule or curve of liquidity preference for speculative motive, an increase in the quantity of money brings down the rate of interest
- ❖ But the act of increase in the quantity of money may cause a change in the expectations of the public and thereby cause an upward shift in liquidity preference curve for speculative motive bringing the rate of interest up.
- ❖ But this is not certain. "New developments may only cause wide differences of opinion leading to increased activity in the bond market without necessarily causing any shift in the aggregate speculative demand for money schedule. If the balance of market expectations is changed, there will be a shift in the schedule. Central Bank policy designed to increase the money supply may therefore be met by an upward shift of speculative demand function leaving the rate of interest virtually unaffected. Thus a large increase in the quantity of money may exert only a small influence on the rate of interest in certain circumstances.
- ❖ It is worth mentioning that shift in liquidity preference schedule or curve can be caused by many other factors which affect expectations and might take place independently of changes in the quantity of money by the Central Bank. Shifts in the liquidity function may be either downward or upward depending on the way in which the public interprets a change in events.
- ❖ If some change in events leads the people on balance to expect a higher rate of interest in the future than they had previously supposed, the liquidity preference for speculative motive will increase, which will bring about an upward shift in the curve of liquidity preference for speculative motive and will raise the rate of interest.
- ❖ In Fig., assuming that the quantity of money remains unchanged at ON , the rise in the liquidity preference curve from LP to LP_1 , the rate of interest rises from $O r_1$ to $O r$ because at $O r$, the new speculative demand for money is in equilibrium with the supply of money ON . It is worth noting that when the liquidity preference for speculative motive rises from LP to LP_1 , the amount of money hoarded does not increase; it remains ON as before. Only the rate of interest rises from $O r_1$ to $O r$ to equilibrate the new liquidity preference for speculative motive with the available quantity of money ON .
- ❖ Thus we see that Keynes explained interest in terms of purely monetary forces and not in terms of real forces like productivity of capital and thrift which formed the foundation-stones of both classical and loan able fund theories. According to him, demand for money for speculative motive together with the supply of money determines the rate of interest. He agreed that the marginal revenue product of capital tends to become equal to the rate of interest but the rate of interest is not determined by marginal revenue productivity of capital.
- ❖ Moreover, according to him, interest is not a reward for saving or thriftiness or waiting but for parting with liquidity. Keynes asserted that it is not the rate of interest which equalizes saving and investment. But this equality is brought about through changes in the level of income.

Critical Appraisal of Keynes's Liquidity Preference Theory of Interest

1. Keynes ignored real factors in the determination of interest. Firstly, it has been pointed out that rate of interest is not purely a monetary phenomenon. Real forces like productivity of capital and thriftiness or saving also play an important role in the determination of the rate of interest.
2. Keynes makes the rate of interest independent of the demand for investment funds. In fact, it is not so independent. The cash-balances of the businessmen are largely influenced by their demand for capital investment. This demand for capital-investment depends upon the marginal revenue- productivity

of capital. Therefore, the rate of interest is not determined independently of the marginal revenue productivity of capital (marginal efficiency of capital) and investment demand. When investment demand increases due to greater profit prospects or, in other words, when marginal revenue productivity of capital rises, there will be greater demand for investment funds and the rate of interest will go up. But Keynesian theory does not account for this. Similarly, Keynes ignored the effect of the availability of savings on the rate of interest. For instance, if the propensity to consume of the people increases, savings would decline. As a result, supply of funds in the market will decline which will raise the rate of interest.

3. Keynesian theory is also indeterminate. Now exactly the same criticism applies to Keynesian theory itself on the basis of which Keynes rejected the classical and loanable funds theories. Keynes's theory of interest, like the classical and loanable funds theories, is indeterminate.
4. According to Keynes, rate of interest is determined by the speculative demand for money and the supply of money available for satisfying speculative demand. Given the total money supply, we cannot know how much money will be available to satisfy the speculative demand for money unless we know how much the transactions demand for money is. And we cannot know the transactions demand for money unless we first know the level of income. Thus the Keynesian theory, like the classical, is indeterminate. "In the Keynesian case the supply and demand for money schedules cannot give the rate of interest unless we already know the income level; in the classical case the demand and supply schedules for saving offer no solution until the income is known. Precisely the same is true of loanable -fund theory. Keynes's criticism of the classical and loanable fund theories applies equally to his own theory.
5. No liquidity without Savings. According to Keynes, interest is a reward for parting with liquidity and in no way a compensation and inducement for saving or waiting. But without saving how the funds can be available to be kept as liquid and how can there be the question of surrendering liquidity .if one has not already saved money. Jacob Viner rightly maintains, "Without saving there can be no liquidity to surrender". Therefore, the rate of interest is vitally connected with saving which is neglected by Keynes in the determination of interest.
6. It follows from above that Keynesian theory of interest is also not without flaws. But importance Keynes, gave to liquidity preference as a determinant of interest is correct. In fact, the exponents of loan able funds theory incorporated the liquidity preference in their theory by lying greater stress on hoarding and dishoarding. We are inclined to agree with Prof. D. Hamberg when he says, "Keynes did not forge nearly as new a theory as he and others at first thought. Rather, his great emphasis on the influence of hoarding on the rate of interest constituted an invaluable addition to the theory of interest as it had been developed by the loan able funds theorists who incorporated much of Keynes's ideas into their theory to make it more complete

Lecture-31

Profits and Risk and uncertainty theory of profit

Learning objective: Concepts of profit and Frank H Knight theory of profit

- ❖ The reward for entrepreneur is known as profits. An entrepreneur is principle and active agent of production. An entrepreneur can be distinguished from other owners of factors of production on a number of criteria.
 - 1) An entrepreneur cannot be hired or purchased by other factors, so his income is non contractual, whereas, the entrepreneur enters in to contract with other factors. They are hired or purchased, thus there return is contractual.
 - 2) An entrepreneur may not earn reward for his efforts, whereas other factors always earn reward for their efforts.
 - 3) Entrepreneur performs functions which are all together different, such as he bears risk and uncertainty, introduces innovation etc. Other factors have defined functions such as labour performs manual work etc.
 - 4) An entrepreneur may get negative reward in case of losses, whereas, other factors always get positive reward.

Concept of profit:

- ❖ **Gross Profit** is the excess of total revenue over the total explicit costs.

Gross Revenue = Total Revenue – Total Explicit cost

- ❖ **Net Profit:** The residual available to the entrepreneur after accounting for all explicit and implicit costs involved in the production

Net Profit = Total Revenue – Total explicit cost- Total implicit cost (including depreciation) or Gross profit – Total implicit cost

- ❖ **Normal profit** is the minimum profit which an entrepreneur must earn in order to induce him to keep the firm in operation. It is thus included in the cost of production just like any other expense.
- ❖ **Super normal profit** is in excess of the minimum necessary to induce the entrepreneur to keep the firm within the industry he is currently operating in. They are the profit over and above the normal profit and thus not included in the cost of production. It is the level where the entrepreneur is earning more than the total opportunity costs. Super normal profit may arise because of the following reasons.
 - ✓ Monopoly profits
 - ✓ Windfall gains
 - ✓ Difference in ability of entrepreneur

Risk and uncertainty theory of profit:

- ❖ This theory was propounded by American economist Frank H Knight in his book Risk, uncertainty and profit in 1921. According to him profit is the reward for uncertainty bearing. Knight asserted that there is a significant difference between risk and uncertainty. Although all uncertainties can be regarded as risk, all risks are not uncertain.

Knight divided the risk into two categories, insurable and non-insurable

1 Insurable Risk:

- ❖ There are some risks which can be foreseen by the entrepreneur. These risks can be insured against to avoid any loss in the case of the risk materializing. Included in insurable risks are risks such as fire, flood, earthquake, theft etc.
- ❖ The entrepreneur pays insurance premium to guard against such risks. The actual risk is borne by the insurance companies and not the entrepreneur. So the entrepreneur does not earn any profit on such risks. The premium paid for insuring against such risks is added to the cost of production and finally enters the price of the product.

2 Non-Insurable Risks:

- ❖ Apart from the risks which can be foreseen, there are also some other risks which are unforeseen and unpredictable. These risks constitute the second category of non-insurable risks because these cannot be insured against.
- ❖ No insurance company would be prepared to bear such risks. The entrepreneur has to bear these risks himself.
- ❖ Knight calls these non-insurable risks as uncertainty. Profit is the reward that accrues to the entrepreneur for uncertainty bearing. Some of the non-insurable risks or uncertainties are:

Competitive risks: These arise as a result of entry of new firms in the market.

Change in Government Policies: The govt. takes a number of policy decisions from time to time which create uncertainties for the firm. e.g, it may devalue the currency, introduce price ceilings, intervene in the affairs of the firm, change its trade policy etc.

Technological Uncertainties: New techniques of production may render the older technology and machinery obsolete. This creates uncertainty for firms using the old techniques of production.

Business Cycle Risks: Uncertainties arise as a result of the trade cycles of boom, recession, depression and recovery.

- ❖ All the above risks are unforeseen and no insurer would be ready to indemnify for any loss arising out of such risks. Each entrepreneur has to bear these uncertainties and profit is the reward for successfully countering them.
- ❖ An entrepreneur always faces a degree of uncertainty. Higher the degree of uncertainty he is ready to bear, higher the chances of earning greater profits. There is always the possibility of diversion between expectations and results because of the uncertainty arising as a result of difference between the time a decision is taken and its eventual implementation. If the decisions are as per expectations, then the entrepreneur will earn positive profits. On the other hand, the actual result does not meet the expectations, the entrepreneur may suffer losses.

Criticisms of the Theory:

1 Uncertainty bearing is not the only function of an entrepreneur. An entrepreneur performs many other functions like organizing the factors, introducing innovations, planning etc.

2 In reality, there is nothing to suggest that an entrepreneur who bears uncertainty would earn profits as well.

3 The modern world is characterized by joint stock companies. Ownership is completely divorced from management in such organizations. Those who bear the risks do not manage and those who take decisions do not bear the actual risk. The distribution of profits between the owners has not been explained.

4 There is greater uncertainty during recession and depression than during the boom period. According to the theory, an entrepreneur should earn greater profits during recession and depression than boom. But the reality is usually the opposite.

5 The theory gives uncertainty bearing the status of a separate factor of production. However, this is unrealistic.

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Lecture-32

Basic concepts in National Income

Learning objective: Basic concept of national income and methods of its measurement

Gross National Product at Market Prices (G.N.P.):

- ❖ Gross National Product at Market Prices is the total monetary value of all final goods and services at current prices produced in an economy in a year. We include the administrative services of the Government in G.N.P., although they do not command a market price but are paid for by the community as a whole by means of taxes, fees, etc.
- ❖ The services of charitable trusts and religious organizations are also paid by these organizations and therefore they are also included in the G.N.P. We also provide certain services out of love, friendship, kindness on the self-services, which are to be excluded from G.N.P, because they may command utility but not an economic value.
 1. Gross National Product=Gross National Income=Gross National Expenditure
 2. GNP=GNI=GNE
 3. GNE=Total personal consumption expenditure Gross Domestic private investment expenditure + Govt. purchase of goods and services + net foreign investment
 4. GNP=Total Money value of the aggregate output of goods and services produced by the nationals of a country during a given year
 5. GNI=Wages and salaries of employees + incomes of non company business +rental incomes of persons +corporate profits +income from net interest +indirect taxes+ depreciation of capital goods
- ❖ If the money value of the aggregate output of goods and services is measured with respect to the prices of some particular year other than the current one, **it is known as G.N.P. at constant prices**. So far as the measurement of Gross Domestic Product (GDP) is concerned, we exclude the expenditure on net foreign investment and hence.

$GDP = GNP - \text{Net Foreign investment}$

$\text{Net foreign investment} = \text{Export value} - \text{import value} = (X - M)$

$GDP = GNP - (X - M)$

2. Net National Product at Market Prices (NNP):

- ❖ Net National Product is the net production value of goods and services at current market prices in a country during a year. NNP is nothing but G.N.P minus the value of capital consumed or depreciated during a year. NNP is definitely a better concept of National income than GNP because it makes proper allowance for the depreciations suffered 'by machinery, buildings, equipment etc. during the course of production.

$$\text{NNP} = \text{GNP} - \text{Depreciation}$$
$$\text{NDP} = \text{GDP} - \text{Depreciation}$$

3. National Income at Factor Cost:

- ❖ National income at factor cost is also known as National Income. It is the total of all income payments received by the factors of production-land, labour capital, organization and entrepreneur. In fact the whole of the NNP is not available for distribution. The sum of indirect taxes goes to the Govt. Impact of indirect taxes is generally on the producers but the incidence of these taxes is borne by the consumers. Hence indirect taxes have to be deducted from the NNP in order to find out National Income. Today, we are living in the era of welfare states and in such type of states, the Govt. sometimes gives subsidies on the production of certain goods and services e.g. special concession on Khadi products for about a month from 2nd Oct. every year to commemorate Mahatma Gandhi. The production costs of these goods are higher but they are sold at cheaper rates on account of Govt. subsidies. The factors producing them are paid higher rewards on account of these subsidies. Naturally subsidies are to be added to so as to get national income at factor cost.

National Income at factor cost = NNP at Market prices - Indirect taxes + subsidies.

4. Personal Income:

- ❖ In fact, whole of the national income earned by the factors of production in a particular year is not actually received by them. Personal income is that income which is actually received by all individuals or households in an economy during a year. Several deductions are made out of the National. Income at factor cost e.g. joint stock companies have to pay a sort of income tax beyond a certain limit of income which is known as corporate tax- Naturally corporate taxes paid to the Govt. are not distributed among the shareholders. Workers and salaried employees have to make social security contributions out of their wages and salaries such as provident fund, Employees State Insurance contributions for medical aid etc. Govt. under the social welfare scheme also extends some benefits such as unemployment allowances, old age and widow pensions etc. These benefits are given against no productive work and

are known as '**transfer, payment.**' These are actually received by the individuals or households of a country and therefore should be added to NI at factor cost so as to get Personal Income.

Personal Income= National income at factor cost-Corporate income taxes- undistributed profits-social security contributions +transfer payments

This concept is a useful one since it tells us the potential purchasing power of an economy and measures the welfare of the general body of the consumers.

5. Disposable Income:

- ❖ The whole of the personal income is also not available for being spent on consumption. A part of the personal income has to be paid by individuals or households as direct taxes. If a person's annual income is beyond exemption limit of income tax, it is liable to be taxed and the income which is left after paying the income tax may be used for consumption. There are other types of direct personal taxes also e.g. house tax, wealth tax, gift tax etc.

$$\begin{aligned} \text{DI} &= \text{Personal Income} - \text{Direct personal taxes} \\ &= \text{Disposable for consumption} \\ &= \text{Consumption} + \text{Saving} \end{aligned}$$

Methods of calculating National Income

J .M.Keynes, a famous economist defined national income as follows.

"National Income is the money value of all goods and services produced in a country during a year"

National income shows the economic position of a nation. The basic objective of an economy is to achieve economic progress which is achieved by coordinating natural, human resources, capital, and technology. National income helps to assess and compare the progress achieved by a country over a period of time. The study of national income is important because it helps to know how far development objectives were achieved in the process of economic development. It also helps to know the contribution of various sectors to national income.

Methods of calculating National Income:

- ❖ National Income calculation is not an easy task. For this, we have to collect more facts

and figures. Income is generated through production process. Normally we use this income for purchasing goods and services. When demand for commodities goes up, we have to produce more. Thus income leads to expenditure which again leads to increased production as shown below.



The figure above shows how production, income and expenditure are mutually related. Economic activity is directly related to these three stages. Based on this, three methods are used for calculating national income.

1. Production method
2. Income method
3. Expenditure method

Production Method:

- ❖ This method is based on the total production of a country during a year. First of all production units are classified into primary, secondary and tertiary sectors. Then we identify the various units that come under these sectors. We estimate the goods and services produced in each of these sectors. The sum total of products produced in these three sectors is the total output of the nation. The next step is to find out the value of these products in terms of money. The money sent by Indian citizens working abroad is also added to this to get the gross national income.

GNI = Money value of total goods and services + Income from abroad.

Income Method:

- ❖ Factors of production together produce output and income. The income received by the factors of production during a year can be obtained by adding rent to land, wages to labour, interest to capital and profit to organizations. This will be equal to the income of the nation. In other words, total income is equal to the reward given to various factors of production. By adding the money sent by the Indian citizens from abroad to the income of the various factors of production, we get the gross national income.

GNI = Rent + Wage + Interest + Profit + Income from abroad.

This method will help us to know the contributions made by different agents like landlords, labourers, capitalists and organizers to national income.

Expenditure Method:

- ❖ National income can also be calculated by adding up the expenditure incurred for goods and services. Government as well as private individuals spend money for consumption and production purposes. The sum total of expenditure incurred in a country during a year will be equal to national income.

GNI = Individual Expenditure + Government Expenditure.

This method will help us to identify the expenditure incurred by different agents. Any one of the above methods can be used for calculating national income.

Production method = Income method = Expenditure method.

Difficulties Experienced in the Calculation of National Income:

The calculation of the national income of a country is not an easy task; rather it is full of complexities and difficulties of which worth mentioning are as follows:

- 1. Meaning of nation:** Economists in general agree that monetary value of the goods and services produced within the geographical boundaries of a nation is not only the national income but the income derived from abroad should also be included in it.
- 2. Which goods and services:** It is very difficult to find out which goods should be included or excluded from final calculations of national income e.g. whether goods and services having no money value are to be included while calculating national income or not.
- 3. Double counting:** There is always a problem of avoiding double counting in accounting in national income and it is practically difficult to do so.
- 4. Unreliable statistics:** In absence of reliable and complete statistics, one cannot find the correct estimate of national income.
- 5. Existence of barter system:** In a country like India if non monetary transactions to a considerable extent are practiced, it is very difficult to have a correct estimate of the national income.

6. Choice of method: We cannot adopt any single method for the computation of national income outright. In our own country we have to adopt the mixed method for having an estimate of national income.

7. Foreign companies: The existence of foreign companies in an economy also poses the problem of the calculation of national income since a part of the income flows out as dividends.

8. Instability of prices: Frequent changes in the prices in an economy also pose the problem of having the correct estimate of national income.

Importance of the Concept of National Income:

In fact national income is considered to be a unique concept because it is symptomatic of the trend of health and growth of the national economy. The study of national income however, is very useful in view of the following points:

1. Knowledge of economic conditions: We come to know about the economic conditions of an economy with the help of national income.

2. Various sources of National Income: On the basis of the knowledge of the various sources contributing to national income of a country, we learn about its nature and the level of economic growth.

3. Economic Planning: Planning for growth of economy and its stability is possible only when we know about the economic aggregates which are possible only via national income computation.

4. Standard of Living of the people: With the help of national income data, we come to know about the standard of living of ~ people of that country.

5. Taxable capacity: Taxable capacity of the nation can be measured if we have got an estimate of the National Income of the country.

6. Obstacles to Economic Growth: National income figures give a profile of the difficulties being practically faced in bringing the economy on the path leading to self-reliant economic growth.

7. Trade cycles: Cyclical business fluctuations are common in capitalistic economies where there are changes in economic variables these cycles can be identified and checked with the national income data.

8. Welfare: Modern economies in general are wedded to the philosophy of maximum social welfare for this it is very essential to have an estimate of total consumption in general and particularly of the down trodden classes. National income data serves our purpose from this point of view also.

9. Determination of Grants-in-aid: In the system of federal government the Union or the Central Govt. decides the amount of the grants-in-aid to various states on the basis of their population and contribution to national income.

10. NI and International Organizations: In the international organizations like IMF, IBRD etc. the quota of a member country is determined on the basis of its national income.

National Income calculation in India:

The first attempt to calculate national income of India was made by Dada Bai Naoroji in 1867-68. This was followed by several other attempts. The first scientific attempt was made by Prof.V.K.R.V.Rao in 1931-32. But it was not a satisfactory attempt. The first official attempt was made by Prof.P.C.Mahalanobis in 1948- 49. The final report was submitted in 1954. Today national income is calculated and published by the Central Statistical Organization. All the three methods are used for calculating national income in India.

