Manonmaniam Sundaranar University

Directorate of Distance and Continuing Education

Tirunelveli – 627 012. Tamil Nadu.

B.A. Economics
(First Year)

MICRO ECONOMICS - I

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MICRO ECONOMICS – I

Course Objectives:

This course will help the students

1. To understand the basic concepts in Economics and difference between micro and macroeconomics.

2. To demonstrate economic laws and identify exceptions to law of demand.

3. To interpret the concept of elasticity of demand and understand the factors governing elasticity of demand.

4. To acquire knowledge in Indifference curve analysis

5. To learn about factos of production and production function.

Unit I: Introduction

Definition of Economics – Main Divisions of Economics – Micro Economics – Importance and Limitations – Distinction between Micro and Macro Economics – Economic Laws – Basic Concepts.

(15L)

Unit II: Consumption

Human wants – Law of Diminishing Marginal Utility – Law of Equi-Marginal Utility – Law of Demand – Reasons for downward sloping demand curve–Exceptions - Consumer's Surplus.

(15L)

Unit III: Elasticity of Demand and Indifference Curve Analysis

Elasticity of Demand – Meaning – Types – Factors determining Elasticity of Demand – Measurement – Indifference Curve – Meaning – Properties – Marginal Rate of Substitution – Price effect – Income effect – Substitution effect.

(15L)

Unit IV: Production

Meaning of Production – Factors of production – Characteristics – Theories of Population – Capital formation – Factors governing Capital formation–Functions of Entrepreneurs – Division of Labour – Merits and Demerits – Large-scale and Small-scale Production – Merits and Demerits.

(15L)

Unit V: Production Function

Production Function – Types of Production Functions – Law of Variable proportion – Laws of Returns.

(15L)

(Total: 75L)

References:

1. Ahuja, H.L, Principles of Microeconomics, A New-Look Text Book of Microeconomic Theory, S Chand Company Ltd., 2020

2. Bose,D & Marimuthu, A, An Introduction to Micro Economics, Himalaya Publishing House, 2015.

3. Jhingan,M.L, Micro Economic Theory, Vrinda Publications Ltd., 2014.

4. Seth, M.L, Principles of Economics, Lakshmi Narain Agarwal, 2017.

5. Sundaram,K.P.M & Vaish,M.C, Principles of Economics, Vikas Publishing House Ltd., 1982.

Table of Content

INTRODUCTION

1.1. Introduction

Micro economics and macroeconomics are the two approaches to economic problems and economic analysis. The terms were first coined and used by Ragnar Fisch in 1933 and have now been adopted by the economists all the world over. Micro economics studies the economic actions of a particular individual and a well-defined group of individuals, i.e., households, firms, industries, etc. and macroeconomics studies the broad aggregates, such as total employment and total consumption, and the aggregate national income. Microeconomics is also known as partial analysis and macroeconomics as aggregate analysis. It is because that micro economics is the partial differentiation of the total (macro).

Microeconomics studies the economic actions and behaviour of individual units and small groups of individual units. It is the study of small components of the economy. It establishes the relationship between facts and results, which are called economic laws. Microeconomics is also called "The Price Theory", because it deals with the price of goods and services, rewards of the factors of production and interaction of the markets. Microeconomics is the study of households, firms and industry. It explains the working of market for individual commodities and behaviour of individual buyer and seller in such market. There are two types of markets that are product market and factor market these markets are dependent on each other. The factors of production are earning in factor market but they are spending in product market. The change in one market is reflected in other market. There are differences in the working of these markets. Some economists prefer to begin their analysis of economic problems form the variables concerning individuals, individual firms, and individual industries, i.e. micro economics. The greater part of Marshallian economics is concerned with micro economics. These two branches of economics are complementary and for a thought discussion of economic problems and both are necessary concept.

1.2. DEFINITION OF ECONOMICS

According to K. E. Boulding, Microeconomics is the study of particular firms, particular households, individual prices, wages, incomes, industry and particular commodities.

According to R. H. Left witch, Microeconomics is concerned with the economic activities of such economic units as consumers, resource Owners and business firms.

According to Prof. Samuelson, "Micro economics studies the behaviour of individual parts and units of any economy, e. g., determination of the price of a product or study and observation of the behaviour of a consumer or a firm". The study of micro economics clears the economic status of the individual units. It helps us in determining the remuneration of individual units.

1.3. MAIN DIVISIONS OF ECONOMICS

There are four main divisions of economics. They are consumption, production, exchange and distribution. In modern times, economists add one more division and that is public finance. In public finance, we study about the economics of government. The economic functions of the modern State have increased to a great extent. So public finance has become an important branch of economics. All the above divisions are interrelated. And they are dependent on each other.

Consumption

Consumption deals with the satisfaction of human wants. There is economic activity in the world because there are wants. When a want is satisfied, the process is known as consumption. Generally, in plain language, when we use the term 'consumption', what we mean is usage. But in economics, it has a special meaning. We can speak of the consumption of the services of a lawyer, just as we speak of the consumption of food. In the sub-division dealing with consumption, we study about the nature of wants, the classification of wants and some of the laws dealing with consumption such as the law of diminishing marginal utility, Engel's law of family expenditure and the law of demand.

Production

Production refers to the creation of wealth. Strictly speaking, it refers to the creation of utilities. And utility refers to the ability of a good to satisfy a want. There are three kinds of utility. They are form utility, place utility and time utility. Production refers to all activities which are undertaken to produce goods which satisfy human wants. Land, labour, capital and organization are the four factors of production. In the sub-division dealing with production, we study about the laws which govern the factors of production. They include Malthusian Theory of population and the laws of returns. We also study about the localization of industries and industrial organization.

Exchange

In modern times, no one person or country can be self-sufficient. This gives rise to exchange. In exchange, we give one thing and take another. Goods may be exchanged for goods or for money. If goods are exchanged for goods, we call it barter. Modern economy is a money economy. As goods are exchanged for money, we study in economics about the functions of money, the role of banks and we also study how prices are determined. We also discuss various aspects of international trade.

Distribution

Wealth is produced by the combination of land, labour, capital and organization. And it is distributed in the form rent, wages, interest and profits. In economics, we are not much interested in personal distribution. That is, we do not analyse how it is distributed among different persons in the society. But we are interested in functional distribution. As the four factors or agents of production perform different functions in production, we have to reward them.

Public Finance

Public finance deals with the economics of government. It studies mainly about the income and expenditure of government. So we have to study about different aspects relating to taxation, public expenditure, and public debt and so on.

1.4. MICRO ECONOMICS

1.4.1. MEANING OF MICRO ECONOMICS:

Microeconomics is that part of economic theory which deals with the behaviour of individual units of an economy such as a household, a firm, etc. It is the analysis of economy's constituent elements—households, firms and industries. Micro is a Greek word meaning 'small'. Thus, microeconomics means economics of small. As the name suggests, microeconomics takes microscopic view of the economy. It is like dealing with individual trees in the economic forest. According to Prof. Boulding, "Microeconomics is the study of particular firms, particular households, individual prices, wages, incomes, industry and particular commodities." It is primarily concerned with the determination of prices of Individual commodities and factors. It explains how prices of wheat, cloth, shoes, pens and thousands of other goods are determined. Similarly, how prices (remuneration) of factors of production (i.e., rent, wages, interest, etc.) are determined. Thus, the theory of product pricing and theory of factor pricing fall within the domain of microeconomics .Since prices of products and factors occupy the central place, microeconomics is, therefore, also called 'Price Theory'. Examples of microeconomics are: individual income, individual saving, consumer equilibrium, price determination of a good, demand of a commodity, etc.

In microeconomics, problems of individual economic units are studied such as equilibrium of a consumer (i.e., state of maximum satisfaction), equilibrium of a firm (i.e., state of maximum profit) and an industry. It explains how a consumer, a producer and an industry attain equilibrium. An individual household (or consumer) is said to be in equilibrium if it gets maximum satisfaction from allocation of its expenditure on various goods and services. On the other hand, a firm is said to be in equilibrium if it is getting maximum profit determined by its Marginal Cost and Marginal Revenue. An industry is assumed to be in equilibrium if there is no tendency among its constituent firms to either leave the industry or for outside firms to enter it. (Remember, an industry is a whole group of firms producing the same product.)

1.5. IMPORTANCE OF MICROECONOMICS:

We can realize the importance of the study of micro economics from the following points.

1. Utility Maximization:

It teaches us to purchase the required products in most suitable quantities so that the total utility obtained is maximized. Hence, Micro economic analysis explains us the optimum use of our income and by virtue of it enables us to avoid the wastage of hard-earned income.

2. Resource Allocation:

By the study of micro economics we come to know how millions of consumers and producers allocate their consumption and production resources in an attempt to achieve their optimum level.

3. Income Distribution:

By the distribution theories we learn the determination of rewards to factors of production in the form of rent, interest, wages and profit by which distribution of wealth takes place. Unequal distribution of income will lead to unequal distribution of wealth. It will then consequently provoke reaction to achieve fair and relatively equal distribution of income/wealth in a society.

4. Price Determination:

The study of micro economics is highly helpful in understanding the determination of relative prices for the productive services rendered by different factors of production.

5. Optimization:

It also helps entrepreneurs to achieve optimum production point with their budget constraint. By this, they can maximize their profit or at least they will minimize their losses.

6. Welfare Policies:

It also helps to frame economic policies aimed at achieving public welfare e.g. tax exemption for the poor, determination of rewards according to qualification and productive capabilities, minimum wage laws etc.

7. Guidance for Consumers:

It enables the consumers to allocate their 1ncome on different goods in such a way that total utility is maximized; thus, helping them to avoid the wastage of resources.

8. Guidance for Producers:

It enables entrepreneurs to achieve the optimum combination of factors of production and thereby it enables them to maximize their profit: or at least minimize their losses. When the rewards of factors of production are determined in accordance with their marginal productivity, the chances of their exploitation are minimized. Thus, it enables labourers as well to achieve suitable rewards for their productive services.

9. Coordination between Small Units of Economy:

It also provides guidance for small segments of an economy to bear them well coordinated with each other. Moreover, the study of micro economics is essential to achieve the best outcome of macro policies.

10. Working of Economy:

Microeconomics provides idea about working of the economy. It tells us about behaviour of consumer or firm. All such consumers and firms are part of the whole economy.

11. Predictions:

Microeconomics is based on certain predictions. There are certain conditions that become basis of predictions. It explains that if some event happens then what. Will be the result. If demand goes up the prices will go up.

12. Economic Policies:

Microeconomics is used to formulate policies. it tells us effect of government policies on allocation of resources. The people can oppose new taxes. The government can adjust its policies through reaction of individuals.

13. Basis of Welfare Economics:

Microeconomics is the basis of welfare economics. The individual firms and organisations pay taxes to the government. They can check whether the government has used that money for welfare of the people.

1.6. LIMITATIONS OF MICROECONOMICS:

Following are the demerits of micro economic analysis and policies related to it.

1. Free Market Economy:

Microeconomics is based on the idea of free market economy. In fact, there is no free market economy after great depression of 1930.

2. Study of Parts:

Microeconomics is concerned with study of parts but not the whole. In terms of individual terms, it is impossible to describe large and complex universe of facts like economic system.

3. Misleading for Analysis:

Microeconomics is inadequate and misleading for analysis of economic problems. The principles relating to an individual household cannot be applied to the whole economic system.

4. Full Employment:

Microeconomics assumes that there is full employment. There is no full employment at all times in this world. Full employment is an exception in practical life.

5. Economic Instability:

When every single firm it allowed to operate freely in an open economy, it would naturally go for self-interest; even at the cost of national interest. Thus, it would disrupt the cohesion between different productive units which will ultimately force the economy to move into depression. A free enterprise economy is therefore an unstable economy i.e. the economy which keep: on fluctuating with boom: and depressions.

6. Exploitation of Consumers:

In spite of proper guidance for the consumers the real-life situation reveals that they are exploited. This happens with the rising rate of inflation iii an economy. With the pace of inflation, on one hand, wealth keeps on concentrating in a few hands while, on the other hand, consumers are deprived of their purchasing power. The natural inequality of income distribution in a free enterprise economy leads to exploitation of consumers.

7. Exploitation of Labourers:

Entrepreneurs exploit their labourers by keeping their wage rate low or even lower than their marginal productivity. This happens in three ways:

(i) By forcing labourers to work for more hours than required under labour laws.

(ii) By installing automatic and computerized plants to increase the marginal productivity of labour which is not followed by increase in their wage rate.

(iii) By setting up production units in remote areas to employ labour at notoriously low wage rate.

8. Absence of Large-Scale Production:

Micro economic analysis encourages setting up of small units for growth of economy. This could possibly be achieved more efficiently by initiating and encouraging large scale production.

9. Unrealistic Assumptions:

Micro economics is based on unrealistic assumptions, especially in case of full employment assumption which does not exist practically. Even behaviour of one individual cannot be generalised as the behaviour of all.

10. Inadequate Data:

Micro economics is based on the information dealing with individual behaviour, individual customers. Hence, it is difficult to get correct information. So, because of incorrect data Micro Economics may provide inaccurate results.

1.7. DISTINCTION BETWEEN MICRO AND MACRO ECONOMICS

It was the first Nobel Laureate economist Ranger Frisch who drew a distinction (in the year 1933) between the two major branches of economics: microeconomics and macroeconomics. These two terms have by now been adopted by all economists. Microeconomics is the branch of economics concerned with the study of the behaviour of individual consumers and firms and the determination of market prices and quantities bought and sold of commodities and services and of factors of production.

In contrast, macroeconomics is the branch of economics concerned with the study of aggregate economic activity. Keynes' General Theory (1936)

is the first full-scale treatise on macroeconomics. Macroeconomic analysis investigates how the economy as a whole functions. It also seeks to identify determinants of the levels of national income and output, employment and prices.

Microeconomics:

- It is the study of individual economic units of an economy.
- It deals with Individual Income, Individual prices, Individual output, etc.
- Its central problem is price determination and allocation of resources.
- Its main tools are demand and supply of a particular commodity/factor.
- It helps to solve the central problem of 'what, how and for whom' to produce. In the economy
- It discusses how equilibrium of a consumer, a producer or an Industry Is attained.
- Price is the main determinant of micro- economic problems.
- Examples are: Individual Income, Individual savings, price determination of a commodity, individual firm's output, consumer's equilibrium.
- **Macroeconomics:**
- It is the study of economy as a whole and its aggregates.
- It deals with aggregates like national Income, general price level, national output, etc.
- Its central problem is determination of level of Income and employment.
- Its main tools are aggregate demand and aggregate supply of the economy as a whole.
- It helps to solve the central problem of full employment of resources in the economy.
- It is concerned with the determination of equilibrium level of Income and employment of the economy.
- Income is the major determinant of macroeconomic problems.
- Examples are: National Income, national savings, general price level, aggregate demand, aggregate supply, poverty, unemployment, etc.

1.8. ECONOMIC LAWS

1.8.1. Meaning:

A law (or generalisation) is the establishment of a general truth on the basis of particular observations or experiments which traces out a causal relationship between two or more phenomena. But economic laws are statements of general tendencies or uniformities in the relationships between two or more economic phenomena. Marshall defined economic laws in these words, "Economic laws, or statements of economic tendencies, are those social laws, which relate to those branches of conduct in which the strength of the motives chiefly concerned can be measured by money price."

1.8.2. Explanation of laws:

It can be inferred from this definition that economic laws are (a) statements of economic tendencies, (b) social laws, (c) concerned with human behaviour, and (d) human behaviour can be measured in money. On the other hand, according to Robbins, "Economic laws are statements of uniformities about human behaviour concerning the disposal of scarce means with alternative uses for the achievement of ends that are unlimited." These two definitions are common in that they consider economic laws as statements of tendencies or uniformities relating to human behaviour.

Their Nature:

Scientific or like Natural or Physical Laws. Economic laws are like scientific laws which trace out a causal relationship between two or more phenomena. As in natural sciences, a definite result is expected to follow from a particular cause in economics. The law of gravitation states that things coming from above must fall to the ground at a specific rate, other things being equal. But when there is a storm, the gravitational force will be reduced and the law will not work properly. As pointed out by Marshall, "The law of gravitation is therefore, a statement of tendencies."

Similarly economic laws are statements of tendencies. For instance, the law of demand states that other things remaining the same, a fall in price leads to an extension in demand and vice versa. Again, some economic laws are positive like scientific laws such as the Law of Diminishing Returns which deal with inanimate nature. Since economic laws are like scientific laws, they

are universally valid. According to Robbins, "Economic laws describe inevitable implications. If the data they postulate are given, then the consequences they predict necessarily follow. In this sense, they are on the same footing as other scientific laws."

Non-Precise like the Laws of Natural Sciences:

Despite these similarities, economic laws are not as precise and positive as the laws of natural sciences. This is because economic laws do not operate with as much certainty as the scientific laws. For instance, the law of gravitation must operate whatever the conditions may be. Any object coming from above must fall to the ground. But demand will not increase with the fall in price if there is depression in the economy because consumers lack purchasing power. Therefore, according to Marshall, "There are no economic tendencies which act as steadily and can be measured as exactly as gravitation can, and consequently, there are no laws of economics which can be compared for precision with the law of gravitation."

There is controlled experimentation in natural sciences and the natural scientist can test scientific laws very rapidly by altering natural conditions such as temperature and pressure in his experiments in the laboratory. But in economics, controlled experiments are not possible because an economic situation is never repeated exactly at another time. Moreover, the economist has to deal with man who acts in accordance with his tastes, habits, idiosyncrasies, etc. The entire universe or that part of it in which he carries out his research is the economist's laboratory. As a result, predictions concerning human behaviour are liable to error. For instance, a rise in price may not lead to contraction in demand rather it may expand it, if people fear shortage of goods in anticipation of war. Even if demand contracts as a result of the price rise, it is not possible to predict accurately how much the demand will contract. Thus economic laws "do not necessarily apply in every individual case; they may not be reliable in the ever-changing environment of real economy; and they are in no sense, of course, inviolable."

Non-predictable like the Law of Tide:

But accurate predictions are not possible in economics alone. Even sciences like biology and meteorology cannot predict or forecast events

correctly. The law of tide explains why the tide is strong at full moon and weak at the moon's first quarter. On this basis, it is possible to predict the exact hour when the tide will rise. But this may not happen. It may rise earlier or later than the predicted time due to some unforeseen circumstances. Marshall, therefore, compared the laws of economics with the laws of tides "rather than with simple and exact law of gravitation. For the actions of men are so various and uncertain that the best statements of tendencies, which we can make in a science of human conduct, must needs be inexact and faulty."

Behaviourist:

Most economic laws are behaviourist, such as the law of diminishing marginal utility, the law of equi marginal utility, the law of demand, etc., which depend upon human behaviour. But the behaviourist laws of economics are not as exact as the laws of natural sciences because they are based on human tendencies which are not uniform. This is because all men are not rational beings. Moreover, they have to act under the existing social and legal institutions of the society in which they live. As rightly pointed out by Prof. Schumpeter: "Economic laws are much less stable than are the 'laws' of any physical science…and they work out differently in different institutional conditions.

Indicative:

Unlike scientific laws, economic laws are not assertive. Rather, they are indicative. For instance, the Law of Demand simply indicates that other things being equal, quantity demanded varies inversely with price. But it does not assert that demand must fall when price increases.

Hypothetical:

Prof. Seligman characterised economic laws as "essentially hypothetical", because they assume 'other things being equal' and draw conclusions from certain hypotheses. In this sense, all scientific laws are also hypothetical as they too assume the ceteris paribus clause (i.e. other things being equal). For instance, other things being equal, a combination of hydrogen and oxygen in the proportion of 2:1 will form water. If, however, this proportion is varied or/and the required temperature and pressure are not

maintained, water will not be formed. Still there is difference in hypothetical element present in economic laws as against scientific laws. It is more pronounced in the former because economics deals with human behaviour and natural sciences with matter.

But as compared with the laws of other social sciences, the laws of economics are less hypothetical but more exact, precise and accurate. This is because economies possesses the measuring rod of money which is not available to other social sciences like ethics, sociology, etc. which makes economics more pragmatic and exact. Despite this, economic laws are less certain like the laws of social sciences because the value of money does not always remain constant. Rather, it changes from time to time.

Truisms or Axioms:

There are certain generalisations in economics which may be stated as truism. They are like axioms and do not have any empirical content, such as 'saving is a function of income,' 'human wants are numerous', etc. Such statements are universally valid and need no proof. So they are superior to scientific laws. But all economic laws are not like axioms and hence not universally true and valid.

Historico-Relative:

On the other hand, economists of the Historical School regarded economic laws as abstractions which are historico-relative, that is economic laws have only a limited application to a given time, place and environment. They have limited validity to certain historical conditions and have no relevance to the analysis of social phenomena outside that. But Robbins does not agree with this view because according to him, economic laws are not historico-relative. They are simply relative to the existence of certain conditions which are assumed to be given. If the assumptions are consistent with one another and if the process of reasoning is logical, economic laws would be universally valid.

1.9. BASIC CONCEPTS:

Economic concepts refer to the collection of basic ideas that explain various occurrences in the economy, like the actions and choices of economic agents. Therefore, a basic understanding of the concepts is important in studying and analyzing the decisions and behavior of economic agents. For example, it includes the producers' and consumers' decisions on producing and buying.

1. Scarcity

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

2. Supply Demand

Another important economic concept is supply-demand. Supply refers to the number of goods and services available for consumers. The law of supply states that as price increases, also supply increases and vice versa. Hence the supply curve is upward sloping. Demand indicates the number of goods and services consumers are willing and able to purchase. According to the law of demand, as price increases, demand decreases and vice versa. Therefore it points to a downward sloping demand curve. If demand is greater than supply, the price of goods and services tends to increase in a market, but the price decreases if supply is greater than demand. The equilibrium price happens when the supply meets with demand. If the price of a chocolate brand increases, its demand decreases and vice versa. When the price of cocoa rises in the global market, chocolate price increases, and producers increase the supply to obtain the advantage.

3. Incentives

Incentive refers to the factor that influences the consumer in the decision-making process. Two types of incentives are intrinsic and extrinsic incentives. Intrinsic incentives originated in the consumer without any

outside pressure, whereas extrinsic incentives developed due to external rewards. For example, the decrease in the price of a discretionary item is an incentive to purchase that item.

4. Trade-off and Opportunity Cost

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

5. Economic Systems

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

6. Factors of production

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

7. Production Possibilities

In economics, production possibility frontier is a curve in which each point represents the combination of two goods that can be produced using the given finite resources. For example, a farmer can produce 20,000 apples and 30,000 apricots in his fixed land so that the trees are placed to have adequate space to develop a healthy root system and receive enough sunlight. However, if he intends to produce 50,000 apricots, he will make only 10,000 apples on his farm.

8. Marginal Analysis

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

9. Circular Flow

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

10. International Trade

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

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UNIT- II

CONSUMPTION

2.1. INTRODUCTION:

Economics which deals with wants and their satisfaction is known as Consumption. When we use a commodity, we really use its want-satisfying quality or utility. Hence, consumption means using up of utilities. When we take a glass of water to quench our thirst, we are said to consume water. While sitting on chairs in the class-room, the students are consuming the chairs. A person is sick; he calls in a doctor. He has 'consumed' the doctor's service. Whenever we make use of any commodity or service for the satisfaction of our wants, the act is called consumption. It deals with wealth-using activities of man as distinguished from wealth-getting activities, which are dealt with in Production. Thus consumption deals with the satisfaction of wants.

Consumption has also been defined as destruction of utility:

Man cannot create matter nor can he destroy it. Matter is there in the world, it will remain there; man can only change its form. When a man eats, a mango, he does not destroy the matter of which it is composed; he has only changed its form. Formerly, it could satisfy a human want, i.e., it possessed utility; now that want-satisfying power is gone. In other words, man has destroyed its utility in the act of eating it. The mango has been consumed.

The destruction of utility in consumption may be quick and immediate as in the case of a mango or a glass of milk. Or it may be a prolonged and slow process as in the case of furniture. In both cases, utility or want-satisfying power is being destroyed. But mere destruction of utility does not mean consumption. If a house catches fire and is destroyed, it has not been 'consumed' in the economic sense. Consumption implies the satisfaction of a human want. The emphasis is on the satisfaction of wants rather than on the destruction of utility. If no want has been satisfied, it is not consumption. For practical purposes, consumption means the spending of money income. Milk, food and other goods that we consume cannot be had free we must pay for

them. Consumption, thus, involves expenditure of income or wealth-using activity of man.

2.1.1. TYPES OF CONSUMPTION:

Consumption is known as direct or final consumption, when the goods satisfy human wants directly and immediately. The goods have reached their final destination, e.g., wearing a shirt or eating a mango or using furniture, in which case the act of consumption is not a single process but is of a continuing nature. On the other hand, consumption is called indirect or productive consumption when the goods are not meant for final consumption but for producing other goods which will satisfy human wants directly, e.g., using a sewing machine for making clothes. The use of the instruments of production is a case of indirect or productive consumption. Consumption may be useful or wasteful. When there is destruction by fire or earthquake or by any other natural calamity, the goods are just destroyed and not usefully consumed.

2.1.2. IMPORTANCE OF CONSUMPTION:

Modern economists rightly emphasize the importance of consumption. It has already been explained that Consumption is the beginning as well as I he end of all economic activity. A man feels a desire and then he makes an effort to satisfy it. When the effort has been made, the result is the satisfaction of the want. Want is thus the beginning and its satisfaction the end of our economic effort. Consumption is regarded as the be-all and the end-all of all economic activity. In other words, consumption is the beginning as well as the end of all economic activity. It is consumption which gives the initial push to production. Production, thus, is directed and stimulated by consumption. Not only do the consumers give initial push to production, but their desires govern the volume and direction of all productive activity throughout. If the consumers are satisfied, business prospers and production expands. But if the consumers happen to dislike a commodity or think that its price is too high, its production will sooner or later come to an end. A consumer has been compared to a king, and his sway extends over the entire realm of economic activity.

The existence of wants is the mainspring of all economic activity and then multiplying or expansion is the secret of all economic progress. Multiplication of wants and economic progress go together. Manufacturers try to find out better and more profitable methods to satisfy the consumers. This leads to the discovery of new products and new processes and the invention of new machines. Every economic effort made to satisfy one want creates more wants. The more the wants are satisfied, the more they increase. "Appetite comes with eating." Besides, human faculties are exercised in the effort to satisfy human wants. A body of skilled workers is, therefore, built up besides successful businessmen.

The all-pervading influence of consumption can be seen in all branches of Economics. Consumers direct and guide production. It is the intensity of consumers' desires which determines prices in the market. Consumption thus exerts its influence on exchange also. Without consumption there would have been no exchange. Distribution, i.e., the flow of incomes to landlords, workers, capitalists and organizers, is also influenced by the consumption (standard of living) of each of these classes. Standard of living determines their efficiency and on efficiency depends their shares in the national income. Thus, the importance of consumption cannot be over-emphasized. It is all-pervasive. It affects ill economic activity and contributes to economic progress.

2.2. HUMAN WANTS:

"Man is a bundle of desires." In common language, there is not much difference between a 'desire' and a 'want.' But in economics, there is difference between a 'desire' and a 'want'. Every desire cannot be a want. If a poor person desires to have a car, his desire cannot be called a want. A desire can become a want only when a consumer has the means (i.e. money) to purchase the thing and he is also ready to spend the means (money). For a desire to become a want, the following four elements must be present.

1. The desire for a thing.
2. Efforts to satisfy the desire.
3. The means (i.e. money) to purchase the thing.
4. Readiness to spend the means (i.e. money) to satisfy the desire.

2.2.1. CHARACTERISTICS OF HUMAN WANTS:

Human wants have certain characteristics or features, which can be explained as below.

1. Wants are Unlimited:

Man is a bundle of wants and his wants are numerous. Man remains busy throughout his life in order to satisfy these wants. When one want is satisfied, another want crops up. In this way, wants arise one after another. The second want arises after the satisfaction of the first want, the third after the second and so on. This endless circle of wants continues throughout human life. Thus wants are unlimited.

2. Each Particular Want can be satisfied:

We cannot satisfy all our wants because the means to satisfy them are limited. But a person can satisfy a particular want. For example, hunger can be satisfied by taking food. He may take one, two, three or more pieces of bread. Ultimately, he will say that he does not want more bread.

3. Wants are Competitive:

We can satisfy only a few wants and not all wants because our means are limited. Therefore, we always have to make a relative comparison of the intensity of our different wants. Only that want is satisfied first which is the most urgent. For example, suppose, a student has Rs. 20 with him. With this amount he can purchase either a copy or see a picture. Now there will arise a competition between his want for a copy and for a picture. If his intensity for the copy is more intense, he will purchase the copy, instead of seeing the picture. In this way, there is always a competition among our various wants.

4. Wants are Complementary:

Wants are competitive but a few wants are complementary to each other. To satisfy one want for a good, we have to arrange for another good also. For example, the want for a car can be satisfied only when we fulfill the want for petrol also. Such wants are called complementary.

5. Some Wants are both Competitive and Complementary:

Certain wants are competitive as well as complementary to each other. For instance, labourers are required to operate machines. Therefore, the demand for labour is a complementary want for machines. But, at the same

time, machines can be used in place of labour for the production of goods. Here, machines reduce the want for labour and thus wants for machine and labour are also competitive to each other.

6. Some Wants Recur:

Most wants recur. If they are satisfied once, they arise again after a certain period. We take food and our hunger is satisfied. But after a few hours, we again feel hungry, and we have to satisfy our hunger every time with food. Therefore, hunger, thirst, etc. are such wants which occur time and again.

7. Some Wants become Habits:

Certain wants become habits. For example, the continuous use of opium, liquor, cigarettes, etc. become habits.

8. Wants are Alternative:

Some wants are alternative. We can satisfy our hunger either with rice, bread, vegetables, fruit, meat, eggs, milk, etc.

9. Hidden Wants:

Hidden wants are those about which we do not know apparently. They lie hidden in our sub-conscious mind. But per chance, when we come across it or get satisfaction from the use of certain things, it becomes a necessity or a want for us. For example, a worker goes to his factory on foot and he does not need a bicycle. Suppose he gets a bicycle in the lottery, then he thinks that the bicycle was an important want for him.

10. Wants are Relative:

Certain human wants are relative to time and place. We need woollens during the winter and cotton clothes during the summer. But when we go to a hill station during the summer, we need woollens. So wants change from time to time, from person to person and from place to place.

11. Wants are affected by Fashion:

Many of our wants are affected by fashion. Wants change with the change in fashion.

12. Wants are affected by Advertisements:

Wants are also affected by advertisement of goods and services made by producers and sellers. When we see an advertisement about a new product in a daily newspaper or TV, there arises a want for it. At present, most of our

wants are the result of attractive advertisements. These advertisements have a direct appeal and consumers by and large are persuaded to go for the consumption of these goods.

13. Wants are affected by Social Customs:

Man is a social animal. Therefore, wants are also affected by our social customs. For example, the demand for a band at the time of marriage is a want affected by our social customs.

14. Wants increase due to the Spread of Knowledge and Civilization:

Human wants increase with the spread of knowledge and the progress of civilization. The modern man has more wants in comparison to the wants of a man who used to live in the forests in olden times. Therefore, it can be said that human wants increase with an increase in knowledge and civilization. Even today wants of a person living in the city are more in number and variety than a person living in a village.

15. Present wants are more important than Future Wants:

It is natural among human beings to prefer the present wants to the future wants, as the satisfaction of present wants gives more satisfaction than the future wants. Future is uncertain and who knows whether we live or not.

2.3. LAW OF DIMINISHING MARGINAL UTILITY

According to the Law of Diminishing Marginal Utility, marginal utility of a good diminishes as an individual consumes more units of a good. In other words, as a consumer takes more units of a good, the extra utility or satisfaction that he derives from an extra unit of the good goes on falling. It should be carefully noted that is the marginal utility and not the total utility than declines with the increase in the consumption of a good. The law of diminishing marginal utility means that the total utility increases but at a decreasing rate.

"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." This law is based upon two important facts. Firstly, while the total wants of a man are virtually unlimited, each single want is satiable. Therefore, as an individual consumes more and more units of goods, intensity of his want for

the goods goes on falling and a point is reached where the individual no longer wants any more units of the goods. That is, when saturation point is reached, marginal utility of goods becomes zero. Zero marginal utility of goods implies that the individual has all that he wants of the goods in question.

The second fact on which the law of diminishing marginal utility is based is that the different goods are not perfect substitutes for each other in the satisfaction of various particular wants. When an individual consumes more and more units of a goods, the intensity of particular want for the goods diminishes but if the units of that goods could be devoted to the satisfaction of other wants and yield as much satisfaction as they did initially in the satisfaction of the first want, marginal utility of the good would not have diminished. It is obvious from the above that the law of diminishing marginal utility describes a familiar and fundamental tendency of human nature. This law has been arrived at by introspection and by observing how people behave.

Table 2.1. Diminishing Marginal Utility

Cups of Tea	Total Utility	Marginal utility
Consumed per day	(units)	(units)
1	12	12
2	22	10
3	30	8
4	36	6
5	40	4
6	41	1
7	39	-2
8	34	-5

Consider Table 2.1 in which we have presented the total and marginal utilities derived by a person from cups of tea consumed per day. When one cup of tea is taken per day, the total utility derived by the person is 12 units. And because this is the first cup its marginal utility is also 12. With the consumption of 2nd cup per day, the total utility rises to 22 but marginal utility falls to 10. It will be seen from the table that as the consumption of tea

increases to six cups per day, marginal utility from the additional cups goes on diminishing (i.e., the total utility goes on increasing at a diminishing rate). However, when the cups of tea consumed per day increase to seven, then instead of giving positive marginal utility, the seventh cup gives negative marginal utility equal to -2. This is because too many cups of tea consumed per day (say more than six for a particular individual) may cause him acidity and gas trouble. Thus, the extra cups of tea beyond six to the individual in question give him disutility rather than positive satisfaction.
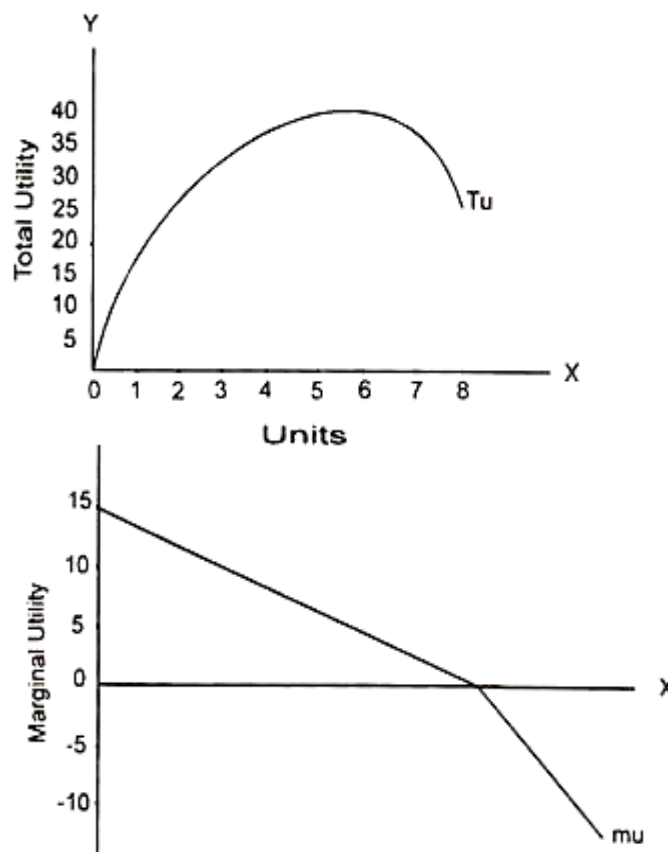
Fig.2.1. Diminishing Marginal Utility

We have graphically represented the data of the above table in Figure 2.1 We have constructed rectangles representing the total utility obtained from various numbers of cups of tea consumed per day. As will be seen in the Figure, the length of the rectangle goes on increasing up to the sixth cup of tea and beyond that length of the rectangle declines, indicating thereby that up to the sixth cup of tea total utility obtained from the increasing cups of tea goes on increasing whereas beyond the 6th cup, total utility declines. In other words, marginal utility of the additional cups up to the 6th cup is positive, whereas beyond the sixth cup marginal utility is negative. The marginal utility

obtained by the consumer from additional cups of tea as he increases the consumption of tea has been shaded. A glance at the Figure 2.1 will show that this shaded area goes on declining which shows that marginal utility from the additional cups of tea is diminishing. We have joined the various rectangles by a smooth curve which is the curve of total utility which rises Up to a point and then declines due to negative marginal utility.

Moreover, the shaded areas of the rectangles representing marginal utility of the various cups of tea have also been shown separately in the figure given below. We have joined the shaded rectangles by a smooth curve which is the curve of marginal utility. As will be seen, this marginal utility curve goes on declining throughout and even falls below the x-axis. Portion below the x-axis indicates the negative marginal utility. This downward-sloping marginal utility curve has an important implication for consumer's behavior regarding demand for goods. We shall explain how the demand curve is derived from marginal utility curve. The main reason why the demand curves for good slope downward is the fact of diminishing marginal utility. The significance of the diminishing marginal utility of a good for the theory of demand is that the quantity demanded of a good rises as the price falls and vice versa. Thus, it is because of the diminishing marginal utility that the demand curve slopes downward.

2.4. LAW OF EQUI-MARGINAL UTILITY

The equi-marginal principle is based on the law of diminishing marginal utility. The equi-marginal principle states that a consumer will be maximizing his total utility when he allocates his fixed money income in such a way that the utility derived from the last unit of money spent on each good is equal. Suppose a man purchases two goods X and Y whose prices are P_X and P_Y, respectively. As he purchases more of X, his MU_X declines while MU_Y rises. Only at the margin the last unit of money spent on X has the same utility as the last unit of money spent on Y and the person thereby maximizes his satisfaction. Only when this is true, the consumer will not be distributing his money in buying good X and Y, since by reallocating his expenditure he cannot increase his total utility.

This condition for a consumer to maximize utility is usually written in the following form:

$$MU_X/P_X = MU_Y/P_Y$$

So long as MU_Y/P_Y is higher than MU_X/P_X, the consumer will go on substituting Y for X until the marginal utilities of both X and Y are equalized. The marginal utility per rupee spent is the marginal utility obtained from the last unit of good consumed divided by the price of good (i.e., MU_X/P_X or MU_Y/P_Y). A consumer thus gets maximum utility from his limited income when the marginal utility per rupee spent is equal for all goods.

Example:

This equi-marginal principle or the law of substitution can be explained in terms of an arithmetical example. In Table 2.2, we have shown marginal utility schedule of X and Y from the different units consumed. Let us also assume that prices of X and Y are Rs. 4 and Rs. 5, respectively.

Table 2.2. Marginal Utility Schedules

Number of units consumed	MU_X	MU_Y
1	40	55
2	36	50
3	32	30
4	28	20
5	24	15
6	20	5

MU_X and MU_Y schedules show diminishing marginal utilities for both goods X and Y from the different units consumed. Dividing MU_X and MU_Y by their respective prices we obtain weighted marginal utility or marginal utility of money expenditure. This has been shown in Table 2.3.

Table.2.3. MU_X/P_X and MU_Y/P_Y schedules

Number of units consumed	MU_X/P_X	MU_Y/P_Y
1	10	11
2	9	10
3	8	6
4	7	4
5	6	3
6	5	1

MU_X/P_X and MU_Y/P_Y are equal to 6 when 5 units of X and 3 units of Y are purchased. By purchasing these combinations of X and Y, the consumer spends his entire money income of Rs. 35 (= Rs. 4 x 5 + Rs. 5 x 3) and, thus, gets maximum satisfaction [10 + 9 + 8 + 7 + 6] + [11 + 10 + 6] = 67 units. Purchase of any other combination other than this involves lower volume of satisfaction.

Graphical Representation:

The above principle can also be illustrated in terms of a figure. We have drawn marginal utility curves for goods X and Y in Fig 2.2(a) and (b). Here we use marginal utility and price. Marginal utility per rupee spent on good X = MU_X/P_X, and that of Y = MU_Y/P_Y. The MU_X/P_X curve has been shown in Fig. 2.2(a) while the MU_Y/P_Y curve has been shown in Fig. 2.2(b). We have not drawn negative portion of the marginal utility curves.
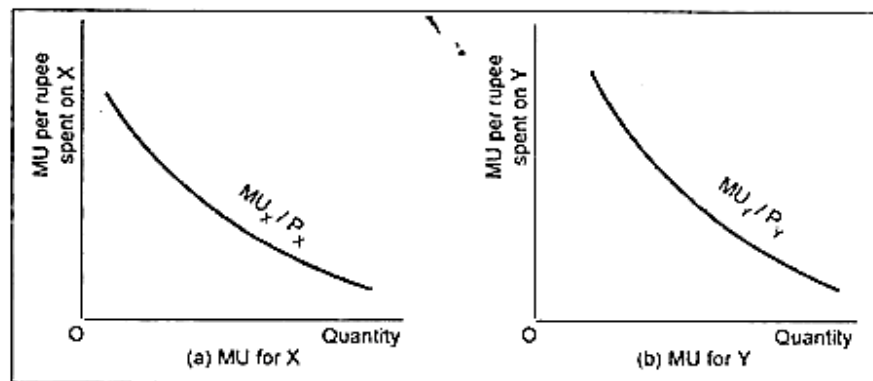
Fig. 2.2. MUs for X and Y

Now, by superimposing Fig. 2.2(b) on Fig. 2.2(a), we get Fig. 2.3 in which we measure available income—00'—of the consumer on the horizontal axis.
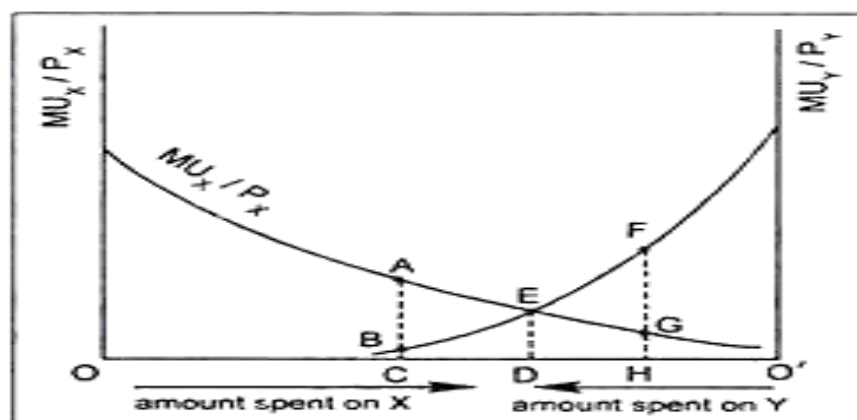

Fig. 2.3. Equi – marginal principle

Our consumer maximizes his total utility by spending OD amount on good X and O'D amount on good Y. By purchasing this combination, the consumer equalizes marginal utilities per rupee spent on X and Y at point E (i.e., $MU_X/P_X = MU_Y/P_Y = ED$). No other combination will give greater satisfaction. If our consumer spends OC on good X and O'C on good Y then MU_X/P_X will exceed MU_Y/P_Y by the distance AB. This will induce the consumer to buy more of X and less of Y. As a result, MU_X/P_X will fall, while MU_Y/P_Y will rise until equality is restored at point E. Similarly, if the consumer spends OH on X and O'H on Y then $MU_X/P_X < MU_Y/P_Y$. Now, the consumer will buy more of Y and less of X. This substitution between X and Y will continue until $MU_X/P_X = MU_Y/P_Y$. Therefore, the consumer can derive maximum satisfaction only when marginal utility per rupee spent on good X is the same as the marginal utility per rupee spent on another good Y. When this condition is met, the consumer does not find any interest in changing his expenditure pattern.

The equilibrium condition can now be rewritten as:

$MU_X/P_X = MU_Y/P_Y$

This equation can, however, be rearranged in the following form:

$MU_X/MU_Y = P_X/P_Y$

This equation states that a consumer reaches equilibrium when he equalizes the ratio of marginal utilities of both goods with the price ratio.

However, this equilibrium condition can be extended to **'n'** number of commodities.

For 'n' number of commodities, the equilibrium condition is:

$MU_A/P_A = MU_B/P_B = MU_C/P_C = \ldots\ldots\ldots = MU_n/P_n$

Limitations:

Firstly, the law of equi-marginal utility is based on the measurability of utility in cardinal numbers. But utility is a subjective concept and, hence, not quantifiable.

Secondly, this law assumes that the consumer acts rationally. No consumer, in fact, purchases commodity in accordance with this principle of substitution. In fact, purchases are often guided by habit, sentiment, prejudice, or custom.

Thirdly, this law cannot be applied in the case of indivisible commodities like motor car, refrigerator, etc. Since these commodities are not divisible into smaller units, the law may seem to be inoperative.

Derivation of Demand Curve from Equi-Marginal Utility:

In order to be able to derive the demand curve for a commodity we must know the equilibrium purchase plan of a consumer of various commodities. We want to know the equilibrium purchase of commodities because the basic aim of a consumer is the maximization of satisfaction from the consumption of various commodities. The equilibrium of the consumer may be explained in terms of the law of equi-marginal utility or the law of substitution. This law states that a consumer will be maximizing his satisfaction from the expenditure of his limited money income when the marginal utility per rupee spent on, say, one good, X, is the same as the marginal utility of rupee spent on another good, Y. In other words, a consumer reaches equilibrium when the marginal utility per rupee of good X (MU_X/P_X) is equal to the marginal utility per rupee of good Y (MU_Y/P_Y).

2.5. LAW OF DEMAND

2.5.1. MEANING OF DEMAND:

The demand for a commodity is its quantity which consumers are able and willing to buy at various prices during a given period of time. So, for a commodity to have demand the consumer must possess willingness to buy it, the ability or means to buy it, and it must be related to per unit of time i.e. per day, per week, per month or per year. Demand is a function of price (p), income (y), prices of related goods (pr) and tastes (f) and is expressed as D=f (p, y, pr, t). When income, prices of related goods and tastes are given, the demand function is D=f (p). It shows the "quantities of a commodity purchased at given prices. In the Marshallian analysis, the other determinants of demand are taken as given and constant.

2.5.2. FACTORS INFLUENCING DEMAND:

The factors which determine the level of demand for any commodity are the following:

1. Price:

The higher the price of a commodity, the lower the quantity demanded. The lower the price, the higher the quantity demanded.

2. Prices of other Commodities:

There are three types of commodities in this context.

Substitutes:

If a rise (or fall) in the price of one commodity leads to an increase (or decline) in the demand for another commodity, the two commodities are said to be substitutes. In other words, substitutes are those commodities which satisfy similar wants, such as tea and coffee. If the price of coffee falls, the demand for coffee rises which brings a fall in the demand for tea because the consumers of tea shift their demand to coffee which has become cheaper. On the other hand, if the price of coffee rises, its demand will fall. But the demand for tea will rise because the consumers of coffee will shift their demand to tea.

Complementary Commodities:

Where the demand for two commodities is linked to each other, such as cars and petrol, bread and butter, tea and sugar, etc., they are said to be complementary goods. Complementary goods are those which cannot be used without each other. If, say, the price of cars rises and they become expensive, the demand for them will fall and so will the demand for petrol. On the contrary, if the price of cars falls and they become cheaper, the demand for them will increase and so will the demand for petrol.

Unrelated Goods:

If the two commodities are unrelated, say refrigerator and bicycle, a change in the price of one will have no effect on the quantity demanded of the other.

3. Income:

A rise in the consumer's income raises the demand for a commodity, and a fall in his income reduces the demand for it.

4. Tastes:

When there is a change in the tastes of consumers in favour of a commodity, say due to fashion, its demand will rise, with no change in its price, in the prices of other commodities, and in the income of the consumer. On the other

hand, a change in tastes against a commodity leads to a fall in its demand, other factors affecting demand remaining unchanged.

Individuals Demand Schedule and Curve:

An individual consumer's demand refers to the quantities of a commodity demanded by him at various prices, other things remaining equal (y, pr and t). An individual's demand for commodity "is shown on the demand schedule and on the demand curve. A demand schedule is a list of prices and quantities and its graphic representation is a demand curve.

Table 2.4: Demand Schedule

Price (Rs.)	Quantity (units)
6	10
5	20
4	30
3	40
2	60
1	80

The demand schedule reveals that when the price is Rs. 6, the quantity demanded is 10 units. If the price happens to be Rs. 5, the quantity demanded is 20 units, and so on. In Figure 2.4, DD_1 is the demand curve drawn on the basis of the above demand schedule. The dotted points D, P, Q, R, S, T and U show the various price-quantity combinations. Marshall calls them "demand points". The first combination is represented by the first dot and the remaining price- quantity combinations move to the right toward D_1.
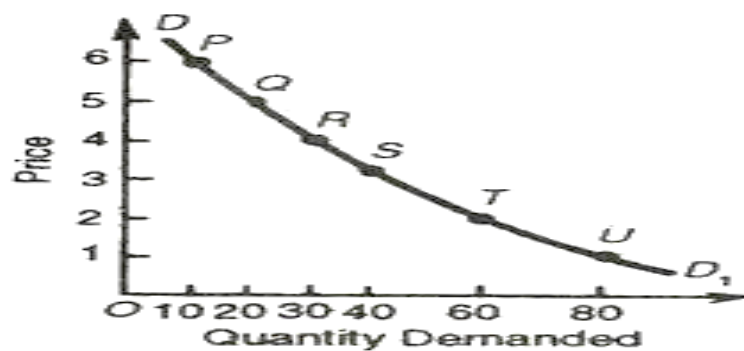

Fig. 2.4. Demand schedule

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The Market Demand Schedule and Curve:

In a market, there is not one consumer but many consumers of a commodity. The market demand of a commodity is depicted on a demand schedule and a demand curve. They show the sum total of various quantities
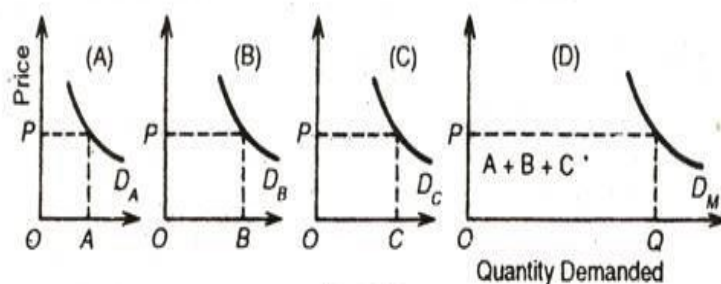

Fig. 2.5. Demand curve

demand by all the individuals at various prices. Suppose there are three individuals A, B and C in a market who purchase the commodity. The demand schedule for the commodity is depicted in Table 2.5. The last column (5) of the Table represents the market demand of the commodity at various prices. It is arrived at by adding columns (2), (3) and (4) representing the demand of consumers A, B and C respectively. The relation between columns (1) and (5) shows the market demand schedule. When the price is very high Rs. 6 per kg. The market demand for the commodity is 70 kgs. As the price falls, the demand increases. When the price is the lowest Re. 1 per kg., the market demand per week is 360 kgs.

Table 2.5: Market Demand Schedule

Price per kg. (Rs.) (1)	A (2)	Quantity Demanded in kgs. B + (3) +	C (4)	Total Demand (5)
6	10	20	40	70
5	20	40	60	120
4	30	60	80	170
3	40	80	100	220
2	60	100	120	280
1	80	120	160	360

From Table 2.5. We draw the market demand curve in Figure 2.5. D_M is the market demand curve which is the horizontal summation of all the individual demand curves $D_A + D_B + D_C$. The market demand for a commodity depends on all factors that determine an individual's demand. But a better way of drawing a market demand curve is to add together sideways (lateral summation) of all the individual demand curves.

2.5.3. THE LAW OF DEMAND:

The law of demand expresses a relationship between the quantity demanded and its price. It may be defined in Marshall's words as "the amount Demanded increases with a fall in price, and diminishes with a rise in price."
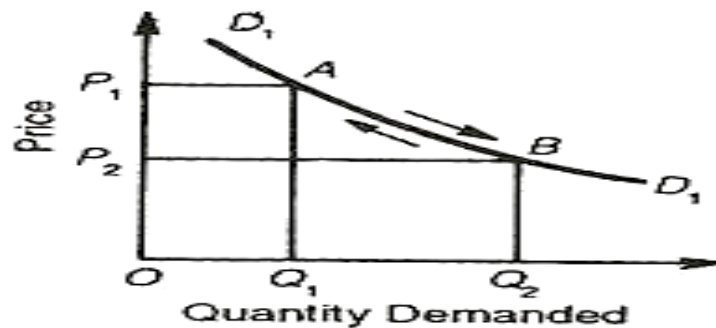

Fig. 2.6. Law of Demand

Thus it expresses an inverse relation between price and demand. The law refers to the direction in which quantity demanded changes with a change in price. On the figure, it is represented by the slope of the demand curve which is normally negative throughout its length. The inverse price-demand relationship is based on other things remaining equal. This phrase points towards certain important assumptions on which this law is based.

It's Assumptions.

These assumptions are: (i) there is no change in the tastes and preferences of the consumer; (ii) the income of the consumer remains constant; (iii) there is no change in customs; (iv) the commodity to be used should not confer distinction on the consumer; (v) there should not be any substitutes of the commodity; (vi) there should not be any change in the prices of other products; (vii) there should not be any possibility of change in the price of the product being used; (viii) there should not be any change in the quality of the product; and (ix) the habits of the consumers should remain unchanged.

Given these conditions, the law of demand operates. If there is change even in one of these conditions, it will stop operating.

Causes of Downward Sloping Demand Curve:

Why does a demand curve slope downward from left to right? The reasons for this also clarify the working of the law of demand. The following are the main reasons for the downward sloping demand curve.

(1) The law of demand is based on the law of Diminishing Marginal Utility. According to this law, when a consumer buys more units of a commodity, the marginal utility of that commodity continues to decline. Therefore, the consumer will buy more units of that commodity only when its price falls. When less units are available, utility will be high and the consumer will be prepared to pay more for the commodity. This proves that the demand will be more at a lower price and it will be less at a higher price. That is why the demand curve is downward sloping.

(2) Every commodity has certain consumers but when its price falls, new consumers start consuming it, as a result demand increases. On the contrary, with the increase in the price of the product, many consumers will either reduce or stop its consumption and the demand will be reduced. Thus, due to the price effect when consumers consume more or less of the commodity, the demand curve slopes downward.

(3) When the price of a commodity falls, the real income of the consumer increases because he has to spend less in order to buy the same quantity. On the contrary, with the rise in the price of the commodity, the real income of the consumer falls. This is called the income effect. Under the influence of this effect, with the fall in the price of the commodity the consumer buys more of it and also spends a portion of the increased income in buying other commodities. For instance, with the fall in the price of milk, he will buy more of it but at the same time, he will increase the demand for other commodities. On the other hand, with the increase in the price of milk he will reduce its demand. The income effect of a change in the price of an ordinary commodity being positive, the demand curve slopes downward.

(4) The other effect of change in the price of the commodity is the substitution effect. With the fall in the price of a commodity, the prices of its

substitutes remaining the same, consumers will buy more of this commodity rather than the substitutes. As a result, its demand will increase. On the contrary, with the rise in the price of the commodity (under consideration) its demand will fall, given the prices of the substitutes. For instance, with the fall in the price of tea, the price of coffee being unchanged, the demand for tea will rise, and contrariwise, with the increase in the price of tea, its demand will fall.

(5) There are persons in different income groups in every society but the majority is in low income group. The downward sloping demand curve depends upon this group. Ordinary people buy more when price falls and less when price rises. The rich do not have any effect on the demand curve because they are capable of buying the same quantity even at a higher price.

(6) There are different uses of certain commodities and services that are responsible for the negative slope of the demand curve. With the increase in the price of such products, they will be used only for more important uses and their demand will fall. On the contrary, with the fall in price, they will be put to various uses and their demand will rise. For instance, with the increase in the electricity charges, power will be used primarily for domestic lighting, but if the charges are reduced, people will use power for cooking, fans, heaters, etc.

Exceptions to the Law of Demand:

In certain cases, the demand curve slopes up from left to right, i.e., it has a positive slope. Under certain circumstances, consumers buy more when the price of a commodity rises, and less when price falls, as shown by the D curve in Figure 2.7. Many causes are attributed to an upward sloping demand curve.
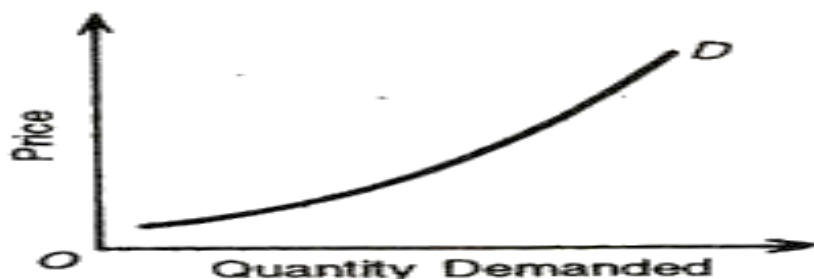

Fig.2.7. Exception of law of demand

(i) War:

If shortage is feared in anticipation of war, people "may start buying for building stocks or for hoarding even when the" price rises.

(ii) Depression:

During a depression, the prices of commodities are very low and the demand for them is also less. This is because of the lack of purchasing power with consumers.

(iii) Giffen Paradox:

If a commodity happens to be a necessity of life like wheat and its price goes up, consumers are forced to curtail the consumption of more expensive foods like meat and fish, and wheat being still the cheapest, food they will consume more of it. The Marshallian example is applicable to developed economies. It the case of an underdeveloped economy, with the fall in the price of an inferior commodity like maize, consumers will start consuming more of the superior commodity like wheat. As a result, the demand for maize will fall. This is what Marshall called the Giffen Paradox which makes the demand curve to have a positive slope.

(iv) Demonstration Effect:

If consumers are affected by the principle of conspicuous consumption or demonstration effect, they will like to buy more of those commodities which confer distinction on the possessor, when their prices rise. On the other hand, with the fall in the prices of such articles, their demand falls, as is the case with diamonds.

(v) Ignorance Effect:

Consumers buy more at a higher price under the influence of the "ignorance effect", where a commodity may be mistaken for some other commodity, due to deceptive packing, label, etc.

(vi) Speculation:

Marshall mentions speculation as one of the important exceptions to the downward sloping demand curve. According to him, the law of demand does not apply to the demand in a campaign between groups of speculators. When a group unloads a great quantity of a thing on to the market, the price falls and the other group begins buying it. When it has raised the price of the

thing, it arranges to sell a great deal quietly. Thus when price rises, demand also increases.

Defects of Utility Analysis or Demand Theory:

The Marshallian utility analysis has many defects and weaknesses which are discussed below.

(1) Utility cannot be measured cardinally:

The entire Marshallian utility analysis is based on the hypothesis that utility is cardinally measured in 'utils' or units and that utility can be added and subtracted. For instance, when a consumer takes the first chapati, he gets utility equivalent to 15 units; from the second and third chapati "10 and 5 units respectively and when he consumes the fourth chapati marginal utility becomes zero. If it is supposed that he has no desire after the fourth chapati, the utility from the fifth will be negative 5 units if he takes this chapati. In this way, the total utility in each case will be 15, 25, 30 and 30, when from the fifth chapati the total utility will be 25 (30-5). It shows that utility is transitive.

(2) Single Commodity Model is Unrealistic:

The utility analysis is a single commodity model in which the utility of one commodity is regarded independent of the other. Marshall considered substitutes and complementary as one commodity, but it makes the utility analysis unrealistic. For instance, tea and coffee are substitute products. When there is a change in the stock of any one product, there is change in the marginal utility of both the products. Suppose there is increase in the stock of tea. There will not only be fall in the marginal utility of tea but also of coffee.

(3) Money is an Imperfect Measure of Utility:

Marshall measured utility in terms of money, but money is an incorrect and imperfect measure of utility because the value of money often changes. If there is fall in the value of money, the consumer will not be getting the same utility from the homogeneous units of a commodity at different times. Fall in the value of money is a natural consequence of rise in prices.

(4) Marginal Utility of Money is not constant:

The utility analysis assumes the marginal utility of money to be constant. Marshall supported this argument on the plea that a consumer spends only a small portion of his income on a commodity at a time so that there is an insignificant reduction in the stock of the remaining amount of money. But the fact is that a consumer does not buy only one commodity but a number of commodities at a time.

(5) Man is not rational:

The utility analysis is based on the assumption that the consumer is rational who prudently buys the commodity and has the capacity to calculate the dis-utilities and utilities of different commodities, and buys only those units which give him greater utility. This assumption is also unrealistic because no consumer compares the utility and disutility from each unit of a commodity while buying it. Rather, he buys them under the influence of his desires, tastes or habits. Moreover, consumer's income and prices of commodities also influence his purchases. Thus the consumer does not buy commodities rationally. This makes the utility analysis unrealistic and impracticable.

(6) Utility Analysis does not study Income Effect, Substitution Effect and Price Effect:

The greatest defect in the utility analysis is that it ignores the study of income effect, substitution effect and price effect. The utility analysis does not explain the effect of a rise or fall in the income of the consumer on the demand for the commodities. It thus neglects the income effect. Again, when with the change in the price of one commodity there is a relative change in the price of the other commodity, the consumer substitute's one for the other.

(7) Utility Analysis fails to clarify the Study of Inferior and Giffen Goods:
Marshall's utility analysis of demand does not clarify the fact as to why a fall in the prices of inferior and giffen goods leads to a decline in their demand. Marshall failed to explain this paradox because the utility analysis does not discuss the income and substitution effects of the price effect. This makes the Marshallian law of demand incomplete.

2.6. REASONS FOR DOWNWARD SLOPING DEMAND CURVE– EXCEPTIONS

The six important exceptions to the law of demand. The exceptions are: 1. Speculative Demand 2. Snob Appeal or Veblen Good 3. Using Price as an Index of Quality 4. Giffin Good 5. Possibility of Future Rise in Prices 6. Highly Essential Good.

Law of Demand: Exception - 1.

Speculative Demand:

In a speculative market (such as the stock market), a rise in the price of a commodity (such as, share) creates an impression among buyers that its price will rise further. So people start buying more of a share when its price rises. This is not truly an exception to the law of demand in the sense that the demand curve here is not upward sloping. Hence, there is no movement along it from left to right. In fact, in a speculative market, we see a shift of a normal downward sloping demand curve— people buy more at the same price. Some people wrongly refer to this as an exception because they get confused between the two issues—movement along a demand curve and a shift of the demand curve.

Law of Demand: Exception - 2.

Snob Appeal or Veblen Good:

People sometimes buy certain commodities like diamonds at high prices not due to their intrinsic worth but for a different reason. The basic object is to display their riches to the other members of the community to which they themselves belong. This is known as **'snob appeal'**, which induces people to purchase items of conspicuous consumption. Such a commodity is also known as Veblen good whose demand rises (fails) when its price rises (falls).This is a genuine exception to the law of demand. The demand curve for such an item will be upward sloping (Fig. 2.8). Thus if, the price of diamond falls, people will buy less of it. In a word, purchasers value diamonds and other costly items because of their prices and because of the psychic satisfaction that they derive from it.
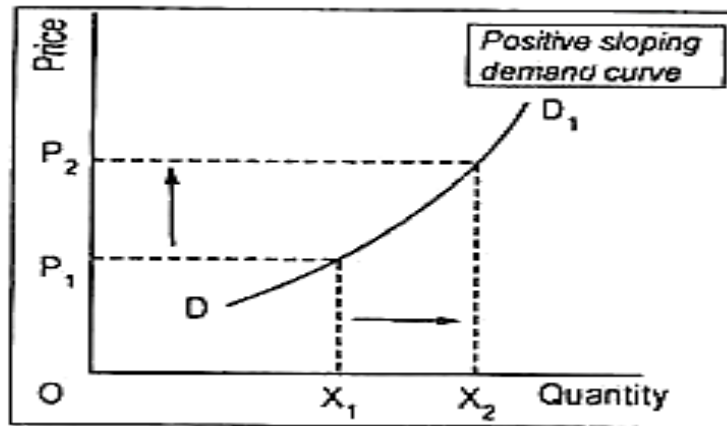
Fig. 2.8. Exceptional Demand Curve

Law of Demand: Exception - 3.

Using Price as an Index of Quality:

Most consumers do not have the capacity or technical knowledge to examine the physical properties of a product (such as, reliability, durability, economy, etc.,) as in the case of an item such as a motor car or a VCR. So, in the absence of other information, price is taken as an index of quality. Thus, a high-priced car is more valued than a low-priced one. A costly book is often considered to be more useful by a student than a cheaper title. In such cases, the demand curve may be upward sloping. This argument is not a new one. This applies to our previous case where we referred to commodities having snob appeal. So this point really reinforces the previous one.

Law of Demand: Exception - 4.

Giffen Good:

A **'Giffen good'** is a special variety of inferior good. Sir Robert Giffen of Scotland observed in the 19th century (1840s) that poor people spent the major portion of their income on a staple item, viz., potato. If the price of this good rises they will become so poor that they will be found to spend less on other items and buy more potatoes in order to get a minimum diet and keep themselves alive. For such goods, the demand curve will be upward sloping.

Law of Demand: Exception - 5.

Possibility of Future Rise in Prices:

If a consumer anticipates that the price of a commodity will rise in future he will purchase more of that commodity now. The consumer will purchase more even if current price is high. In all the cases mentioned above,

the demand curve DD_1 exhibits positive slope as shown in Fig. 2.8. At a price OP_1, a consumer demands OX_1 of a commodity. As its price rises to OP_2, demand also rises to OX_2. Thus, the law of demand breaks down.

Law of Demand: Exception - 6.

Highly Essential Good:

Finally, in case of certain highly essential items such as life- saving drugs, people buy a fixed quantity at all possible price. Heart patients will buy the same quantity of 'Sorbitrate' whether price is high or low. Their response to price change is almost nil. In cases of such commodities, the demand curve is likely to be a vertical straight line (Fig. 2.9). At a price OP_1, the heart patient consumer demands OD amount of 'Sorbitrate'. In spite of its price rise to OP_2, the consumer buys the same quantity of it.
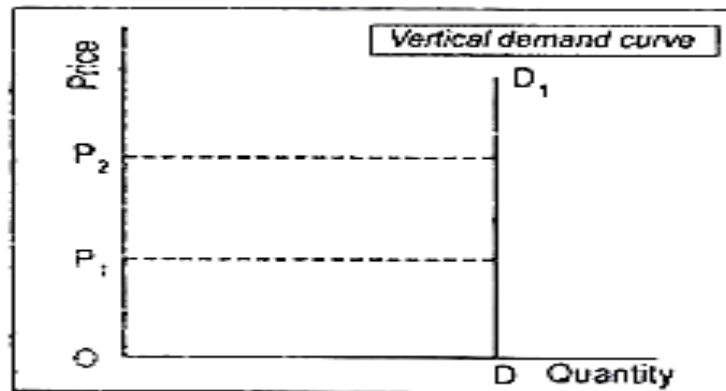

Fig. 2.9. Exceptional Vertical Demand Curve

2.7. CONSUMER'S SURPLUS

2.7.1. Introduction to Consumer Surplus:

The doctrine of Consumer's Surplus which occupies an important place in the Marshallian System of Welfare Economic Analysis was originally stated by William Stanley Jevons and French Engineer economist Arsens Jules Dupuit in 1844 in a Crude form. Later on Dr. Alfred Marshall explained this concept in "The Pure Theory of Domestic Values" as consumer's rent.

In his 'Principles of Economics' he further elaborated this concept in logical details and describe it as "Consumer's Surplus". He is called the Consumer's Surplus.

2.7.2. Explanation of the Concept of Consumer Surplus:

In actual life, when we buy a commodity for consumption, we gain some utility by consuming it, at the same time we lose some utility in terms of the price that we need to pay for it. In the beginning, utility gained is usually higher than the utility lost. This concept is used to explain the gap between total utility that a consumer gets from the consumption of a certain commodity and the total money value which he actually pays for the same.

For Example:

Suppose, a student goes to buy a book. He is willing to pay Rs. 20 for the book. But he gets the book for Rs. 15. Thus, he has saved Rs. 5. This is called Consumer's Surplus.

Potential Price – Actual Price = Consumer's Surplus.

2.7.3. Definition of Consumer Surplus:

❖ Regarding this Prof. Marshall has said that "The excess of price which he (consumer) would be willing to pay rather than go without. The thing over that which he actually does pay, is the economic measure of this surplus satisfaction. It may be called "Consumer's Surplus".

❖ According to Penson – "The difference between what we would pay and what we have to pay is called Consumer's Surplus."

❖ According to Prof. J. K. Mehta – "Consumer's Surplus obtained by a person from a commodity is the difference between satisfaction which he derives from it and which he foregoes in order to procure that commodity."

❖ As per Samuelson – "There is always a gap between total welfare and total economic value. This gap is the nature of a surplus which consumer gets because he always receives more than he pays."

❖ According to Taussig – "Consumer's Surplus is the difference between the sums which measures total exchange value".

2.7.4. Assumptions of Consumer's Surplus:

Prof. Marshall has discussed the concept of Consumer's Surplus on the basis of the following assumptions:

   a. **Marginal Utility of Money is Constant:**

   The marginal utility of money to the consumer remains constant. It is so when the money spent on purchasing the commodity is only a small fraction of this total income.

   b. **No Close Substitutes Available:**

   The commodity in question has no close substitutes and if it does have any substitute, the same may be regarded as an identical commodity and thus only one demand should may be prepared.

   c. **Utility can be measured**:

   The utility is capable of cardinal measurement through the measuring rod of money. Moreover, the utility obtainable from one good is absolutely independent of the utility from the other goods. No goods affect the utility that can be derived from the other goods.

   d. **Tastes and Incomes are same**:

   That all people are of identical tastes, fashions and their incomes also are the same.

2.7.5. Explanation of the Law:

The above definition of Prof. Marshall can be explained with the help of practical examples:

(i) Consumer's Surplus when there is single purchase and

(ii) Consumer's Surplus when there is multiple unit purchase.

(i) Consumer Surplus on Single Unit Purchase:

When a consumer purchases only one unit of a commodity even then the Consumer Surplus arises. Let us suppose a student is willing to pay Rs. 30 for a particular book and when he actually go to market and purchase it at Rs. 25. Thus Rs. 5 (30-25) is the Consumer's Surplus.

(ii) Consumer's Surplus on a Multi-unit Commodity:

In our real life one purchases number of units of a particular commodity. The price that a consumer pays for all the different units of commodity actually measures the utilities of the marginal unit and he pays

Marginal Utility, Price and Consumer's Surplus Schedule

Units of bread	Marginal Utility (in Rs.)	Price (in Rs.)	Consumer's Surplus (in Rs.)
1	10	2	8
2	8	2	6
3	6	2	4
4	4	2	2
5	2	2	0
6	0	2	– 2

the same price for different commodities. The excess of utilities he derives from different commodities and the actual price paid is called as Consumer's Surplus. Let us take an example of a person whose marginal utility, price and Consumer's Surplus schedule for bread is given in the above table:

The above table 2.6 expresses the various amounts of utilities he derives from the consumption of different units of bread. From the first bread alone he derives marginal utility of Rs. 10 but the price which he pays is Rs. 2 and hence Rs. 8 is the Consumer's Surplus. Similarly, the Consumer's Surplus from 2nd, 3rd, 4th and 5th units are 6, 4, and 2 and zero respectively. A rational consumer will consume only 5th commodity where the marginal utility is equal to its price and thereby maximises his Consumer's Surplus. If he will consume the 6th unit he derive zero marginal utility where as he pays the price as Rs. 2. A rational consumer will not consume that commodity.

2.7.6. Diagrammatic Representation of Consumer Surplus:

In this diagram AB is a demand curve of a consumer OR is the market price. The price line is parallel to X axis because of perfect competition. At point P the marginal curve AB intersect the market price curve OR. Thus for OQ quantity the consumer derives utility as AOQP where as he pays ROQP. Thus, triangular shaded area ARP is Consumer's Surplus.

Consumer's Surplus = Total Utility-(Marginal Utility) x (Multiply x No. of Units purchased)
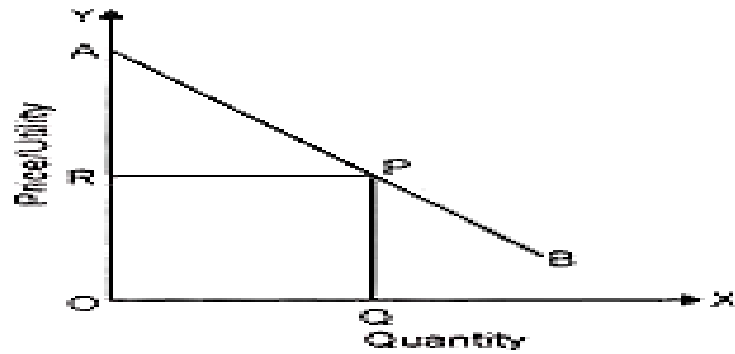
Fig. 2.10. Consumer surplus

Criticism of the Concept of Consumer's Surplus, Or Difficulties in the Measurement of Consumer's Surplus:

The concept of Consumer's Surplus has been criticised on several grounds:

1. This Concept is Imaginary:

The concept is complete imaginary, illogical and illusory. You just imagine, what you are prepared to pay and you proceed to deduct from that what you actually pay. It is all hypothetical. One may say that one is prepared to pay anything. Hence it is unreal.

2. Measurement of this Concept is Difficult:

The critics of this concept allege that measurement of Consumer's Surplus is difficult. It is because utility is a subjective concept and will vary from person to person. Total utility is impossible to measure because when we consume more units it is said that the marginal utility of even earlier units start diminishing. Prof. Hicks and Allen have contended and proved that utility being a subjective phenomenon, is determinate and immeasurable.

3. This Concept is not Applicable to Substitutes:

The concept may not apply in case of goods which have substitutes. Why should on imagine how much will be willing to pay for a commodity. One finds it hard to think that the substitute of a commodity has no significant effect on the surplus satisfaction he derives from the commodity.

Decidedly, the consumer will feel more satisfied if two good substitutes as well as complements are made available to him than in case he gets only one of the two at a time. The consumer can properly appreciate the utility from a pen only when the same is accompanied by ink.

4. The Marginal Utility of Money never Remains Constant:

It is improper to assume with Prof. Marshall that the marginal utility of money remains constant and does not alter with increase or decrease in the money stock with the consumer. Therefore, it is incorrect to believe the consistency of the marginal utility of money in real life.

5. Exhaustion of Surplus Utility:

It is said that if a consumer knew that any such thing existed, he would go on buying more and more till the surplus utility he enjoyed disappeared. This is not correct. A consumer does not run after a surplus yielded by one commodity. He has to weigh the utilities of other commodities too.

6. This Concept is not Applicable to Necessaries:

The idea of Consumer's Surplus does not apply to the necessaries of life or conventional necessaries. In such cases the surplus is immeasurable. What would not a man be prepared to pay for a glass of water when he is dying of thirst?

7. The Complete List of Demand and Price not Available to Consumer:

Another ground on which the concept has been criticized is that the complete and reliable list of demand and prices is never available to the consumer. The demand schedule according to which he regulates and decides his purchases is not necessary to come true in practice. How much the consumer would be willing to pay rather than go without the thing is something hard to answer correctly.

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UNIT - III

ELASTICITY OF DEMAND AND INDIFFERENCE CURVE ANALYSIS

3.1. ELASTICITY OF DEMAND:

3.1.1. Concept of Elasticity of Demand:

The law of demand indicates the direction of change in quantity demanded to a change in price. It states that when price falls, demand rises. But how much the quantity demanded rises (or falls) following a certain fall (or rise) in prices cannot be known from the law of demand.

3.1.2. MEANING OF ELASTICITY OF DEMAND:

Demand extends or contracts respectively with a fall or rise in price. This quality of demand by virtue of which it changes (increases or decreases) when price changes (decreases or increases) is called Elasticity of Demand. "The elasticity (or responsiveness) of demand in a market is great or small according as the amount demanded increases much or little for a given fall in price, and diminishes much or little for a given rise in price". – Dr. Marshall. Elasticity means sensitiveness or responsiveness of demand to the change in price. This change, sensitiveness or responsiveness, may be small or great. Take the case of salt. Even a big fall in its price may not induce an appreciable ex appreciable extension in its demand. On the other hand, a slight fall in the price of oranges may cause a considerable extension in their demand. That is why we say that the demand in the former case is 'inelastic' and in the latter case it is 'elastic'.

The demand is elastic when with a small change in price there is a great change in demand; it is inelastic or less elastic when even a big change in price induces only a slight change in demand. In the words of Dr. Marshall, "The elasticity (or responsiveness) of demand in a market is great or small according as the amount demanded increases much or little for a given fall in price, and diminishes much or little for a given rise in price. "But the demand cannot be perfectly 'elastic' or 'inelastic'. Completely elastic demand will mean that a slight fall (or rise) in the price of the commodity concerned induces an infinite extension (or contraction) in its demand. Completely inelastic demand will mean that any amount of fall (or rise) in the price of the commodity would not induce any extension (or contraction) in its demand. Both these conditions

are unrealistic. That is why we say that elasticity of demand may be 'more or less', but it is seldom perfectly elastic or absolutely inelastic.

3.2. TYPES OF ELASTICITY:

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

Degrees of Elasticity of Demand:

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

(a) Infinite or Perfect Elasticity of Demand:

Let as first take one extreme case of elasticity of demand, viz., when it is infinite or perfect. Elasticity of demand is infinity when even a negligible fall in the price of the commodity leads to an infinite extension in the demand for it. In Fig. 3.1 the horizontal straight line DD' shows infinite elasticity of demand. Even when the price remains the same, the demand goes on changing.
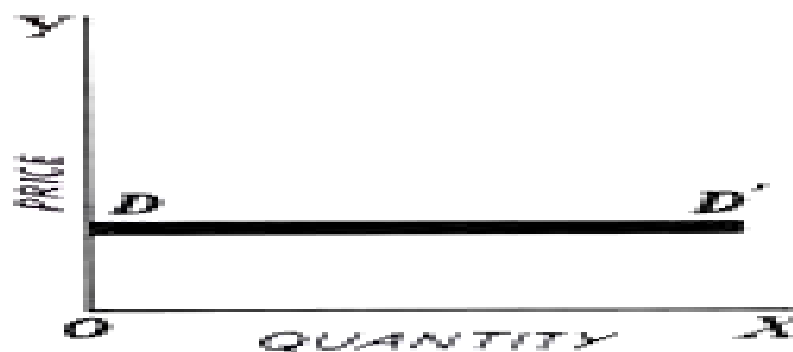

Fig.3.1. Infinite Elasticity

(b) Perfectly Inelastic Demand:

The other extreme limit is when demand is perfectly inelastic. It means that howsoever great the rise or fall in the price of the commodity in question, its demand remains absolutely unchanged. In Fig. 3.2, the vertical line DD' shows a perfectly inelastic demand. In other words, in this case elasticity of demand is zero. No amount of change in price induces a change in demand.

Fig. 3.2. Zero Elasticity

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

(c) Very Elastic Demand:

      Demand is said to be very elastic when even a small change in the price of a commodity leads to a considerable extension/contraction of the amount demanded of it. In Fig. 3.3, DD' curve illustrates such a demand. As a result of change of T in the price, the quantity demanded extends/contracts by MM', which clearly is comparatively a large change in demand.
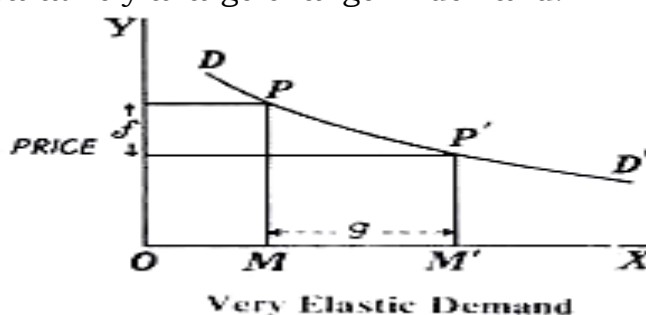

Very Elastic Demand

Fig. 3.3 Very Elastic Demand

(d) Less Elastic Demand:

      When even a substantial change in price brings only a small extension/contraction in demand, it is said to be less elastic. In Fig. 3.4, DD'

shows less elastic demand. A fall of NN' in price extends demand by MM' only, which is very small.
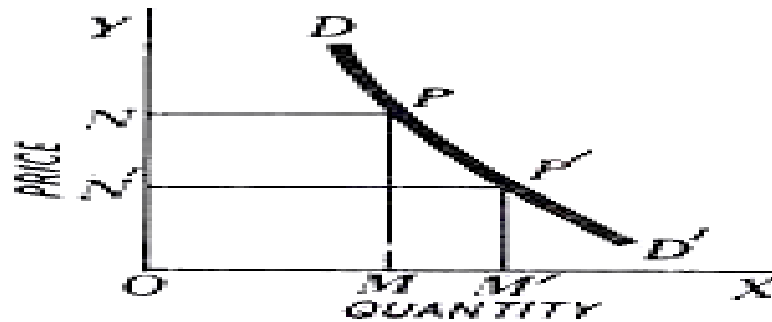

Fig. 3.4. Less Elastic Demand

3.3. FACTORS DETERMINING ELASTICITY OF DEMAND:

There are various factors on which elasticity of demand depends:

(a) Nature of the Commodity:

In the first place, it depends on the nature of the commodity. Commodities which are supposed to be essential or critical to our daily lives must have an inelastic demand, since price change of these items does not bring about a greater change in quantity demanded. But, luxury goods have an elastic demand. Demand for these good can be quickly reduced when their prices rise. When their prices fall, consumers demand these goods in larger quantities. However, whether a particular commodity is a necessary or a luxury depends on income, tastes and preferences of the consumer. A particular good may be necessary to someone having an inelastic demand. Same commodity may be elastic to another consumer. For instance, owning a TV may be a luxury item to a low income person. But the same may be bought as an essential item by a rich person.

(b) Availability of Substitutes:

Secondly, commodities having large number of substitutes must have an elastic demand. Some products, such as Horlicks, Complan, Viva, Maltova, Milo, etc., have quite a large number of close substitutes. A change in the price of, say, Horlicks—the prices of other substitutes remaining constant—will lead a consumer to substitute one beverage for another. If the price of Horlicks goes down, buyers will demand more of it and less of its substitutes.

Conversely, demand is fairly inelastic in the case of those commodities which do not have a large number of substitutes.

(c) Extent of Uses:

Thirdly, there are some commodities which can be used for a variety of purposes. For example, electricity. If price per unit of electricity consumed falls, people will reduce their consumption of its substitutes (e.g., coal, gas, etc.) and increase the consumption of electricity. Coefficient of price elasticity of demand in this case must be greater than one. On the other hand, when a commodity is used only for one or two purposes, a price change will have less effect on its quantity demanded and, therefore, demand will be inelastic.

(d) Habit Good:

Fourthly, there are some commodities consumed out of habits and conventions— they have an elastic demand. Even in the face of rising prices of those commodities or falling income, people will consume those (such as, cigarette). For this reason, price elasticity as well as income elasticity of demand for this type of commodity is inelastic. Further, gold ornaments are used in the marriage ceremony rather out of convention, though gold prices are rising. When gold is used in this way, its demand becomes inelastic.

(e) Time Dimension:

Fifthly, shorter the time, lower will be the elasticity of demand. This is because in the short run satisfactory substitutes of a product may not be available. Thus, demand for a product in the short run usually becomes inelastic. Such a commodity will be elastic in the long run when close substitutes may be produced. Thus, the response of quantity demanded to a change in price will tend to be greater (smaller), the longer (shorter) the time-span considered. In the long run, there is enough time for adjustments to be made following a change in price.

(f) The Importance of being Unimportant:

Sixthly, people often pay little attention to the price of a product if it constitutes a relatively small part in their budget. For example, if the fire of railway ticket of a tourist who travels by rail once in a year is increased form Rs. 125 to Rs. 135, then he may not postpone his journey. This means he is

unresponsive to such price hike and his demand is inelastic. This is called 'the importance of being unimportant'.

(g) Durability:

Finally, durable commodities have an elastic demand. If the price of these goods rises, people will spend less on these goods. On the other hand, following a fall in the price of durable commodities (e.g., refrigerator), people demand more of them. In the case of non-durable commodities, demand is elastic.

3.4. MEASUREMENT OF ELASTICITY OF DEMAND:

There are three methods of measuring elasticity of demand. These are:

(a) Total outlay (revenue) method

(b) Point elasticity method

(c) Arc elasticity method

All these methods are described below:

1. Elasticity and Total Revenue or Outlay Method:

Marshall offered the method of total revenue or total outlay for estimating elasticity of demand. What the sellers receive from the sale of commodities is called total expenditure or outlay of buyers. There is no difference between total revenue and total outlay since what is spent by the buyers is received as income by the sellers.

Thus, total outlay/revenue is the price multiplied by the quantity purchases, i.e., TR = P × Q. Here we want to measure how much total outlay changes following a change in price. It depends upon the elasticity of demand.

(a) Elastic Demand:

Suppose price declines (rises). As a result, total expenditure rises (falls). Under the circumstance, the value of elasticity of demand becomes greater than one. In Fig. 3.5. We have drawn a demand curve having a value of greater than one.
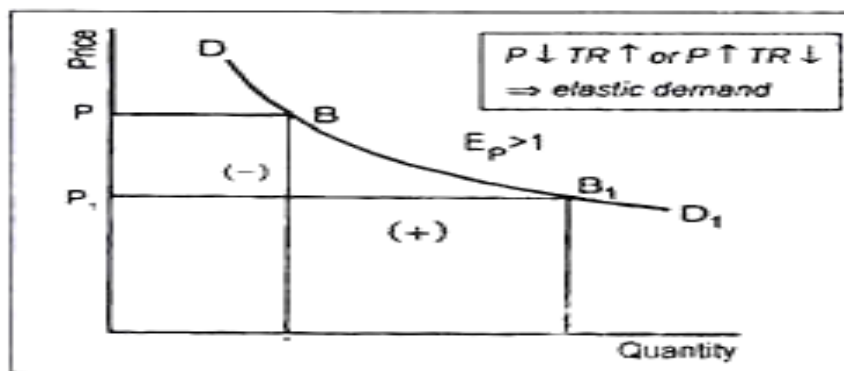
Fig. 3.5. Elastic Demand

At a price OP, OA is demanded. Thus, the total expenditure equals OP × OA = rectangle OPBA. As price drops to OP_1, the quantity demanded rises to OA_1. Now, the total expenditure becomes $OP_1 × OA_1$ = rectangle $OP_1B_1A_1$.

Since rectangle $OP_1B_1A_1$ > rectangle OPBA, demand is said to be elastic. Remember: When price and total outlay move in opposite direction, demand for the product becomes elastic.

(b) Inelastic Demand:

If the total outlay falls when price falls, or if total outlay rises when price rises, then demand is said to be inelastic (i.e., $E_p < 1$). In Fig. 3.6, initial total outlay is $OP_1 × OA_1$ = rectangle OPBA. Now, if price falls, total outlay becomes $OP_1 × OA_1$ = rectangle $OP_1B_1A_1$. Fig. 2.48 suggests that the rectangle OPBA is larger than the rectangle $OP_1B_1A_1$. Hence, demand is inelastic.
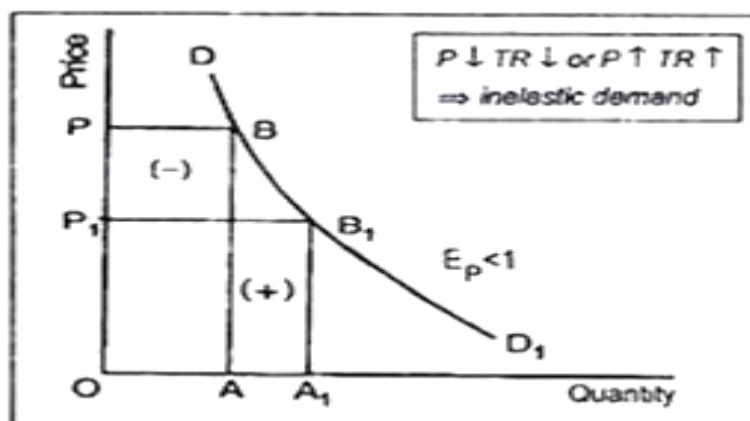

Fig.3.6. Inelastic Demand

(c) Unit Elasticity:

Irrespective of variations in demand and price, if the total outlay does not change, then demand is unit elastic (i.e., $E_p = 1$). In Fig. 3.7., we see that at

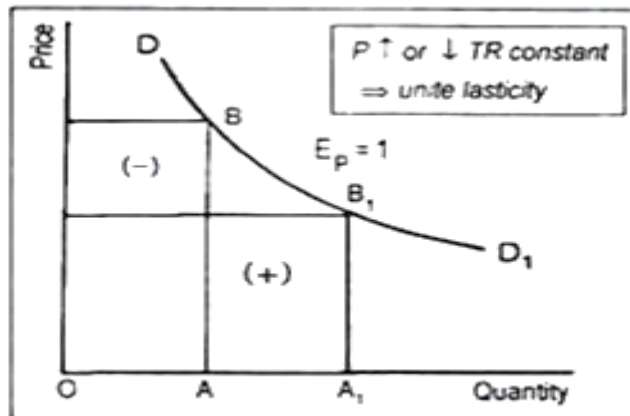price OP, total outlay is rectangle OPBA. When price declines to OP, total outlay becomes the area $OP_1B_1A_1$.

Fig.3.7. Unitary Elastic Demand

Since rectangle OPBA = rectangle $OP_1B_1A_1$, demand is said to have a unitary elasticity. The demand curve then looks like a rectangular hyperbola since the area of all the rectangles formed by the demand curve is always the same.

(d) Perfectly Inelastic Demand:

These relations between elasticity of demand and total outlay (P × Q = TR) may be presented here in a tabular form:

Table3.1: Elasticity and TR

Change in price	E_p	Change in TR	Nature of the good
Increase	$E_p > 1$	Decrease	Luxury
Decrease	$E_p > 1$	Increase	
Increase	$E_p < 1$	Increase	Necessary
Decrease	$E_p < 1$	Decrease	
Increase	$E_p = 1$	No change	—
Decrease	$E_p = 1$	No change	

The relationship between elasticity and total outlay can also be explained in terms of Fig. 3.8. Where we measure price of the commodity on the vertical axis and the total outlay on the horizontal axis. Here ABCD is the total outlay curve. In the segment AB, demand is inelastic ($E_p < 1$), because price and total outlay move in the same direction. Demand is said to be elastic ($E_p > 1$) in the region CD since price and total outlay move in opposite direction. As total outlay remains invariant when price changes in the region BC, demand is unitary elastic.
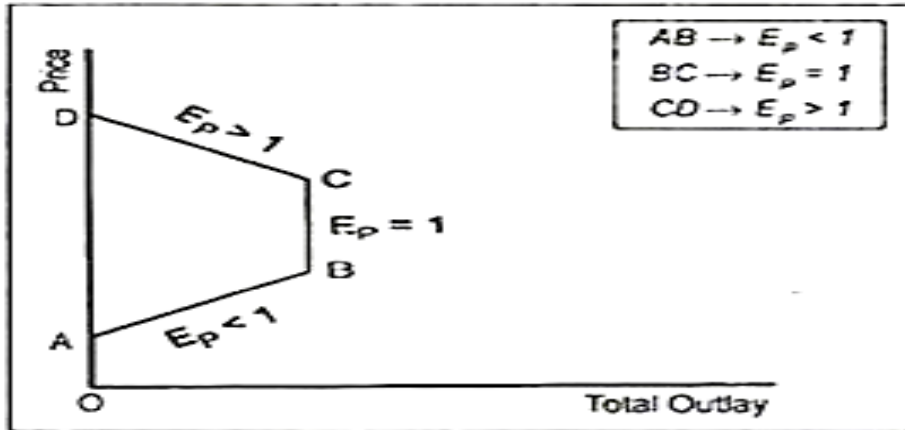
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Fig.3.8. Total outlay curve and Elasticity of Demand

2. Point Elasticity Method:

When the change in price is infinitesimally small, Marshall Method may not provide accurate estimate of elasticity of demand. In that case, a geometrical method may be employed. This method aims at measuring elasticity of demand at a particular point on a demand curve. So long, we tried to calculate the elasticity over certain area or segment of a demand curve and the terms elastic, inelastic and unit elastic had been applied to the whole demand curve. However, such is not true. It may happen that the demand for a product can be elastic in one price range and inelastic in another. In fact, the degree of elasticity varies from one price range to another. So, it is better to calculate elasticity at a particular point on a demand curve to have an accurate estimate. This is explained in terms of Fig. 3.9.
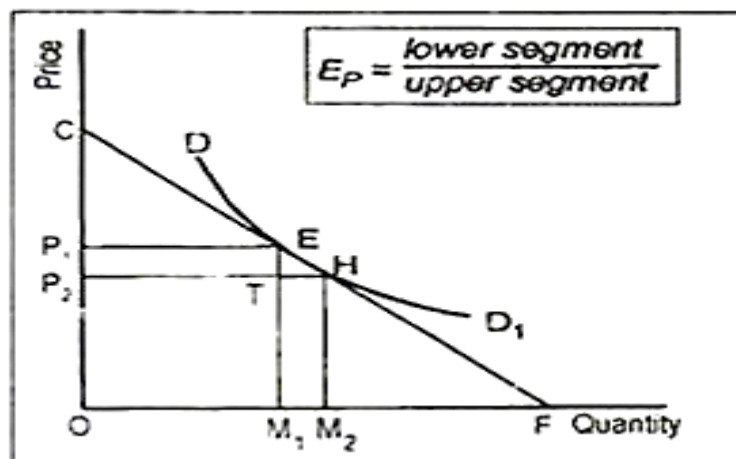

Fig.3.9. Point Elasticity

Demand curve is DD_1. To measure elasticity of demand at point E, we have drawn a straight line CF tangent to DD_1 at point E. Points E and H are very

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close to each other. As price declines from OP_1 to OP_2, quantity demanded rises from OM_1 to OM_2.

The formula for elasticity of demand is:

$E_P = \Delta Q/Q \div \Delta P/P$

The slope of the demand curve is:

$\Delta P/\Delta Q = M_1E /M_1F$

$\therefore \Delta Q/\Delta P = M_1F /M_1E$

The second component of the elasticity formula is:

$P/Q = M_1E /OM_1$

$\therefore E_P = \Delta Q/\Delta P. P/Q = M_1F/M_1E. M_1E/OM_1 = M_1F/OM_1$

Note that EM_1F, CP_1E and COF are similar triangles, the elasticity of demand curve DD_1 at point E can be measured as:

$\therefore E_P = M_1F/OM_1 = P_1O/P_1 = EF/EC$

Thus, elasticity of demand at point E on a curvilinear demand curve DD_1 is approximately equal to EF/EC = lower segment of the demand curve/upper segment of the demand curve.

3. Arc Elasticity Method:

For very small movements in price and quantity, point elasticity method is an appropriate one. In other words, point elasticity method measures (price) elasticity of demand at a particular point on the demand curve. However, if price change is somewhat of a larger magnitude then geometrical method may give misleading estimate. To avoid this problem, elasticity is measured over an arc of the demand curve. In other words, when we intend to estimate (price) elasticity of demand over some portion (i.e., the arc) of the demand curve, we then have arc elasticity method. Sometimes we know two prices and two quantities. Under the circumstance, the point elasticity method may not provide good estimate. What is required in this case is the average elasticity of two prices and two quantities. This is called 'arc' elasticity, because it measures the average elasticity on an arc of a demand curve.

Suppose we have the following information about two prices and quantities:

Price (P)	Demand (Q)
Rs. 60.00 (P_1)	400 (Q_1)
Rs. 50.00 (P_2)	800 (Q_2)

Here changes in both price and quantity are much larger. Using old price (P_1) and old quantity (Q_1), one finds the value of elasticity of demand as:

$E_P = \Delta Q / \Delta P. P_1/Q_1 = -400/100. 60/400 = -6.0$

When new price (P_2) and new quantity (Q_2) are taken into account, the coefficient becomes

$E_P = \Delta Q / \Delta P. P_2/Q_2 = -400/100. 50/800 = -2.5$

Thus, estimation of elasticity in accordance with the formula for point elasticity method gives vastly different results. In other words, since elasticity of demand varies depending on the base, one should consider average price and average quantity demanded to calculate elasticity of demand. That is to say, we want to measure average elasticity over an arc of the demand curve (i.e., mid-point or average, price and quantity):

$$E_{arc} = -\frac{\Delta Q}{\left(\frac{Q_1+Q_2}{2}\right)} \div \frac{\Delta P}{\left(\frac{P_1+P_2}{2}\right)}$$

$$= \frac{\Delta Q}{\left(\frac{Q_1+Q_2}{2}\right)} \times \frac{\left(\frac{P_1+P_2}{2}\right)}{\Delta P}$$

$$= -\frac{\Delta Q}{\Delta P}\left(\frac{P_1+P_2}{Q_1+Q_2}\right)$$

In our above example, the arc elasticity is

$$E_{arc} = -\frac{400}{10} . \frac{60+50}{400+800} = -\frac{400}{10} . \frac{110}{1200} = -3.66$$

In terms of Fig. 3.10, we want to compute arc price elasticity of demand over the arc AB of the demand curve DD_1. In other words, we want to measure elasticity between points A and B. The above formula measures arc elasticity over the straight line AB.
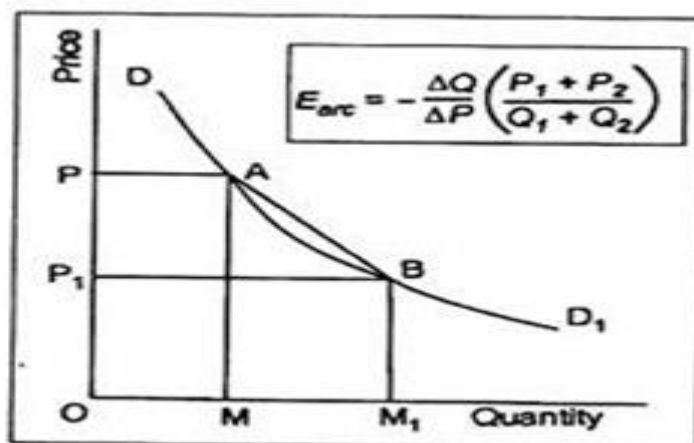
Fig.3.10. Arc Elasticity

To do so, we have to take the average of prices (OP and OP$_1$) and average of quantities (OM and OM$_1$). Greater the convexity of the demand curve between A and B, one obtains almost perfect estimate of elasticity. Or greater the concavity of the demand curve between points A and B, the poorer the approximation of measurement of arc elasticity. As we go on making the price change smaller and smaller, the arc of the demand curve may vanish or converge to a point. So, as a special case of arc elasticity, the concept of point elasticity becomes relevant.

3.5. INDIFFERENCE CURVE:

3.5.1. Meaning of Indifference Curve:

When a consumer consumes various goods and services, then there are some combinations, which give him exactly the same total satisfaction. The graphical representation of such combinations is termed as indifference curve. Indifference curve refers to the graphical representation of various alternative combinations of bundles of two goods among which the consumer is indifferent. Alternately, indifference curve is a locus of points that show such combinations of two commodities which give the consumer same satisfaction. Let us understand this with the help of following indifference schedule, which shows all the combinations giving equal satisfaction to the consumer.

Combination of apples and bananas	Apples (A)	Bananas (B)
P	1	15
Q	2	10
R	3	6
S	4	3
T	5	1

As seen in the schedule, consumer is indifferent between five combinations of apple and banana. Combination 'P' (1A + 15B) gives the same utility as (2A + 10B), (3A + 6B) and so on. When these combinations are represented graphically and joined together, we get an indifference curve 'IC$_1$' as shown in In the diagram, apples are measured along the X-axis and bananas on the Y
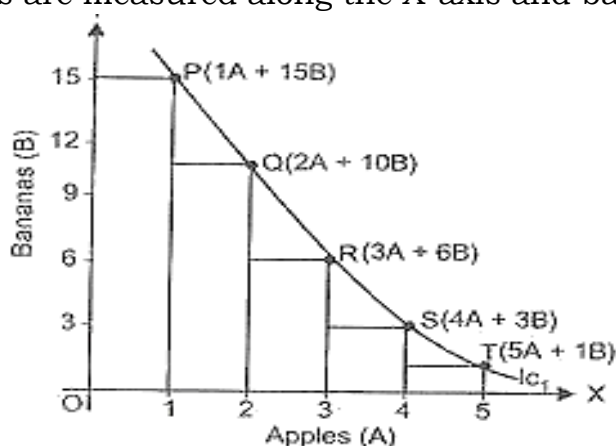
Fig. 3.11. Indifference curve

Axis. All points (P, Q, R, S and T) on the curve show different combinations of Apples and bananas. These points are joined with the help of a smooth curve, known as indifference curve (IC$_1$). An indifference curve is the locus of all the points, representing different combinations that are equally satisfactory to the consumer. Every point on IC$_1$, represents an equal amount of satisfaction to the consumer. So, the consumer is said to be indifferent between the combinations located on Indifference Curve 'IC$_1$'. The combinations P, Q, R, S and T give equal satisfaction to the consumer and therefore he is indifferent among them. These combinations are together known as 'Indifference Set'.

3.5.2. Indifference Map:

Indifference Map refers to the family of indifference curves that represent consumer preferences over all the bundles of the two goods. An indifference curve represents all the combinations, which provide same level of satisfaction. However, every higher or lower level of satisfaction can be shown on different indifference curves. It means, infinite number of indifference curves can be drawn.
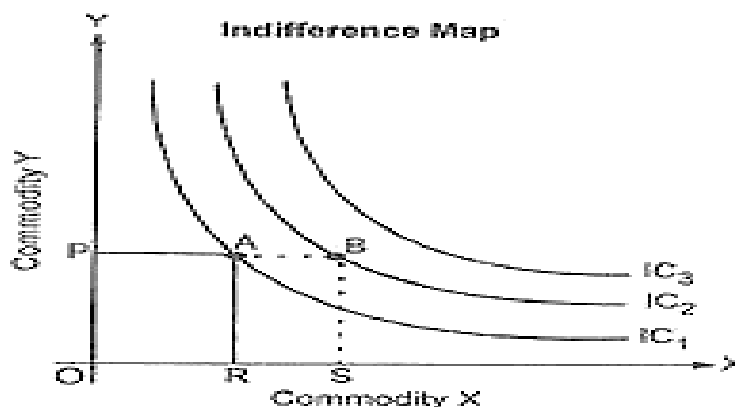

Fig.3.12. Indifference Map

In Fig. 3.12, IC_1 represents the lowest satisfaction, IC_2 shows satisfaction more than that of IC_1 and the highest level of satisfaction is depicted by indifference curve IC_3. However, each indifference curve shows the same level of satisfaction individually. It must be noted that 'Higher Indifference curves represent higher levels of satisfaction' as higher indifference curve represents larger bundle of goods, which means more utility because of monotonic preference.

3.6. MARGINAL RATE OF SUBSTITUTION (MRS):

MRS refers to the rate at which the commodities can be substituted with each other, so that total satisfaction of the consumer remains the same. For example, in the example of apples (A) and bananas (B), MRS of 'A' for 'B', will be number of units of 'B', that the consumer is willing to sacrifice for an additional unit of 'A', so as to maintain the same level of satisfaction.

MRS_{AB} = Units of Bananas (B) willing to Sacrifice / Units of Apples (A) willing to Gain

$MRS_{AB} = \Delta B/\Delta A$

MRS$_{AB}$ is the rate at which a consumer is willing to give up Bananas for one more unit of Apple. It means, MRS measures the slope of indifference curve. It must be noted that in mathematical terms, MRS should always be negative as numerator (units to be sacrificed) will always have negative value. However, for analysis, absolute value of MRS is always considered. The concept of MRS$_{AB}$ is explained through Table 3.3 and Fig. 3.13

Table 3.3: MRS between Apple and Banana:

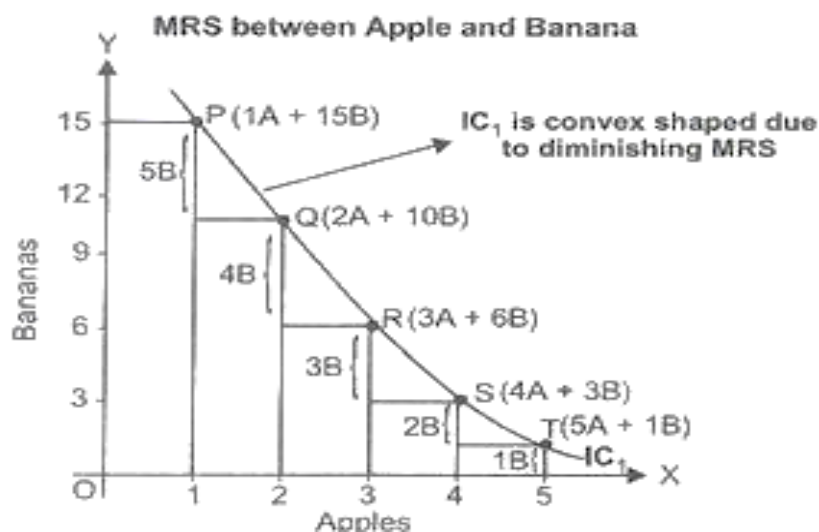| Combination	Apples (A)	Banana (B)	MRS$_{AB}$
P	1	15	–
Q	2	10	5B:1 A
R	3	6	4B:1A
S	4	3	3B:1A
T	5	1	2B:1 A

Fig.3.13 Marginal Rate of Substitution

As seen in the given schedule and diagram, when consumer moves from P to Q, he sacrifices 5 bananas for 1 apple. Thus, MRS$_{AB}$ comes out to be 5:1. Similarly, from Q to R, MRS$_{AB}$ is 4:1. In combination T, the sacrifice falls to 2 bananas for 1 apple. In other words, the MRS of apples for bananas is diminishing.

Why MRS diminishes?

MRS falls because of the law of diminishing marginal utility. In the given example of apples and bananas, Combination 'P' has only 1 apple and, therefore, apple is relatively more important than bananas. Due to this, the consumer is willing to give up more bananas for an additional apple. But as he consumes more and more of apples, his marginal utility from apples keeps on declining. As a result, he is willing to give up less and less of bananas for each apple.

3.7. PROPERTIES OF INDIFFERENCE CURVE:

1. Indifference curves are always convex to the origin:

An indifference curve is convex to the origin because of diminishing MRS. MRS decreased continuously because of the law of diminishing marginal utility. As seen in Table 3.3, when the consumer consumes more and more of apples, his marginal utility from apples keeps on declining and he is willing to give up less and less of bananas for each apple. Therefore, indifference curves are convex to the origin (see Fig. 3.13). It must be noted that MRS indicates the slope of indifference curve.

2. Indifference curve slope downwards:

It implies that as a consumer consumes more of one good, he must consume less of the other good. It happens because if the consumer decides to have more units of one good (say apples), he will have to reduce the number of units of another good (say bananas), so that total utility remains the same.

3. Higher Indifference curves represent higher levels of satisfaction:

Higher indifference curve represents large bundle of goods, which means more utility because of monotonic preference. Consider point 'A' on IC_X and point 'B' on IC_2 in Fig. At 'A', consumer gets the combination (OR, OP) of the two commodities X and Y. At 'B', consumer gets the combination (OS, OP). As OS > OR, the consumer gets more satisfaction at IC_2.

4. Indifference curves can never intersect each other:

As two indifference curves cannot represent the same level of satisfaction, they cannot intersect each other. It means, only one indifference curve will pass through a given point on an indifference map. In Fig. 3.14,

satisfaction from point A and from B on IC_1 will be the same. Similarly, points A and C on IC_2 also give the same level of satisfaction. It means, points B and C should also give the same level of satisfaction. However, this is not possible, as B and C lie on two different indifference curves, IC_1 and IC_2 respectively and represent different levels of satisfaction. Therefore, two indifference curves cannot intersect each other.
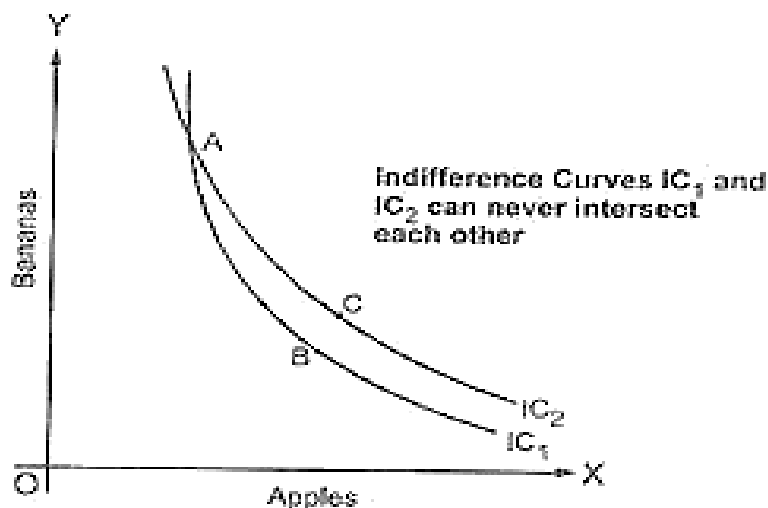
Fig.3.14. Indifference curve

3.7.1 Assumptions of Indifference Curve

The various assumptions of indifference curve are:

1. Two commodities:

It is assumed that the consumer has a fixed amount of money, whole of which is to be spent on the two goods, given constant prices of both the goods.

2. Non Satiety:

It is assumed that the consumer has not reached the point of saturation. Consumer always prefer more of both commodities, i.e. he always tries to move to a higher indifference curve to get higher and higher satisfaction.

3. Ordinal Utility:

Consumer can rank his preferences on the basis of the satisfaction from each bundle of goods.

4. Diminishing marginal rate of substitution:

Indifference curve analysis assumes diminishing marginal rate of substitution. Due to this assumption, an indifference curve is convex to the origin.

5. Rational Consumer:

The consumer is assumed to behave in a rational manner, i.e. he aims to maximize his total satisfaction.

3.8. INCOME EFFECT, SUBSTITUTION EFFECT AND PRICE EFFECT
3.8.1. INCOME EFFECT:

The consumer's equilibrium it was assumed that the income of the consumer remains constant, given the prices of the goods X and Y. Given the tastes and preferences of the consumer and the prices of the two goods, if the income of the consumer changes, the effect it will have on his purchases is known as the income Effect. If the income of the consumer increases his budget line will shift upward to the right, parallel to the original budget line. On the contrary, a fall in his income will shift the budget line inward to the left. The budget lines are parallel to each other because relative prices remain unchanged.

In Figure 3.15 when the budget line is PQ, the equilibrium point is R where it touches the indifference curve I_1. If now the income of the consumer increases, PQ will move to the right as the budget line P_1, I_1, and the new equilibrium point is S where it touches the indifference curve I_2. As income increases further, PQ becomes the budget line with T as its equilibrium point. The locus of these equilibrium points R, S and T traces out a curve which is called the income-consumption curve (ICC). The ICC curve shows the income effect of changes in consumer's income on the purchases of the two goods, given their relative prices.

Normally, when the income of the consumer increases, he purchases larger quantities of two goods. In Figure 3.15 he buys RA of Y and OA of X at the equilibrium point R on the budget line PQ. As his income increases, he buys SB of Y and OB of X at the equilibrium point S and P_1, Q_1, budget line and still more of the two goods TC of Y and OC of X, on the budget line P_2Q_2.
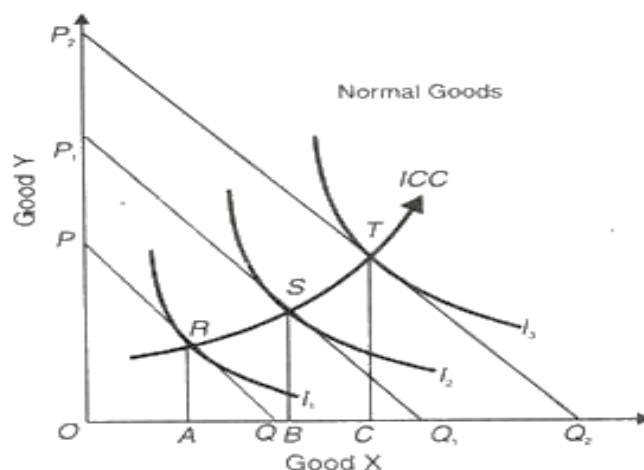
Fig.3.15. Income consumption curve

Usually, the income consumption curve slopes upwards to the right as shown in Figure. But an income-consumption curve can have any shape provided it does not intersect an indifference curve more than once. We can have five types of income consumption curves. The first type is explained above in Figure 3.15 where the ICC curve has a positive slope throughout its range. Here the income effect is also positive and both X and Y are normal goods.

The second type of ICC curve may have a positive slope in the beginning but become and stay horizontal beyond a certain point when the income of the consumer continues to increase. In Figure 3.16. (A) The ICC curve slopes upwards with the increase in income up to the equilibrium point R at the budget line P_1Q_1 on the indifference cure I_2. Beyond this point it becomes horizontal which signifies that the consumer has reached the saturation point with regard to the consumption of good Y. He buys the same amount of Y (RA) as before despite further increases in his income. It often happens in the case of a necessity (like salt) whose demand remains the same even when the income of the consumer continues to increase further. Here Y is a necessity. Figure 3.16 (B) shows a vertical income consumption curve when the consumption of good X reaches the saturation level R on the part of the consumer. He has no inclination to increase its purchases despite further increases in his income. He continues to purchase OA of it even at higher income levels. Thus X is a necessity here.

The last two types of income consumption curves relate to inferior goods. The demand of inferior goods falls, when the income of the consumer

increases beyond a certain level, and he replaces them by superior substitutes. He may replace coarse grains by wheat or rice, and coarse cloth
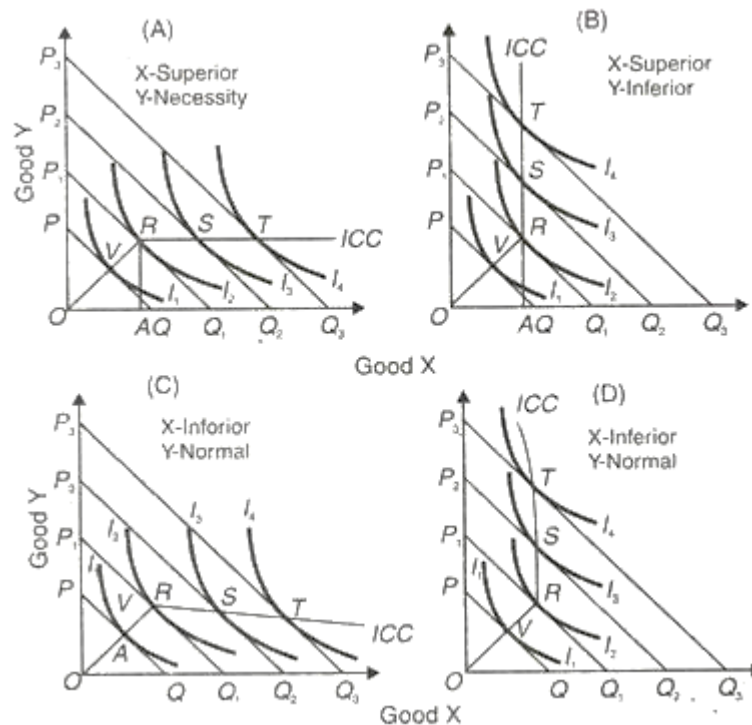
Fig.3.16. Income Effect

by a fine variety. In Figure 3.16 (C), good Y is inferior and X is a superior or luxury good. Upto point R the ICC curve has- a positive slope and beyond that it is negatively inclined. The consumer's purchases of Y fall with the increase in his income. Similarly in Figure 3.16 (D), good X is shown as inferior and Y is a superior good beyond the equilibrium point R when the ICC curve turns back upon itself. In both these cases the income effect is negative beyond point R on the income-consumption curve ICC.

3.8.2. THE SUBSTITUTION EFFECT:

The substitution effect relates to the change in the quantity demanded resulting from a change in the price of good due to the substitution of relatively cheaper good for a dearer one, while keeping the price of the other good and real income and tastes of the consumer as constant. Prof. Hicks has explained the substitution effect independent of the income effect through compensating variation in income. "The substitution effect is the increase in the quantity bought as the price of the commodity falls, after adjusting income so as to keep the real purchasing power of the consumer the same as before.

This adjustment in income is called compensating variations and is shown graphically by a parallel shift of the new budget line until it become tangent to the initial indifference curve." Thus on the basis of the methods of compensating variation, the substitution effect measure the effect of change in the relative price of a good with real income constant. The increase in the real income of the consumer as a result of fall in the price of, say good X, is so withdrawn that he is neither better off nor worse off than before.
The substitution effect is explained in Figure 3.17 where the original budget
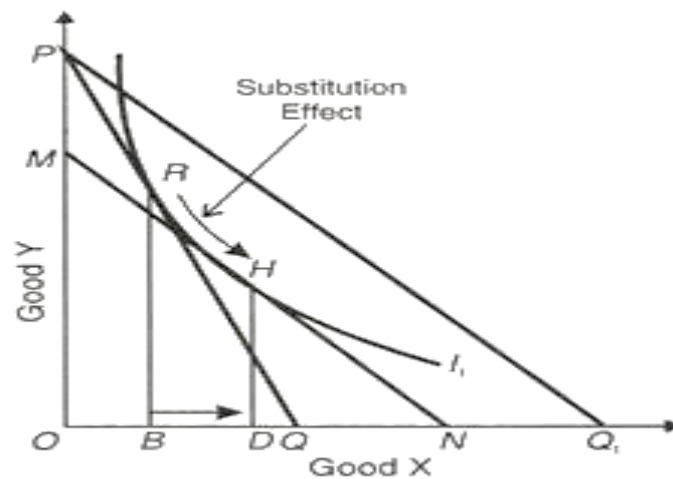
Fig.3.17. Substitution Effect

line is PQ with equilibrium at point R on the indifference curve I_1. At R, the consumer is buying OB of X and BR of Y. Suppose the price of X falls so that his new budget line is PQ_1. With the fall in the price of X, the real income of the consumer increases. To make the compensating variation in income or to keep the consumer's real income constant, take away the increase in his income equal to PM of good Y or Q_1N of good X so that his budget line PQ_1 shifts to the left as MN and is parallel to it.

At the same time, MN is tangent to the original indifference curve l_1 but at point H where the consumer buys OD of X and DH of Y. Thus PM of Y or Q_1N of X represents the compensating variation in income, as shown by the line MN being tangent to the curve I_1 at point H. Now the consumer substitutes X for Y and moves from point R to H or the horizontal distance from B to D. This movement is called the substitution effect. The substitution affect is always negative because when the price of a good falls (or rises), more (or less) of it would be purchased, the real income of the consumer and price

of the other good remaining constant. In other words, the relation between price and quantity demanded being inverse, the substitution effect is negative.

3.8.3. THE PRICE EFFECT:

The price effect indicates the way the consumer's purchases of good X change, when its price changes, A given his income, tastes and preferences and the price of good Y. This is shown in Figure 3.18. Suppose the price of X falls. The budget line PQ will extend further out to the right as PQ_1, showing that the consumer will buy more X than before as X has become cheaper. The budget line PQ_2 shows a further fall in the price of X. Any rise in the price of
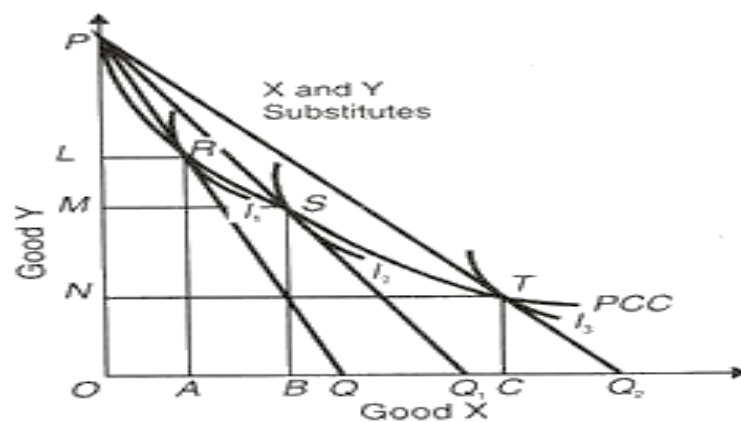
Fig.3.18. Price Effect

X will be represented by the budget line being drawn inward to the left of the original budget line towards the origin. If we regard PQ_2, as the original budget line, a two time rise in the price of X will lead to the shifting of the budget line to PQ_1, and PQ_2. Each of the budget lines fanning out from P is a tangent to an indifference curve I_1, I_2, and I_3 at R, S and T respectively. The curve PCC connecting the locus of these equilibrium points is called the price-consumption curve. The price-consumption curve indicates the price effect of a change in the price of X on the consumer's purchases of the two goods X and Y, given his income, tastes, preferences and the price of good Y.

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PRODUCTION

4.1. PRODUCTION:

4.1.1. Meaning of Production:

Since the primary purpose of economic activity is to produce utility for individuals, we count as production during a time period all activity which either creates utility during the period or which increases ability of the society to create utility in the future. Business firms are important components (units) of the economic system. They are artificial entities created by individuals for the purpose of organising and facilitating production. The essential characteristics of the business firm is that it purchases factors of production such as land, labour, capital, intermediate goods, and raw material from households and other business firms and transforms those resources into different goods or services which it sells to its customers, other business firms and various units of the government as also to foreign countries.

4.1.2. Definition of Production:

According to J. R. Hicks: "Production is any activity directed to the satisfaction of other peoples' wants through exchange". This definition makes it clear that, in economics, we do not treat the mere making of things as production. What is made must be designed to satisfy wants.

4.2. Factors of Production:

The resources input used to produce final products output are termed as factors of production. In economic terms factors of production can be defined as inputs that are used for the production of goods or services with the aim to make economic profit. The factors, of production are the resources that include land, labor, capital, and enterprise. Land involves natural resources labor is associated with human resources, capital includes manmade resources, and enterprise combines all the three factor, to carry out the production process. Therefore, all the four factors of production are equally important for the production activity of an organization. According to Eraser, "Factor of production as a group or class of original productive resources." The production process of an organization can be efficient, if there

is an optimal use of factors. This implies that the factors of production should be used in combination, so that the production target can be achieved. The factors of production can be used as complementary as well as substitute of each other. For example, if an organization has adequate capital only then it would hire labor for producing goods and services. Similarly, when skilled labor is available to produce goods and services, then only the organization would invest capital for production purpose. In such a case, land and capital are complementary to each other. On the other hand, if an organization has enough capital to purchase advance technology, then it would prefer to reduce the number of labor. However, if the organization has shortage of capital, then it would use more labor instead of investing on advance technology and machines. In such a case, capital and labor act as substitute of each other.

1. Land:

In literary sense, land is regarded as soil. However, in economics, land, a factor of production, has a much wider scope. Marshall has defined land as, "the materials and the forces which nature gives freely for man's aid, in land and water, in air and light and heat." Land refers to a natural resource that can be utilized to produce income. It is a useful factor of production, but is available in limited quantity.

Certain facts about land are as follows:

- Perceived as a gift of nature to man.
- Considered to be available in fixed quantity; therefore, does not have a supply price. This implies that the change in price of land does not affect its supply.
- Regarded as a permanent input having certain inherent properties, which are original and indestructible.
- Considered as an immobile factor of production.
- Considered to have infinite variation in terms of fertility. This leads to variation in the prices of land.

2. Labor:

Labor constitutes one of the important factors of production. This factor involves human services and efforts for the production of goods or services. Labor is commonly thought of a group of unskilled labor working in factories.

However, in economic terms, a work, physical or mental, carried out for monetary purpose is called labor. A work that is undertaken by an individual for the sake of interest and pleasure, then the individual would not be regarded as labor in economics. According to Marshall, "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 is called labor." Among all the factors of production, labor is the only factor that is living. This peculiarity of labor differentiates it from rest of the factors of production.

Some of the peculiarities of labor are as follows:

➢ Labor cannot be separated from laborer. This is because laborer needs to sell his/her labor.

➢ Labor is defined as the perishable factor of production that has no reserve price.

➢ Labor is considered as the weakest commodity in terms of bargaining power.

➢ Change in the price of labor would affect the supply of labor. In case of other commodities, supply rises with the rise in prices. In case of labor, supply of labor decreases with an increase in prices (wages) and vice versa. For example, if the wage of a worker reduces, then other family members of worker start working to meet up the requirements of their family.

➢ Adjustments in supply and demand of labor is difficult because it is difficult to increase or decrease labor instantly.

Production is organized on the basis of division of labor. Let us discuss about division of labor in detail.

4.2.1. Division of Labor:

Adam Smith- the father of economics laid a greater emphasis on the concept of division of labor in his book, "An Inquiry into the Mature and Causes of the Wealth of Nations" in 1776. He stated that division of labor plays a vital role in increasing the productivity of labor. According to him, division of labor is the dynamic instrument for economic growth and development.

For explaining the importance of division of labor, he cited an example of pin making in an organization. The pin making function of an organization involves 18 processes. If these 18 processes are performed by a single worker, it would not be possible to complete the whole function or it may take much time to produce a single pin. Therefore, if these tasks are divided among a number of workers, then it would be easier to produce large number of pins in a day.

There are different types of division of labor, which are explained as follows:

i. Simple Division of Labor:

Refers to the division of labor on the basis of their skills and occupations, such as carpenters and blacksmith. It is also referred as functional division of labor.

ii. Complex Division of Labor:

Refers to the division of labor on the basis of business processes and sub-processes. For example, most of the organizations have different names for their processes, such as marketing process, manufacturing process, and distribution process. These processes are delegated to different groups of labor depending on their skills and abilities.

iii. Territorial Division of Labor:

Refers to the division of labor on the basis of geographical locations. In this type of division of labor, the processes are performed by specific cities or towns that are specialized in it. For example, in India, Kashmir is famous for its carpets and shawls, whereas Punjab is popular for agriculture.

4.2.2. Advantages and Disadvantages of Division of Labor:

Division of labor is useful for an organization in many ways.

Some of the advantages of division of labor are as follows:

i. Increasing Productivity:

Refers to one of the main advantage of division of labor. Some processes of an organization are so long, thus, cannot be completed by a single worker or he/she would require more time to complete those processes. Consequently, the productivity of the organization would be affected. If the

process is divided among a number of workers, they would be able to perform it efficiency and in less duration of time.

ii. Increasing Dexterity and Skills:

Implies that repetitive working on the same process makes workers expert of that process, which leads to reduction in errors.

iii. Facilitating Inventions:

Implies that division of labor leads to innovation of new ideas because the work becomes mechanical rather than mental. Therefore, workers can freely think and generate innovative ideas.

iv. Saving Time:

Brings positive impact on the functioning of an organization. If tasks are specified, workers need to perform the same task again and again, which make them efficient in that particular task. This ultimately results in reducing time.

v. Increasing Employment Opportunities:

Implies that if workers are divided as per their skills and efficiency to perform different tasks, this would lead to an increase in the number of jobs.

vi. Encouraging Large-scale Production:

Implies that division of labor helps in increasing the quality and quantity of product. This motivates producers to increase the level of production.

However, division of labor is not free from disadvantages. Some of its disadvantages are as follows:

i. Monotony:

Implies that performing the same task again and again makes the work less interesting, which results in decrease in the motivation level of workers. This further affects the productivity of labor.

ii. Human Development:

Refers to the fact that job affects the mental and physical growth of an individual. A monotonous work makes the individual think in the same direction. This may discourage individuals to think freely and generate ideas.

iii. Loss of Skills:

Refers to one of the major adverse effects of division of labor. By division, labor gets specialized in making only a part of the process and not the whole process; therefore, loses the skill to make the whole product.

iv. Personal Life:

Implies that increase in number of employment opportunities through division of labor also involve the employment of women and children. Involvement of women affects their personal lives and employment of children causes deterioration of their future.

v. Evils of Industrialization:

Refers to the fact that division of labor leads to establishment of more and more industries. This may result in imbalance of environment and create a number of problems, such as air pollution, water pollution, and global warming.

3. Capital:

In general terms, capital refers to the part of an individual's income that is used for Income creation purposes. Capital is not considered as original factor of production. In economics, the term capital is associated with capital goods, such as plant, raw materials, fuel, and machinery. Among capital goods, raw material and goods under process are temporary because these goods are repurchased after a period of time. However, plant and machinery are goods that are permanent and are purchased only once. Apart from this, land cannot be regarded as capital because of the dissimilarities between the characteristics of land and capital. For example, land is natural, permanent, immobile, and fixed. On the other hand, capital is manmade, temporary, mobile, and differs from time to time. However, capital is one of the important factors as production of any kind of goods and services is dependent on capital. Production cannot take place without the involvement of capital. An organization requires a number of capital goods, such as tools and machinery, to produce goods. Moreover, capital also plays a major role in economic development by raising productivity. Therefore, a nation should have an adequate amount of capital to invest in various economic development projects, such as construction and renovation of infrastructure. This would

help in generating employment opportunities and raising the standard of living. Apart from this, capital also marks a greater significance in the lives of individuals to fulfil their different needs. An individual can accumulate capital by compromising his/her current needs and saving for future. Therefore, saving is necessary for capital formation. Savings are not able to generate capital automatically; an individual needs to invest his/her savings for the generation of capital goods.

4. Enterprise:

An enterprise is an entity, organization, or undertaking that is created for commercial purposes or business ventures and requires efforts. It is focused on providing goods and services keeping in view various aspects, such as financial, commercial, and industrial. An enterprise is composed of individuals and physical assets with a common goal of generating profits. According to Micro, Small, and Medium Enterprises Development (MSMED) Act, 2006 "Enterprise means an industrial undertaking or a business concern or any other establishment, by whatever name called, engaged in the manufacture or production of goods, in any manner, pertaining to any industry specified in the First Schedule to the Industries (Development and Regulation) Act, 1951 or engaged in providing or rendering of any service or services." An individual, who creates an enterprise is called entrepreneur. The success or failure of an enterprise depends on the efficiency of the entrepreneur. An entrepreneur needs to be focused on adapting himself/herself according to the changes taking place in the national economy, industries, and markets. In addition, he/she should strive to invent new products and services or bring innovation in the existing products and introduce them in the market.

According to J. A. Schumpeter, a German economist, an entrepreneur has the power to change the way an economy is moving. He also advocated that an entrepreneur is the person who combines production factors to make the production process efficient. According to him, an entrepreneur is a foresighted person having a risk taking and innovation capability.

The innovation can be in following five fields:

i. New product

ii. New machine

iii. New source of raw material supply

iv. New market

Scientific methods of organization:

Economist Joseph Schumpeter has given a significant contribution in understanding the concept of entrepreneurship. According to him, "An entrepreneur is a person who is willing and able to convert a new idea or invention into a successful innovation." In the view of Schumpeter an entrepreneur employs "the gale of creative destruction." Creative destruction can be defined as the process of creating new product, business model, or other business innovations by replacing the old ones. Thus, new products and technologies developed by entrepreneurs over time make current products and technologies obsolete. For example, before the advent of mobile phones, pagers were very popular among people, but with the invention of mobile phones, pagers became obsolete. Therefore, Schumpeter held the argument that creative destruction is the main factor behind economic growth and industry dynamism. He also held a view that entrepreneurship results not only in new industries, but also in new combinations of currently existing inputs. Schumpeter exemplified this concept with the invention of a steam engine, which was used to develop a horseless carriage. Further, the horseless carriage was transformed into a car. This formation of car from steam engine was not the development of a new technology, but the application of existing technologies in a novel manner.

4.3. Definition of an Entrepreneur:

According to Schumpeter, "An entrepreneur characteristically innovates, introduces new technologies, increases efficiency, productivity, or generates new products or services. An entrepreneur acts as a catalyst for economic change and research indicates that entrepreneurs are highly creative individuals who imagine new solutions by generating opportunities-for profit or reward."

4.3.1. Characteristics of a Successful Entrepreneur:

The success or failure of an enterprise depends on the efficiency of an entrepreneur. An entrepreneur undertakes various activities, such as formulating and implementing a business plan and managing resources, to establish and run his/her enterprise successfully. He/she should possess some abilities and skills to perform different activities successfully.

Following are certain traits and characteristics of a successful entrepreneur:

i. Creativity:

Refers to the ability of an entrepreneur to bring out new ways to run a business. An entrepreneur needs to verify the feasibility of the new idea before implementing it. Creativity and innovation are always used interchangeably, but there is a huge difference between both of these two words.

ii. Innovation:

Refers to the ability of an entrepreneur to provide things in a novel manner. It is a specific instrument of entrepreneurship to add value to products or services or the unique recombination of resources to give something new to the world. The market is never saturated for an entrepreneur.

For example, replacing fruits with soft drinks is not merely an innovative activity. It can be a new method of decreasing the cost of production, improving the design of the product, and increasing the market share by beating the competitors. Innovation is the result of continuous generation of new thoughts and ideas.

iii. Dynamism:

Refers to one of the important characteristics of an entrepreneur. A successful entrepreneur should strive to bring dynamism to industries and markets. He/she should be able to convert a new idea into a successful innovation. He/she should replace inferior innovations across markets and industries with new products.

iv. Risk Taking and Decision Making Ability:

Refers to the capability of entrepreneurs to make decisions under the conditions of uncertainty. They should have courage to put everything on

stake to convert his/her idea into a reality. However, he/she should assess risks involved in the decision and estimate the probability of success before acting upon.

v. Self-Motivation:

Implies that an entrepreneur can be successful if he/she is guided by inner self and motivated to accomplish set goals. In addition, an entrepreneur should take initiative to do something beyond their job requirement or the demand of the situation. He/she should also look for opportunities and take necessary actions to avail them.

vi. Self-Confidence:

Refers to one of the most required attributes in an entrepreneur that brings success in everything they do. An entrepreneur has a strong belief in self and own abilities. They express confidence in completing any task or meeting any challenge. They stick to the judgment in the face of opposition or early lack of success. They feel confident enough to take new challenges.

vii. Time Management:

Refers the skill of an entrepreneur to manage time effectively and efficiently. He/she should strive to work within the allotted time or before that, and utilize rest of time in learning more skills.

viii. Persistence:

Implies that an entrepreneur should keep putting repetitive efforts or different actions to get over the obstacles. He/she should not be discouraged by the initial failure or obstacle that they get in the way of reaching goals.

ix. Problem Solving:

Indicates the ability of an entrepreneur to solve problems rather than avoiding them. An entrepreneur should identify the cause of problems that come in the way and searches potentially unique ideas to solve them. He/she should either switch to an alternative strategy to reach a goal or generate innovative solutions.

x. Flexibility:

Helps an entrepreneur to adapt to the changing marketplace, strategies of competitors, and preferences of customers. It also helps the entrepreneur

to make necessary changes in his/her products and services as per the market conditions.

xi. Vision:

Refers to the characteristic of an entrepreneur to visualize the way to successfully complete tasks to achieve set goals and objectives. In addition, the entrepreneur should communicate his/her with all shareholders of the enterprise, which, in turn, motivates them to achieve the set goals.

xii. Leadership:

Refers to one of the most indispensable quality of an entrepreneur that decides the success of the organization. The leadership spirit helps the entrepreneur to move forward in every sphere of his/her life. The entrepreneur should be able to handle the problem effectively, generating resources, and influence others to perform efficiently.

xiii. Technical Knowledge:

Implies that an entrepreneur should be able to understand all the technical aspects, such as systems, procedures, and methodology, used in production. Additionally, he/she should need to develop technical skills to understand, communicate, and lead the technical staff of the enterprise.

4.3.2. Functions of an Entrepreneur:

An entrepreneur takes the risk and organizes resources to establish and operate his/her enterprise. He/she identifies and traps the existing opportunities in the market, converts idea into action, bears the risk and uncertainties involved, and takes promotional activities to launch the enterprise. In addition, they strive for excellence in their field.

Some of the functions of an entrepreneur are described as follows:

i. Idea Generation:

Implies that an entrepreneur identifies business opportunities, selects the most suitable business opportunity, and converts that opportunity/idea into a successful business venture.

ii. Promotion:

Indicates that in today's time the activities of entrepreneurs are not only limited to establish an enterprise. Nowadays, entrepreneurs are also involved in various other activities, such as promoting for setting up a new enterprise,

attracting the investors, expanding the existing enterprise, and combining two or more enterprises. As a promoter, an entrepreneur conducts feasibility studies, decides the form of organization, assembles the required resources, such as capital and human resource, and shapes up the enterprise.

iii. Risk and Uncertainty Bearing:

Implies that an enterprise needs to bear risks involved in establishing a new enterprise or starting a new business venture. He/she should be ready to bear the losses that may arise because of unforeseen situations in future. He/she does not hesitate in doing new things and adopting new methods of production.

iv. Arranging Finance:

Indicates that entrepreneurs arrange finance for setting up the enterprise. An entrepreneur is an individual, who provides initial capital to start the venture and arranges additional funds required to carry on activities and expand the business.

v. Staffing:

Signifies that an entrepreneur needs to employ individuals with the required skill-sets for operating in the different functions of the organizations.

4.4. THEORIES OF POPULATION

The following points highlight the top three theories of population. The theories are: 1. The Malthusian Theory of Population 2. The Optimum Theory of Population 3. The Theory of Demographic Transition.

1. THE MALTHUSIAN THEORY OF POPULATION:

Thomas Robert Malthus enunciated his views about population in his famous book, Essay on the Principle of Population as it affects the Future Improvement of Society, published in 1798. Malthus revolted against the prevailing optimism shared by his father and Godwin that a perfect state could be attained if human restraints could be removed. Malthus objection was that the pressure of increasing population on the food supply would destroy perfection and there would be misery in the world. He incorporated his researches in the second edition of his Essay published in 1803. The Malthusian theory explains the relationship between the growth in food

supply and in population. It states that population increases faster than food supply and if unchecked leads to vice or misery.

The Malthusian doctrine is stated as follows:

(1) There is a natural sex instinct in human beings to increase at a fast rate. As a result, population increases in geometrical progression and if unchecked doubles itself every 25 years. Thus starting from 1, population in successive periods of 25 years will be 1, 2, 4, 8, 16, 32, 64, 128, and 256 (after 200 years).

(2) On the other hand, the food supply increases in a slow arithmetical progression due to the operation of the law of diminishing returns based on the supposition that the supply of land is constant. Thus the food supply in successive similar periods will be 1, 2, 3, 4, 5, 6, 7, 8, and 9 (after 200 years).

(3) Since population increases in geometrical progression and the food supply in arithmetical progression, population tends to outrun food supply. Thus an imbalance is created which leads to over-population. This is depicted in Figure
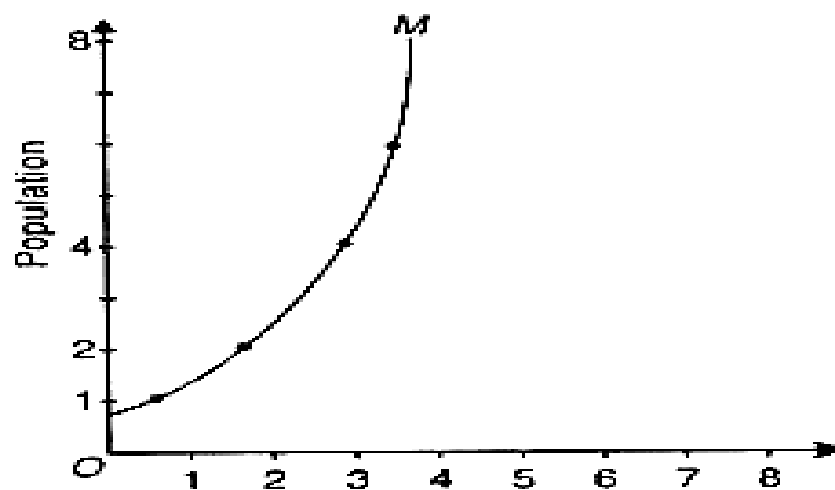
Fig. 4.1. Food supply

The food supply in arithmetical progression is measured on the horizontal axis and the population in geometrical progression on the vertical axis. The curve M is the Malthusian population curve which shows the relation between population growth and increase in food supply. It rises upward swiftly.

(4) To control over-population resulting from the imbalance between population and food supply, Malthus suggested preventive checks and positive checks. The preventive checks are applied by a man to control the birth rate. They are foresight, late marriage, celibacy, moral restraint, etc.

If people fail to check growth of population by the adoption of preventive checks, positive checks operate in the form of vice, misery, famine, war, disease, pestilence, floods and other natural calamities which tend to reduce population and thereby bring a balance with food supply.

According to Malthus, preventive checks are always in operation in a civilized society, for positive checks are crude. Malthus appealed to his countrymen to adopt preventive checks in order to avoid vice or misery resulting from the positive checks. Malthus doctrine is illustrated below.

Malthusian Theory of Population

| Population increases in geometrical progression 1, 2, 4, 8, 16, 32, 64, 128, 256 in 200 years. | Food increases in arithmetical progression 1, 2, 3, 4, 5, 6, 7, 8, 9, in 200 years. |

Imbalance leads to over population

Corrected by

| Preventive checks—late marriage, chastity, moral restraint, etc. | Positive checks—vice, misery, war, famine, floods, etc. |
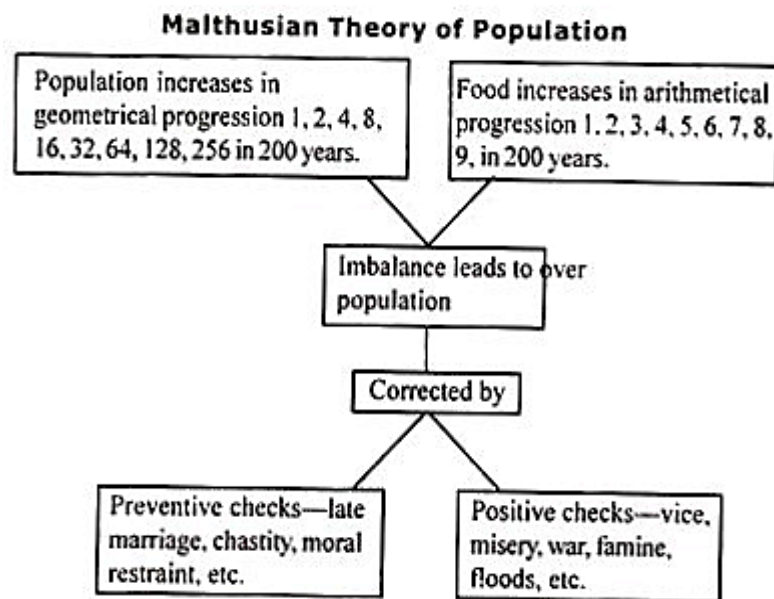
Criticisms of the Malthusian Doctrine:

The Malthusian theory of population has been widely discussed and criticised during the 19th and early 20th century.

Some of the criticisms are as follows:

(1) Mathematical Form of the Theory Wrong:

The mathematical formulation of Malthus' doctrine that food supply increases in arithmetical progression and population increases in geometrical progression in 25 years have not been proved empirically. Rather, the food supply has increased more than in the arithmetical progression while population growth has not been in geometrical progression so as to double the population in 25 years. But this criticism is beside the point because Malthus used his mathematical formulation to make his principle clear in the first edition of his Essay and deleted it in its second edition.

(2) Failed to foresee the Opening up of New Areas:

Malthus had a narrow vision and was particularly influenced by local conditions in England. He failed to foresee the opening up of new areas of Australia, the United States and Argentina where extensive farming of virgin lands led to increased production of food. As a result, countries like England on the continent of Europe have been provided with abundant supplies of cheap food. This has been made possible with rapid improvements in the means of transport, a factor almost overlooked by Malthus. No country need fear starvation and misery if it does not produce sufficient for its increasing population these days.

(3) Applied a Static Economic Law to a Period of Time:

The Malthusian notion that the food supply increases in arithmetical progression is based on a static economic law at any one time, i.e. the law of diminishing returns. Malthus could not foresee the unprecedented increase in scientific knowledge and agricultural inventions over a period of time which has stayed the law of diminishing returns. Consequently, the food supply has increased much faster than in arithmetical progression. Malthus has been proved wrong not only in the advanced countries but also in developing countries like India with the 'green revolution'.

(4) Neglected the Manpower Aspect in Population:

One of the principal weaknesses of Malthus' thought has been that he neglected the manpower aspect in population growth. He was a pessimist and dreaded every increase in population. He forgot, according to Cannan, that "a baby comes to the world not only with a mouth and a stomach, but also with a pair of hands." This implies that an increase in population means an increase in manpower which may tend to increase not only agricultural but also industrial production and thus makes the country rich by an equitable distribution of wealth and income. As rightly pointed out by Seligman "The problem of population is not merely one of mere size but of efficient production and equitable distribution." Thus the increase in population may be necessary.

(5) Population not related to Food Supply but to Total Wealth:

The Malthusian theory rests on a weak relationship between population and food supply. In fact, the right relationship is between population and total wealth of the country. This is the basis of the optimum theory of population. The argument is that if a country is rich materially and even if it does not produce enough food for its population, it can feed the people well by importing food stuffs in exchange for its products or money.

The classic example is of Great Britain which imports almost all its food requirements from Holland, Denmark, Belgium and Argentina because it concentrates more on the production of wealth rather than on food products. Thus the very basis of the Malthusian doctrine has been proved wrong.

(6) Increase in Population the Result of declining Death Rate:

The Malthusian theory is one sided. It takes the increase in population as the result of a rising birth rate, whereas population has grown considerably the world over due to a decline in death rate. Malthus could not foresee the marvellous advancements in the field of medical sciences which have controlled fatal diseases and made human life longer. This has been particularly so in underdeveloped countries like India where the Malthusian theory is said operate.

(7) Empirical Evidence proves this Theory Wrong:

Empirically, it has been proved by demographists that population growth is a function of the level of per capita income. When per capita income increases rapidly, it lowers the fertility rate and the rate of population growth declines. Dumont's "social capillarity thesis" has proved that with the increase in per capita incomes, the desire to have more children to supplement parental incomes declines. When people are accustomed to a high standard of living, it becomes a costly affair to rear a large family. Population tends to become stationary because people refuse to lower their standard of living. This has actually happened in the case of Japan, France and other western countries.

(8) Preventive Checks do not pertain to Moral Restraint:

Malthus was essentially a religious man who laid emphasis on moral restraint, celibacy, late marriage, etc. to control population. But he could not

visualize that human beings would invent contraceptives and other family planning devices for birth control. This was perhaps due to the fact that he could not make any distinction between sexual desire and the desire to have children. People have sexual desire but they do not want to have more children. Thus moral restraint alone cannot help to control the increase in population which Malthus suggested. Family Planning is essential as a preventive check.

(9) Positive Checks not due to Over-population:

Malthus' pessimism and religious education led him to believe that over-population was a heavy burden on the earth which was automatically lessened by God in the form of misery, wars, famines, floods, diseases, pestilence, etc. But all these are natural calamities which are not peculiar to over-populated countries. They visit even those countries where the population is on the decline or stationary, such as France and Japan.

(10) Malthus a False Prophet:

The Malthusian theory is not applicable to countries for which this was propounded. In the western European countries, the bogey and pessimism of Malthus has been overcome. His prophecy that misery will stalk these countries if they fail to check the growth of population through preventive checks has been proved wrong by a decline in birth rate, adequacy of food supply, and increase in agricultural and industrial production. Thus Malthus has proved to be a false prophet.

2. THE OPTIMUM THEORY OF POPULATION:

Introduction:

The optimum theory of population was propounded by Edwin Cannan in his book Wealth published in 1924 and popularized by Robbins, Dalton and Carr-Saunders. Unlike the Malthusian theory, the optimum theory does not establish relationship between population growth and food supply. Rather, it is concerned with the relation between the size of population and production of wealth. The Malthusian theory is a general theory which studies the population problem of a country in keeping with its economic conditions.

Thus the optimum theory is more realistic than the Malthusian theory of population.

Definitions:

But what is optimum population? The optimum population is the ideal population which combined with the other available resources or means of production of the country will yield the maximum returns or income per head. The concept of optimum population has been defined differently by Robbins, Carr- Saunders and Dalton. Robbins defines it as "the population which just makes the maximum returns possible is the optimum population or the best possible population." Carr-Saunders defines it as "that population which produces maximum economic welfare". To Dalton, "Optimum population is that which gives the maximum income per head." If we were to examine these views, we find that Dalton's view is more scientific and realistic which we follow.

Assumptions:

This theory is based on the following assumptions:

1. The natural resources of a country are given at a point of time but they change over time.

2. There is no change in techniques of production.

3. The stock of capital remains constant.

4. The habits and tastes of the people do not change.

5. The ratio of working population to total population remains constant even with the growth of population.

6. Working hours of labour do not change.

7. Modes of business organisation are constant.

The Theory:

Given these assumptions, the optimum population is that ideal size of population which provides the maximum income per head. Any rise or diminution in the size of the population above or below the optimum level will diminish income per head. Given the stock of natural resources, the technique of production and the stock of capital in a country, there is a definite size of population corresponding to the highest per capita income. Other things being

equal, any deviation from this optimum-sized population will lead to a reduction in the per capita income.

If the increase in population is followed by the increase in per capita income, the country is under-populated and it can afford to increase its population till it reaches the optimum level. On the contrary, if the increase in population leads to diminution in per capita income, the country is over- populated and needs a decline in population till the per capita income is maximised. This is illustrated in Figure 4.2.
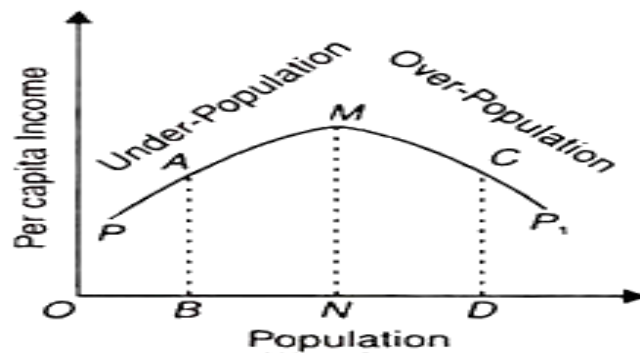

Fig.4.2. optimum theory

In the figure, OB population is measured along the horizontal axis and per capita income on the vertical axis. In the beginning, there is under-population and per capita income increases with population growth. The per capita income is BA population which is less than the maximum per capita income level NM. The ON size of population represents the optimum level where per capita income NM is the maximum. If there is a continuous increase in population from ON to OD then the law of diminishing returns applies to production. As a result, the per capita production is lowered and the per capita income also declines to DC due to increase in population. Thus ND represents over-population. This is the static version of the theory. But the optimum level is not a fixed point. It changes with a change in any of the factors assumed to be given. For instance, if there are improvements in the methods and techniques of production, the output per head will rise and the optimum point will shift upward. What the optimum point for the country is today, may not be tomorrow if the stock of natural resources increases and the optimum point will be higher than before. Thus the optimum is not a fixed but a movable point.

According to Cannan, "At any given time, increase of labour up to a certain point is attended by increasing proportionate returns and beyond that point further increase of o labour is attended by diminishing proportionate returns." The per capita income is the highest at the point where the average product of labour starts falling. This point of maximum returns is the point of optimum population.
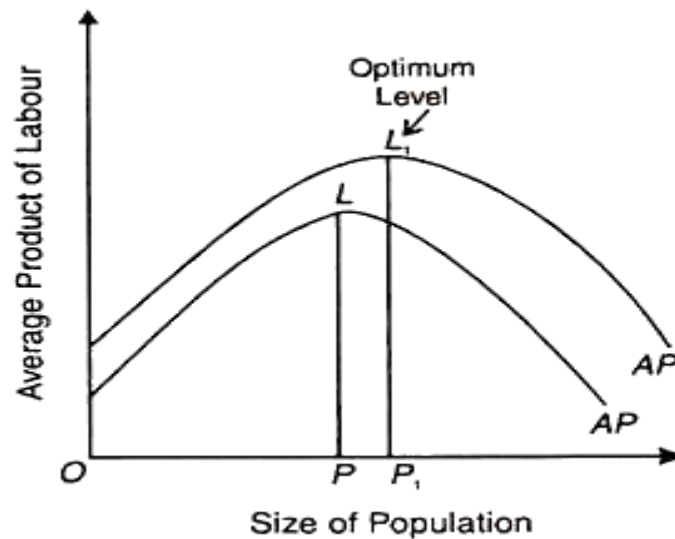
Fig.4.3. optimum population

This is illustrated in Figure 4.3. The size of population is measured on the horizontal axis 2 and the average product of labour on the vertical axis. AP is the average product of labour or income per head curve. Up to OP level, increases in population lead to a rise in the average product of labour and per capita income. Beyond OP, the average product of labour and per capita income falls. Hence when population is OP, the per capita income is the highest at point L. Thus, OP is the optimum level of population. To the left of OP, the country is under-populated and beyond OP, it is over-populated. However, OP is not a fixed point. If due to inventions there are improvements in the techniques of production, the average product of labour might increase and push the level of per capita income upward so that the optimum point rises. This is shown in the figure where the AP_1 curve represents the higher average product of labour and point L shows the maximum per capita income at the new optimum level of population OP_1.

Dalton's Formula:

Dalton has deduced over-population and under-population which result in the deviation from the optimum level of population in the form of a formula. The deviation from the optimum, he calls maladjustment. Maladjustment (M) is a function of two variables, the optimum level of population O and the actual level of population A.

The maladjustment is M = A-0/0

When M is positive, the country is over-populated, and if it is negative, the country is under-populated. When M is zero, the country possesses optimum population. Since it is not possible to measure O, this formula is only of academic interest.

It's Superiority over the Malthusian Theory:

The optimum theory of population is superior to the Malthusian theory on the following grounds:

(1) The Malthusian law is a general study of the population problem because it is applicable to all countries irrespective of their economic conditions. The optimum theory is superior to the Malthusian theory because it studies the population problem in relation to the economic conditions of a particular country.

(2) Malthus had a narrow vision. He related the growth of population to food supply. Cannan, on the other hand, had a much wider outlook. He related the problem of population to the total production of the country, both industrial and agricultural.

(3) The Malthusian theory is a static concept which applies to a period of time. The optimum theory is a dynamic one because over a period of time the per capita income may rise with the expansion in output due to improvements in knowledge, skill, capital equipment and other elements in production. This may raise the optimum level of population. Thus, the optimum theory is more realistic.

(4) The Malthusian doctrine is simply theoretical and is devoid of all practical considerations. It regards all increases in population bad, for they bring untold miseries to the people. Malthus wrote, "The table of nature is laid for a limited number of guests and those who come uninvited must starve." On

the other hand the optimum theory is very practical because it regards an increase in population not only desirable but also necessary for the maximum utilisation of the country's natural resources.

(5) The Malthusian theory of population is based on the unrealistic assumption of the niggardliness of nature. This belief arises from the operation of the law of diminishing returns in agriculture. But the optimum theory takes a realistic view when according to this, the law of diminishing returns does not operate in agriculture immediately but after the optimum point is reached. In other words, first the law of increasing returns operates up to the optimum point and the law of diminishing returns after it.

(6) Malthus was so much obsessed by the fear of over-population that he ignored a fundamental fact that a newly born child 'comes not only with a mouth and a stomach but also with a pair of hands' The optimum population theory allays all such fears of the Malthusians by stressing the fact that increasing population increases the labour force which helps raise the optimum expansion of the country's natural resources.

(7) Malthus was essentially a pessimist who portrayed a gloomy picture about the future of mankind which was full of misery, vice, floods, droughts, famines and other natural calamities. The optimum theory is superior to the Malthusian theory because it does not suffer from any pessimism; rather it adopts an optimist and realistic attitude towards the problem of population when it relates population to the wealth of the country.

It's Criticisms:

Despite the superiority of the optimum theory over the Malthusian theory of population, it has serious weaknesses.

(1) No Evidence of Optimum Level:

The first weakness of the optimum theory is that it is difficult to say whether there is anything like an optimum population. There is no evidence about g the optimum population level in any country.

(2) Impossible To Measure Optimum Level:

It is impossible to measure the optimum level quantitatively. As pointed out by Prof. Bye, it is "impossible to calculate it with any semblance of m exactness for any country at any time."

(3) Optimum Level Vague:

Optimum population implies a £ qualitative as well as a quantitative ideal population for the country. The qualitative ideal implies not only physique, knowledge and intelligence, but also the best age composition of population. These variables are subject to change and are related to an environment. Thus the optimum level of population is vague.

(4) Correct Measurement of Per Capita Income not Possible:

Another difficulty pertains to the measurement of per capita income in the country. It is not an easy task to measure changes in the per capita income. The data on per capita income are often inaccurate, misleading and unreliable which make the concept of optimum as one of doubtful validity.

(5) Neglects the Distributional Aspect of increase in Per Capita Income.:

Even if it is assumed that per capita income can be measured, it is not certain that the increase in population accompanied by the increase in per capita income would bring prosperity to the country. Rather, the increase in per capita income and population might prove harmful to the economy if the increase in per capita income has been the result of concentration of income in the hands of a few rich. Thus the optimum theory of population neglects the distributional aspect of increase in the per capita income.

(6) Optimum Level not fixed but oscillating:

The concept of the optimum population assumes that the techniques of production, the stock of capital and natural resources, the habits and tastes of the people, the ratio of working population to total population, and the modes of business organisation are constant. But all these factors are constantly changing. As a result, what may be the optimum at a point of time might become less or more than the optimum over a period of time.

(7) Neglects Social and Institutional Conditions:

The optimum theory considers only the economic factors which determine the level of population. Thus it fails to take into consideration the social and institutional conditions which greatly influence the level of population in a country. A lower level of optimum population may be justified from the economic viewpoint, but such a level may be harmful keeping into view the defence considerations of the country. For instance, economic consideration

may prevent us from having a large population but the danger from foreign aggression may necessitate a very large population to safeguard our territorial integrity. Thus the optimum theory is imperfect and one-sided.

(8) No Place in State Policies:

The concept of optimum population has no place in the policies of modern states. While fiscal policy aims at increasing or stabilising the level of employment, output and income in a country, no reference is made to the optimum level of population. This theory is, therefore, of no practical use and is regarded as useless.

3. THE THEORY OF DEMOGRAPHIC TRANSITION:

The theory of demographic transition is based on the actual population trends of advanced countries of the world. According to this theory, every country passes through three different stages of population growth. In the first stage, the birth rate and the death rate are high and the growth rate of population is low. In the second stage, the birth rate remains stable but the death rate falls rapidly. As a result, the growth rate of population increases very swiftly. In the last stage, the birth rate starts falling and tends to equal the death rate. The growth rate of population is very slow. These three stages are explained in the Figure 4.4.

In the figure, the time for different stages is taken on the horizontal axis and annual birth and death rates per thousand on the vertical axis. In the first stage, before the 19th century, birth rates in Western Europe were 35 per thousand and death rates fluctuated around 30 per thousand. Thus the growth rate of population was about 5 per thousand. In the second stage, death rates began to decline gradually from 30 per thousand to 20 per thousand from the middle of the 19th century to the end of the century. In the third stage beginning with the 20th century, birth rates began to decline 15 per thousand.
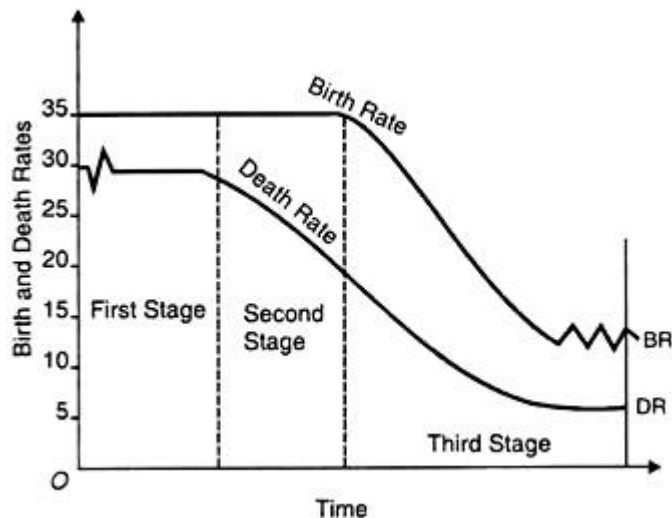
Fig. 4.4. Demographic transition

First Stage:

In this stage, the country is backward and is characterised by high birth and death rates with the result that the growth rate of population is low. People mostly live in rural areas and their main occupation is agriculture which is in a state of backwardness. There are a few simple, light and small consumer goods industries. The tertiary sector consisting of transport, commerce, banking and insurance is underdeveloped. All these factors are responsible for low incomes and poverty of the masses. Large family is regarded as a necessity to augment the low family income. Children are an asset to the society and parents.

There being mass illiteracy, the society is not expected to educate them and thus burden itself. The existence of the joint family system provides employment to all children in keeping with their ages. Thus a child becomes an earning member even at the age 5 when he becomes a helping hand to his parents in domestic affairs. More children in a family are also regarded as an insurance against old age by the parents. People being illiterate, ignorant, and superstitious and fatalist are averse to any methods of birth control. Children are regarded as God-given and preordained. Being childless is regarded as a curse and the parents are looked down upon by the society. All these economic and social factors are responsible for a high birth rate in the country.

Along with high birth rate, the death rate is also high due to non-nutritional food with a low caloric value, and lack of medical facilities and of any sense of cleanliness. People live in dirty and unhealthy surroundings in ill-ventilated small houses. As a result, they are, disease-ridden and the absence of proper medical care results in large deaths.

The mortality rate is the highest among the children and the next among women of childbearing age. Thus unhygienic conditions, poor diet and the lack of medical facilities are the reasons for a high mortality rate in this stage. This stage continued in Western Europe approximately up to 1840.

Second Stage:

In the second stage, the economy enters the phase of economic growth. Agricultural and industrial productivity increases and the means of transport develop. There is greater mobility of labour. Education expands. Incomes increase. People get more and better quality food products. Medical and health facilities are expanded. Modern drugs are used by the people. All these factors bring down the death rate. But the birth rate is almost stable. People do not have any inclination to reduce the birth of children because with economic growth employment opportunities increase and children are able to add more to the family income. With improvements in the standard of living and the dietary habits of the people, the life expectancy also increases.

People do not make any efforts to control the size of family because of the presence of religious dogmas and social taboos towards family planning. Of all the factors in economic growth, it is difficult to break with the past social institutions, customs and beliefs. As a result of these factors, the birth rate remains at the previous high level.

Third Stage:

In this stage, the fertility rate declines and tends to equal the death rate so that the growth rate of population declines. As growth gains momentum and people cross the subsistence level of income, their standard of living rises. The leading growth sectors expand and lead to an expansion in output in other sectors through technical transformations. Education expands and permeates the entire society. Popular education leads to popular enlightenment and opens the way to knowledge. It creates self-discipline,

power to think rationally and to probe into the future. People discard old customs, dogmas and beliefs and develop individualistic spirit and break with the joint family.

Men and women prefer to marry late. The desire to have more children to supplement parental income declines. People readily adopt family planning devices. They prefer to go in for a baby car rather than a baby. Moreover, increased specialisation following rising income levels and the consequent social and economic mobility make it costly and inconvenient to rear a large number of children. All this tends to reduce the birth rate which along with an already low death rate brings a decline in the growth rate of population. The advanced countries of the world are passing through this last stage and the population is increasing at a slow pace in them.

Conclusion:

The theory of demographic transition is the most acceptable theory of population growth. It neither lays emphasis on food supply like the Malthusian theory, nor does it develop a pessimistic outlook towards population growth.

It is also superior to the optimum theory which lays an exclusive emphasis on the increase in per capita income for the growth of population and neglects the other factors which influence it. The demographic transition theory is superior to all the theories of population because it is based on the actual population growth trends of the developed countries of Europe.

Almost all the European countries of the world have passed through the first two stages of this theory and are now in the final stage. Not only this, this theory is equally applicable to the developing countries of the world. Very backward countries in some of the African states are still in the first stage whereas all the other developing countries of the world are in the transitional stage two it is on the basis of this theory that economists have developed economic-demographic models so that underdeveloped countries should enter the final stage and attain the stage of self-sustained growth. Thus this theory has universal applicability.

4.5. CAPITAL FORMATION:

4.5.1. Meaning of Capital Formation:

Capital formation means increasing the stock of real capital in a country. In other words, capital formation involves making of more capital goods such as machines, tools, factories, transport equipment, materials, electricity, etc., which are all used for future production of goods. For making additions to the stock of Capital, saving and investment are essential.

4.5.2. PROCESS OF CAPITAL FORMATION:

In order to accumulate capital goods some current consumption has to be sacrificed. The greater the extent to which the people are willing to abstain from present consumption, the greater the extent that society will devote resources to new capital formation. If society consumes all that it produces and saves nothing, future productive capacity of the economy will fall as the present capital equipment wears out. In other words, if whole of the current productive activity is used to produce consumer goods and no new capital goods are made, production of consumer goods in the future will greatly decline. To cut down some of the present consumption and wait for more consumption in the future require far-sightedness on the part of the people. There is an old Chinese proverb, "He who cannot see beyond the dawn will have much good wine to drink at noon, much green wine to cure his headache at dark, and only rain water to drink for the rest of his days."

4.5.3. THREE STAGES IN CAPITAL FORMATION:

Although saving is essential for capital formation, but in a monetized economy, saving may not directly and automatically result in the production of capital goods. Savings must be invested in order to have capital goods. In a modern economy, where saving and investment are done mainly by two different classes of people, there must be certain means or mechanism whereby the savings of the people are obtained and mobilized in order to give them to the businessmen or entrepreneurs to invest in capital.

Therefore, in a modern free enterprise economy, the process of capital formation consists of the following three stages:

(a) Creation of Savings:

(b) Mobilization of Savings:

(c) Investment of Savings:

We shall now explain these three stages:

(a). Creation of Savings:

An increase in the volume of real savings so that resources, that would have been devoted to the production of consumption goods, should be released for purposes of capital formation. Savings are done by individuals or households. They save by not spending all their incomes on consumer goods. When individuals or households save, they release resources from the production of consumer goods. Workers, natural resources, materials, etc., thus released are made available for the production of capital goods. The level of savings in a country depends upon the power to save and the will to save. The power to save or saving capacity of an economy mainly depends upon the average level of income and the distribution of national income. The higher the level of income, the greater will be the amount of savings.

The countries having higher levels of income are able to save more. That is why the rate of savings in the U.S.A. and Western European countries is much higher than that in the under-developed and poor countries like India. Further, the greater the inequalities of income, the greater will be the amount of savings in the economy. Apart from the power to save, the total amount of savings depends upon the will to save. Various personal, family, and national considerations induce the people to save.

People save in order to provide against old age and unforeseen emergencies. Some people desire to save a large sum to start new business or to expand the existing business. Moreover, people want to make provision for education, marriage and to give a good start in business for their children. Further, it may be noted that savings may be either voluntary or forced. Voluntary savings are those savings which people do of their own free will. As explained above, voluntary savings depend upon the power to save and the will to save of the people. On the other hand, taxes by the Government

represent forced savings. Moreover, savings may be done not only by households but also by business enterprises" and government. Business enterprises save when they do not distribute the whole of their profits, but retain a part of them in the form of undistributed profits. They then use these undistributed profits for investment in real capital.

The third source of savings is government. The government savings constitute the money collected as taxes and the profits of public undertakings. The greater the amount of taxes collected and profits made, the greater will be the government savings. The savings so made can be used by the government for building up new capital goods like factories, machines, roads, etc., or it can lend them to private enterprise to invest in capital goods.

(b). Mobilization of Savings:

The next step in the process of capital formation is that the savings of the households must be mobilized and transferred to businessmen or entrepreneurs who require them for investment. In the capital market, funds are supplied by the individual investors (who may buy securities or shares issued by companies), banks, investment trusts, insurance companies, finance corporations, governments, etc.

If the rate of capital formation is to be stepped up, the development of capital market is very necessary. A well- developed capital market will ensure that the savings of the society-will be mobilized and transferred to the entrepreneurs or businessmen who require them. A finance and credit mechanism, so that the available resources are obtained by private investors or government for capital formation.

(c). Investment of Savings in Real Capital:

The act of investment itself so that resources are actually used for the production of capital goods. For savings to result in capital formation, they must be invested. In order that the investment of savings should take place, there must be a good number of honest and dynamic entrepreneurs in the country who are able to take risks and bear uncertainty of production. Given that a country has got a good number of venturesome entrepreneurs, investment will be made by them only if there is sufficient inducement to invest. Inducement to invest depends on the marginal efficiency of capital (i.e.,

the prospective rate of profit) on the one hand and the rate of interest, on the other.

But of the two determinants of inducement to invest-the marginal efficiency of capital and the rate of interest—it is the former which is of greater importance. Marginal efficiency of capital depends upon the cost or supply prices of capital as well as the expectations of profits. Fluctuations in investment are mainly due to changes in expectations regarding profits. But it is the size of the market which provides scope for profitable investment. Thus, the primary factor which determines the level of investment or capital formation, in any economy, is the size of the market for goods.

Foreign Capital:

Capital formation in a country can also take place with the help of foreign capital, i.e., foreign savings.

Foreign capital can take the form of:

(a) Direct private investment by foreigners,

(b) Loans or grants by foreign governments,

(c) Loans by international agencies like the World Bank.

There are very few countries which have successfully marched on the road to economic development without making use of foreign capital in one form or the other. India is receiving a good amount of foreign capital from abroad for investment and capital formation under the Five-Year Plans.

Deficit Financing:

Deficit financing, i.e., newly-created money is another source of capital formation in a developing economy. Owing to very low standard of living of the people, the extent to which voluntary savings can be mobilised is very much limited. Also, taxation beyond limit becomes oppressive and, therefore, politically inexpedient. Deficit financing is, therefore, the method on which the government can fall back to obtain funds.

However, the danger inherent in this source of development financing is that it may lead to inflationary pressures in the economy. But a certain measure of deficit financing can be had without creating such pressures. There is specially a good case for using deficit financing to utilise the existing under-employed labour in schemes which yield quick returns. In this way,

the inflationary potential of deficit financing can be neutralized by an increase in the supply of output in the short-run.

Disguised Unemployment:

Another source of capital formation is to mobilize the saving potential that exists in the form of disguised unemployment. Surplus agricultural workers can be transferred from the agricultural sector to the non-agricultural sector without diminishing agricultural output. The objective is to mobilize these unproductive workers and employ them on various capital creating projects, such as roads, canals, building of schools, health centres and bunds for floods, in which they do not require much more capital to work with. In this way', the hitherto unemployed, labour can be utilised productively and turned into capital, as it were.

Capital Formation in the Public Sector:

In these days, the role of government has greatly increased. In an under-developed country like India, government is very much concerned with the development of the economy. Government is building dams, steel plants, roads, machine-making factories and other forms of real capital in the country. Thus, capital formation takes place not only in the private sector by individual entrepreneurs but also in the public sector by government. There are various ways in which a government can get resources for investment purposes or for capital formation. The government can increase the level of direct and indirect taxation and then can finance its various projects. Another way of obtaining the necessary resources is the borrowing by the Government from the public.

The government can also finance its development plans by deficit financing. Deficit financing means the creation of new money. By issuing more notes and exchanging them with the productive resources the government can build real capital. But the method of deficit financing, as a source of development finance, is dangerous because it often leads to inflationary pressures in the economy. A certain measure of deficit financing, however, can be had without creating such pressures.

4.5.4. FACTORS AFFECTING CAPITAL FORMATION:

The following points highlight the two main factors that affect capital formation of an economy. They are: 1. Demand Side, and 2. Supply Side.

1. Demand Side:

The demand for capital mostly depends upon the incentives for investment in an economy. It will be high if the incentive to invest is strong, while it will be low if it is weak. The incentive to invest almost depends on the rate of profitability of investment. In under-developed countries, lack of demand for capital is marked by an acute shortage of capital. Lack of demand only refers to the demand for capital of the private investors and not considered from the point of view of the economy as a whole. Therefore, lack of incentives for private investment arises primarily from the small size of the domestic market. If the people are poor and size of the market is small, private investment will not be very profitable and incentives for investment will automatically be poor.

In under developed countries, lack of demand for capital arises from low production and small purchasing power of the common man. But in developed countries, the problem is of different nature. In such countries, the shortage of demand for capital comes from the deficiency of aggregate effective demand which is due to over saving. This type of shortage can be remedied through money expansion. Here, it must be kept in mind that monetary expansion in under-developed countries will lead to inflation because there is always shortage of demand arising from the shortage of supply of goods and services in the market.

In fact, small size of the market is responsible for lack of incentives for investment and entrepreneurs do not find it profitable to set up modern industries. Therefore, the size of the market can also be enhanced by the method of public expenditure, salesmanship, adjustment and formation of custom duties or free trade agreements etc. Thus, rise in productivity is a crucial determinant of the size of the market. Prof. Ragnar Nurkse also proposes simultaneous investment in a number of industries to expand the size of the market in under developed economies. In addition to the small size

of the market, there are other factors which limit the demand for capital in under developed countries. They are listed as under:

(i) Lack of Entrepreneurship:

Generally, in under developed countries, there is acute shortage of efficient, dynamic and daring entrepreneur who are capable of taking risks in business. In the absence of such qualities of entrepreneurs, the saving of the people cannot be properly utilised in speculative activities, thus, fails to create further capital accumulation.

(ii) Lack of Availability of Skilled Labour:

Under developed countries always suffer from the availability of skilled and trained labour. Due to their backwardness in technology, it inhabits the demand for capital.

(iii) Shortage of Basic Facilities:

Investment is hindered by the shortage of basic facilities like power, transportation, communication and research institutions etc. The limit the scope for higher investment.

(iv) Availability of Cheap Labour:

There is abundant labour supply in under developed countries due to the higher population and mass unemployment. This leads to the adoption of labour intensive techniques rather than capital intensive techniques which, in turn, decreases the demand for capital.

(v) Primitive and Out-dated Agriculture:

In under developed countries, the main occupation of the people is agriculture. About 70 per cent people directly or indirectly are dependent on agriculture for their livelihood. They use primitive and out-dated methods of cultivation. The holdings are uneconomical, subdivided and fragmented. The land tenure system is defective which discourages investment in this sector. They do not apply scientific methods of cultivation.

(vi) High Interest Rates:

Another reason which limits the demand for capital is that there is comparatively high interest rates in poor and under-developed countries. High interest rates adversely affect the marginal efficiency of capital which, in turn, discourages investment in a country.

(vii) Taxation Policy:

In most of under developed countries, higher taxation policy has been adopted as a planned strategy for mobilisation of additional resources to meet the needs of the development and to decrease the gulf between the poor and the rich. Extremely higher taxes on income and profit hamper the incentive to make investment in an economy.

(viii) Unstable Political Environment:

In under developed countries, unstable political environment is witnessed which is greatly responsible for low demand for capital. These countries have backward and traditional systems which fail to develop suitable environment for making favourable investment in the country.

(ix) Lack of National Feelings:

In the present days, under-developed countries also lack national feelings which discourages new investment. In fact, security of life and property are the basic needs for capital formation.

2. Supply Side:

In an economy, supply of capital is always determined by the availability of investible funds which represent a surplus over the consumption requirements of the people.

There are two sources of supply of money:

(i) Domestic supply of money; and

(ii) imported capital (foreign capital).

Therefore, the total supply of money is made up of domestic savings and net capital imports. Without saving, there is no accumulation of capital. There are three sources, from where savings emerge.

They are:

(a) Saving by individuals and house-holds

(b) Saving by business enterprise and joint stock companies

(c) Saving by governments

The inadequate supply of capital in under-developed countries is largely due to the under-mentioned reasons:

> Low level of per capita income because majority of people live on subsistence level.

- Common people lack saving habits.
- Lack of banking and investment opportunities.
- Lavish spending on conspicuous and ceremonial consumptions.
- People are more interested in Purchase of Gold, Jewellery and Land Etc.
- Unfavourable cultural and institutional set up.
- Rapid increase in population.
- Other reasons—wasteful practices, lack of desire of progress, demonstration effects and lack of foresightedness, in congenial environment etc.

4.6. ENTREPRENEUR

4.6.1. Definition:

Entrepreneur is that, "he is a man who detects and evaluates a new situation in his environment and directs the making of such adjustments in the economic systems as he deems necessary".

4.6.2. Functions of entrepreneur:

Some of the most important function performed by an entrepreneur are as follows:

1. To Prepare Plan:

The first and foremost function of an entrepreneur is to prepare the plan or scheme of production i. e., the scale of production, types of goods to be produced and its quantity.

2. Selection of the Site:

The entrepreneur makes the selection of the site for the factory to be installed. The place should be near the market, railway station or bus-stand. The selection of the place may be near the source of raw materials also. The selection of the place has an important bearing on the cost of production.

3. Provision of Capital:

Capital is required to install a factory or an industry. Capital is required at all the stages of business. It is not necessary that the entrepreneur should invest his own capital. Therefore, he has to trace out a capitalist, to make provision for capital for the investment. He tries to obtain capital at the lowest possible rate of interest.

4. Provision of Land:

After making provision of capital and selection of site, he has to arrange for land. Land is either purchased or hired.

5. Provision of Labour:

In modern times, different types of labour are required to produce one type of commodity. The entrepreneur has to make provision for labour from different places.

6. Co-ordination of the Factors of production:

One of the main functions of the entrepreneur is to coordinate different factors of production in proper combinations, so that the cost of production is reduced to the minimum.

7. Division of Labour:

The splitting up of production into different parts and entrusting them to different workers is also the function of an entrepreneur. Thus, the entrepreneur decides the level and type of division of labour.

8. Quality of Product:

Keeping in view the competition in the market, the entrepreneur has to determine the quality of his product. He is to decide whether the goods produced should be of superior quality only or both of superior and ordinary qualities.

9. Sale of Goods:

The responsibility of the entrepreneur is not only to produce goods but also to sell his produce. He employs a good number of salesmen to market the goods. He makes arrangement for publicity to push up the sales. He adopts both informative and persuasive methods to achieve his goal.

10. Advertisement:

It is the duty of an entrepreneur to do advertisement explaining the superiority and quality of his goods through newspapers, magazines, radio, TV, etc. Advertisement is done to create and increase the demand or sale of his goods.

11. Payment to Factors of Production:

The rewards of the various factors of production have to be decided by the entrepreneur. He makes payments to the landlord, labour and capitalist

in the form of rent, wages and interest. Since payments to these factors of production constitute cost, so no entrepreneur wants to pay to a factor more than its productivity.

12. Quantity of Production:

The entrepreneur determines the quantity of production keeping in view the demand for goods and the extent of market. How much goods are to be produced is the main decision taken by the entrepreneur.

13. Risk-Taking:

Risk-taking is the most important function of an entrepreneur. He has to pay to all the other factors of production in advance. There are chances that he may be rewarded with a handsome profit or he may suffer a heavy loss. Therefore, the risk-bearing is the final responsibility of an entrepreneur.

14. Innovation:

Innovation plays an important role in modern business. The entrepreneur makes arrangements for introducing innovations which help in increasing production on the one hand, and reducing costs, on the other. Innovations may take the form of the introduction of new methods in the process of production or introducing improvements in the existing methods. It also includes discovery of new markets, raw materials and new techniques of production.

4.7. DIVISION OF LABOUR:

4.7.1. Meaning of Division of Labour:

Division of Labour means that the main process of production is split up into many simple parts and each part is taken by different workers who are specialised in the production of that specific part. Now, a day's production has become so technical and complex that different workers are put to different tasks according to their capacity and ability. One becomes specialised in the production of those goods for which he or she is best suited. Different workers perform different parts of production on the basis of their specialisation. The result is that goods come to the final shape with the co-operation of many workers. For example – In a large scale readymade garment

factory, a man does cutting of cloth, the second man stiches clothes with machines, the third buttons, the fourth makes folding and packing etc.

This way of doing the work is called division of Labour, because different workers are engaged in performing different parts of production.

4.7.2. Definitions of Division of Labour:

In the words of Prof. Watson – "Production by Division of Labour consists in splitting up the productive process into its component parts, concentrating specialised factor on each sub-division and combining their output into particular forms of consumption output required."

4.7.3. Essential Conditions or Pre-Requisites of Division of Labour:

(1) Wide Market:

It is the opinion of the economists that Division of Labour will function well and its success depends on wide market. If there will be small market Division of Labour will not develop much. Division of Labour is mostly found in big factories, where commodities are produced on a large scale only then it will be possible to split up the job into different processes and to assign process to a different set of workers.

(2) Large Scale Production:

For the complete success of Division of Labour the goods must be produced on large scale. When there is large scale production more labourers will be employed and then Division of Labour will be possible in a nice way.

(3) The Quantity of Capital Available:

Sufficient capital is needed for a successful and better Division of Labour. Shortage of capital and money not available on time may help the company not to go for Division of Labour.

(4) Nature of Demand:

Some industries are of such nature that it is not possible to split up the work into distinct and separate processes. Here also the scope of Division of Labour is limited. Possibility of splitting up production is essential for Division of Labour.

(5) Organising Ability:

Division of Labour involves the employment of a large number of workers in one factory. To handle them properly and to assign to each worker

a suitable job requires judgment of human nature of a high order. Hence, the entrepreneur must have the necessary ability to organise production on a large scale.

(6) Spirit of Co-operation:

If the workers are not co-operative. They are quarrelsome and cannot work together amicably, Division of Labour is out of question. There must be a spirit of co-operation, a spirit of compromise and a team spirit should exist. Without the spirit of give and take, Division of Labour cannot be introduced.

(7) Laws of Increasing Returns:

Where the law of increasing returns prevails, the possibilities of Division of Labour are greater, because production will be on a large scale.

(8) Availability of More Labour and Capital:

Division of Labour implies large scale production. Large number of workers is needed. Further Division of Labour and use of machinery go together, large amounts will have to be spent on machinery. If the required number of labour and capital are not forthcoming, Division of Labour cannot be extended and cannot be possible to the required extent.

(9) There should be Development of Means of Transport and Communication:

For the success of Division of Labour means of transport and communication must be developed. If there is development of means of transport raw-materials can be easily available and finished goods can be sent outside for sale.

4.7.4. DIFFERENT FORMS OF DIVISION OF LABOUR:

There are four forms of Division of Labour, They are:

1. Occupational or Simple Division of Labour.

2. Division of Labour into complete processes or complex Division of Labour.

3. Division of Labour into sub-processes or incomplete processes.

4. Territorial or geographical Division of Labour.

1. Occupational or Simple Division of Labour:

This means division of people in society according to occupations or trades. In this each individual takes a particular type of occupation for which he is best suited. Thus, in a community some are teachers, some are doctors,

some are merchants, brokers and soon. When the whole work of a particular production is carried on by the same worker, it is called a Simple Division of Labour.

2. Division of Labour into Complete Processes or Complex Division of Labour:

When the entire work in production of a community is divided into different processes and each process is allotted to different persons it is called "Process Specialisation". Under process specialisation there is division and each division or process is undertaken by one person, the Division of Labour so implied is termed as "Complex Division of Labour". Modern Mass Production is based on such Complex Division of Labour. For example—Shoe-making in a modern shoe factory involves Complex Division of Labour, where the upper portion of the shoe are prepared by one group of workers, while bottom portion are prepared by another group, stitching work by a third group and polishing, finishing etc. by a fourth group of workers.

In fact it may be noted that in a modern shoe making factory there are many processes, performed by different workers on different machines. This is the real Division of Labour which aims at increasing output.

3. Division of Labour into sub-processes or into Incomplete Processes:

When the complete processes are divided into sub-processes and then the work is completed then it is called Division of Labour of sub-processes. Here one process is incomplete without the help and co-operation of other process. This is also called "Personal Division of Labour."

4. Territorial or Geographical Division of Labour:

This is also known as "Localisation of industries". Under this when a particular place or region is specialised in a particular industry or in the production of a particular commodity, it is called territorial or geographical Division of Labour. For example—Hosiery at Ludhiana, Cotton Textiles in Ahmedabad and Bombay, Jute Industry in Kolkata etc.

4.7.5. ADVANTAGES OF DIVISION OF LABOUR:

Advantages of Division of Labour can be divided under the following heads:

1. Advantages to Producers.

2. Advantages to Consumers.

3. Advantages to Labourers.

4. Advantages to Nation.

ADVANTAGES TO PRODUCERS:

Producers can derive following advantages from Division of Labour:

1. Increase in Production:

With the adoption of Division of Labour, the total production increases. Adam Smith has written in his book that the advantage of Division of Labour can be ascertained when a worker can produce only twenty pins daily. If the making of pins in a modern factory is divided in various processes, then eighteen workers can produce 20,000 pins in a single day.

2. Reduction in the Cost of Production:

Division of Labour increases production which reduces the average cost of production. Saving of capital tools and machinery etc. also help in the reduction of cost of production.

3. Maximum Utilisation of Machinery:

The Division of Labour is the result of the large scale production which implies more use of machines. On the other-hand, the Division of Labour increases the possibility of the use of machines in the small-scale production also. Therefore, in modern times the use of machines is increasing continuously due to the increase in the Division of Labour.

4. Large Scale Production:

Due to use of plant and machinery under Division of Labour production starts increasing which results in less cost of production. Less cost of production increases profit to producer.

5. Saving of Time:

There is no need for the worker to shift from one process to another. He is employed in a definite process with certain tools. He therefore goes on working without loss of time, sitting at one place. Continuity in work saves time and helps in more production at less cost.

6. Encouragement to Inventions:

In Division of Labour each work is divided into small parts which helps much in the invention of new things. In this connection Robbin's has said—"By Division of Labour the work is divided in small divisions which helps much in new inventions."

7. Production of Goods of Superior Quality:

Division of Labour is beneficial in making goods of superior quality. When the worker is entrusted with the work for which he is best suited he will produce superior quality goods.

8. Best Selection of the Workers:

Division of Labour helps the producers in the best selection of workers. As the work is divided into different parts and each part is taken up by such a worker who is more suitable for it, the producer can select very easily the man who is best suited for the work.

9. Increase in Profit:

Division of Labour gives more profit to the producer of the goods as the cost of production of the commodity diminishes.

ADVANTAGES TO CONSUMERS:

Following are the advantages which consumers get from Division of Labour:

1. Availability of Commodities at a Cheaper Price:

Division of Labour helps in mass production. Thus, production becomes less expensive and more economical. Therefore, cheaper goods are produced by manufacturers. Availability of cheaper goods for consumers improve the standard of living of the consumers and the people.

2. Better Quality of Commodities:

Division of Labour implies splitting up of production into a number of processes. Each person is given the job for which he is best suited. There will be no round pegs in sequence holes. In this way, a right man is placed at the right job which helps in getting better quality of commodities.

3. Increase in Consumer's Satisfaction:

There are always the wishes of consumers to get best quality of goods at lesser price. Under Division of Labour consumer gets new quality goods at reasonable price which gives maximum satisfaction to consumers.

ADVANTAGES TO LABOURERS:

Labourers get following advantages from Division of Labour:

1. Increase in Efficiency of Labour:

With the Division of Labour a worker has to do the same work time and again, and he gets specialisation in it. In this way, the Division of Labour leads to a great increase in efficiency.

2. Increase in Skill:

Division of Labour contributes to the development of skill to a great extent. Because with the repetition of the same type of work, he becomes well versed and specialized in it. This specialisation enables him to do the work in the best possible way, which improves his skill.

3. Increases Mobility of Labour:

Division of Labour facilitates greater mobility of labour. Here the production is split up into different parts and a worker becomes trained in that very specific task in the production of the commodity which he performs time and again. He becomes professional, which leads to the occupational mobility. On the other hand, Division of Labour implies a large-scale production and labourers come to work from far and near. Thus, it increases geographical mobility of labour.

4. Increase in Employment Opportunities:

Division of Labour further leads to the diversity of occupations which further leads to the employment opportunities. On the other hand, the scale of production being large, the number of employment opportunities also increases.

5. Best Use of Tools:

In this system, it is not necessary to provide each worker with a complete set of tools. He needs a few tools only for the job in which he can make their best use. Therefore, the continuous use of tools is possible which are used at different stage.

6. Work According to Taste:

Generally, it has been seen that workers have their own taste in production. For example – A person can take up that type of job for which he considers himself to be the most suitable and which is in accordance with his

taste. Division of Labour extends the work to such an extent that every person can find work according to his taste and interest.

7. Saving of Capital and Tools:

Division of Labour helps in the saving of capital and tools. It is not essential to provide a complete set of tools to every worker. He needs a few tools only for the job he has to do. Thus, there is the saving of tools as well as capital. For example – A tailor stitches the shirt; he requires a sewing machine, scissors etc. But on the basis of Division of Labour one can do the cutting and the other can stitch the clothes. In this way two tailors can work with the help of one pair of scissors and one machine only.

8. Saving of Time and Expenses in Training:

Under Division of Labour a worker has to train himself in a small part of production. There is no need to learn the complete process of production. It ensures saving of time as well as expenses in training.

9. Development of International Trade:

Division of Labour increases the tendency of specialisation not only in the workers or industries, but in different countries also. On the basis of specialisation, every country produces only those goods in which it has a comparative advantage and imports such goods from those countries which have also greater comparative advantage. Therefore, Division of Labour is beneficial for the development of international trade also.

10. Spirit of Co-operation among Worker:

Division of Labour gives chances of working under the same roof and with the co-operation of each other. It further gives rise to the feeling of co-operation and trade unionism in their daily lives. The work cannot be completed unless they co-operate with each other. They help each other at the time of adversities as well.

ADVANTAGES TO NATION:

Nation also is benefitted with the Division of Labour, Important advantages are:

1. Full Utilisation of Natural Resources:

Division of Labour in the country helps much in the full utilisation of natural resources, because large scale production is carried on.

2. Increase in the Number of Efficient-Organizers:

Division of Labour helps much in the earnings of profit, therefore, in India entrepreneurs are investing money and are helping organisation to establish well-equipped company.

3. It is an Index of Economic Growth:

Establishment of good organisation, earning more profit and distributing more bonus and dividend to workers and investors is an index and sign of economic growth of the country. Therefore, we can say that Division of Labour has contributed enough for the development and growth of an individual to company and organisation.

4.7.6. DIS-ADVANTAGES OF DIVISION OF LABOUR:

Division of Labour has also certain demerits or dis-advantages which may be divided as under**:**

1. Dis-advantages to Producers.

2. Dis-advantages to Consumers.

3. Dis-advantages to Labourers.

4. Dis-advantages to Nation.

DIS-ADVANTAGES TO PRODUCERS:

Producers derive following demerits or dis-advantages from Division of Labour:

1. Danger of Over-production:

Over-production means that the supply of production is comparatively more than its demand in the market. Because of the Division of Labour when production is done on a large scale, the demand for production lags much behind its increased supply. Such conditions create over-production which is very harmful for the producers as well as for the workers when they become unemployed.

2. Loss of Responsibility:

Many workers join hands to produce a commodity. If the production is not good and adequate none can be held responsible for it. It is generally said that "every man's responsibility is no man's responsibility." Therefore, the Division of Labour has the dis-advantage of loss of responsibility.

3. Increased Dependence:

When the production is divided into a number of processes and each part is performed by different workers, it may lead to over-dependence. For example – In the case of a readymade garments factory, if the man cutting cloth is lazy, the work of stitching, buttoning etc. will suffer. Therefore, increased dependence is the result of Division of Labour.

4. Evils of Factory System:

The modern industrial or factory system has been developed as a result of the Division of Labour. This system further gives rise to the evils like dense population, pollution, class conflict, bad habits of gambling and drinking, low standard of living, poor food, clothes and housing etc.

5. Increased Dependence on Machines:

As Division of Labour increases there will be an increased use of machines. Almost all the workers work on different types of machines. It is very difficult for them to work without machines. Thus, Division of Labour increases the dependence on machines.

6. Administrative Difficulties and Industrial Disputes:

Industrial disputes mean strikes by workers, closure of factory, etc. due to clashes between the employees and the employers. This creates acute administrative problems and difficulties. Division of Labour results in the division of society into workers and employers. The employer always tries to increase his profits by exploiting the workers and workers from trade unions against the employees to put an end to their exploitation or to make them increase their wages. It gives rise to a severe conflict between the employers and the workers in the form of strikes, closures and lockouts of factories.

DIS-ADVANTAGES TO CONSUMERS:

Division of Labour gives many dis-advantages to consumers and important of them are as follows:

1. Consumers cannot get Variety of Goods:

The worker deteriorates in technical skills. Instead of making the whole article of variety, the worker is required just to repeat a few simple movements. The skills with which the artisan once made the article products gradually dies out. He simply becomes a machines tender.

2. Division of Labour Kills Creative Instinct:

Since many workers contribute to the making of an article, none can claim the credit of making it. Man's creative instinct is not satisfied. The work gives him no pride and no pleasure since no worker can claim the product as his own creation.

3. Dependence on Others for Satisfaction of Wants:

In olden days when Division of Labour was not developed then whatever articles a man was in position to produce he used to consume himself. But now-a-days the consumer is entirely dependent on others for the satisfaction of his wants.

DIS-ADVANTAGES TO LABOURERS:

A labourer can have following dis-advantages from Division of Labour:

1. Monotony of Work:

Under Division of Labour a worker has to do the same job time and again for years together. Therefore, after sometime, the worker feels bored or the work becomes irksome and monotonous. There remains no happiness or pleasure in the job for him. It has an adverse effect on the production.

2. Division of Labour can give Pride nor Pleasure:

In the absence of Division of Labour, a labourer feels a lot of pleasure on the successful completion of his goods. But under Division of Labour no-body can claim the credit of making it. The work gives him neither pride nor pleasure. Therefore, there is total loss of joy, happiness and interest in the work.

3. Fear of Unemployment:

The danger of unemployment is another dis-advantage of Division of Labour. When the worker produces a small part of goods he gets specialised in it and he does not have complete knowledge of the production of goods. For example – If a man is expert in buttoning the clothes and if he is removed or dismissed from the job, it becomes difficult for him to find the job of building. Thus, Division of Labour has a fear of unemployment.

4. Reduction in Mobility of Labour:

It has been observed that the mobility of labour is reduced on account of Division of Labour. The worker performs only a part of the whole task. He

is trained to do that much part only. So, it may not be easy for him to find out exactly the same job where else, if he wants to change the place. In this situation the mobility of labour gets retarded.

5. Creative Pleasure is killed:

Division of Labour kills the creative pleasure of producing an article because many men contribute to the making of an article, none can claim the credit of making it. Man's creative instinct is not satisfied. The work cannot give him pleasure as no worker can claim the product as his own creation.

6. Lack of Responsibility:

In this none can be held responsible for bad production because none makes the whole article. When the result is bad everybody tries to shift the responsibility to somebody else. This adds to the difficulties of administration.

7. Exploitation of Labour:

As we are that Division of Labour is concerned with large scale production in big factories which are owned by the rich people. No poor worker can afford to start his own production. Therefore, they have to seek employment in big factories of rich people. These employers pay fewer wages to them as compared to their marginal productivity, because there is no other alternative to the workers but to work at very low wages. Therefore, Division of Labour results in the exploitation of labour.

8. Employment of Women and Children:

Division of Labour results in the large scale production in which children and women are also employed. It is because a simple and small part of the whole task can be easily performed by them. Thus, the number of employed women and children increases. They are also exploited by the employers by paying them lower wages.

DIS-ADVANTAGES TO NATION:

Sometimes nation also has to suffer due to Division of Labour.

1. Birth of Monopoly Situation:

In Division of Labour producer is the alone producer of goods and to increase his profit, he adopts unfair tactics.

2. Maximum Production Leads to Depression in the Country:

In Division of Labour if maximum production is done then depression in the country takes place and the bad effect of depression directly falls on social and economic situation of the county.

Conclusion:

Division of Labour is no doubt attended with a number of drawbacks. But the advantage has outweigh the dis-advantages. The evils can be minimised by shortening the hours of work and providing more leisure to the worker. It is no longer possible nor it is desirable, to do away with this system. Remember Division of Labour is beneficial to the workers, to the producers and to the society as a whole.

Remedies and Mitigation of Division of Labour:

Various dis-advantages of the Division of Labour can be mitigated or remedied as under:

1. Monotony of Work can be avoided:

It has been observed that most of the monotony of work can be avoided when worker's opportunities of vertical mobility in the occupation are increased through training imparted under Division of Labour.

2. Psychological Satisfaction of Work is to be sacrificed:

In mass production when the psychological satisfaction of creative work is to be sacrificed, it is not every significant as compared to the physical satisfaction of increased income and consumption and high standard of living enjoyed by the worker as a result of the Division of Labour.

3. Risk of Unemployment:

Risk of unemployment causes frictional or technical unemployment due to mechanisation of the process. This may be short-term phenomenon. But, in fact, the Division of Labour in the long run increases employment opportunities within the firm or industry and in other fields also. For example – The increasing use of machinery will promote work and employment in the repair and spare parts industries of the country.

4. It Causes Lack of Responsibility:

Division of Labour causes lack of responsibility among the workers. But if proper checks are introduced, workers can be made more responsible to their job.

5. Increases the Mobility of Labour:

Division of Labour and the resulting specialisation will not inhibit but, on the contrary increase the mobility of labour. Because to specialise in some alternative job will not take much time as the worker is required to learn only a part of the work. Moreover, the number of employment exchange centres may be increased by the government to enhance the occupational mobility of labour.

4.7.7. LIMITATIONS OF DIVISION OF LABOUR:

Economists are of this opinion that the Division of Labour is very useful and beneficial to the workers, the entrepreneur and the society in general. But it has serious limitations. Its introduction and operation depends on certain conditions. Unless these conditions are fulfilled, Division of Labour will be either out of the question or will not be useful for the organisation.

1. Size of Market:

The demand for a commodity depends on the size of the market. A wide market constitutes a large demand for the product and a small market will obviously has a small magnitude of demand. Thus, if the demand is small, it will not be advantageous to produce it on a large scale and therefore, there will be less possibility of a complex Division of Labour.

On the other hand, a wide market calls for a large scale production, hence a greater possibility of extensive Division of Labour. A complex Division of Labour and large scale of production are possible only when there is a sufficiently large market to absorb all the supply of goods produced.

2. Nature of Product and Nature of Occupation:

Nature of product imposes another limitation. If the product is such that its manufacture cannot be split up into distinct process, no Division of Labour will be possible. Similarly, when a job is such which cannot be split into different processes, there cannot be Division of Labour. For example – In farming when there is time-gap between sowing and harvesting, Division of

Labour is futile. Similarly in driving a car, there cannot be a Division of Labour.

3. Spirit of Co-operation:

Division of Labour can be successful when there is perfect co-ordination among different processes and full co-operation among workers. Without the spirit of co-operation and compromise or team spirit, Division of Labour cannot be effective.

4. Physical or Technical Limit:

Beyond a point of physical and technical limit, further Division of Labour is not possible. For Example – It is technically impossible to further break-up the processes of hammering or working on a sewing machine.

5. Ability of the Manager or the Entrepreneur:

A complex Division of Labour involves large co-ordination of work and extensive organisation and administration on the part of the manager or the entrepreneur. If this ability is lacking the system of Division of Labour cannot be sustained for long.

6. Machinery of Commerce and Transportation:

The extent of Division of Labour is also indirectly determined by the machinery of commerce and transport facilities in the country. The facility of transport, the banking system etc. help to an extent the market areas which determine the extent of Division of Labour.

4.8. LARGE SCALE AND SMALL SCALE PRODUCTION:

4.8.1. SMALL SCALE PRODUCTION

Small Scale Industries (SSI) are those industries in which manufacturing, providing services, productions are done on a small scale or micro scale. For example, these are the ideas of Small scale industries: Napkins, tissues, chocolates, toothpick, water bottles, small toys, papers, pens. Small scale industries play an important role in social and economic development of India. These industries do a one-time investment in machinery, plants, and industries which could be on an ownership basis, hire purchase or lease basis. But it does not exceed Rs. 1 Crore. Let us discuss in detail about it.

Essentially small scale industries comprise of small enterprises who manufacture goods or services with the help of relatively smaller machines and a few workers and employees. Basically, the enterprise must fall under the guidelines set by the Government of India. At the time being such limits are as follows, For Manufacturing Units for Goods: Investment in plant and machinery must be between 25 lakhs and five crores. For Service Providers: Investment in machinery must be between 10 lakhs and two crores.

In developing countries like India, these small scale industries are the lifeline of the economy. These are generally labour-intensive industries, so they create much employment. They also help with per capita income and resource utilization in the economy. They are a very important sector of the economy from a financial and social point of view.

4.8.2. LARGE SCALE PRODUCTION

A business can range from a single proprietor enterprise to a large corporation which employs thousands of workers across multiple countries. Based on the scale of business, organizations are classified as micro-enterprises, small-scale enterprises, large scale industries, public enterprises, and multinational corporations. In this article, we will take a quick peek at large scale industries. Industries which requires huge infrastructure and manpower with an influx of capital assets are Large Scale Industries. In India, large-scale industries are the ones with a fixed asset of more than one hundred million rupees or Rs. 10 crores. The Indian economy relies heavily on such industries for economic growth, generation of foreign currency, and the creation of job opportunities for millions of Indians.

4.8.3. ADVANTAGES OF SMALL SCALE PRODUCTION:

The following are the merits of small scale production:

1. Close Supervision:

The small producer can himself supervise the minutest details of the business. Nobody is allowed to spoil machinery or waste materials. The master's eye is everywhere. There can be no fraud or idleness. He will exercise utmost economy to achieve the aim of maximum profits.

2. Nature of Demand:

The small producer has an advantage over the large producer, when the demand is either small or is constantly changing. He has thus a sphere of his own where he has an advantage over the large scale producer.

3. More Employment:

In the face of large scale unemployment existing in the country, the development of cottage and small scale industries is of great help to create more employment opportunities. Small scale production is more labour-intensive i.e., there is more use of labour than machinery. Thus, many unemployed persons are employed in the newly developed small scale industries.

4. Need of small Capital:

The small scale production can be started with small capital. Where there is shortage of capital, the small scale industries are of great advantage for the development of industries.

5. Direct Relation between the Workers and the Employers:

In small scale production fewer workers are employed. Therefore, a close relationship exists between the employer and the workers. Because Of this close relationship, the employer can look after the well-being of his employees and employees, too, consider their work as their own and the work goes on smoothly without any disputes between the two parties.

6. Direct Relation between the Customers and the Producers:

The small scale producers generally cater to the local demand. Hence, they remain in touch with their customers. A small producer personally knows his customers. Therefore, he can produce goods according to the taste and fashion of each individual customer.

7. Easy Management:

The management of small business is easy and economical. Simple accounts and a few persons can manage the job well.

8. Freedom of Work:

There is complete freedom of work in a small business organisation. Workers are more or less self-sufficient. They are not dependent on the capitalists and carry on their jobs freely.

9. External Economies:

The small scale production secures all kinds of external economies, which are available to large units also. These economies are: better transport, electricity, and communication facilities banking and insurance services; technical workers, etc.

10. No Evils of Large Scale Production:

The small scale production cannot fall victim to the evils of the large scale production i.e., evils of the factory system, overcrowding, etc.

4.8.4. DISADVANTAGES OF SMALL SCALE PRODUCTION:

The following are the demerits of small scale production:

1. High Cost of Production:

The cost of production per unit increases because there is a high cost of labour, a very little scope for division of labour and lesser use of machinery.

2. Wastage of By-products:

In the small scale production, it is not possible to make economic use of the by-products, as in the large scale production. By-products of the small producers generally go waste.

3. Less Use of Machines:

In the small scale production, there is less scope for the use of machines. As a result, these firms cannot take advantages of the use of the machinery.

4. Lack of Division of Labour:

In the small scale industries, the size of production is small, and there is lack of division of labour and less profits to the entrepreneurs.

5. Difficulty in Getting Loans:

It cannot enjoy the financial economies. Funds are either not available and if available, they have to pay higher rate of interest.

6. Difficult to Face Economic Crisis:

Because of the limited resources and financial weakness, the small scale producers cannot face economic crisis. The producers do not have the capacity to bear losses for long. In fact, under a small economic crisis, many small factories are closed down.

7. Costly Raw Materials:

In the small scale production, raw materials are purchased in small quantities which are available to the small producer at higher prices.

8. Lack of Standardised Goods:

The quality of goods is not standardised or up to the mark in the small scale production. It is difficult to sell goods because of their low standard and inferior quality.

9. Old Techniques:

In the small scale industries, the production is undertaken with the help of old techniques or old and obsolete machines. It is not within their capacity to bear the risk of installing new machinery.

10. Lack of Research:

The small scale industries have limited means at their disposal. They cannot spend much on research in the field of science and technology. In this way, the small scale industries are a hurdle in the way of technical research and, industrial development.

11. Difficult to Face Competition with Large Scale Producers:

If some large scale producers enter the market, the small producers find it difficult to compete with them. The small producers perish at the hands of the large scale producers.

4.8.5. ADVANTAGES AND DISADVANTAGES OF LARGE SCALE PRODUCTION:

Advantages of Large Scale Production:

The following are the merits of large scale production:

1. Internal Economies:

Internal economies arise within the firm because of the expansion of the size of a particular firm. They are called the economies of scale.

2. External Economies:

External economies arise with the expansion of the industry. These are generally the result of large scale production and are associated with the advantages of localisation.

3. Division of Labour:

The large scale production is always associated with more and more division of labour. With the division of labour per worker output increases. Hence, per unit labour cost is reduced in large scale production.

4. Use of machines:

The large scale production always makes use of machines. So, all the advantages of the use of machinery are available.

5. More Production:

The large scale industries can produce more goods. For instance, a big sugar factory can use molasses to make spirits and thus can reduce the cost of production of sugar.

6. Economies of Organisation:

With an increase in the size of the firm, the cost of management is reduced.

7. Low Cost of Production:

The large scale production gives many types of economies. Suppose, there are two different factories, each producing 500 units of a commodity. For these two factories, there must be two managers. But if the scale of production is enlarged and in one factory we start producing 1000 units of the same commodity, the work can be supervised by one manager. In this way, in the large scale production, the salary of one manager is saved. So, the cost of production is reduced.

8. Cheap and Easy Loans:

A large business can secure credit facilities at cheaper rates, because these firms enjoy credit and reputation in the market due to their fixed assets. Banks and other financial institutions willingly advance loans to these enterprises at a very low rate of interest.

9. Ancillary Industries:

With the development of large scale production, there arise many small industries which use its by-products or supply inputs to it. Suppose, when the production of steel is increased, many other auxiliary industries develop. The development of auxiliary industries contributes to the industrialisation of the area and the industry itself.

10. Standard Goods:

The production of standardised goods is possible on account of the large-scale production. Only a big motor company can produce standardised motor parts. Besides, it is possible to sell and transport these goods to distant places only by big business houses.

11. Advertisement and Salesmanship:

A big concern can afford to spend large amounts of money on advertisement and salesmanship. Ultimately, they do bear fruit. The amount of money spent on advertisement per unit comes to a low figure when production is undertaken on a very large scale. The salesmen can make a careful study of the individual markets and thus acquire a hold on new markets or strengthen it on the old ones. Thus, a large scale producer has a greater competitive strength.

12. Research:

The large scale production is conducive for the development of technology also. With larger amount of capital and financial resources, the large scale firms can afford to spend more on research and experiments which ultimately lead to the discovery of new machines and cheaper techniques of production.

13. Economy of Buying and Selling:

A large concern usually buys things in large quantities and therefore, at low rates. It also sells things in large quantities and can secure better terms.

14. Economies of Indivisibility:

Many factors of production are not perfectly divisible. For instance, assume that one machine can produce 100 units of a commodity, but we are producing only 50 units by that machine. The machine is indivisible. If the scale of production is increased and we start producing 100 units, per unit cost will be reduced. This is the economy of the indivisible machines.

4.8.6. DISADVANTAGES OF LARGE SCALE PRODUCTION:

The following are the demerits of large scale production:

1. Evils of Factory System:

The large scale production is accompanied by all the evils of the factory system like over-crowding, density, pollution, bad morals, etc. Dirty habits of drinking and gambling spread very easily.

2. Danger of Over-Production:

The large scale organisation results in over production at times, so demand cannot be properly estimated. At last, prices fall and depression sets in.

3. Less Supervision:

A large scale producer cannot pay full attention to every detail in various departments. Costs often rise on account of the dishonesty of workers. Thus, due to inefficient and inadequate supervision, the cost of production goes up.

4. Monopoly:

The large scale production results in the localisation of industries. As a result, the bigger fish swallows the smaller ones, and cut-throat competition and monopolies result.

5. Class Struggle:

The large scale production gives rise to class struggle, the struggle between the labourers and the capitalists. Their interests cannot go together, as they are very different from each other. As a result, there is a struggle between the two groups.

6. Dependence on Foreign Markets:

A large producer has generally to depend on the foreign markets. The foreign markets may be cut off by wars, etc. This makes the business risky.

7. Possibility of War:

The large scale production increases the possibilities of wars. Big producers make attempts to sell their goods in the foreign markets and try to capture them by fair and foul means, thereby exposing the world to wars and struggles.

8. Lack of Adaptability:

As huge capital is invested in the large scale production, it is very difficult to bring about a change in the scale of production according to the circumstances.

9. Individual Tastes Ignored:

The individual tastes and interests stand completely ignored in large scale production. Goods of uniform quality are turned out irrespective of the requirements of the individual customers. Individual tastes are not, therefore, satisfied. This results in the loss of customers to other competitors.

10. Unequal Distribution of Wealth:

All wealth and incomes of the country get concentrated in the pockets of big producers due to large scale production. There is unequal distribution of wealth and resources on account of the large scale production. The rich become richer and the poor become poorer.

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UNIT - V
PRODUCTION FUNCTION

5.1. PRODUCTION FUNCTION

5.1.1. INTRODUCTION:

Production is the result of co-operation of four factors of production viz., land, labour, capital and organization. This is evident from the fact that no single commodity can be produced without the help of any one of these four factors of production. Therefore, the producer combines all the four factors of production in a technical proportion. The aim of the producer is to maximize his profit. For this sake, he decides to maximize the production at minimum cost by means of the best combination of factors of production. The producer secures the best combination by applying the principles of equi-marginal returns and substitution. According to the principle of equi-marginal returns, any producer can have maximum production only when the marginal returns of all the factors of production are equal to one another. For instance, when the marginal product of the land is equal to that of labour, capital and organisation, the production becomes maximum.

5.1.2. MEANING OF PRODUCTION FUNCTION:

In simple words, production function refers to the functional relationship between the quantity of a good produced (output) and factors of production (inputs). In this way, production function reflects how much output we can expect if we have so much of labour and so much of capital as well as of labour etc. In other words, we can say that production function is an indicator of the physical relationship between the inputs and output of a firm. The reason behind physical relationship is that money prices do not appear in it. However, here one thing that becomes most important to quote is that like demand function a production function is for a definite period. It shows the flow of inputs resulting into a flow of output during some time. The production function of a firm depends on the state of technology. With every development in technology the production function of the firm undergoes a change.

Mathematically, such a basic relationship between inputs and outputs may be expressed as:

Q = f(L, C, N)

Where Q = Quantity of output

L = Labour

C = Capital

N = Land.

Hence, the level of output (Q), depends on the quantities of different inputs (L, C, N) available to the firm. In the simplest case, where there are only two inputs, labour (L) and capital (C) and one output (Q), the production function becomes.

Q =f (L, C)

5.1.3. DEFINITIONS:

"The relationship between inputs and outputs is summarized in what is called the production function. This is a technological relation showing for a given state of technological knowledge how much can be produced with given amounts of inputs." Prof. Richard J. Lipsey

5.1.4. FEATURES OF PRODUCTION FUNCTION:

Following are the main features of production function:

1. Substitutability:

The factors of production or inputs are substitutes of one another which make it possible to vary the total output by changing the quantity of one or a few inputs, while the quantities of all other inputs are held constant. It is the substitutability of the factors of production that gives rise to the laws of variable proportions.

2. Complementarity:

The factors of production are also complementary to one another, that is, the two or more inputs are to be used together as nothing will be produced if the quantity of either of the inputs used in the production process is zero. The principles of returns to scale is another manifestation of complementarity of inputs as it reveals that the quantity of all inputs are to be increased simultaneously in order to attain a higher scale of total output.

3. Specificity:

It reveals that the inputs are specific to the production of a particular product. Machines and equipment's, specialized workers and raw materials are a few examples of the specificity of factors of production. The specificity may not be complete as factors may be used for production of other commodities too. This reveals that in the production process none of the factors can be ignored and in some cases ignorance to even slightest extent is not possible if the factors are perfectly specific.

Production involves time; hence, the way the inputs are combined is determined to a large extent by the time period under consideration. The greater the time period, the greater the freedom the producer has to vary the quantities of various inputs used in the production process. Production function is the mathematical representation of relationship between physical inputs and physical outputs of an organization.

There are different types of production functions that can be classified according to the degree of substitution of one input by the other.

5.1.5. TYPES OF PRODUCTION FUNCTION:

The different types of production function as follows:

1. Cobb-Douglas Production Function:

Cobb-Douglas production function refers to the production function in which one input can be substituted by other but to a limited extent. For
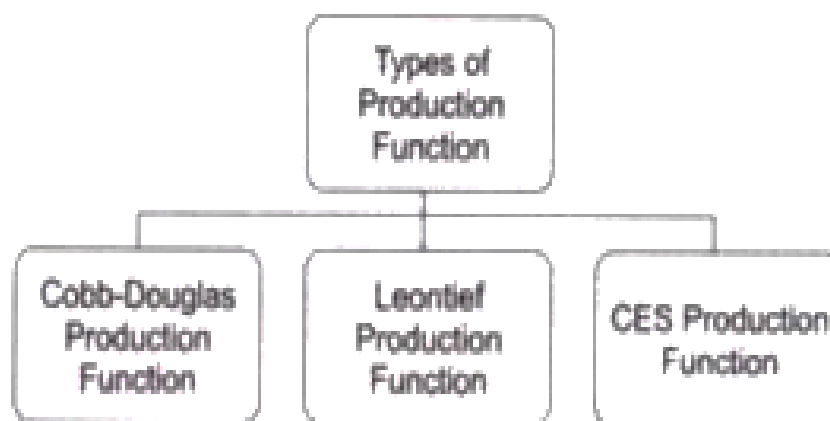
example, capital and labor can be used as a substitute of each other, but to a limited extent only.

Cobb-Douglas production function can be expressed as follows:

$Q = AK^aL^b$

Where, A = positive constant

a and b = positive fractions

b = 1 – a

Therefore, Cobb- Douglas production function can also be expressed as follows:

$Q = ak^aL^{1-a}$

The characteristics of Cobb- Douglas production function are as follows:

i. Makes it possible to change the algebraic form in log linear form, represented as follows:

$\log Q = \log A + a \log K + b \log L$

This production function has been estimated with the help of linear regression analysis.

ii. Makes it possible to change the algebraic form in log linear form, represented as follows:

$\log Q = \log A + a \log K + b \log L$

This production function has been estimated with the help of linear regression analysis.

iii. Acts as a homogeneous production function, whose degree can be calculated by the value obtained after adding values of a and b. If the resultant value of a + b is 1, it implies that the degree of homogeneity is 1 and indicates the constant returns to scale.

iv. Makes use of parameters a and b, which signifies the elasticity' coefficients of output for inputs, labor and capital, respectively. Output elasticity coefficient refers to the change produced in output due to change in capital while keeping labor at constant.

v. Represents that there would be no production at zero cost.

2. Leontief Production Function:

Leontief production function uses fixed proportion of inputs having no substitutability between them. It is regarded as the limiting case for constant elasticity of substitution.

The production function can be expressed as follows:

$q = \min(z_1/a, Z_2/b)$

Where, q = quantity of output produced

Z_1 = utilized quantity of input 1

Z_2 = utilized quantity of input 2

a and b = constants

For example, tyres and steering wheels are used for producing cars. In such case, the production function can be as follows:

$Q = \min(z_1/a, Z_2/b)$

Q = min (number of tyres used, number of steering used).

3. CES Production Function:

CES stands for constant elasticity substitution. CES production function shows a constant change produced in the output due to change in input of production.

It can be represented as follows:

$Q = A[aK^\beta + (1-a)L^{-\beta}]^{-1/\beta}$

Or,

$Q = A[aL^{-\beta} + (1-a)K^{-\beta}]^{-1/\beta}$

CES has the homogeneity degree of 1 that implies that output would be increased with the increase in inputs. For example, labor and capital has increased by constant factor m.

In such a case, production function can be represented as follows:

$Q' = A[a(mK)^{-\beta} + (1-a)(mL)^{-\beta}]^{-1/\beta}$

$Q' = A[m^{-\beta}\{aK^{-\beta} + (1-a)L^{-\beta}\}]^{-1/\beta}$

$Q' = (m^{-\beta})^{-1/\beta}.A[aK^{-\beta} + (1-a)L^{-\beta})^{-1/\beta}$

Because, $Q = A[aK^{-\beta} + (1-a)L^{-\beta}]^{-1/\beta}$

Therefore, $Q' = mQ$

This implies that CES production function is homogeneous with degree one.

5.2. LAW OF VARIABLE PROPORTIONS:

Law of Variable Proportions occupies an important place in economic theory. This law is also known as Law of Proportionality. Keeping other factors fixed, the law explains the production function with one factor variable. In the short run when output of a commodity is sought to be increased, the law of variable proportions comes into operation. Therefore, when the number of one

factor is increased or decreased, while other factors are constant, the proportion between the factors is altered. For instance, there are two factors of production viz., land and labour.

Land is a fixed factor whereas labour is a variable factor. Now, suppose we have a land measuring 5 hectares. We grow wheat on it with the help of variable factor i.e., labour. Accordingly, the proportion between land and labour will be 1: 5. If the number of labourers is increased to 2, the new proportion between labour and land will be 2: 5. Due to change in the proportion of factors there will also emerge a change in total output at different rates. This tendency in the theory of production called the Law of Variable Proportion.

5.2.1. DEFINITIONS:

"As the proportion of the factor in a combination of factors is increased after a point, first the marginal and then the average product of that factor will diminish." Benham.

"An increase in some inputs relative to other fixed inputs will in a given state of technology cause output to increase, but after a point the extra output resulting from the same additions of extra inputs will become less and less." Samuelson.

5.2.2. ASSUMPTIONS:

Law of variable proportions is based on following assumptions:

(i) Constant Technology:

The state of technology is assumed to be given and constant. If there is an improvement in technology the production function will move upward.

(ii) Factor Proportions are Variable:

The law assumes that factor proportions are variable. If factors of production are to be combined in a fixed proportion, the law has no validity.

(iii) Homogeneous Factor Units:

The units of variable factor are homogeneous. Each unit is identical in quality and amount with every other unit.

(iv)Short-Run:

The law operates in the short-run when it is not possible to vary all factor inputs.

5.2.3. Explanation of the Law:

In order to understand the law of variable proportions we take the example of agriculture. Suppose land and labour are the only two factors of production. By keeping land as a fixed factor, the production of variable factor i.e., labour can be shown with the help of the following table:

From the table 5.1 it is clear that there are three stages of the law of variable proportion. In the first stage average production increases as there are more and more doses of labour and capital employed with fixed factors (land). We see that total product, average product, and marginal product increases but average product and marginal product increases up to 40 units. Later on, both start decreasing because proportion of workers to land was sufficient and land is not properly used. This is the end of the first stage.

Table.5.1. Law of variable proportion

Units of Land	Units of Labour	Total Production	Average Production	Marginal Production	
10 Acres	0	–	–	–	
,,	1	20	20	20	
,,	2	50	25	30	1st stage
,,	3	90	30	40	MP > AP
,,	4	120	30	30	AP = MP
,,	5	140	28	20	
,,	6	150	25	10	2nd stage
,,	7	150	21.3	0	MP=0 and TP Maximum
,,	8	140	17.5	–10	3rd stage MP < 0

The second stage starts from where the first stage ends or where AP=MP. In this stage, average product and marginal product start falling. We should note that marginal product falls at a faster rate than the average product. Here, total product increases at a diminishing rate. It is also maximum at 70 units of labour where marginal product becomes zero while average product is never zero or negative.

The third stage begins where second stage ends. This starts from 8th unit. Here, marginal product is negative and total product falls but average product is still positive. At this stage, any additional dose leads to positive nuisance because additional dose leads to negative marginal product.

Graphic Presentation:

In fig 5.1, on OX axis, we have measured number of labourers while quantity of product is shown on OY axis. TP is total product curve. Up to point 'E', total product is increasing at increasing rate. Between points E and G it is increasing at the decreasing rate. Here marginal product has started falling. At point 'G' i.e., when 7 units of labourers are employed, total product is maximum while, marginal product is zero. Thereafter, it begins to diminish corresponding to negative marginal product. In the lower part of the figure MP is marginal product curve.
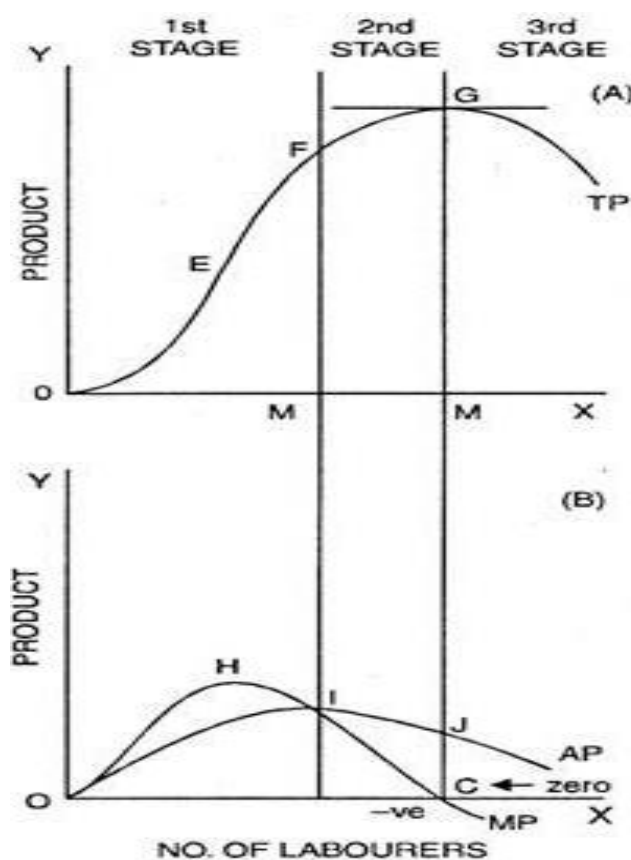

Fig. 5.1. Law of variable proportion

Up to point 'H' marginal product increases. At point 'H', i.e., when 3 units of labourers are employed, it is maximum. After that, marginal product begins to decrease. Before point 'I' marginal product becomes zero at point C and it turns negative. AP curve represents average product. Before point 'I', average product is less than marginal product. At point 'I' average product is maximum. Up to point T, average product increases but after that it starts to diminish.

Three Stages of the Law:

1. First Stage:

First stage starts from point 'O' and ends up to point F. At point F average product is maximum and is equal to marginal product. In this stage, total product increases initially at increasing rate up to point E. between 'E' and 'F' it increases at diminishing rate. Similarly marginal product also increases initially and reaches its maximum at point 'H'. Later on, it begins to diminish and becomes equal to average product at point T. In this stage, marginal product exceeds average product (MP > AP).

2. Second Stage:

It begins from the point F. In this stage, total product increases at diminishing rate and is at its maximum at point 'G' correspondingly marginal product diminishes rapidly and becomes 'zero' at point 'C'. Average product is maximum at point 'I' and thereafter it begins to decrease. In this stage, marginal product is less than average product (MP < AP).

3. Third Stage:

This stage begins beyond point 'G'. Here total product starts diminishing. Average product also declines. Marginal product turns negative. Law of diminishing returns firmly manifests itself. In this stage, no firm will produce anything. This happens because marginal product of the labour becomes negative. The employer will suffer losses by employing more units of labourers. However, of the three stages, a firm will like to produce up to any given point in the second stage only.

5.2.4. CONDITION OR CAUSES OF APPLICABILITY:

There are many causes which are responsible for the application of the law of variable proportions. They are as follows:

1. Under Utilization of Fixed Factor:

In initial stage of production, fixed factors of production like land or machine, is under-utilized. More units of variable factor, like labour, are needed for its proper utilization. As a result of employment of additional units of variable factors there is proper utilization of fixed factor. In short, increasing returns to a factor begins to manifest itself in the first stage.

2. Fixed Factors of Production.

The foremost cause of the operation of this law is that some of the factors of production are fixed during the short period. When the fixed factor is used with variable factor, then its ratio compared to variable factor falls. Production is the result of the co-operation of all factors. When an additional unit of a variable factor has to produce with the help of relatively fixed factor, then the marginal return of variable factor begins to decline.

3. Optimum Production:

After making the optimum use of a fixed factor, then the marginal return of such variable factor begins to diminish. The simple reason is that after the optimum use, the ratio of fixed and variable factors become defective. Let us suppose a machine is a fixed factor of production. It is put to optimum use when 4 labourers are employed on it. If 5 labourers are put on it, then total production increases very little and the marginal product diminishes.

4. Imperfect Substitutes:

Mrs. Joan Robinson has put the argument that imperfect substitution of factors is mainly responsible for the operation of the law of diminishing returns. One factor cannot be used in place of the other factor. After optimum use of fixed factors, variable factors are increased and the amount of fixed factor could be increased by its substitutes. Such a substitution would increase the production in the same proportion as earlier. But in real practice factors are imperfect substitutes.

Applicability of the Law of Variable Proportions:

The law of variable proportions is universal as it applies to all fields of production. This law applies to any field of production where some factors are fixed and others are variable. That is why it is called the law of universal application. The main cause of application of this law is the fixity of any one factor. Land, mines, fisheries, and house building etc. are not the only examples of fixed factors. Machines, raw materials may also become fixed in the short period. Therefore, this law holds well in all activities of production etc. agriculture, mining, manufacturing industries.

1. Application to Agriculture:

With a view of raising agricultural production, labour and capital can be increased to any extent but not the land, being fixed factor. Thus when more and more units of variable factors like labour and capital are applied to a fixed factor then their marginal product starts to diminish and this law becomes operative.

2. Application to Industries:

In order to increase production of manufactured goods, factors of production has to be increased. It can be increased as desired for a long period, being variable factors. Thus, law of increasing returns operates in industries for a long period. But, this situation arises when additional units of labour, capital and enterprise are of inferior quality or are available at higher cost. As a result, after a point, marginal product increases less proportionately than increase in the units of labour and capital. In this way, the law is equally valid in industries.

5.3. LAW OF RETURNS

The law of returns to scale explains the proportional change in output with respect to proportional change in inputs. In other words, the law of returns to scale states when there are a proportionate change in the amounts of inputs, the behaviour of output also changes. The degree of change in output varies with change in the amount of inputs. For example, an output may change by a large proportion, same proportion, or small proportion with respect to change in input.

On the basis of these possibilities, law of returns can be classified into three categories:

i. Increasing returns to scale

ii. Constant returns to scale

iii. Diminishing returns to scale

1. Increasing Returns to Scale:

If the proportional change in the output of an organization is greater than the proportional change in inputs, the production is said to reflect increasing returns to scale. For example, to produce a particular product, if the quantity of inputs is doubled and the increase in output is more than double, it is said to be an increasing returns to scale. When there is an increase in the scale of production, the average cost per unit produced is lower. This is because at this stage an organization enjoys high economies of scale.

In Figure-5.2, a movement from a to b indicates that the amount of input is doubled. Now, the combination of inputs has reached to 2K+2L from 1K+1L. However, the output has Increased from 10 to 25 (150% increase), which is more than double. Similarly, when input changes from 2K-H2L to 3K + 3L, then output changes from 25 to 50(100% increase), which is greater than change in input. This shows increasing returns to scale. There a number of factors responsible for increasing returns to scale.
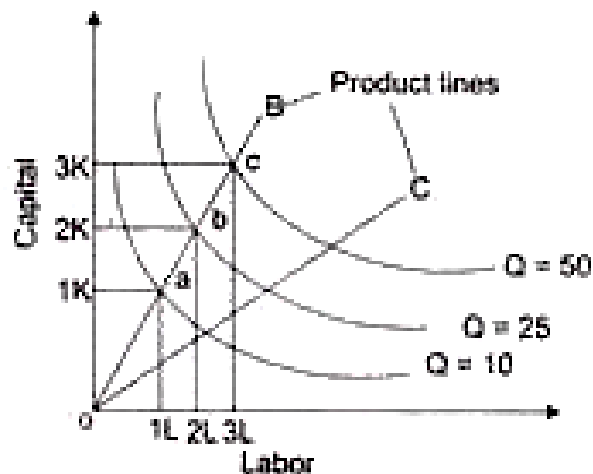

Fig. 5.2. Increasing returns to scale

Some of the factors are as follows:
i. Technical and managerial indivisibility:

Implies that there are certain inputs, such as machines and human resource, used for the production process are available in a fixed amount. These inputs cannot be divided to suit different level of production. For example, an organization cannot use the half of the turbine for small scale of

production. Similarly, the organization cannot use half of a manager to achieve small scale of production. Due to this technical and managerial indivisibility, an organization needs to employ the minimum quantity of machines and managers even in case the level of production is much less than their capacity of producing output. Therefore, when there is increase in inputs, there is exponential increase in the level of output.

ii. Specialization:

Implies that high degree of specialization of man and machinery helps in increasing the scale of production. The use of specialized labor and machinery helps in increasing the productivity of labor and capital per unit. This results in increasing returns to scale.

iii. Concept of Dimensions:

Refers to the relation of increasing returns to scale to the concept of dimensions. According to the concept of dimensions, if the length and breadth of a room increases, then its area gets more than doubled.

For example, length of a room increases from 15 to 30 and breadth increases from 10 to 20. This implies that length and breadth of room get doubled. In such a case, the area of room increases from 150 (15*10) to 600 (30*20), which is more than doubled.

2. Constant Returns to Scale:

The production is said to generate constant returns to scale when the proportionate change in input is equal to the proportionate change in output. For example, when inputs are doubled, so output should also be doubled, then it is a case of constant returns to scale. In Figure-5.3, when there is a movement from a to b, it indicates that input is doubled. Now, when the combination of inputs has reached to 2K+2L from IK+IL, then the output has increased from 10 to 20. Similarly, when input changes from 2Kt2L to 3K + 3L, then output changes from 20 to 30, which is equal to the change in input.
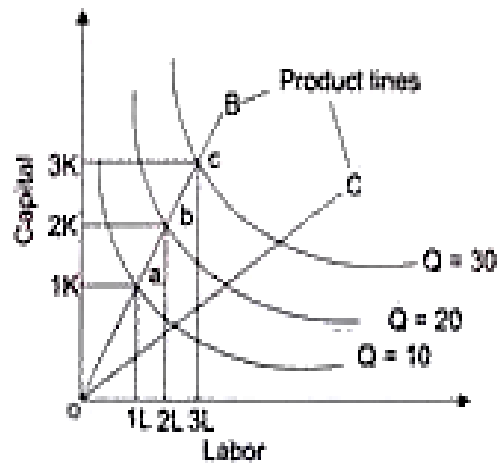
Fig. 5.3. Constant returns to scale

This shows constant returns to scale. In constant returns to scale, inputs are divisible and production function is homogeneous.

3. Diminishing Returns to Scale:

Diminishing returns to scale refers to a situation when the proportionate change in output is less than the proportionate change in input. For example, when capital and labour is doubled but the output generated is Less than doubled, the returns to scale would be termed as diminishing returns to scale.
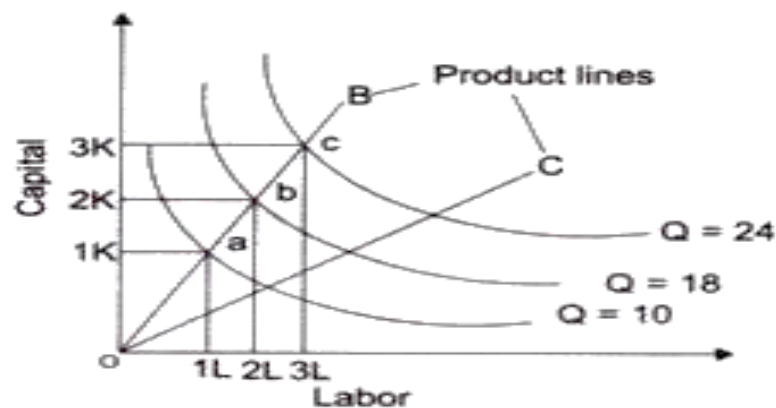

Fig. 5.4. Diminishing returns to scale

In Figure-5.4, when the combination of labor and capital moves from point a to b, it indicates that input is doubled. At point a, the combination of input is 1k+1L and at point b, the combination becomes 2K+2L. However, the output has increased from 10 to 18, which is less than change in the amount of input. Similarly, when input changes from 2K+2L to 3K + 3L, then output changes from 18 to 24, which is less than change in input. This shows the

diminishing returns to scale. Diminishing returns to scale is due to diseconomies of scale, which arises because of the managerial inefficiency.

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