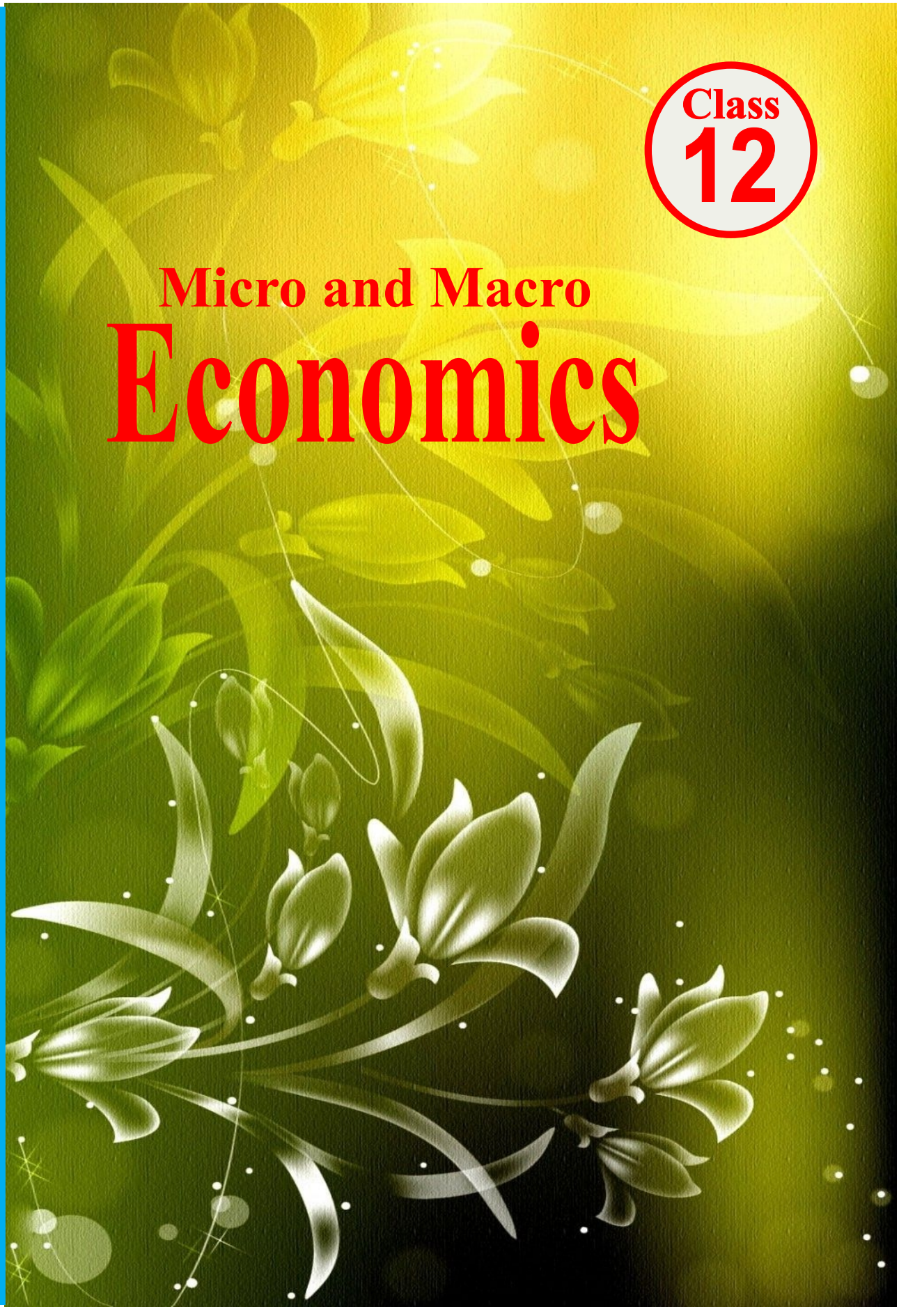
Class 12

Micro and Macro Economics



Micro and Macro Economics

Class - XII

Board of Secondary Education, Rajasthan, Ajmer

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Foreword

For students, textbook is the basis of sequential studies, confirmation, review and future studies. The level of school text book becomes very important from the content and teaching - method's perspective. Text-books should not be made insentient or to glorify things. Even today text-books are an important instrument of teaching-learning process, which cannot be ignored.

For the last few years the syllabus of Board of Secondary Education, Rajasthan was felt to be lacking in representation of linguistic and cultural events of Rajasthan. Keeping this in view the state government decided to implement its syllabus through Board of Secondary Education, Rajasthan, for the students of class 9-12. In accordance to this, Board, has got assembled the text-books for classes 9 to 11 from the session 2016-17 based on the set syllabus. Hope these text books will be instrumental in providing the students with originality of thought process, contemplation and expression.

Prof. B.L. Choudhary

Chairman

Board of Secondary Education Rajasthan

Ajmer

Micro Economics

Name of Unit-

(A). Introduction (Unit I) **5 Marks**

1. Introduction- Meaning of micro economics and macro economics; meaning of positive and normative economics; central problems of an economy, what, how and for to produce; production possibility curve; concepts of opportunity and marginal opportunity cost.

(B). Consumer's behaviour (Unit II) **12 Marks**

1. Consumer's equilibrium Utility analysis; utility meaning and types; law of diminishing marginal utility, law of equi-marginal utility, assumption – consumer's equilibrium in marginal utility analysis; Analysis of Indifference curve and consumer's equilibrium.

2. Concepts of demand- demand, market demand, demand schedule, demand curve, factors affecting demand, change in quantity of demand, law of demand(detailed explanation).

3. Elasticity of demand- Meaning of elasticity of demand, degrees of elasticity of demand, measurement of elasticity of demand (i) Percentage method.(ii) total expenditure method. (iii) Geometric method.(in context to linear demand curve), factors affecting the elasticity of demand

(C). Producer's behaviour (Unit III) **12 Marks**

1. Concept of supply- supply, market supply, supply schedule, factors affecting supply, change in quantity of supply, change in supply. Law of supply. (detailed explanation)

2. Production function- meaning of production function; fixed and variable factors; meaning of production function and its types. Concepts of short run production function; total production, average production and marginal production. Law of variable proportions; ideal stage of production.

3. Concept of cost – meaning of cost, types (Explicit cost and implicit cost, personal cost, social cost, monetary cost and actual cost), short run cost curves- total cost, total fixed cost, total variable cost, average cost, marginal cost. Relationship among short run cost curves.

4. Concepts of revenue- meaning, types- total revenue, average revenue and marginal revenue and their relationship between price and average revenue. Revenue curve in various market conditions.

5. Equilibrium of producer- meaning and assumptions-(i) Total cost and total revenue.(ii) Marginal cost and marginal revenue methods.

(D). Market and price determination (Unit IV)- **11 Marks**

1. Perfect competition- meaning of market, types, meaning and characteristics of perfect competition.

2. Other forms of market- Monopoly, monopolistic competition (Imperfect competition) and meaning of oligopoly and its characteristics.

3. Market equilibrium- equilibrium price, equilibrium price and determination of market equilibrium, effect of change in demand and supply on market equilibrium.

Macro economics

(A) Concepts of national income (Unit I) 11 marks

1. Basic concepts of national income- concepts of stock and flow, meaning of circular floe of income in two sectors economy, consumable goods and capital goods, final goods and intermediatry goods, gross and net investment and depreciation, concept of domestic territory and residents of a country, concept of net factors income from abroad, concept of net indirect taxes.

2. National income and its relates aggregates- Gross and net domestic product, gross and net national product (at market price net factors cost), National disposable income(gross and net).private income, personal income, and personal disposable income, concept of per capita income.

3. Measurement of national income- Value added method, income method and expenditure method. Relation between national income and welfare.

(B) Money and banking (Unit II) 10 Marks

1. Money- meaning and problem of batter system, functions and meaning of money.

2. Commercial Bank-meaning, functions and methods of credit creation.

3. Central Bank- Meaning, function and method of credit control (in special context to Reserve Bank of India)

(C) Determination of income and employment (Unit III) 10 Mark

1. Concept of consumption function, saving function and investment function- propensity to consume, saving function and propensity to save, concept of investment function.

2. Determination of Income and output- concepts of aggregate demand and aggregate supply. Determination of equilibrium level of income, concept of coefficient of investment.

3. Excess demand and low demand- meaning, explanation of excess demand and low demand with reference to aggregate demand and aggregate supply, measures of control (monetary and fiscal measures)

(C) Concept of Budget and International trade (Unit IV) 7 Mark

1- Government budget and economy- Meaning of budget, objectives and its components, revenue receipts and capital receipts, revenue expenditure and capital expenditure, concepts of budget deficit, fiscal deficit and primary deficit.

2. Concepts of International trade- Meaning of international trade, equilibrium concept of balance of trade and balance of payment. Meaning of foreign exchange rate, determination of foreign exchange rate through demand and supply, devaluation and revaluation of money.

3. Cashless transaction. (Unit V) 2 Marks

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LESSON 1

INTRODUCTION OF ECONOMICS

Introduction- From the beginning of human civilization man has depended on various types of livelihood. Early man's life was based on hunting. Now a days animal husbandry and agriculture are the main means of livelihood for most of the people. With the passage of time, after industrial revolution, forms of livelihood changed in many countries. Today industries, trade and other commercial activity have developed. Commercial activities have become source of income and employment for most of the people. In this way there have been development and change in the types of economic activities. Similarly the literature of economic thoughts, theories and laws related to economic activities have enriched and have became popular by name of 'Economics'. We find mention of word 'Economics' in Indian ancient books. "कृषिपालन,पालयः वाणिज्यम च वार्ताः"In the above Sanskrit verse the word "varta" is used for economic activities. Ancient thinkers like, Brihaspati, Shukra and Kautilya have used the word Varta for economic activities like agriculture ,animal husbandary, milk production and other commercial activities. Swami Dayanand Saraswati, Dadabhai Naoroji, Mahadev Govind Ranade, Gopal Krishna Gokhale, Ramesh Chander Dutt, M.N.Roy are the prominent early Indian economic thinkers. Later on Mahatma Gandhi, Jawharlal Nehru, Ram Manohar Lohia, Prof. J.K. Mehta, Pandit Deen Dayal Upadhaya and Amaratya Sen also became prominent.

Definition of Economics:

Adam smith is known as the 'Father of Economics'. In 1776 Adam Smith's book- "An enquiry into the nature and causes of wealth of nations" was published. Various economists defined 'Economics' differently. Among the various definitions the important ones are-

1. Wealth based
2. Welfare based
3. Scarcity based
4. Development based
5. Wantlessness based

Adam Smith stated 'Economics' as study of 'wealth'. Alfred Marshall has defined Economics as study of 'Economic welfare'. Criticizing the above definitions Lord Lionel Robbins defined. "Economics as a science that studies human behavior as a relationship between limited resources and unlimited wants involving choice making process". Relating economics to 'development' Paul A. Samuelson has laid emphasis on the dynamic analysis of economic activities . Prof J. K. Mehta defined economics as a science which studies human behavior as a means to obtain wantlessness situation. His thoughts were influenced by Mahatma Gandhi.

According to Koutsoyianis- 'Economic theory aims at the construction of the models which describe the economic behavior of the individual units (consumers, firms, government, agencies) and their instructions which create economic system of a region, a country, or the world as a whole'.

Economics is a social science. In economics we study the economic behavior of the individual units (consumer, producer, firm) their groups and that of nations. They all have to make a choice amongst the limited and alternative uses of resources to fulfill their unlimited and competitive needs.

In simple words, economics is the science which studies the problem of choice arising due to scaree resources, it is also an art of solving these problems.

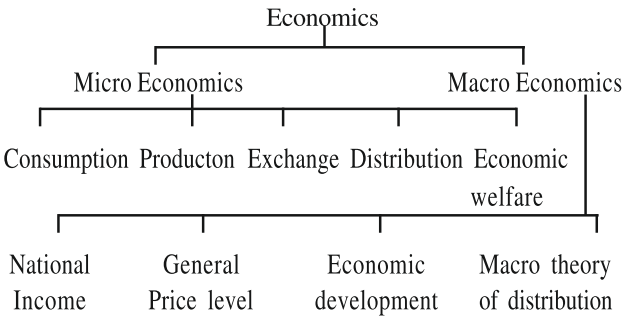
To conclude economics is –

1. A branch of social science
2. It studies the economic behavior of individuals and nations
3. It is related to finding solution to make choice between unlimited wants and scarce means having alternative uses.

Nature and scope of Economics:-

The nature and scope of economics is a vexed

question and economists differ widely in their views. John Nevelle Keyens has described in detail the nature and scope of economics. He has included nature of economics, its relation to other subjects and limitations of economic laws. The study of individual units (a consumer, a producer, or a firm) are the subject matter of Micro Economics whereas 'Macro Economics is the study of economic behavior of groups of individual unit (a nation).



The word 'micro' and 'macro' was first used by Ragner Frisch in 1933. Micro and Macro have originated from greek word- 'Mikros' and 'Makros' respectively. Micro means 'small' and Macro means 'large'.

In the words of N. Gregory Mankiw- **"Micro economics is the study of how households and firms make decisions and how they interact in specific markets. Macro economics is the study of economy in wide phenomena".**

Micro Economics- It is also called 'Price theory'. In micro economics we study the behavior of individual units like a consumer, a producer or a firm. This study is done with the consideration of price. As a consumer maximizes the satisfaction with specific price and income, similarly a producer maximizes his production with specific price of a goods and service. A firm or group of firms also maximizes its profit and production at a given price are some of the examples.

All individual units are studied with reference to price. The theory of distribution is also studied considering the price of labour- wages, price of capital- interest, price of land used-rent, price of entrepreneur- profit etc.The returns to the factors are considered during the study of factor price. Micro economics consists the study of Micro partial and Micro total analysis. When price of a good is taken as a variable and other factors are assumed to be constant then study is called micro partial, whereas when all factors are taken as variables then its called micro total analysis.

When price and other factors are taken as constant then this study is known as Micro-Static. Similarly when we compare two static equilibrium we call it as micro-comparative analysis. When all factors as variable it is referred to as micro dynamic analysis.

Macro Economics :

In Macro economics study is done with reference to wide (broad) or aggregate levels .Macro economics includes the study of level of national income, employment, national savings, national investment, general price level, fluctuations in economic growth and development etc. Macro economics is also known as the general theory of income and employment. In 1936 "The general theory of employment, interest and money." Written by Keynes was published.The theories of macro economics developed more scientifically from then onwards.

According to Gardner Ackley- "Macro economics deals with economic affairs in the large, it concerns the overall dimensions of economic life .It looks at the total size and shape and functioning of the "Elephant" of economic experience, rather then working of articulation or dimensions of the individual parts. It studies the character of the forest, independently of the trees which compose it".

In Macro economics also the study when based on one factor is known as Macro-Partial. While assuming all factors variable in Macro-total study. The level of national income, level of employment, level of saving investment, general price etc are studied under macro-total. The macro economic study under constant situation is called macro-static. When two static are compared it is called macro-comparative and this way the study of continuous changing condition is called macro-dynamic.

Difference between Micro and Macro Economics

The difference between micro economics & macro economics can be made on various count. Micro-economics study is based on the individual economic experiences. Whereas macro economics studies the

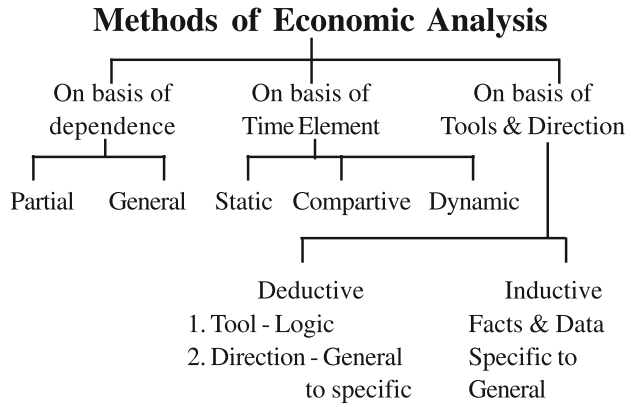
wide and aggregates levels.

The difference between micro and macro economics can be seen on various basis in the table 1.1 given below. Large group are formed with the help of small innumerable units. The summation of innumerable consumption, production, labour and other factors helps to measure macro consumption production & total resources.

In this way micro & macro economics are complementary to each other.

Methods of Economic Analysis-

There are various methods of economic analysis which are used according to the objective and nature of analysis. The brief description is given below -



A. On basis of dependency -

When the analysis is done keeping one factor in consideration, then it is called Partial Analysis; for instance the study of demand of a commodity with respect to its price. But when the demand of commodity is studied on basis of other factors beside its price for example price of substitute, income of consumer etc. such analysis is called general analysis.

B. On the basis of time element -

When economic analysis is related to a specific point of time it is called static analysis. When it is related to two point of time it is known as comparative analysis but when we study the process of changes between equilibriums it is called as dynamic analysis. Regnar Frisch was the first to use the terms economic-static and economic dynamic in 1928.

C. On basis of tools and direction-

Though inductive and deductive method are complementary to each other yet there are some difference between them. Deductive methods means reasoning from general to particular. The deductive methods drives new conclusions from fundamental. It is based on facts and assumptions from truths established

Table 1.1

S.No.	Basis of difference	Micro Economics	Macro Economics
1	Unit of study	Individual units	Whole economy of a nation
2	Assumptions	Perfect competition, full employment, no interference of government and independent price mechanism	The distribution of factors of production is pre-determined
3	Objective of study	For theories related to optimum distribution of resources	For theories relating to expansion of production and achievement of full employment.
4	Tools of analysis	Price mechanism	Determination of national income
5	Situation of study	Study of individual units when they are in position of equilibrium	Study of dis-equilibrium of an economy as a whole
6	Type of equilibrium	Partial equilibrium	General equilibrium
7	Changes	The micro changes can occur even in macro stability situation	The change in micro structure does not effect the macro stability
8	Contradiction (Paradox)	Saving is beneficial in micro	Saving is not beneficial in macro

by other methods. When generalization is done on basis of logic, it is called deductive method. It is also called as hypothetical and logical method. It is a study from general to specific and from hypothesis to facts.

Inductive is a process of reasoning moving from specific to generalization of theories. In inductive method we analyze data by using appropriate statistical methods. We derive conclusion on basis of collection, classification and analysis of data based on events in reality. Malthusian theory of population has been derived from inductive reasoning. Inductive method is also called as experience based method or historical method.

Economics is Science or Art-

Nature of economics refers to what type of study is economics. Economic analysis is of two types–

1. Economics as a science
2. Economics as an art

Scientific analysis are sequential, factual and logical. We can propound economic laws and theories scientifically through observation of human behavior in society. The various laws in economics are law of demand and supply, law of production, theory of rent, interest etc. The analysis method of economics is both factual and logical. In deductive method economic study is conducted on the basis of logic and conclusions are drawn on basis of facts (data). Thus the nature of economics is that of science. When economics is considered as a science it is studied in two perspectives i.e. positive and normative. In positive analysis conclusions are drawn on basis of cause and effect it seeks to explain what actually happens . It is described as "what is?", for example the fall in price of commodity causes an increase in quantity demanded. Similarly normative analysis is value based. In this type of analysis conclusions are drawn on basis of "what ought to be?" Normative economics involves value judgments about economic fairness or good-bad or right- wrong. For instance it is a common opinion that rich should be taxed more and poor less.

Art refers to physical and mental capacity by which a work is conducted in the best manner. Art is the practical application of knowledge for the desired goal. Particular goals can be achieved on basis of positive economics. In economics we achieve 'what should be' on the basis of 'what is? Science gives principle of any discipline however, art turns these principles into reality.

Economics is Art when the best method is adopted for removing poverty. The best choice we make in daily life, these problems can be best solved by using laws and methods of economics. The specific examples which show economics as art are the laws of maximum satisfaction, maximization of production, profit maximization unemployment reduction and economic growth and development.

Thus it clearifies and proves that by use of laws and method and steps taken for poverty eradication economics is an Art.

Limitations of Economic Laws –

The laws, theories of natural sciences like those of physics and chemistry are completely accurate. They can be tested in laboratories. Economics being a social science its laws cannot be tested in any laboratories. Hence its data cannot be examined objectively so the laws formulated are not accurate as of natural science. Because of lack of accuracy the economic laws and theories are less reliable. Still the development of history at present is in 'description stage'. Political science, Public administration and Sociology are one step ahead in 'analytic stage'.Whereas Economics is far ahead of all of them and is in 'prediction stage'. This makes Economics an important subject in present times.

Economics laws and theories are based on some assumptions

Assumptions – Assumptions are some fundamental and necessary conditions which are essential to be fulfilled for a law or theory to be proved veracious

Every law is based on some conditions which are assumed as given and they are called as assumptions

Assumptions of Economics- Economics theories are based on certain assumptions which are as follows-

1. Other things remain constant (ceterius paribus).
2. Economic units are rational.
3. Economic man.
4. Initial condition of equilibrium.

5. Relation between social, political and economic institutions.

6. Relationship with biology and geography . Besides assumptions it is necessary to know some economics terminology like variables, constant, parameters, hypothesis, axioms, laws and prediction to have a better understanding of economic- behaviour, problem and analysis.

Human wants are unlimited, if like wants the means to satisfy them were also unlimited, there would have been no economic problem but resource or means are scarce in all economies. The causes of economic problem are

1. Unlimited wants having different preferences
2. Scarce and alternative use of resources
3. Co-ordination between wants and means.

The economic problems arise because the needs and wants of people are unlimited and the resource available to satisfy them are limited. Amongst various competitive wants which one should be satisfied using the limited resources is the case economic problem. Choice have to made between competing alternatives. All economic decisions involve making choices. Generally preferences are based on the intensity of wants, those which have high intensity become priority, whereas those wants which are less intense and can be postponed for future, secondary or non-priority wants generally are left unfulfilled.

The Central Problems of Economy

The main problem of economics is related to choice so it is known as 'problem of choice'. The first problem and choice faced by an individual is the allocation of time. This allocation is between leisure and work. After the allocation of time in economics we deal with the allocation of resources(labour, land, capital etc) .

To understand the basic economic problem it is essential to know the concept of production possibility curve, opportunity cost and marginal opportunity cost concept.

Concept of Production Possibility Curve.

Dominick Salvatore- "The curve which shows that a country with its best available technique and using all its resources produce alternative combinations of various quantities of a commodity. Such a curve is called production possibility curve or transformation curve". Production Possibility Curve (PCC) shows different combination of a two goods which can be produced with the given resource and technique of production. It represents graphically the alternative production possibility of an economy, it is concave to the origin. It is formed by joining all the alternative combinations of two goods. The movement from one point to another on PCC, the combination of two goods change i.e. the quantity of one good increases and the other decreases. One good is transformed into another that is why it is also known as transformation curve Fig 1.1 Shows PPC or goods-transformation curve which is concave to the origin

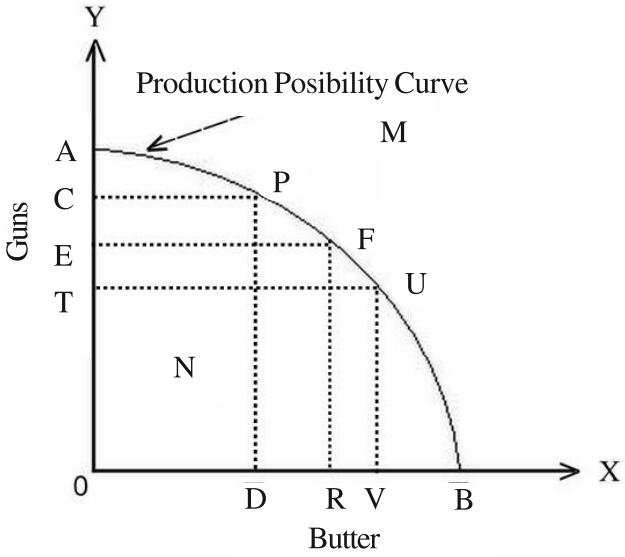


Figure 1.1

According to above fig1.1 it is assumed that by utilizing all the resources land labor and capital OA quantity of guns can be produced, hence OB production of butter is scarified. On point P. The production of guns is OC and that of butter is OD shifting from point P to F on PPC, the production of guns decreases from C to E while that of butter increases from D to R, the opportunity cost of increase in production of butter by D-R is C-E the decrease in amount of guns

Concept of Opportunity Cost

The opportunity cost of good produced is the cost of other good that is forgone for production of

the good in concern. In case of production of two goods for example butter and guns, if resources (land, labour and capital) are employed in production of butter, then the production of guns sacrificed is opportunity cost of butter.

Concept of Marginal Opportunity Cost:

The resources are shifted from production of one commodity to the production of other commodity. To increase the production of one commodity. The production of other commodity has to be decreased. The quantity sacrificed of second commodity is the marginal opportunity cost, of first commodity. Thus marginal opportunity cost is defined as the amount of commodity that needs to be given up in order to increase the production of the other commodity by one unit. For instance if some resources are shifted from the production of cloth to the production of wheat. Assume that by shifting resources to the production of wheat the production of cloth decreases by 200 metre thus the opportunity cost of additional unit of wheat is 200 units of cloth.

Central problems of an economy

Every economy whether it is capitalist, socialist or mixed faces three central problems which are as follows–

1. What to produce – The first central problem of an economy is to decide what goods are to be produced? Resources are scarce in relation to human wants. All the goods cannot be produced. Allocation of resources and the consequent problem of choice requires what is to be produced. The solution to this problem depends on the nature of the economy. The (PPC) production posibility curve is used to solve this problem. According to section (A) of fig 1.2 it is assumed that two commodities guns and butter have to be produced. With all resources allocated in the production of any one commodity either OA of guns or OB quantity of butter can be produced. Similarly, on curve A-B any point such as C or D can be used to solve the problem of 'what to produce'.

2. How to produce- How to produce means how to organise the factors of production. It is concerned with the choice of technique of production. According to the part B of fig 1.2 two types of techniques labour intensive and capital intensive can be used. An economy must decide as to which technique is to be used in a given industry so as to obtain maximum production. Selection of labour intensive or capital intensive techniques depends on type of economy. According to the fig 1.2(B) production can be done either using labour intensive from O to C or quantity of capital from O to D. Any point on curve C-D can be used to determine how to produce.

3. For whom to produce or the problem of distribution-The third problem is related to the distribution of production. For instance there are two groups in an economy, the rich and the poor between whom the goods are to be distributed. We can understand this by part C of following fig 1.2. According to the figure the entire production O-S can be distributed

Central problems of an economy

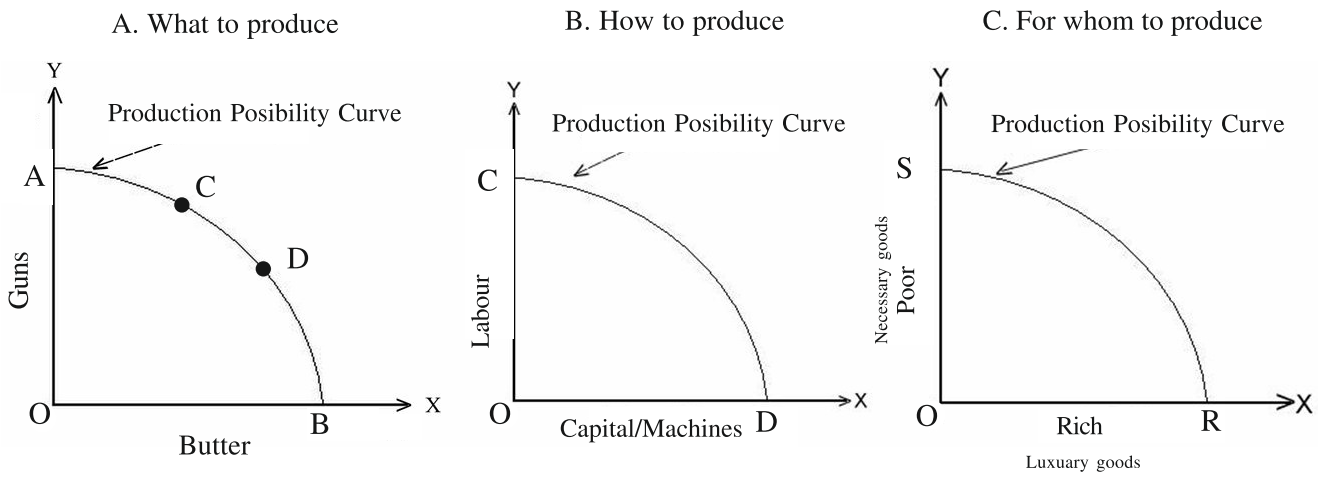


Fig1.2 Solution of Central Economic Problems with the help of Production Posibility Curve

among poor or entire O-R to rich. Similarly any point on PPC S-R can be taken to distribute goods between the two classes. This depends on the type of economy.

Other problems-

4. Problem of distribution of factors of production and their various alternative uses.
5. Whether the factors of production are fully utilized or are under utilised.
6. The problem of how to increase the production capacity.

Economics and economy have different meaning. Paul Krugman & Robbins Wells have explained both as follows- Economy is a mechanism or system to co-ordinate the production activities of a society, where economics is a social science which studies about the production distribution and consumption of goods and services.

Economy

An economy refers to social political, and economic organization & structure of a country. In an economic system where people earn their livehood by performing legal economic activities. Economic system can be classified into three sectors. Primary sector (agriculture and animal husbandry), secondary sector (industry and manufacturing) & tertiary sector (services).

Type of economic system or economy

There are basically three types of economies

1. Capitalistic
2. Socialistic
3. Mixed

The solution of economic problems depends on the type of economy as follows-

Table 1.2 depicts that the different solutions to central economic problem the solution differ according to the economic system. For instance in a capitalistic economy those goods are produced whose price is highest as-high price yields maximum profit where as in socialistic economy those goods are produced to obtain maximum economic–welfare. Economics is a branch of social science which analyses the economic activity.

It is a science as it deals with the study of economic activities and fundamental problems. Similiarly, it is an art because it helps in finding solutions to these problems.

Table 1.2

Fundamental Problem of an economy	Types of Economy		
	Capitalist	Socialist	Mixed
What to produce ?	Price - mechanism (Which shows the taste & prefrence of the consumer)	Central Planning Authority	In Private Sector price mechanism & in public sector planning authority decide what to produce
How to Produce ?	Price mechanism shows the relative price of factors of production consumer)	Central planning authority keeping in view the factor endowment of the country	Profit motive decide in private sector in public sector decision is made on basis of welfare motive
For whom to produce (distribution)	According to share of factors of production the higher the income recieve larger share of production.	On basis of principle of productivity of factor of production	Distribution of goods are distributed price mechanism and some are distributed by government with help of PDS.

Important points

- The enriched literature related to economic thoughts, theories and laws became popular by the name of 'economics'.
- "कृषिपालन, पालयः वाणिज्यम च वार्ता" the word ***varta*** in above statement is used for economic activities.
- The various definitions of economics are mainly wealth-based, welfare based, scarcity based, development based, situation of want lessness based.
- Economics is a science which studies the problem of 'Choice' due to scarcity of resources and it is an art to solve these problems.
- Ragnar Frisch was the first to use the terms 'micro- and macro economics' in 1933.
- Micro economics is a study of individual units (a consumer, a producer, or a firm) with reference to price.
- Macro economics is a comprehensive study of aggregates in reference to level of national income, level of employment general price level and fluctuations of economic growth and development
- In deductive method the analysis is done from general to specific and from hypothetical to factual. On the contrary in inductive method, it is vice versa. Deductive method is logical based where as inductive method is factual based.
- The study of nature of economics is in two forms- economics as a science, economics as an art.
- The subject matter of natural science can be observed in laboratory and its laws and theory can be tested. Economics being a social science its laws and theories cannot be observed in any laboratory. The entire economy is its laboratory.
- While analyzing economic laws many assumptions are undertaken. It is essential to fulfill these assumptions to prove various economic laws and theories.
- The first problem is the allocation of time between 'work' and leisure. After this every individual allocates, the available resources like labour, land capital etc. and tries to solve basic economic problems.
- PPC is a curve which is concave to its origin and is formed by joining various alternative combinations of two commodities that can be produced with given set of inputs assumed to be used efficiently. Movement on the PPC depicts the change, the combination of the two goods.
- The opportunity cost of a commodity is the quantity sacrificed of the alternative commodity that could be produced.
- The solution of basic economic central problem depends on the type of economies (capitalistic, socialistic or mixed).
- Paul Krugman and Robin Wells have classified the difference between economy and economic system as follows:- economy is a system which co ordinates the production activities of a society where as economics is s social science that studies the production, distribution and consumption of goods and services.

Exercise Questions

Objective Type Questions:-

1. Wealth based definition of economics was given by-
   (A) Adam Smith
   (B) Alfred Marshall
   (C) Paul A Samuelson
   (D) Koutsoyiannis
2. The term 'varta' has been used for-
   (A) Agriculture
   (B) Animal husbandry
   (C) Commerce
   (D) All of the above
3. Micro economics is related to-
   (A) Price factor of production
   (B) Price of services
   (C) Price of commodities
   (D) All the above

4. Macro economics is related to-
   (A) National income, economic growth and development
   (B) General price level and employment.
   (C) Total saving and total investment level
   (D) All of the above
5. Which of the follwowing is not a central economic problem :-
   (A) What to produce?
   (B) How to produce?
   (C) Whom to produce?
   (D) How to become poor?

Very Short Answer Type Questions:-

1. What is Economics ?
2. What is micro-economics?
3. Define macro-economics.
4. How economy is classified into various sectors? Name them.
5. On what basis are decisions taken in Capitalistic economy?
6. On what basis are decisions taken in Socialist economy?

Short Answer Type Questions:-

1. Write the scope of Micro Economics.
2. What are the main fields of study of Macro Economics?
3. Mention in brief the types of Micro Economics
4. Define production possibility curve.
5. What is opportunity cost ?
6. Describe the deductive and inductive method of economic analysis.

Essay Type Questions:-

1. Explain in detail the relationship between 'scarcity and choice.
2. Mention the central problems of an economy and explain then causes in detail.
3. Explain in detail central problems of an economy with the help of PPC and describe the concept of opportunity cost.
4. Describe in detail the main assumptions of economic analysis.
5. Describe in detail the difference between micro and macro economics.
6. Explain in detail whether economics is a science or an art or both.

Answer Table

1	2	3	4	5
A	D	D	D	D

LESSON 2

CONSUMER'S EQUILIBRIUM

Introduction

A consumer is one who buys goods & services for his satisfaction. His main objective is to spend his income on various goods and services in such a way that he gets maximum satisfaction.

In this chapter to understand consumer's behaviour, Cardinal and Ordinal approach are used to explain consumer's equilibrium.

Equilibrium

Cardinal analysis was propounded by economists like Marshall, Pigou etc. According to this analysis utility is measurable. Utility is a subjective and introspective concept. In reality, it is very difficult to measure utility in physical form. To overcome this drawback of cardinal approach Prof. J.R. Hicks and Prof R.G.D. Allen propounded an alternative analysis called as Ordinal Analysis with the help of indifference curve. This approach is based on preferences which consumers show while choosing between commodities. Indifference curve is used for the purpose of analysis. First of all we will study the utility analysis also called cardinal analysis.

Utility Analysis (Cardinal Approach)

Meaning and measurement of utility-

Utility is the power of commodity to satisfy human wants. In economics utility is expressed as a mathematical score which a consumer gets from the consumption of a basket of goods and services. For example if the satisfaction from buying 2 books is more than that of buying one shirt, then we say that books give more utitlity to a consumer. It is difficult to measure utility because it is a psychological concept. The utility derived by one person from consuming a commodity can differ from the utility derived by another person from the same commodity. Thus utility differs from person to person, place to place and time to time. According to Edgeworth(1881) Antoneeli(1886) and Irving Fisher(1892) utility could not be measured and it depends on the consumption of various goods.

Utility function can be written as follows.

$U = f(X_1, X_2, X_3, X_i...., X_n)$

Where X is quantity of a goods and and U stands for utility. This is a functional relationship which shows the preference pattern of a person. It is different for every person.

According to William Stanley, Jevons, Karl Menger, Leon Walras and Alfred Marshall, utility can be measured in same way as milk in litre, height in metre distance in kilometre and temperature in degrees. According to these economists utility can be measured in 'Utils'.

Assumptions of Utility Analysis:

Utility analysis is based on following assumptions:-

1. Consumer is a rational man. He measures, chooses and compares the utilities of different units of various commodities and aims at maximization of utility among them.

2. A consumer maximizes his utility.

3. He has full knowledge of various prefrences and choices. Utility can be measured in terms of money. The Marginal Utility of money remains constant.

Utility and satisfaction

A commodity can have utility before consumption but satisfaction is otained only after its consumption. Utility can be called as 'Expected utility' and satisfaction as 'Realised utility'. Utility can be measured in 'Utils

but satisfaction is unmeasurable. In utility analysis both these words are synonymous.

Types of utility :-

Total utility

In a given time the total satisfaction obtained from the consumption of all the units of a commodity at the disposal of a consumer is called as total utility. For eg. if a consumer consumes one banana and gets 30 Utils of utility, and gets 22 utils of utility on consuming second banana, which is less than previous unit. Thus the total utility derived from consumption of two bananas is 30 + 22 = 52 Utils, hence total utility can be measured as follows.

$TU_n = U_1 + U_2 + U_n$

TU_n - Total utility to the consumer from 'n' units of a commodity

U_1 - Utility from the first unit of commodity

U_2 - Utility from the second unit of commodity

U_n - Utility from the n unit of commodity

In this way on continuous consumption of successive units of a commodity, total utility increases till a certain point but at a diminishing rate.Then it gets maximum. The point at which the total utility is maximum is called the point of satiety. If a consumer is forced to continue consumption of a commodity even after the point of satiety then total utility starts decreasing.

2. Marginal utility

In a given time, the change in the total utility, on increasing the consumption of a commodity, is called marginal utility. The consumption of other goods is taken as constant. Symbolically-

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

Here MU_n = Marginal utility of n unit

TU_n - Total Utility of n unit.

TU_{n-1} - Total Utility of (n-1) unit

On marginal utility we can see the effect on total utility of a change in the consumption (increase or decrease) of a unit of commodity. If the change in consumption is more than one unit then Marginal utility can be measured as follows-

$$MU = \frac{\text{Change in Total Utility}}{\text{Change in the quantity of a goods consumed}} = \frac{\Delta Tu}{\Delta Q}$$

Total utility is the sum of marginal utility from all units of commodity.

$TU_n = MU_1 + MU_2 + ... MU_n$

$TU_n = \Sigma MU$

Relation between total utility and marginal utility

The relationship between total utility and marginal utility can be explained with the help of following table 2.1.

Table 2.1

Units of Banana	Total Utility (Tu)	Marginal Utility (Mu)
0	0	0
1	10	10
2	16	6
3	20	4
4	22	2
5	22	0
6	20	-2

As evident from the table 2.1 and Figure 2.1 (a) & 2.1 (b) the relation between total utility and marginal utility is as follows.

1. The point Q at which total utility is maximum, the marginal utility is zero (E). This point is called the point of satiety (as shown at point Q in the Figure), Before reaching this point marginal utility is positive where as total utility increases but at a diminishing rate.
2. If the consumer continues the consumption of a commodity even after the point of satiety then marginal utility becomes negative and total utility starts declining.

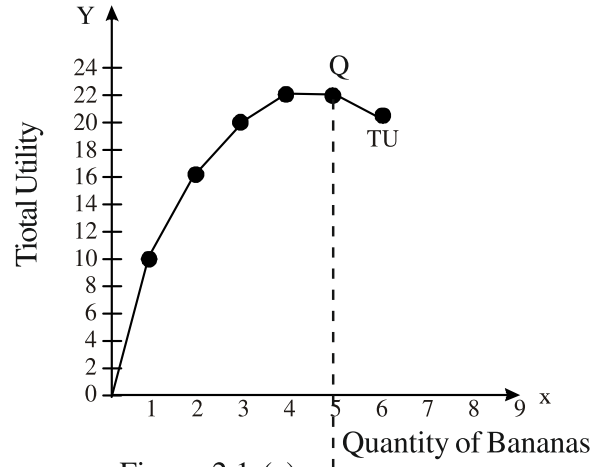


Figure 2.1 (a)

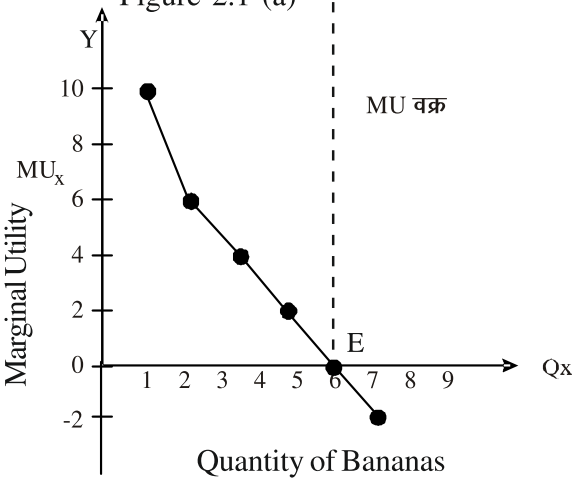


Figure 2.1 (b)

In fig. 2.1(b) on X axis the quantity of bananas and on Y axis the marginal utility derived from the banana is depicted. The slope of marginal utility curve in Figure 2.1 (b) is shown sloping from left to right which shows that marginal utility of a commodity declines on its continuous consumption, and on consumption of 5th unit it becomes zero. TU curve which increases at a diminishing rate till point Q (point of satiety) and then starts declining.

Law of diminishing marginal utility–

This law was propounded by Gossen in 1854 so Jevons calls it the "Gossen's first law". Marshall gave a detailed analysis of this law.

Meaning and definition of the law:

Law of diminishing marginal utility is a universal law. This law is based on the behaviour of a consumer, where the marginal utility of variable commodity decreases as he increases the consumption of any one commodity, keeping constant the consumption of all other commodities.

In words of Marshall- "The additional utility which a person derives from an increase of his stock of a commodity diminishes with every increase in the stock that he already has."

As the consumer consumes additional unit of a commodity to fulfill his needs, then the additional unit becomes less useful to him.

If this process continues for a longer period a situation arises when he does not get any satisfaction from the consumption of additional unit of a commodity If a consumer still persists to consume that commodity, then the marginal utility derived from that commodity becomes negative. Economists call this tendency as law of diminishing marginal utility.

Assumption of law -

1- The behaviour of consumer is rational, he is an economic man.

2- Utility is measurable in terms of money.

3- The marginal utility of money remains constant.

4- The units of commodity consumed should be of a suitable size and they should be alike in size and quality (homogenous).

5- The process of consumption is continuous without any time interval.

6- The income, habits and fashion of a consumer should remain constant in the given time.

Causes of diminishing marginal utility.

According to Prof. Boulding this law operates due to following reasons:-

1- The different goods are not perfect substitute of each other that's why the marginal utility of a commodity decreases on increasing its

consumption.

2- Specific want is satiable We may increase the consumption of a particular commodity upto a certain point. But after that point we can not increase its consumption. The consumption of salt has to be stopped after a certain point. Table 2.1 & Figure 2.1(B) can be used for the interpretation of this law.

Importance of law-

1- The law of demand and the law of equi-marginal utility are based on the law of diminishing marginal utility.

2- This law is used in public finance. We know that the marginal utility of money is less for rich and more for poor. Thus social welfare can be increased by imposing tax on the rich and spending that money on poor.

3- The diamond - water paradox can be explained with the help of this law. According to the paradox water which is essential for life is cheaper while diamond which is not essential for life is expensive.

Diamond - Water Paradox

To understand this paradox, water which is essential for life has more total utility than that of diamond but the price of a commodity depends on marginal utility and not on its total utility.

As we consume water in a large quantity the marginal utility of the last unit is very less thus we are ready to give less price for the last unit of water since all units of water are similar we give less price for additional units. Whereas diamonds are found in scarcity so their marginal utility of last unit is very high, hence they have high price.

Law of Equi-marginal utility and Consumer Equilibrium

Equilibrium means state of rest and there is no tendency to change. When a consumer is in state of equilibrium, he does not change his level of consumption which depicts that he is obtaining maximum satisfaction.

At the time of consumption of a good the consumer can either buy a good or keep his money income with him. According to cardinal approach for consumer equilibrium, it is necessary that the marginal utility of X good equals to the market price of X good or $MU_x = P_x$

If the marginal utility of good X is more than the price of X, then consumer will buy more quantity of X and increase his welfare. On the contrary if marginal utility is less than the price of X then the consumer will buy less quantity of X to maximize his welfare. Thus to maximize his satisfaction, a consumer fulfills the condition. $MU_x = P_x$

In real life a consumer consumes more than one good, the law of equi marginal utility helps him in optimum allocation of his income. Equi-marginal utility is known by various names such as Gossen's second law of substitution, law of income allocation, law of maximum satisfaction etc.

In simple words this law states that, the consumer will distribute his income between the goods in such a way that the utility derived from the last rupee spent on each good is equal or almost equal. In this way the consumer will get maximum satisfaction and will be in equilibrium.

If a consumer consumes more than one good then he will be in equillbrium when the following condition is fulfilled.

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = \cdots \frac{MU_n}{P_n}$$

On spending an extra unit of money the marginal utility derived should be equal for all goods. If a consumer gets more utility from expenditure on one good then to increase his satisfaction he will spend more on that

good and will decrease his expenditure on other goods till the above condition is fulfilled

Beside above condition the income condition is also necessary to be fulfilled -

$X \cdot P_x + Y \cdot P_y + ...= M$

$X \cdot P_x + Y \cdot P_y = M$

According to this condition the expenditure on X good i.e X.P and expenditure on Y good i.e. Y.P should he equal to consumer's income. Consumer's equillibrium in marginal utility analysis can be explained with the help of following table 2.2.

Table 2.2

Marginal Utility

Quantity of good (in kg)	Banana (30 Rs Per kg)	Apple (90 Rs Per kg)
1	385	1150
2	355	1035
3	300	985
4	270	900
5	200	840
6	185	730

We take two goods banana and apple whose price is Rs. 30 per kg and Rs. 90 per kg respectively. Consumer has to spend Rs. 450 on both goods. He will purchase 3 kgs of bananas whose marginal utility per rupee is $\frac{300}{30} = 10$ units

Further he will purchase 4 kg apples whose marginal utility per rupee is $\frac{900}{90} = 10$ units.

Thus in order to fulfill the necessary condition of $\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$ to maximize his satisfaction for two goods consumer will purchase 3 kg of bananas and 4 kg of apples. This fulfills the first condition of consumer's equilibrium. The second condition of consumer's equllibrium is X.P +Y.P = M

Thus $3 \times 30 + 4 \times 90$ = Rs.450 Rs.

90 + 360 = Rs.450

Thus both the conditions of consumer's equilibrium are fulfilled by the above example.

Limitations of the law-

1- This law is based on the assumption that a consumer has full knowledge of the alternative preferences. In reality a consumer is unaware of the alternative choices.

2- This law assumes the consumer to be rational which is not true in actual behaviour. Consumer has to make lots of calculation in order to compare marginal utility of various commodities which is very difficult. The habits of a consumer and advertisement has lot of influence on his consumption. This in turn affects his purchase of commodities. All this shows that it is not necessary that a consumer is always rational.

3- It is assumed that all goods are divisible while in reality goods like house and car are indivisible as they can be bought in fixed quantity only. In a given time two cars can be bought but not $1\frac{1}{2}$ car. Thus due to indivisibility of goods there is lot of difficulty in application of equi- marginal utility.

4- This law is based on assumption that utility is measurable and the marginal utility of money is constant which is quite unrealistic. Hence Hicks has refuted both these assumptions and has explained consumer's equllibriuim with the help of indifference curve analysis.

5. There is no fixed accounting period for the consumer in which he can buy and consume goods. Generally period is taken as one year while the

consumption of durable goods continues in next accounting period also. Hence the utility gained by these goods in future has to be compared with the utility of other goods in the current year.

Importance of Equi-marginal utility -

Law of Equi-marginal utility is applicable in various fields of economics. Consumption, production, exchange and distribution. Previously, we have seen that how a consumer attains maximum satisfaction by spending his money income according to law of equi-marginal utility.In similar manner a producer also uses this law to maximize his production and minimise cost per unit.

It can also be applied to allocation of income between consumption and savings. Though the law is important in the utility analysis, as it is not possible to measure utility, hence an alternative approach was propounded by Hicks and Allen known as Ordinal approach.

Indifference curve Analysis and Consumer Equilibruim

According to modern economists utility is a psychological concept and have refused the cardinal analysis, as it was based on many fallacious assumptions. Many economics like Eugen Slutsky, Wilferedo Pareto, John R-Hicks and R.G.D. Allen have stated that consumer cannot measure utility. According to them utility is an individual perspective and it is impossible to measure it quantitatively. Utility differs from person to person. Thus according to modern economists, utility cannot be measured precisely, but it is possible to observe the preferences which a consumer shows while choosing between commodities and giving ranks to his preferences.

In comparison to cardinal analysis, ordinal analysis is based on less restricted assumptions. Ordinal analysis dose not emphasize on the relative measure of utility from various goods. According to it, it is sufficient to know that a consumer gets more satisfaction from apple in comparision to pomergranate. It is not necessary to know the amount of utility.

Meaning of Indifference Curve

An indifference curve shows the various combinations of two commodities which yield equal level of satisfaction to a consumer.

Indiffernece curve can be defined as locus of various combinations of two commodities which give the same total satisfaction to the consumer so he remains indifferent between them.

Indifference Sehedule and Indifference Curve

To make an indifference curve there should be an indifference schedule which shows the various combinations of X and Y goods between which the consumer remains indifferent.

Table 2.3

Combination	X	Y	Satisfaction
First	1	25	x
Second	2	20	x
Third	3	16	x
Fourth	4	13	x
Fifth	5	11	x
Sixth	6	10	x

On the basis of above table Indifferenes curve can be drawn as follows -

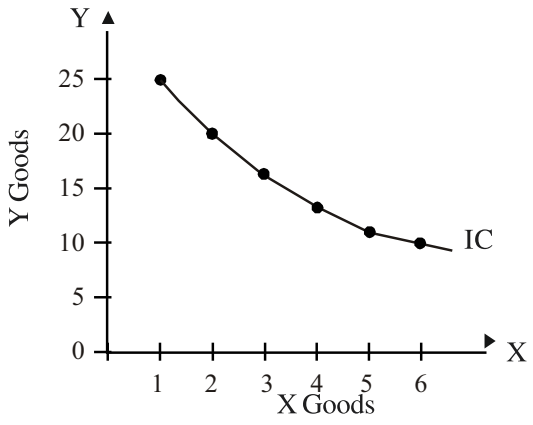


Figure 2.2

Indifference Map

One indifference curve depicts one specific level of satisfaction. A set indifference curve in a figure depicts different levels of satisfaction. When many indifference curves are shown in one figure we call it an indifference map. Higher the indifference curve, higher the level of satisfaction.

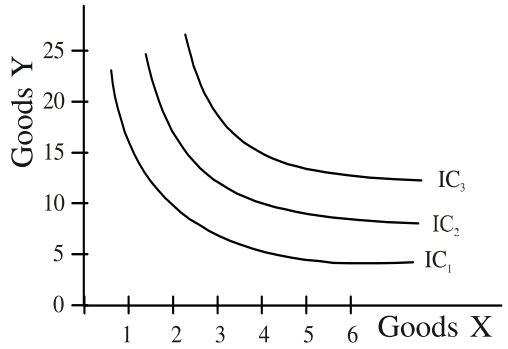


Fig 2.3

Mathamatical equation of indifference curve:

Symbolically the indifference curve equation can be given as follows -

$$U = f(X_1, X_2, X_3, ..., X_n) = k$$

Here k is a constant value. If two goods are X and Y then indifference curve will depict the various combination of two goods, which give equal level of satisfaction to a consumer.

$$U = f(X, Y)$$

Here U shows level of satisfaction in ordinal form and is a constant value.

By giving different values to U different indifference curves can be obtained. A higher indifference curve shows higher level of satisfaction while lower indifference curve shows lower level of satisfaction in the below figure-

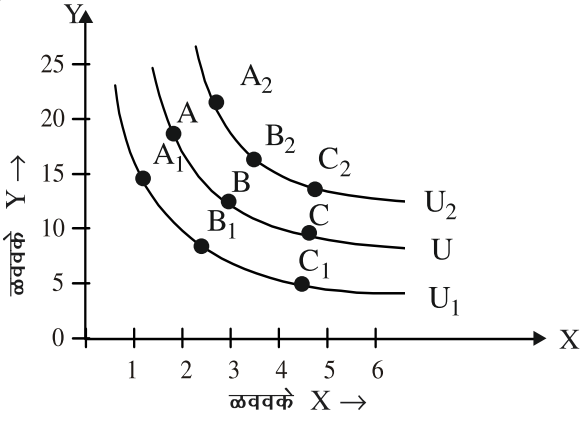


Fig 2.4

In the figure 2.4 X good is depicted on X axis and Y good on y axis. Indifference curve shows the various combinations of goods having same level of satisfcation. If any combination of X and Y gives more satisfaction then U_1,then it will be situated on higher indifference curve U_2. If a combination of X and Y gives less satisfaction then U, then it will be situated lower on indifference curve U_1. In the Figure, point A, B, C, are sitiuated on same level of indifference curve U and gives same level of satisfaction to the consumer A_2, B_2, C_2 depicts higher level of satisfaction and are situated on higher indifference curve U_2. In the same way the combination lying on U_1 depicts lower level of satisfaction than U, U_2. A consumer is indifferent to the various combination on a specific indifference curve but he gives more preference to higher indifference curve than to lower one.

Assumption of indifference curve analysis.

1. **Rationality -** A consumer is assumed to be rational i.e. when he knows his level of income and price of two goods, he maximises his satisfaction. The consumer has complete information about the prices of goods in the market.
2. Utility is ordinal, it is assumed that a consumer can give rating to the group of goods on basis of his liking. The consumer is supposed to rank the basket of goods in order of the preference.
3. Preferences are Transitive-consumer behaviour is consistent. It means that if a consumer prefers A to B and B to C, then he will prefer A to C.
4. The total utility of a consumer depends on the quantity of various goods consumed $U = f(Q_1, Q_2, ... Q_n)$
5. The marginal rate of substitution is assumed to be decreasing. On the basis of this assumption, indifference curves are convex to the origin. The slope of indifference curve, depicts the marginal rate of substitution.

Marginal rate of substitution

The marginal rate of substitution represents the amount of commodity Y, which the consumer has to give up for one additional unit of other commodity X, so that his level of satisfaction remains the same.

Marginal rate of substitution can be explained by following table 2.4 & Figure 2.5

Table 2.4

X good	Y good	MRS = Δy / Δx
1	25	-
2	20	5y : 1x
3	18	2y : 1x
4	17	1y : 1x

Thus the movement on indifference curve from left to right, the marginal rate of substitution decreases. Due to decreasing marginal rate of substitution the indfference curve, is convex to the origin.

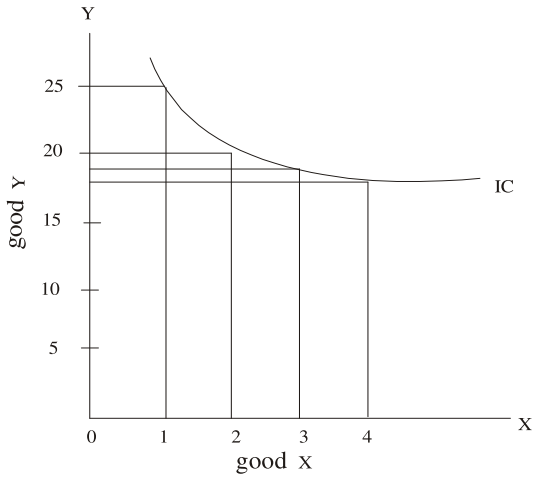


Figure 2.5

When the consumer moves from point A to B on indifference curve he sacrifices 5 units of Y to get 1 unit of X Thus MRS_{xy} is 5y : 1x. Similiarly the movement to point C from point B the MRS is 2y : 1x Thus MRS_{xy} is diminishing.

Features Of Indifference Curve

1.Indifference curve has a negative slope- It slopes downward to the right. The reason for it is that if the consumer wants to remain on the same level of satisfaction he has to reduce the amount of one good in order to increase the amount of the other good. Indifference curves can neither be horizontal nor vertical straight line. Indifference curve cannot be of positive slope.

According to the Figure 2.5(a) indifference curve cannot be horizontal. In the Figure, point A depicts OX_1 quantity of X good and OY_1 quantity of Y good where as B point shows OX_2 quantity of X good and OY_1 quantity of Y good. If the bundle of goods on point A is compared with that of B point it is found that a consumer will choose bundle on B point because he gets more quantity of X goods, on B point than on A point. Thus the level of satisfaction is not equal on A and B point, so indifference curve cannot be a horizontal line.

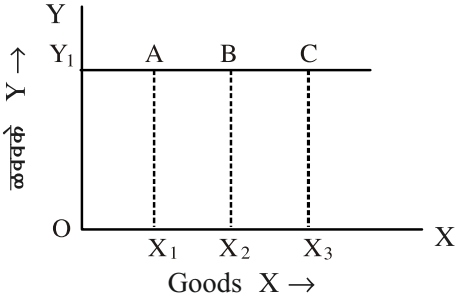


Figure 2.5 (a)

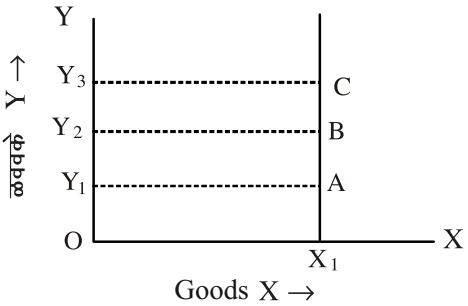


Figure 2.5 (b)

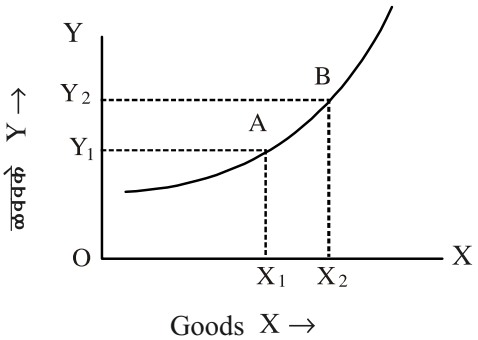


Figure 2.5 (c)

Indifference curve cannot be a vertical line as in Figure 2.5(b). According to this figure the bundle depicted on A point, the quantity of X good is OX_1 and that of Y is OY_1. On point B the combination of goods, OX_1 of X good and OY_2 of Y good If a consumer has to select from bundles of A point and B point, then he will definitely select B point because here he gets more of Y good than on A point. The level of satisfaction is not same on A & B point so an indifference curve cannot be vertical.

A consumer prefers basket of goods offered at B piont than at A point as in Figure 2.5(c). According to this Figure a consumer will choose the bundle on B point in comparison to a bundle on A point because on B point, the quantity of X good is OX_2 and that of Y is OY_2 which is more than that of the quantity of X good on A point OX_1 and Y good OY_1, hence the level of satisfaction is not the same on A & B point, so the slope of indifference curve cannot be positive with an upward slope.

2. Indifference curve is convex to the origin-

This property of indifference curve is due to the dimnishing marginal rate of substitution.

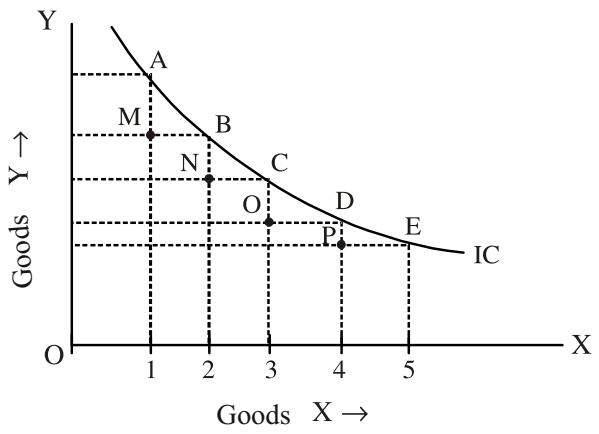


Figure 2.6

The above figure shows that a consumer in order to get two units of good X gives AM quantity of good Y. In order to get three units of X good, BN amount of Y good is sacrificed. As he gets more and more of X good for each additional unit of good X he is willing to give less and less of good Y. This is due to diminishing marginal rate of substitution. The level of satisfaction remains same at all points on indifference curve.

3. Indifference curves cannot intersect each other-

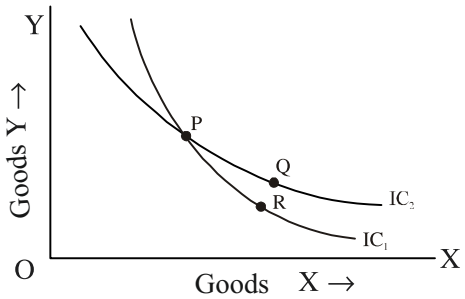


Figure 2.7

What absurdity follows from such a situation can be explained with the help of Figure 2.7. Two indifference curves IC_1 and IC_2 are intersecting each other on point P. R and P point are situated on same indifference curve so they depicts equal level of satisfaction i.e. consumer is indifferent between P and R bundle i.e. P = R.

At P and Q, level of satisfaction is same as they are on same indifference curve. A consumer is indifferent on both these combinations as P = Q

This means that Q = R i.e. a consumer should not be indifferent between Q & R This is not possible as Q is situated on IC_2 and R on IC_1. Thus, it is proved that two indifference curves cannot intersect each other.

Budget line

So, far we have discussed about the indifference curve which shows the various combinations of two commodities that consumer would like to prefer. But what particular combination of two commodities he would get actually purchase depends on his money income and respective prices of two commodities.

If there are n goods in market and their prices are P_1 P_2 .... Pn respectively and a consumer's income is M then the equation will be as follows -

$M = P_1.x_1 + P_2.x_2 + ... + P_n.X_n$

Here P_1, P_2, P_n are price of goods and X_1 X_2 ..... X_n are quantities of goods. To make a budget line we take two goods X & Y whose price per unit is P_X & P_Y then the budget equation will be

$M = X . P_x + Y. P_y$

The budget line can be drawn as follows -

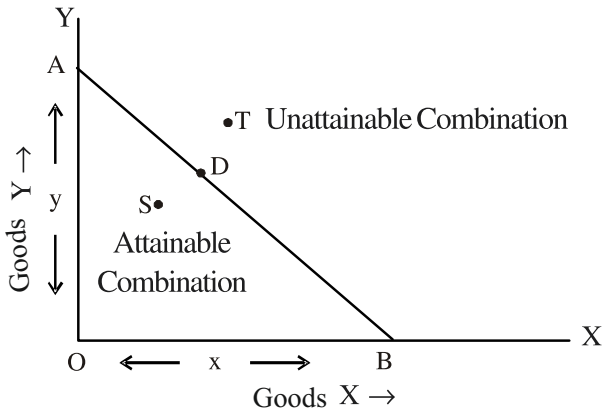


Figure 2.8

Good X is depicted on X axis and good Y on Y axis. It is assumed that the consumer's income is (M) 80 Rs. and price of X good is P_X = 2 Rs. per unit and price of Y good is P_Y =1 Rs. per unit. If he spends his entire income on good X then he gets 40 units of good X. Here the value of X is 40 Rs. If the consumer spends his entire income on Y good then he will get 80 units of Y good i.e. Y = 80

This budget line depicts various combinations of two goods which the consumer can buy with his given money income and the price of two goods.

In the above Figure 2.8 the line joining points A and B is called the budget line, total outlay curve, budget constraint or Price line.

A consumer spends his entire money income on various combinations of two goods located on the points on line AB. The slope of budget line can be given as follows -

$M = X . P_x + Y . P_y$

$Y . P_y = M - X . P_x$

$$Y = \frac{M}{P_y} - \frac{P_x}{P_y} . X$$

It we compare this equation to the general equation of straight line y = a + bx

$$a = \frac{M}{P_y}, \quad b = \frac{-P_x}{P_y}$$

$$b = -\frac{P_x}{P_y}$$

Thus the slope of budget line is equal to price ratio of two goods.

Consumer's Equilibrium

A consumer is said to be in equilibruim at the point where he maximizes his satisfaction. According to indifference curve analysis, the three conditions necessary for the consumer's equillibrum are as follows -

1. A consumer's equilibrium is at the point where indifference curve is tangent to the budget line this is the point of maximum satisfaction.
2. The second condition of consumer equilibrium is that slope of indifference curve i.e. MRS_{xy} should be equal to slope of the price line $P_x \backslash P_y$.
3. The third condition necessary for equilibrium is that at the point of equlibruim marginal rate of substituton i.e. MRS_{xy} should be diminishing . In other words, indifference curve should be convex to the the origin.

Illustration of consumer's equilibrium is shown with the help of a Figure 2.9. In order to explain consumer's equilibrium the indifference map and budget line are taken together. The indifference curve closer to point of origin represents lower level of satisfaction while the indifference curve further from point of orgin depicts higher level of satisfaction. With the given price line a consumer aims to reach the highest possible indifference curve.

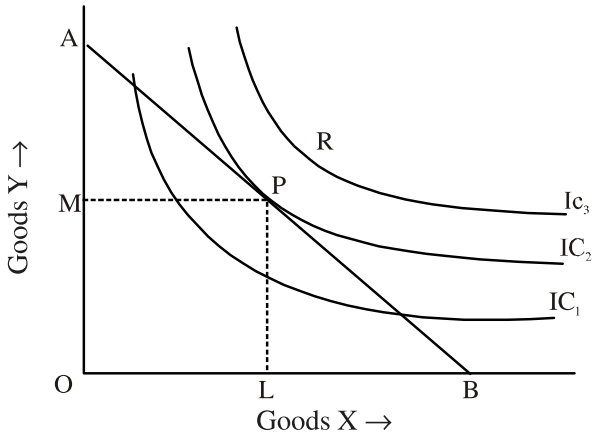


Figure 2.10

In the above Figure AB is the budget line and IC_1, IC_2, and IC_3 are three indifference curves in the indifference map. With the given budget line a consumer can achieve the highest indifference curve IC_2, at point P. The indifference curve is tangent to budget line and the other two necessary conditions are also satisfied on this point. Thus P is the point of consumer's equilibrium. At this point consumer buys OL quantity of X and OM of good Y.

Conclusion - Ordinal Analysis is based on more realistic assumptions so it is regarded superior to Cardinal analysis.

Important points

- A consumer buys a good to fulfill his wants and his main aim is to maximize his satisfaction.
- The sum of utility obtained from all the units of a good is called total utility.
- The change in total utility due to to increase in consumption of an additional unit of good is called as marginal utility.
- As we increase the consumption of a good the marginal utility decreases with every additionl unit of consumption.
- A consumer is in equilibrium where he gets maximum satisfaction from his purchase.
- The condition of equilibrium in case of one good is $MU_x = P_x$.
- The basic condition of equilibrium in case of two goods is that marginal utility of both goods and their price ratio should be same and this will be equal to the marginal utility of money. Price ratio should be the same for the two commodities.

i.e. $\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$.

- An indifference curve shows various combinations of two goods which give equal level of satisfaction to the consumer.
- The marginal rate of substitution of Y for X represents the amount of Y which the consumer has to give up for the gain of one additional unit of X so that his level of satisfaction remains the same.
- With the help of indifference curve a consumer's equillibrium is at a point where indifference curve is tangent to budget line, where the slope of both are same and indifference curve is convex to its origin.

Exercise Questions

Objective Type Questions :-

1. The marginal utility of unit can be calculated as follows -

(A) $MU_n = TU_n - TU_{n-1}$

(B) $MU_n = TU_n - TU_{n+1}$

(C) $MU_n = \frac{TU_n + TU_{n+1}}{2}$

(D) $MU_n = TU_n + TU_{n+1}$

2. According to Cardinal approach the condition for consumer's equilibrium in case of two goods is.

(A) $MRS_{xy} = \frac{P_x}{P_y}$

(B) $\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$

(C) $MU_x = MU_y$

(D) None of the above.

3. According to Cardinal approach what is measured in utils :-

(A) Marginal utility

(B) Utility

(C) Total utility

(D) All of the above

4. The property of utility is :-

(A) It changes from one product to another product

(B) It changes from one time to other time

(C) It changes from one person to other person

(D) All of the above

5. The slope of indifference curve is -

(A) Declines from left to right

(B) Increase from left to right

(C) Horizontal to X axis

(D) Vertical to Y axis

Very Short Answer Type Questions :-

1. Define indifference curve.
2. Write the condition for consumers equillibrum in case of two goods, according to cardinal analysis.
3. Define marginal rate of substitution.
4. Why is indiffernce curve convex to its origin?
5. Write the mathamatical equation for budget line.

Short Answer Type Questions :-

1. Write assumptions of indifference curve.
2. Write the assumptions of law of diminishing marginal utility.
3. Write the main properties of indifferenc curve.

Essay Type Questions :-

1. Explain consumer's equilibrium according to cardinal analysis.
2. Explain the condition of consumer's equilibrium with the help of indifference curve analysis.
3. Explain three properties of indifference curve analysis.
4. Explain the law of Equi-marginal utility.

Answer Table

1	2	3	4	5
A	B	D	D	A

LESSON 3

CONCEPT OF DEMAND

Do we ever think how the price of goods and services are determined and why there is change in our desires and wants. The objective of this chapter is to understand the meaning of demand, the factors influencing it and the changes in demand brought about by factors. As demand is the foundation pillar of any economic system, it is necessary to study the concept of individual demand and market demand.

Demand -

The three basic elements of demand are-

1. The effective desire or want for a good,
2. Money to purchase the commodity, and
3. Willingness to pay for the commodity.

If you have a desire for a commodity, but do not have money to buy it, then it is not a demand. On contrary, if you have money then you should also have willingness to purchase the good.

Demand is always related to price. It is said that at the specific price, the quantity of commodity demanded is such.

Demand can be defined as follows - The demand for any commodity is the quantity that buyers would be willing to purchase at different prices at a particular time.

As far as individual is concerned, his demand for a commodity refers to various quantities of it which he is willing to purchase at various prices during a given period of time. The concept of demand that involves the three elements are quantity, time and price.

Market demand

In every market there are several buyers of a commodity. We will try to explain it with a simple example, on an assumption that there are only 2 buyers in the economy. At the given price of ₹ 60 per kg consumer A demands 4 kg of pomergranate and consumer B demands 3 kg of pomegranate. The market demand of pomegranate at ₹60 per kg will be equal to the total demand of both the consumers. The quantity of market demand will be (4+3=7 kg.)

Thus market demand refers to the total quantity of commodity demanded by all the consumers at the given price. The demand of commodity depends upon price of commodity, income of consumer, taste, fashion and prefrence of the consumer.

Demand schedule - While making demand schedule, only the impact of the change in price of commodity on the quantity demanded is shown in a list while all the other factors affecting demand are assumed to be constant.

Demand schedule is of two types -

1. Individual Demand Schedule
2. Market Demand Schedule

Individual Demand Schedule

Individual demand schedule is a list of various quantities of a commodity which a consumer will buy (purchase) at different possible prices at a given time.

Table 3.1 Individual Demand Schedule

Price of Pomegranate per Kg. (in ₹)	Quantity demanded of Pomegranate (in gm per day)
25	1000 gm
50	750 gm
75	500 gm
100	250 gm

As imaginary individual demand schedule is shown in above table 3.1. When the price of pomegranates is ₹ 25 per Kg., then the quantity demanded by a consumer is 1 Kg. (1000 gms.), but when price increases to ₹ 50 per Kg., then the quantity demanded falls to 750 gm., further when the price increases to ₹100 per Kg. the quantity demanded is 250 gm.

Market Demand Schedule

When the sum of quantities of a given commodity demanded by all the consumers at a specific price, in a given time is shown in a table 3.2 then it is known as a market demand schedule.

Table 3.2

Prices Per Kg (in ₹)	Quantity demanded of Pomegrante by A	Quantity dmanded of Pomegrante by B	Market Demand (1+2=3)
25	1000 gm	1100 gm	2100 gm
50	750 gm	800 gm	1550 gm
75	500 gm	475 gm	975 gm
100	250 gm	300 gm	550 gm

The above table depicts sum of quantities demanded by consumer A & B at different prices.

Demand curve

Demand curve is drawn on the basis of demand schedule. Demand curve gives the same information as the demand schedule does, but it is a diagrammatic representation.

Demand curve shows the inverse relationship between various prices and the quantity demanded by the consumer.

Demand curves are of 2 types

1. Individual demand curve.

2. Market demand curve.

Individual demand curve -

Individual demand curve shows different quantities of the commodity demanded by a consumer at different prices. The following Figure (3.1) shows the individual demand curve.

DD is the demand curve. It is simple plotting of graph based on demand schedule showing demand of pomegrantes and depicts an inverse relationship between quantity demanded of pomegrantes and its price. As the price of pomegrantes increases, the quantity demanded by consumer decreases and vice-versa.

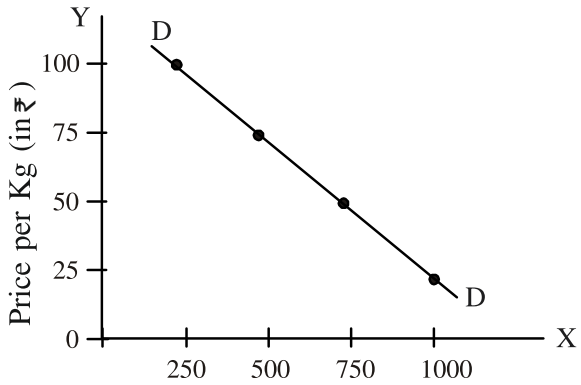


Figure 3.1

Thus, there is an inverse relation between the price of a commodity and the quantity demanded by the consumer.

2. Market demand curve.

Market demand curve is the lateral summation of quantities of a commodity demanded by all the consumers at various price levels in the market. In the following figure (3.2) ED depicts the Market demand curve.

ED is the market demand curve which we get by plotting the data of market demand schedule (Table 3.2) on a graph.

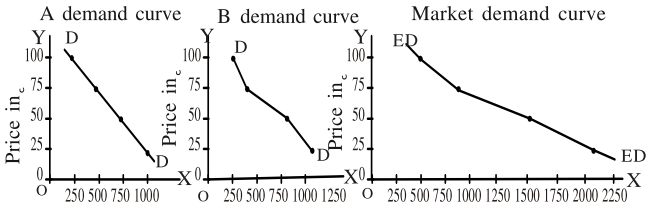


Figure 3.2

Market demand curve is the horizontal summation of the individual demand curve. In figure (3.2) at the given price ₹ 250, the demand of A is 1000 gm and the demand of B is 1100 gm. So the market demand is 2100 gm (1000+1100) In this way, the market demand on other prices are also calculated. Representing quantities demanded on various prices on a graph, we obtain the market demand curve.

Factors determining demand -

The Factors determining demand are as follows-

1. The price of the commodity.
2. Income of the consumer.
3. Price of other related goods (Substitute or Complementary).
4. Tastes and preferences of a consumer.
5. Price expectations in future.

Mathematically, demand function can be written as follows -

$D_n = f(P_n, P_1, P_2, P_3, \ldots\ldots P_{n-1}, Y, T, E)$

According to the equation the demand for n commodity depends on its price P_n, Price of related goods ($P_1, P_2 \ldots\ldots\ldots\ldots P_{n-1}$), consumer income (Y) preference of a consumer (T), and future expectation (E)

First of all, we will know about the relationship between the price of a commodity and its quantity demanded.

1. Relation between price and the quantity demanded of a good :

   There is an inverse relationship between quantity demanded of a commodity and its price assuming other things remaining constant.

2. The relationship between the quantity demanded and price of other related goods.

   This includes two types of commodity which can be discussed below:-

a) Complementary goods

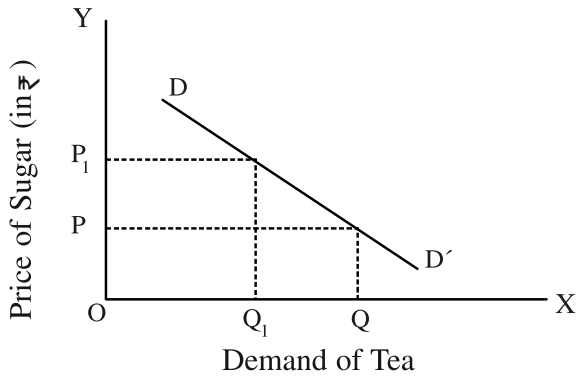


Figure 3.3 (a)

In the above figure3.3 (a) when the price of complementary good, for instance, sugar increases from OP to OP_1 then the quantity demanded of tea decreases from OQ to OQ_1.

Thus, the slope of demand curve for complementary goods is negative.

2. Substitute goods -

In figure 3.3 (b) when the price of coffee increases from OP to OP_1 then the quantity demanded of tea increases from OQ to OQ_1.

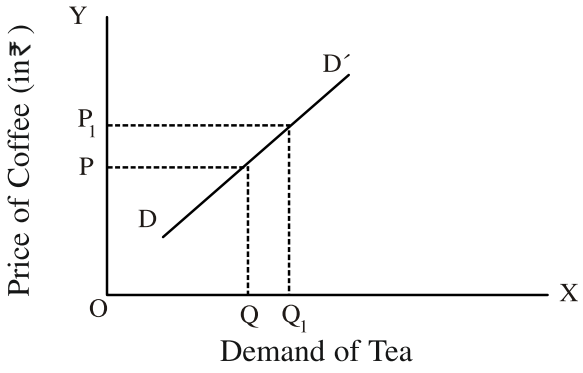


Figure 3.3 (b)

Thus the slope of demand curve for substitute goods is positive.

Goods can be complementary such as tennis racket and ball, bricks and cement which are used together. If the price of tennis ball increases then its demand will fall accompanied with a decrease in demand of racket. Thus, the slope of demand curve for complementary goods is negative.

On the contrary goods can be substitute of each other like tea and coffee. If the price of coffee increases while the price of tea is constant, people will increase the demand of tea and the demand of coffee will decrease. Thus, the slope of demand curve of substitute goods will be positive.

3. Relation between demand and income.

As the income of the consumer increases, generally the demand of goods and services also increases. This includes, the luxury goods. Here the relationship between quantity demanded and income is positive.

There are some goods, whose demand initially increases with the increase in income but after some time there is a fall in demand with the further increase in income. These are inferior goods like demand for

Bajra, maize falls in this category.

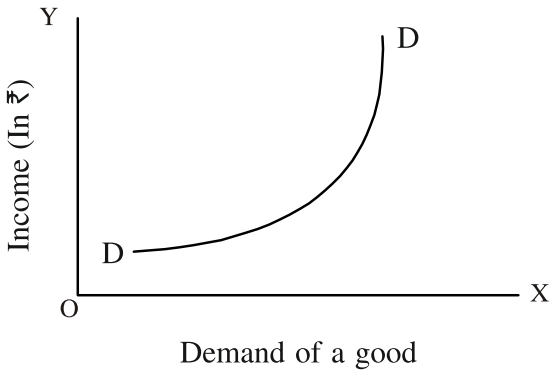


Figure 3.4

4. Relation between Demand and preferences of a consumer -

The demand of the commodities depends upon the tastes and preference of the consumer It is influenced by new inventions, advertisements etc. The preference of the consumer allows him to rank different bundles of goods according to the utility levels of satisfaction received from consumption of the goods.

5. Expectations :

If a consumer expects a fall in the stock of a commodity in near future, then he increases the present demand. On the contrary, if there is possiblity of fall in price of commodity in future, then he will decrease the present consumption of the commodity.

Besides the above factors there are some other factors also which influence the demand. They are as follows :-

1. The size and structure of a population
2. The distribution of the income

1. The size and structure of a population -

As the population of a country grows, there will be increase in demand of goods and services. If the size of the population of a country is large, then the demand for fast moving consumer goods (FMCG) will be more. Not only the size but the structure also influences the demand. If youth population is more than the demand of life style products like mobile, lap tops, smart phones etc. will be more.

2. Distribution of National Income

If there is unequal distribution of income in a country then the demand for luxury goods will be more but if the distribution is equal, then the demand for necessity goods will be more.

Change in the quantity demanded and change in demand

Change in quantity demanded refers to increase or decrease in quantity purchased of a commodity in response to decrease or increase in its price, other things remaning constant. It is expressed through movement along the same demand curve.

On other hand, change in demand refers to increase and decrease in quantity demanded of a commodity in response to change in other determinants of demand other than price of same commodity like consumer's income, taste and preferences of a consumer, change in prices of other goods etc. It is expressed through shifts in demand curve forward shift or backward shift.

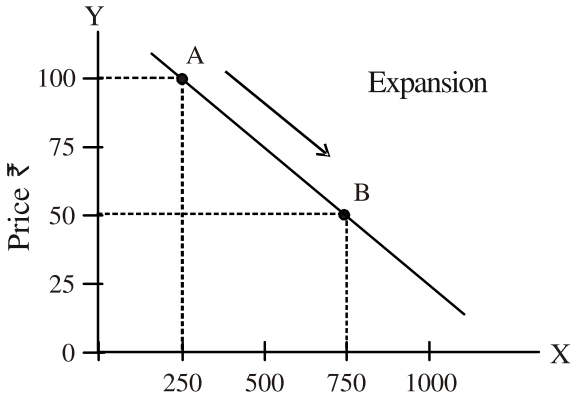


Figure A. Expansion in demand

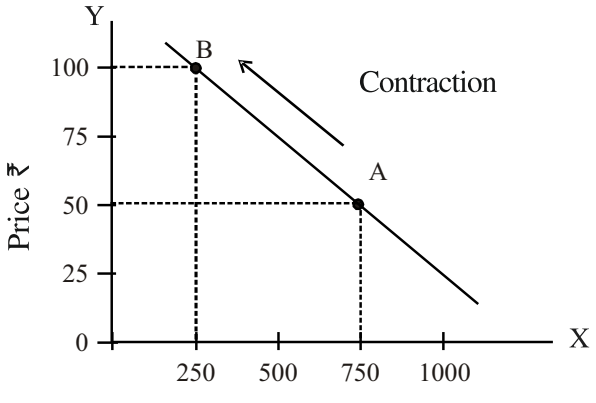


Figure B. Contraction in demand

Figure 3.5

Other things remain constant, if due to fall in price, quantity demanded increases then it is called expampsion in demand. There is movement on the same demand curve.

In figure 3.5(a) When the price of a Pomegranate is ₹ 100. per kg then the amount demanded is 250 gms when the price falls to ₹ 50 per kg then its quantity demand increases to ₹ 750 gms. This is called expansion in demand. The movement from point A to B in the figure depicts expansion of demand.

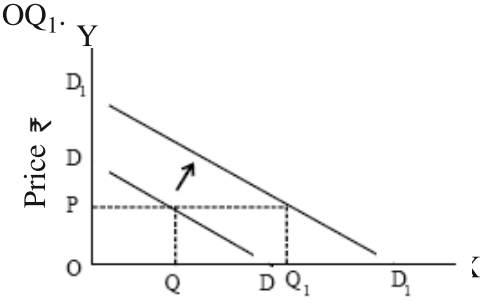
In the Fig 3.5 (b) when the price of Pomegranate is ₹ 50 per kg the quantity demanded is 750 gms. When the price increases from ₹ 50 per, kg. to ₹ 100, per. kg., then its quantity demanded decreases to 250 gm. Other things remaning constant, with the increase in the price there is decrease in the quantity demanded. This is called contraction of demand. The movement is from lower to upper side along the same demand curve.

Shift in demand Curve :

There can be two types of shift in demand curve :-

1. Shift in demand curve to the right or upwards shift.
2. Shift in demand curve to the left or down wards shift

1. Shift in demand curve to the right or upward shift - According to fig. 3.6 (a) if the price of the commodity remains constant but there is an increase in the income of a consumer then demand curve will shift from DD curve to D_1D_1 to the right. This is known as increase in demand. At OP price the quantity demanded shifts from OQ to OQ_1.

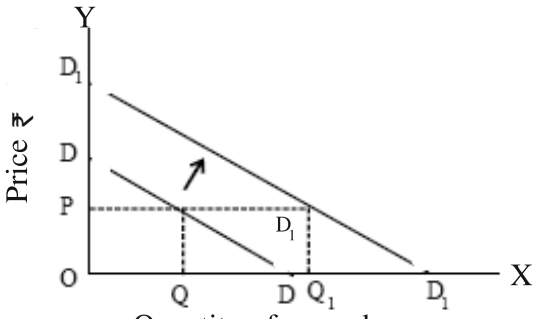


Quantity of a good.

Figure 3.6 (a)

2. The shift in demand curve to the left or downward - According to the fig 3.6 (b) when the price of the commodity is constant but due to decrease in the income of a consumer the demand curve shifts downward from original DD to D_1D_1 to the left. This is known as decrease in demand.

At OP price the quantity demanded falls from OQ_1 and OQ .



Quantity of a good.

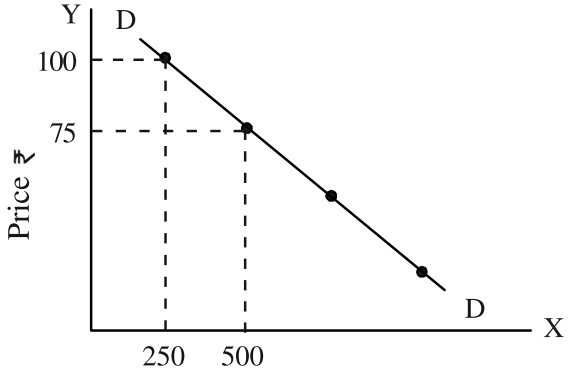
Figure 3.6 (b)

The increase and decrease in demand beside change in income can also be due to change in price of related goods, change in tastes and preferences and price expectations.

Law of demand

Various factors influence the demand of a commodity like the price of the commodity, income of the consumer, price of related goods, preference of a consumer and future expectations of price by a consumer.

The Law of demand states that other things remaining constant if the price of a commodity falls the quantity demanded will rise and if the price of the commodity rises the quantity demanded will decline.



Quantity of a good.

Figure 3.7

In the above figure 3.7 on Y axis there is the price of a commodity and on X axis is the quantity demanded. When the price is ₹ 100 per kg, then the quantity demanded is 250 and when the price falls to ₹ 75 per kg then, the quantity demanded increases to 500 gm.

Thus, we observed that when other factors remain constant with the decrease in price of a commodity, the quantity demanded increases. Thus there exists inverse relation ship between price of a commodity and its quantity demanded.

Derivation of Law of demand.

The Law of demand states the inverse relationship between price of a commodity and its quantity demanded. It can can be derived in two ways.

1. Marginal utility = Price of good.

2. Law of equi-marginal utility

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

1. Marginal Utility and Price -

In the state of equilibrium a consumer demands the quantity of a commodity where MU = P condition gets fulfilled.

Case 1 if MU > P

If the price of a commodity falls then its marginal utility becomes more than its price, which encourages the consumer to buy more of its quantity. Thus, with fall in price the quantity demanded of a consumer increases and he continues to do so till the marginal utility is equal to its price.

Case 2. MU < P

If the price of a commodity rises then its marginal utility becomes less than its price. Hence, a consumer will decrease his demand till the marginal utility is again equal to its price. Thus, quantity demanded decreases with the rise in price.

2. Law of equi-marginal utility -

According to this law, in state of equilibrium a consumer spends his income in such a way that ratio of marginal utility and price of various commodities are equal.

In case of two goods the condition of consumer's equilibrium is

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

Case 1 - If the price of X falls then $\frac{MU_x}{P_x} > \frac{MU_y}{P_y}$, in this situation a consumer is getting more marginal utility from X in comparison to Y. Hence, he will buy more of X and less of Y.

Thus, it shows that when the price of X falls then he will demand more of X. He will continue to do so till $\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$ situation is reached.

Case 2. If the price of X rises then $\frac{MU_x}{P_x} < \frac{MU_y}{P_y}$.

In this situation the marginal utility from Y is more than that of X, hence he will buy more of Y and less of X. He will continue to do so till $\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$ condition is achieved.

Thus, there is inverse relationship between the price of X and its quantity demanded.

Reasons for the operation Law of Demand -

1. Law of Diminishing Marginal Utility.

This law states that at a given time, as a consumer increases the consumption of a commodity, the marginal utility from each successive unit goes on diminishing, consequently a consumer will not pay the same price for successive units but will purchase at a lower price.

2. Substitution Effect -

Substitution effect refers to substitution of one commodity with other when it becomes relatively cheaper. Thus, when the price of commodity X falls it becomes relatively cheaper in relation to commodity

Y.

It leads to substitution of X commodity for Y.

3. Income Effect -

Income effect is the effect on the change in the quantity demanded when the real income of consumer changes because of the change in the price of the commodity. With the fall in price the real income increases, this increased real income is used to buy more units of a good. Price effect is the summation of these two effects-income effect and substitution effect.

4. Size of consumer group -

When the price of commodity falls many consumers who were not able to purchase earlier begin to purchase it and old consumers also increase their consumption, consequently the total demand of the commodity expands.

5. Different uses -

Many goods have alternative uses. When the price of a good falls then that good is allocated to other uses too resulting an increase in total demand of that commodity.

Exceptions to the law of demand

The exception to law of demand refers to those situations where the slope of demand curve is positive and law of demand does not operate.

1. Giffen goods - These are those inferior goods where demand increases with the rise in price and decreases with in fall in price.

Jawar (Maize) and Bajra (Millet) are examples of giffen goods. A consumer decreases the consumption of these goods with decrease in their prices. Thus, law of demand does not operate in giffen goods.

2. **Goods having Prestigious Value :** Diamonds, jewellery are considered prestigious goods in the society. Higher the price of diamonds, higher is their prestigious value and therefore higher will be the demand for them.
3. Possibility of change in price of a commodity in future.
4. Ignorance and misconceptions of the consumer.
5. Demand for necessary goods in life.

Important points

- Individual demand refers to the quantities of a good demanded by an individual consumer at various levels of prices in given time period.
- The Market demand refers to the summation of quantity of a commodity demanded by all consumers at various price levels in a given time period.
- Individual demand schedule depicts the quantities of a commodity which a consumer will purchase at various levels of price in a given time period.
- Market demand schedule is a list which shows the total quantity of a good that all consumers in the market will purchase at different prices.
- A demand function is the amount of commodity demanded and the factors influencing it. Symbolically, $Dx = f(P_x, I.... P_y T)$ The quantity demanded is inversly related to its price, other things remaining constant like consumer's income, price of related goods and taste.
- The Law of demand states that there is an inverse relationship between the price and quantity demanded of a commodity.
- Other things remaning constant, with fall in price the quantity of goods demanded increases, this is called expansion in demand.
- Other factors remaining constant, with rise in price the quantity of goods demanded decreases this is called contraction in demand.
- The shift of demand curve to the right due to change in other factors of demand like increase in income is called as increase in demand.
- The shift of demand curve to the left or backward due to change in other factors except price like decrease in income is called decrease in demand.
- Those goods for which demand increases with the increase in income are called normal goods.
- Those goods for which demand decreases with the increase in income are called inferior goods.

Exercise Questions

Objective Type Questions :-

1. The law of demand, shows the relationship between the price of a good and its quantity demanded-

   (A) Positive (B) Infinite

   (C) Zero (D) Inverse

2. Market demand curve is derived from the _____ summation of individual demand curves.

   (A) Horizontal (B) Vertical

   (C) Cross (C) None of the above

3. The expansion and contraction of demand is due to which of the following –

   (A) Due to the change in the price of the good

   (B) Due to the change in the price of other goods

   (C) Due to change in the taste and preference of a consumer.

   (D) Due to change in consumer's income

4. If the demand function of a good is given as Dx = 35 - 4P, then what will be the demand of a good at price Rs. 5 per unit.

   (A) 20 (B) 15,

   (C) 35 (D) 0

5. The Law of demand does not operate in which of the following goods :-

   (A) Giffen goods

   (B) Normal goods

   (C) Substitute goods

   (D) Complementary goods

Very Short Answer Type Questions :-

1. Write the meaning of Giffen goods.
2. Define Law of Demand .
3. How is Market Demand Curve derived form individual demand curves?
4. If with the increase in the income, the quantity demanded of a commodity increases, then what are such commodities called ?
5. If the demand curve shifts upward to the right with increase in income, what is it called ?

Short Answer Type Questions :-

1. Explain the movement on a demand curve and shift in demand curve with the help of a Figure.
2,. Explain the difference between a normal good and an inferior good.
3. If X & Y are substitute goods then what will be the effect of fall in the price of Y on the quantity demanded of X. Explain with the help of suitable Figures.

Essay Type Questions :-

1. Explain law of demand with the help of a schedule and a figure
2. Explain the differences between change in demand and change in the quantity demanded with respect to demand curve.
3. Explain the effects on the demand of a good in the following situations

   a) Increase in income.

   b) Increase in the prices of related goods.

Answer Table

1	2	3	4	5
D	A	A	B	A

LESSON 4

PRICE ELASTICITY OF DEMAND

In the previous chapter, we have studied the law of demand and we have seen that there is an inverse relationship between the quantity demanded and the price of a commodity. A fall in the price of commodity leads to expansion in its quantity demanded while rise in the price of a commodity leads to a contraction in its quantity demanded. For an economist, it is necessary to know the responsiveness of the quantity demanded of a good to change in its price.

Price elasticity of demand

According to Mrs. Joan Robinson price elasticity can be precisely defined as, "The elasticity of demand at any price is the proportional change in amount purchased in response to a small change in price, divided by proportional change in price."

Hence price elasticity measures the change in quantity demanded on change in the price of a good. Elasticity of demand is the measure of the responsiveness to changing prices.

$$\text{Price Elasticity} = \frac{\text{Proportionate change in quantity demanded}}{\text{Proportionate change in price}}$$

OR

$$= \frac{\text{Change in quantity demanded}}{\text{Initial quantity demanded}} \div \frac{\text{Change in Price}}{\text{Initial Price}}$$

Or in symbolic term

$$Ep = \frac{\Delta q}{q} \div \frac{\Delta p}{p} = \frac{\Delta q}{q} \times \frac{p}{\Delta p}$$

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

Where Ep = Price elasticity

Δq = Change in quantity demanded

Δp = Change in price

As the change in quantity demanded is in opposite direction to the change in its price, so price elasticity of demand is negative.

Numerical Questions -

1. If there is 10% fall in the price of a good, then it's demand increases from 10 units to 14 units. Calculate the price elasticity of demand.

Ans.-

$$\text{Percentage increase in demand} = \frac{4}{10} \times 100 = 40\%$$

$$\text{Price elasticity of demand (Ep)} = \frac{\text{Percentage change in amount demanded}}{\text{Percentage change in price}}$$

$$\frac{40}{10} = 4$$

2. If the price of good rises from 7 Rs. to 10 Rs. and the demand falls from 6 unit to 4 units. Calculate the price elasticity of demand.

Ans.-

$$\text{Price elasticity of demand} = \frac{\text{Proportional change in quantity demand}}{\text{Proportional change in price}}$$

Proportionate change in Quantity demanded

$$= \frac{4-6}{6} = \frac{-2}{6} = \frac{-1}{3}$$

$$\text{Proportionate change in price} \quad \frac{10-7}{7} = \frac{3}{7}$$

$$\text{Thus price elasticity of demand} \quad = \frac{-1}{3} \div \frac{3}{7}$$

$$= \frac{-1}{3} \times \frac{7}{3} = \frac{-7}{9} = -0.77$$

Types of Price Elasticity of Demand:-

There are five cases of price elasticity of demand-

1. Perfectly elastic (Ep = ∞)
2. Relatively Elastic (Ep > 1)
3. Unitary elastic (Ep = 1)
4. Relatively Inelastic (Ep < 1)
5. Perfectly Inelastic (Ep = 0)

1. Perfectly elastic (Ep = ∞)

A perfectly elastic demand refers to the situation when demand is infinite at the prevailing price. It is a situation where a small rise in price causes the quantity demanded of a commodity to fall to zero and vice versa. Quantity demanded is hypersensitive to changes in price. Under perfect competition the demand curve of a firm is perfectly elastic. Demand is highly responsive towards price.

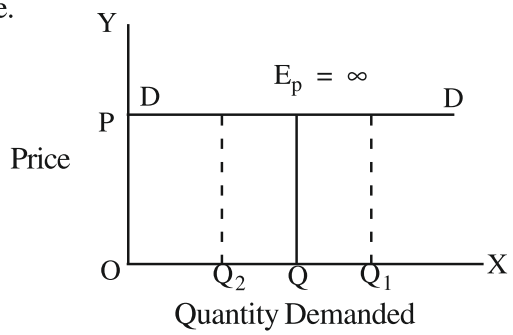


Figure 4.1

In Figure 4.1 it is clear that at the prevailing price OP quantity can be anything OQ, OQ_1, OQ_2. This shows that at constant price the quantity demanded can differ. The demand curve DD is parallel to OX axis.

2. Relatively Elastic (Ep > 1) (More than unitary elastic)

When the proportionate change in quantity demanded is greater than the proportionate change in price then it is a situation of more than unitary elastic.

Generally, the demand of luxury items is relatively elastic. If there is slight decrease in its price, the quantity demanded increases in greater proportion.

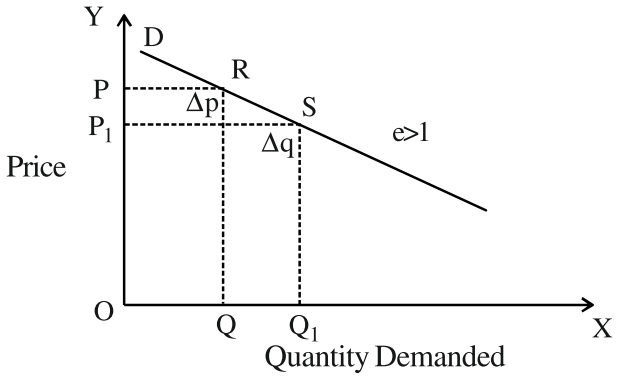


Figure 4.2

In the above figure 4.2 at OP price the quantity demanded is OQ. Thus the total expenditure is OP × OQ = DQRP (Area)

When the price falls to OP_1 then the quantity demanded increases to OQ_1, then the total expenditure is OP × OQ_1 = Area OQ_1 SP_1

Area OQ_1 SP_1 > Area OQRP

This proves that elasticity demand is greater than one. When the total expenditure increases on fall in price and total expenditure decreases with rise in price.

3. Unitary elastic demand (E_p = 1)

When the proportionate change in quantity demanded is equal to the proportionate change in price, then the elasticity is unitary. In this situation, the demand curve is rectangular hyperbola where all the rectangles drawn below it are of equal area. It is the situation when change in price of the commodity is such that the total expenditure of the commodity remains constant.

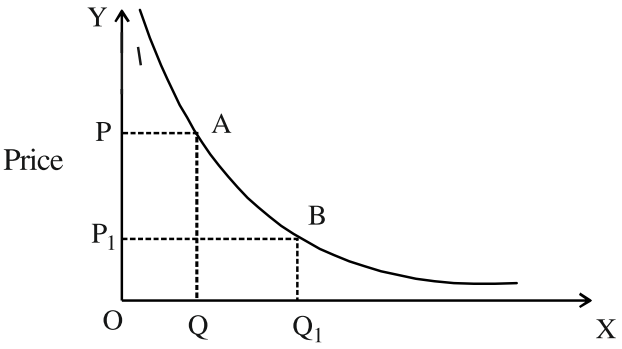


Figure 4.3

In the above fig 4.3 on point A price is OP and quantity demanded is OQ, hence the total expenditure is OP × OQ = Area = OQAP. With the fall in price

to OP_1 the quantity demanded increases to OQ_1 is expenditure on point B = $OP_1 \times OQ_1 = OQ_1\ BP_1$ (Area)

The demand curve is rectangular hyperbola so OQAP = $OQ_1\ BP_1$ i.e. the total amount spent on purchase of commodity at different prices is same.

Thus, the price elasticity of demand on all the points of this demand curve is equal to unit (1).

4. Relatively Inelastic demand (Less then one) ($E_p < 1$)

When the proportionate change in quantity demanded is less than the proportionate change in price then it is the situation of less than unitary elastic demand.

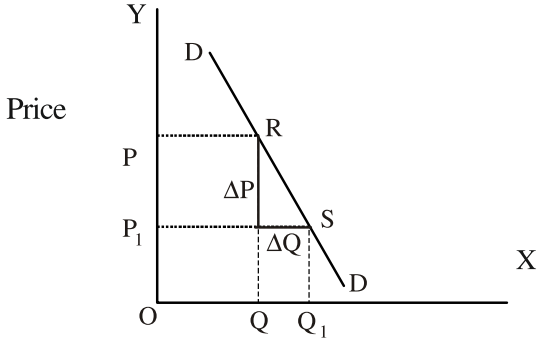


Figure 4.4

In the above figure 4.4 at price OP the quantity demanded is OQ. At point total expenditure is OP × OQ = area OQ RP. When the price falls to OP_1 the quantity demanded increases. Then at points the total expenditure is $OQ_1 \times OP_1$ = Area $OQ_1\ SP_1$

Area $OQ_1\ SP_1$ < OQRP.

This proves that demand is less than unitary elastic when total expenditure on commodity decreases with price falls and increases when price rises.

5. Perfectly inelastic ($E_p = 0$)

When the quantity demanded remains unaffected with the change in price then it is known as perfectly inelastic. In this situation, the demand curve is parallel to Y axis.

In the above fig. 4.5, the quantity demanded is constant at OQ, even with the change in price from OP to OP_1 or OP_2. It is a situation when price elasticity is zero.

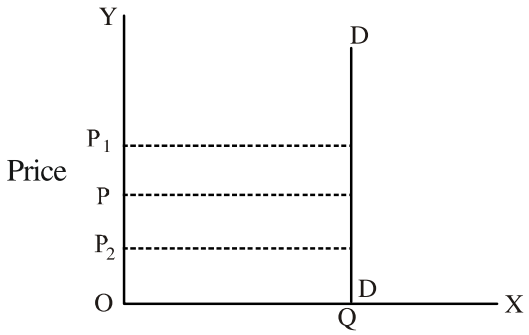


Figure 4.5

Measurement of Price elasticity of demand

Price elasticity of demand can be measured by following methods :-

1. Proportionate or Percentage Method - In this method, the price elasticity of demand is calculated by dividing the proportionate or percentage change in quantity demanded by the proportionate or percentage change in price.

$$E_p = \frac{\text{Proportionate (percentage) change in quantity demand}}{\text{Proportionate (percentage) change in price}}$$

$$E_p = \frac{\text{Change in demand / Initial demand}}{\text{Change in Price / Initial Price}}$$

$$Ep = \frac{\frac{Q_1 - Q}{Q}}{\frac{P_1 - P}{P}} = ed = \frac{\frac{\Delta Q}{Q}}{\frac{\Delta P}{P}} = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

Here E_p = Price elasticity of demand
Q = Initial demand
P = Initial price
Q_1 = New demand
P_1 = New price
ΔQ = Change in demand
ΔP = Change in price

Example - If price of some good is 100 Rs. per kg. then the quantity demanded is 250 grams. When the price falls to Rs. 50 then, the quantity demanded increases to 750 gms. Calculate price elasticity of demand by percentage method.

Answer :- P = 100 Rs P_1 = 50 Rs.

ΔP = 50

Q = 250 Q_1 = 750 gm

ΔQ = 500

$$ed = \frac{\frac{500}{250}}{\frac{50}{100}} = \frac{500}{250} \div \frac{50}{100}$$

$$= \frac{500}{250} \times \frac{100}{50} = 4$$

II. Geometric Method or Point Elasticity

Geometric method measures price elasticity of demand at a point on the demand curve. It is also called point method.

In the Figure 4.6, AB is a straight line demand function. P is the mid point which divides the demand curve in two segments PB (Lower segment) and PA (Upper segment)

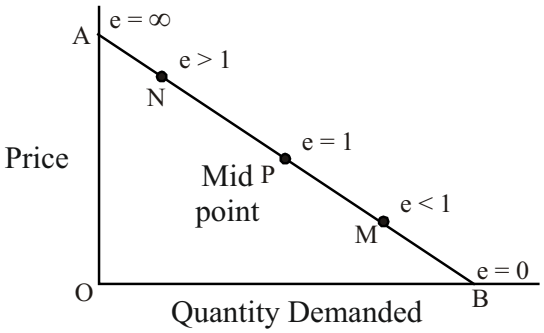


Figure 4.6

Elasticity of demand at point P is the ratio between lower segment (PB) and upper segment (PA)

$$\text{i e} = \quad Ep \text{ (at point P)} = \frac{PB}{PA} = 1$$

As P is the mid point of the demand curve hence, lower segment is equal to upper segment, so the price elasticity at point P = 1

If we have to measure price elasticity at point M between PB segment of AB line then -

$$Ep \text{ (at point M)} = \frac{\text{Lower Segment MB}}{\text{Upper segment MA}} < 1$$

Ep on M point is less than 1.

Price elasticity on point B =

$$Ep \text{ (at point B)} = \frac{\text{LowerSegment0}}{\text{UpperSegmentAB}} = \frac{}{} = 0$$

Price elasticity on point N =

$$Ep \text{ (at point N)} = \frac{\text{LowerSegmentNB}}{\text{UpperSegmentNA}} = \frac{}{} = Ep > 1$$

Price elasticity on point A

Ep = (at point A)

$$= \frac{\text{LowerSegmentBA}}{\text{UpperSegment0}} = \frac{}{} = Ep = \infty$$

III. Total Expenditure Method -

According to this method, price elasticity is calculated on basis of change in total expenditure due to change in price.

Marshall categorised price elasticity of demand in 3 types :-

1. Elastic demand
2. Unitary elastic demand
3. Inelastic demand

1. Elastic demand – If with the fall in price of a commodity total expenditure increases and with rise in its price total expenditure decreases then demand for that commodity is elastic.

For eg. the price of Bikaneri bhujia is₹ 90 per kg. and demand is₹ 400 Kg., then the total expenditure 90 x 400 =₹ 36000. If the price of Bhujia decreases to₹ 80 per kg. and demand increases by 550 kg., then the total expenditure will be 80 x 550 =₹ 44000. As the total expenditure has increased with fall in price so the price elasticity is more than one (e > 1) hence it is called as elastic demand.

2 Unitary demand - If rise and fall in price of a commodity leaves the total expenditure unaffected then price elasticity of demand is unitary (Ep = 1.) When the price of a water bottle is₹ 10 each and demand is 400 bottles, then total expenditure is 10 x 400 =₹ 4000. If the price falls to₹ 8 per bottle and demand increases to 500 bottles then the total

expenditure is 8 x 500 = ₹ 4000. We see that the total expenditure is unchanged, hence elasticity of demand is equal to one.

3. Inelastic Demand – If fall in price of a commodity causes total expenditure on a commodity to decrease, while on contrary rise in price causes total expenditure on a commodity to increase, then demand for a commodity is inelastic or less than one. For eg. if the price of salt is ₹ 10 per kg and total demand is 100 kg. then total expenditure will be 10 × 100 = ₹ 1000. Now if the price of salt declines to ₹ 8. per kg. the demand for salt at this new price is ₹ 110. Therefore the total expenditure is 8 × 110 = ₹ 880. Here with fall in price, total expenditure, too decreases, so price elasticity is less than one or a inelastic.

Thus to conclude, elastic demand is when change in total expenditure is in the opposite direction to change in price whereas in inelastic demand, change in total expenditure is in the same direction as the change in price in unitary elastic demand.

Change in price causes no change in total expenditure. The main limitation of this method is that we can only find whether elasticity is more. The actual measurement is not possible in a numerical value.

Numerical Question

1. When the price of a good is ₹ 11 per unit, then a consumer purchases 8 units. When the price falls to ₹ 8 per unit, then he buys 11 units. Calculate price elasticity of demand by total expenditure method.

Ans. - According to total expenditure method in Frist situation : Total expenditure = 11×8= ₹ 88

In second situation total expenditure= 8×11

= ₹ 88

In both the situations total expenditure remains the same. Thus elasticity of demand is equal to unitary.

2. Calculate price elasticity of demand through percentage method in following tables:

Price per unit (₹)	Total expenditure (₹)
10	180
9	162

Ans. – We will find out quantity demanded by dividing total expenditure with price

$$q_1 \quad \frac{180}{10} = 18$$

$$q_2 = \frac{162}{9} = 18$$

Here $P_1 = 10,\ Q_1 = 18$

$P_2 = 9,\ Q_2 = 18$

$$Ep = \frac{\frac{0}{18}}{\frac{1}{10}} = \frac{010}{181} \times — = 0 \text{ (Zero)}$$

Arc method -

This method is used to measure the elasticity of demand when there are wide gaps in the data available of price and quantity of a commodity. This method studies a segment or part of the demand curve where the segment lies between two points on the demand curve.

Determinants of price elasticity of demand:-

Price elasticity of demand depends on following factors :-

1. Nature of the commodity :- The price elasticity of demand of necessary goods is inelastic. The consumers cannot decrease their demand even if the prices increases for eg. of food grains and medicines etc. ($E_p < 1$)

The price elasticity of comfortable items is unitary as with the change in price the total expenditure on these goods remains the same. ($E_p = 1$)

Luxury items like air conditioners etc. have greater than unitary elastic demand as change in price causes greater change in their demand.

2. Availability of Substitutes :– If for a commodity, close substitutes are available, its demand tends to be elastic for eg; tea and coffee. If for a commodity, good substitutes are not available, people will have to buy it even when its price rises and therefore its demand would tend to be inelastic for eg. salt & liquor.

3. The number of uses of a commodity :- The greater the number of uses to which a commodity can be put, the greater will be its price elasticity of demand. If price of commodity having several uses increase, its demand will be small and it will be put to most important uses. If price of electricity increases it will be withdrawn from using warm water and cooking food.

4. Importance of goods in consumer's budget- Goods on which consumer spends a very small proportion of his income like match box, safety pins pencil etc, will have an inelastic demand. On the other hand, goods on which the consumer spends a large proportion of his income like car etc, their demand will be relatively elastic.

5. Postponement of use - Demand will be elastic for those commodities whose consumption can be postponed, for instance the demand for construction of a house can be postponed on increase in interest rate of house loans.

6. Habit of consumer - Goods to which a person becomes accustomed or habitual will have inelastic demand like cigarette, tobacco etc. He will not decrease their consumption even if their price increases.

7. Time period - Time also influences the demand of commodity. Demand is inelastic in short period as compared to long period. The longer the period of time, the greater is the ease to consumer, who can change his habits and substitute one good for another.

The above study has dealt with price elasticity of demand in detail. Beside this, there are other types of demand elasticity also like income elasticity, cross elasticity and substitution elasticity of demand.

The concept of elastity of demand is of much practical importance. It helps in determination of price in various markets, price determination of factors of production, in formulation of government policies and helps in analysing the problems of international trade.

Important points

- The responsiveness of quantity demanded to the change in its price is known as price elasticity of demand It is negative as there is inverse relationship between price and the quantity demanded of a good.
- Types of price elasticity of demand-

1. Perfectly elastic Ep = $\propto$

   Demand is infinite at specific price and with slight rise in price the demand becomes zero.

2. Elastic demand Ep > 1

   Percentage change in quantity demanded is greater than percentage change in price.

3. Unit elasticity Ep = 1

   Percentage change in quantity demanded is equal to percentage change in price.

4. Relatively Inelastic demand Ep < 1

   Percentage change in quantity demanded is less to than percentage change in price.

5. Perfectly inelastic Ep = 0

   When there is no change in quantity demanded with change in price.

- Measurement of price elasticity of demand-

a) Percentage Method :-

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

b) Point Method :-

$$Ep = \frac{\text{Lower Segment of demand curve}}{\text{Upper Segment of demand curve}}$$

c) Total expenditure Method :-

According to this method price elasticity is measured on the basis of change in total expenditure due to change in price.

1. If with the fall in price of a good total expenditure increases and with rise in its price total expenditure decreases then demand is elastic.
2. If rise and fall in prices bring no change in total expenditure then elasticity of demand is unitary.
3. If with the fall in price total expenditure decreases and with rise in its price, total expenditure increases, then demand is inelastic or less than unitory.

Factors affecting price elasticity

1. Nature of good.
2. Availability of substitute goods.
3. Different uses of goods.

4. The proportion of consumer income spent.
5. Habit of consumer.
6. Time Period.

Exercise Questions

Objective Type Questions :-

1. If there is no change in the quantity demanded of a good with the change in its price then the demand will be –

   A. Perfectly inelastic C. Unitary.

   C. Infinite D. Perfectly Elastic

2. What will be the effect on consumer's total expenditure, due to rise in price, in case of an inelastic demand -

   A. Constant B. Zero

   C. Increases D. decreases

3. The formula for price elasticity according to geometric method is –

   A. $\frac{\text{Lower segment of demand curve}}{\text{Upper segment of demand curve}}$

   B. $\frac{\text{Upper segment of demand curve}}{\text{Lower segment of demand curve}}$

   C. $\frac{\Delta q/q}{\Delta p/p}$ D. $\frac{\Delta p/p}{\Delta q/q}$

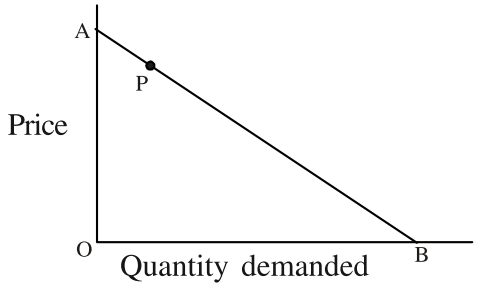
4. If there is 10% rise in the price of samosa, and is 10% decrese in its demand, then demand for samosa will be –

   A. Unitary elastic B. Zero elastic

   C. More than Unitary elastic

   D. Less than Unitary elastic

5. Find the price elasticity of demand on point P by point method -



   A. Relatively elastic B. Unitary elastic

   C. Relatively inelastic D. Zero

Very Short Answer Type Questions :-

1. Define price elasticity of demand.
2. What will be the elasticity of demand if demand curve is parallel to X axis ?
3. What will be the price elasticity at the midpoint of demand curve?
4. Why is the demand of water inelastic?
5. What is the formula of price elasticity of demand according to geometric method?

Short Answer Type Questions :-

1. Explain two factors determining price elasticity of demand.
2. Explain perfectly inelastic demand and perfectly elastic demand with the help of a figure.
3. How do we measure price elasticity of demand according to percentage method?

Essay Type Questions :-

1. Explain the various types of price elasticity of demand with the help of a figure.
2. Explain the various methods of measuring price elasticity of demand.
3. Explain in detail the various factors determining the price elasticity of demand.

Answer Table

1	2	3	4	5
A	C	A	A	A

LESSON 5

CONCEPT OF SUPPLY

To determine the price of any commodity, analysis of demand and supply is necessary. Now we will understand the concept of supply in detail. But first we need to understand the meaning of supply.

Supply is the amount of a product that a producer is offering for sale at a given price during a given period of time. Generally stock and supply are taken as synonymous but in economics they are two different concepts.

Supply is that part of the stock which is offered for sale at a particular price during a given period of time. It can be understood with the help of an example. If a producer, in his oil mill, produces 100 tins of oil then these 100 tins will be called as stock of ready goods. If he is ready to sell 90 tins at market price in this financial year, then these 90 tins will be called as quantity supplied.

Therefore, supply is that part of stock which he is willing to sell in a given period of time.

Factors affecting supply:

The supply of goods and services is affected by various factors. Some factors affect the supply directly, for instance market price of commodity & price of factors of production. Similarly there are some factors which influence the supply indirectly.The factors affecting the supply are as follows :-

1. Market Price of Commodity – When the market price of any good and services is high, then the producer gets more profit. All the producers are motivated by these profit and increase the supply of commodity, by increasing their production. On the contrary, the supply decreases on fall in the market price.

2. Prices of factors inputs – If the prices of factors inputs increase, the cost of production also increases, similarly if the price of factors inputs decrease, the cost of production decreases. If there is increase in cost of production, the quantity supplied in the market decreases and if there is decrease in cost of production, the quantity supplied in the market increases.

3. Price of related products- Sometimes the supply of a commodity gets affected by the prices of related goods (complementary goods and substitute goods). The increase in price of the complementary goods encourages the producers to increase its supply of commodity and earn more profits.

(a) Complementary goods :- In routine, there are many goods which can be purchased individually but their utility is enhanced only when its related goods are also purchased. (Such goods are used jointly. In absence of one commodity the utility of other good becomes zero)for example pen and ink, car and petrol etc. are complemenatary goods.

(b) Substitute goods – Substitute goods are those goods which can be used in place of one another and yet gives equal satisfaction to the consumer. For example – tea and coffee are substitutes for each other that give equal satisfaction to the consumers. Similarly, Pepsi and Coke are also substitute goods.

4. Change in technology – New technology develops with time causing reduction in cost and increase in production. Hence, the supply of specific commodity increase. Such technological improvements give advent to innovation and leads to sudden increase in profits of the producers.

5. Occasional circumstances- In Indian economy, festivals and functions have great importance which leads to sudden increase in demand of certain goods and services. Therefore, producers increase their supply in order to meet the demand and earn more profit.

6. Quality of Inputs- Sometimes, use of good quality of inputs results into increase in production. For example – use of hybrid seeds increases the agricultural production manifold, which in turn increases the supply.

7. Transportation Cost- Transportation cost also affects the supply of the commodity. Proper facilities of transport reduces the cost which has direct impact on transported goods resulting in increase in supply.

Law of Supply

It expresses the functional relationship between quantity supplied of a specific commodity and its price in a given time.

$$S_x = f(P_x)$$

Other things being constant, supply increases with a rise in the price and decreases with a fall in the price. This shows that there is a direct relationship between the price and the supply of a commodity.

Thus, law of supply explains that the price and supply of a commodity move in the same direction i.e. price of the commodity is directly and positively related to the supply of the commodity.

Assumptions of the Law of Supply :-

1- There is no change in supply and price of factors of production. The supply of factors of production of specific good and their prices remains constant.

2- The technology of production remains constant.

3- There is no change in taste and preferences of buyers and sellers.

4- The supply of goods is divisible.

5- Price of related goods remains unchanged.

6- Government policies regarding taxation and subsidy remain constant.

7- Conditions regarding weather and climate should remain constant for supply of agricultural products.

8- Supply of agricultural products in comparison to their price can only be changed after a time lag.

Reasons for the operation of the law of supply:-

1- In order to maximize profit at higher prices firms tries to sell more of their product.

2- At higher prices, new firms enter the market.

3- In the long run, the supply of all the factor inputs is variable. This makes it easier to increase the supply of the commodity.

Supply schedule can be constructed on the basis of law of supply. Supply schedule is of two types–

1 – Individual Firm Supply schedule.

2 – Market Supply schedule.

Individual Supply schedule and Supply Curve:- Individual Supply schedule depicts the available quantity supplied at market prices on specific time.

For example, supply of biscuits by two firms A and B is shown in a schedule (5.1). The schedule given below shows the quantity of biscuits that are supplied by two firms at different prices.

Table 5.1

Firm A Supply Schedule		Firm B Supply Schedule	
Biscut Packet Price (In_e)	Biscut Packet Price (In_e)	Biscut Packet Price (In_e)	Biscut Packet Price (In_e)

At given market price, the quantity supplied by these two firms has been shown in a figure (5.1 a & b). based on table (5.1). The X-axis represents the quantity of biscuit packets and Y-axis represents price per packet.

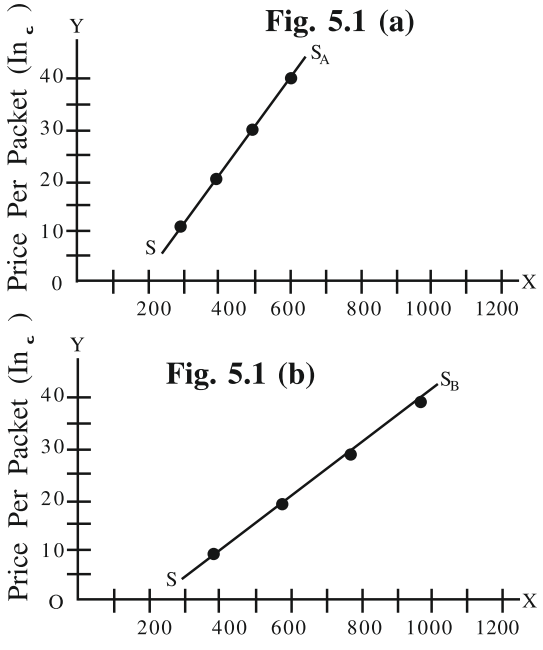


Figure 5.1

The curve showing the relationship between price and quantity supplied is positively sloped. This curve is known as individual firm supply curve.

Market supply schedule and Market supply curve :-

Market supply schedule is a table showing the quantity supplied of a specific good by all the producers or firms at each price for a given period of time. It is a summation of all individual supply schedules. If there are two firms in the market i.e. A and B and their individual supply schedule as shown in table 5.1. The market supply schedule can be constructed as follows :-

Table 5.2 Market supply schedule

Supply of Market Schedule			
Biscuit Packet Price (In_c)	Supply of Biscuit Fron Firm A	Supply of Biscuit Fron Firm B	Market Total Supply A+B = Total Supply

Market supply curve :- The various price quantity combinations of a supply schedule when plotted graphically, the curve obtained is called market supply curve for a commodity. On basis of market supply schedule (Table 5.2), the curve drawn on basis of total quantity supplied of A and B firm at certain specific prices, per day is called as market supply curve (Fig. 5.2). It is obtained by lateral summation of individual firm's supply curves. The market supply curve S_M (Fig. 5.2) shows a positive relationship between quantity supplied of a commodity and its price.

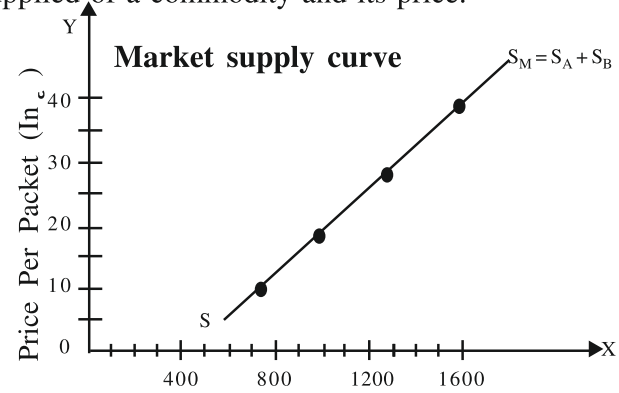


Figure 5.2

In the above given figure (5.2), the X-axis represents the number of packets of biscuits and Y-axis represents the price per packet. Market supply curve S_M is the horizontal summation of individual supply curves S_A and S_B.

Change in supply :

Change in quantity supplied refers to increase or decrease in the quantity supplied of a commodity in response to increase or decrease in its own price, other things remaining constant whereas change in supply curve (shift) refers to the increase or decrease in supply of a commodity in response to change in other factors like change in technology, price of raw material, occasional situations, tax etc.

First, we will try to understand the change in quantity supplied with the help of a curve :-

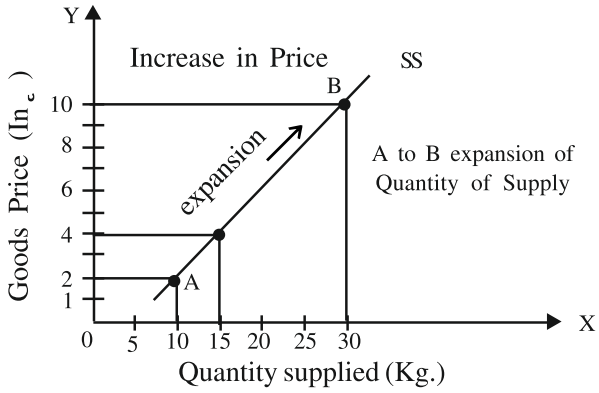


Figure = 5.3 (a)

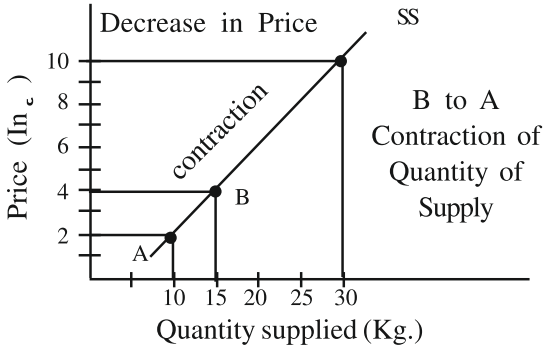


Figure 5.3 (b)

From the figure 5.3 (a) it is clear that increase in price of a commodity from $_c$ 2 to $_c$ 10, supply of commodity increases from 10 kg to 30 kg. This change is depicted on a supply curve SS between point A and B. This area shows the expansion in supply.

Similarly, if the price of a commodity decreases from ₹ 4 to ₹ 2, supply decreases from 15 kg to 10 kg. This is known as the contraction in supply. It is depicted by movement from B to A area along the same supply curve in figure 5.3 (b).

Shifts in supply curve

When supply of commodity changes due to other factors (other than price) such as change in technology, change in inputs price, change in natural resources change in government policies etc. it is called increase or decrease in supply. In this situation, price of commodity remains unchanged. The supply curve shifts either forward or backward.

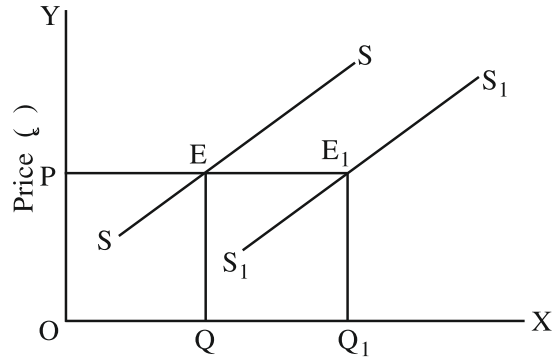


Figure 5.4 (a)

Downward (right) shift in supply curve with increase in supply

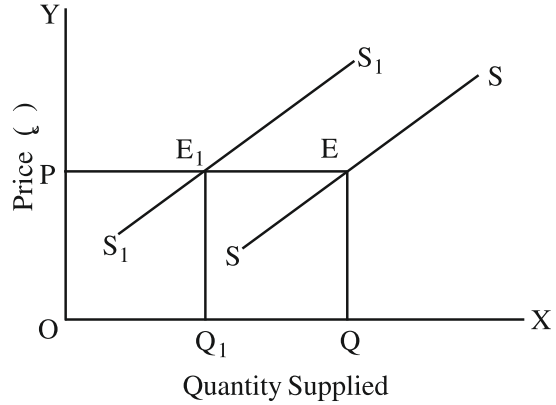


Figure 5.4 (b)

Upwards (left) shift in supply curve due to decrease in supply

Figure 5.4 (a) explains that due to change in technology without change in price of a commodity the supply curve shifts to right (downwards) from SS to S_1S_1. The supply of quantity increase from OQ to OQ_1 (E to E_1) at OP level of Price. This shows the increase in supply. In other situation, suppose the cost of production increases due to this supply curve shifts to left, (upwards from SS to S_1S_1). The supply of quantity decreases from OQ to OQ_1 (E to E_1) in figure 5.4 (b) at OP level of price.

Important points

- Supply refers to that part of stock which is offered for sale at a particular price in a particular period of time.
- With other things remaining constant, an increase in price results in an increase in quantity supplied, while decrease in price results in decrease in quantity supplied, it is called law of supply.
- Substitute Goods – Substitute goods are those goods which can be used in the place of each other and gives equal satisfaction.
- Individual supply schedule shows the amount of a product, that a single producer or a firm is offering for sale at various market prices during a given period of time.
- Market supply schedule shows the sum amount of a product that all the producers or firms are offering for sale at various prices during a given period of time,
- Change in quantity supplied is due to change in price of commodity in concern.
- Shifts in supply curve is due to change in other factors, which we assume to be constant.

Exercise Questions

Objective Type Questions :-

1- Which of the following factors affect the supply-

(A) prices of the commodity

(B) prices of the factors of production

(C) change in technology

(D) all of these

2- The relationship between price and quantity supplied is -

(A) direct and positive

(B) direct and negative

(C) proportional

(D) indirect

3- The slope of supply curve for normal goods is-

(A) Positive (B) Rectangular

(C) Negative (D) None of these

4- If a producer produces 200 units of a commodity in a particular period of time, he makes 180 units available in the market for sale, then supply in market is -

(A) 200 (B) 20

(C) 380 (D) 180

5- Which factor is not responsible for change in supply curve –

(A) price of raw material

(B) change in technology

(C) price of commodity

(D) special occasion

Very Short Answer Type Questions :-

1- Define supply.

2- What do you mean by stock?

3- What do you understand by law of supply?

4- Write the meaning of market supply.

Short Answer Type Questions :-

1- Differentiate between supply and stock.

2- Write any four assumptions of law of supply.

3- Write any four reasons for application of law of supply.

4- Calculate market supply from the following data –

Price	10	20	30	40	50	60	70
Supply of Firm - A	10	15	20	30	40	50	60
Supply of Firm - B	20	30	40	60	80	100	120

Ans 30, 45, 60, 90, 120, 150, 180.

5- Explain shift in supply curve with the help of a figure -

Essay Type Questions :-

1- What is supply? Describe the factors affecting supply.

2- What do you mean by law of supply? Explain the law of supply with the help of a schedule and a figure.

3- What are the factors responsible for the shift in supply curve ? How do technological changes affect the supply ? Explain with the help of a figure.

4- Explain expansion and contraction of supply with the help of a figure.

Answer Table

1	2	3	4	5
D	A	A	D	C

LESSON 6

PRODUCTION FUNCTION

Introduction:

Generally, there is a direct relationship between the prices and supply of goods & services. There is increase in the supply of goods and services with increase in their prices and vice versa. The supply of goods and services in an economy depends upon their productions, which in turn depends on two things–

1. The prices of factors of productions or input.
2. The physical quantitative relationship between input and output.

Hence, it is essential to study the economic analysis of the relationship between input and output. Various economic variables are closely related as in demand –function, demand of good and price of goods and services are related and in supply-function, supply of goods and service are related to their prices, in the same way in production-function, there is relationship between production(output) and factors of production(input) for instance labour, capital, land, management, techonology, entrepreneurship (L, K, N, T, E) are related to the production(output).

Meaning of Function -

'Function' is a technical term of maths. It is a quantitative relationship between two variables (independent and dependent variable), for example, Y = f (X) is expressed as Y is the function of X. It means Y, which a dependent variable, is quantitatively related to independent variable X. Here, f is a symbol for function.

In words of Alfa. C. Chiang, "Function in a specific order is a group of combination of variables (independent and dependent). The characteristic of this function is that any value of X determines the unique value of Y".

Meaning of production function:-

Production function is a quantitative relationship. For instance one labour, machine worth$_{c}$ ten thousand and 20 feet long and 20 feet broad land is required to produce 1 meter cloth. Then the relationship between 1 meter cloth and one labour, machine worth$_{c}$ ten thousands and 20 feet long and 20 feet broad land will be called as quantitative relation. This production function can be expressed as follow:

$$\mathbf{Q_{1\ Meter\ Cloth} = \mathit{f}\ (20 \times 20 Land,\ 1\ L,\ Rs.10{,}000\ K)}$$

where, Q= output, l= labour, K= machine

Definition of production function-

Production function has been defined by many economists. Some of the definitions are as follows-:

Henderson and Quandt- "Production function is an engineering concept, which explains relationship between inputs and outputs.

Dr. Balwant Kandoi- "If the quantity of production by a firm is Q, when factors of production, labour, capital, land, management technique, and enterprenur or enterprise (Ld, L, K, O) are put to production , then we will write this production function as Y = *f* (Ld., L, K, O)"

N. Gregory Mankiw- "The relationship between the quantity of factors of production and quantity of production is known as production function".

Assumptions of production function-

As we have seen previously assumptions are certain fundamental and essential conditions on which laws and theories are based.The fulfillment of these conditions are necessary to prove the validity of any law or theory, as such certain conditions are required to be fulfiled to prove the validity of the theory of production functions.

Production function is based on following assumptions:

1. Production function assumes techonology as given.
2. The price of factor inputs are given.

3. It is related to a particular period of time.
4. The ratio between factor inputs can be changed to a certain extent.
5. The units of factors of productions are homogeneous.
6. The factors of production are variable.
7. The process of change in factors of production is done gradually.
8. The substitution between factors of production can be done upto certain limit.
9. In a short period the supply of fixed factor is inelastic.
10. The objective of firm is to maximise the profit and production.
11. The factors of production are used efficienlty

If there is any change in the above assumptions, then the production function ought to be changed.

Characteristics of production function-

On the basis of various definitions, following are the features of production function-

1. Production function is an engineering concept.
2. Production function is related to flow of factors and production.
3. It depicts the relation of transformation of the inputs into output.
4. It depicts the physical quantity of production produced by the factor input .
5. It is related to specific period of time.
6. One unit of labour or one unit of capital can be substituted by their other units.
7. It is related to a given particular techonology.
8. Production function includes only physical quantity of production and inputs, their prices are not included.
9. On the basis of time production fuction can be classified as long-run and short-run.

After knowing the above features it is necessary to know the changes in production, with the help of production function we can know the short run and long run chages in production. On basis of time, changes in factors of production & their ratios are considerd.

Difference between short run and long run production function-

The main difference between short run and long run production function is regarding the input ratio.In short run, change in production occurs according to the conditions of short run production function. In short run, the ratio between fixed and variable factors changes with change in production.In the long run all the factors of production are changed in same proportion or ratio. The second difference between both types of production function is related to change in techonology. In the short run, there is no change in the given techonology, where as in the long run, techonology can be changed.

On the basis of time there are two types of production function-

1. Production function of fixed proportion.
2. Production function of variable proportion.

Production function of fixed proportion-

In the long run all the factors of the production are variable. The long run production function is also called "fixed proportion production function." and is related to " law of returns to scale".

In the phrase "return to scale" it is necessary to know the meaning of scale. Here 'Scale' means a unit of measurement like metre, litre, kilogram, feet, etc. For instance a man buys 1 metre of cloth but if the unit of measurement is changed to centimetres.then it is said that the man bought 100 centimetres of cloth. In this way with change in unit (scale) we show the measurement in the changed unit (scale).

Similarly for instance, 5 labourers with 2 acre of land produce 10 quintals of wheat. Hence here acre is the unit (scale) of measurement of land. Quintal is unit (scale) of measurements of output of

it is evident that there is twice increase in both the factors of production, land and labour and production measurement units (scale). Hence when both factors of production are doubled, the production also doubles. Though there is increase in input and output in same proportion the ratio or coefficient of the output and necessary factors does not change. In every condition the ratio of land and labour remains 1:25 when in a land of 2 acres, 5 labourers produces 10 quintals wheat then, the proportion between land and output is 1:5 and proportion of labour and output is 1:2. On changing the amount of land and labour, the output also doubles, but ratio of land and labour remains 1:25 and of land and output ratio ratio 1:5 and labour and output ratio 1:2 remains stable asearlier. The fixed proportion production function is explained in table 6.1 and figure 6.1 -

Table 6.1

Change in factor inputs under Return to scale

Land (in hectares)	Changes in of land Quantity	Labour hours (time)	Changes in labour
5	–	100	–
10	2 times	200	2 times
15	3 times	300	3 times
20	4 times	400	4 times
25	5 times	500	5 times
30	6 times	600	6 times
35	7 times	700	7 times
40	8 times	800	8 times

In fixed proportion production function the two factors must be used in fixed ratio such as 10% or 20 % or 200% In the above table 6.1 and figure 6.1 below we see that initially the quantity of land is 5 hectares, and quantity of labour is 100 man-hour. The quantity of land is increased to 10 hectares and labour to 200 man-hour. Thus when the quantity of land is changed 2 times, 3 times, and 8 times. The quantity of man hour is also changed, respectively 2, 3 and 8 times. Thus changing all factors of production in same ratio ensures that the ratio between them also remains the same. Whatever the level of production, here labour cannot be substituted for capital. This is called the situation of fixed propotion production function.

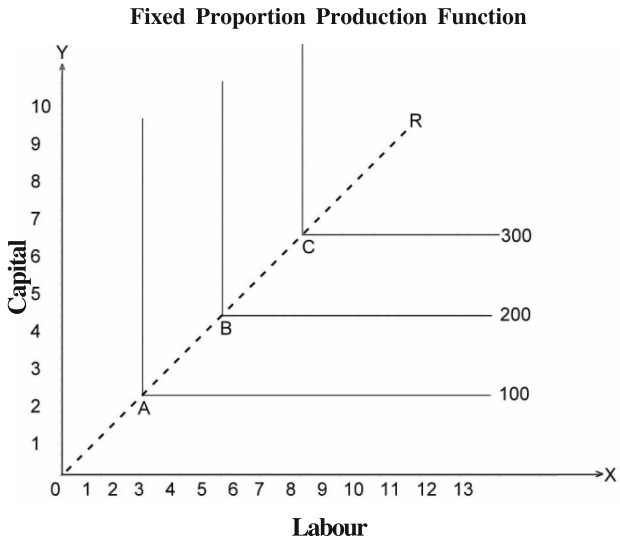


Figure 6.1

There are various types of returns to scale in fixed proportion production function. For instance 1 unit labourer+1 acre of land produces 2 quintal of wheat. If the factors are doubled *i.e.* 2 labourer+2 land and production increase to 6 quintal, then this situation is called as increasing return to scale. The proportionate change in production is more than the propotionate change in the factor input. If on doubling the ratio of factors of production, the production increases to three quintals wheat , then it is called as "decreasing return to scale". As the proportionate change in production is less then propotionate change in factors. When there is change in factor of production and production in same propotion, it is called "constant return to scale". If 2 labourer + 2 acre land yield 4 quintial of wheat then it is the situation of constant return to scale.

Return to scale are related to long run, when all the factors of production are variable.

Short run production function-

The short run production function refers to the time period when the output can be changed only by changes in variable factors. The process of change in production in short run, is called short run production

function,which has various names, diminishing marginal production or law of variable proportion.

The short run production function is mainly known by two names "law of diminishing marginal production" and "law of variable proportion". The word law of diminishing marginal production was first used by French economist Turgot. Later it was used by Marshall and David Ricardo in their theories. Marshall discussed the law of diminishing marginal production in relation to agriculture. Mrs. John Robinson also used this term and according to her the diminishing returns was due to imperfect substitution amongst the factors of production. Later on Stigler, Benham and present econonmists Pindyck and Rubinfeld coined the new name, "diminishing marginal production after certain limit". Richard G Lipsey, and K.A. Crystal also used these words. K.E. Boulding described this law, as law of eventually diminishing marginal physical productivity. E.H. Chamberlin mentioned, that indivisibility of factors of production and change factor ratio are the chief determinants of changes of production in short run. Logical discussions continued amongst A.N. Mgleod, F.H. Hon, Thompson M Python, Morris H Paston, L. Harvey, Leibensleen and E.H. Chamberlin. Thus the behaviour of outputs in short run came to be known as law of variable proportion.

In the short run quantity of one factor changes, keeping the quantity of other factor constant shows the proportional changes in factors of productions. Thus the short period production function is called as law of variable propotion which is illustrated by table 6.2 given below.

TABLE 6.2

(Land In Hectare.)	Man Hours	Total Production
5	0	0
5	1	2
5	2	6
5	3	12
5	4	18
5	5	20
5	6	20
5	7	14

It is clear from table 6.2 that land is fixed and labour is variable. The proportion of both factors are 5:0, 5:1, 5:2, 5:3, 5:4, 5:5, 5:6 and 5:7 respectively. Similarly the proportion between land and output are 5:0, 5:2, 5:6, 5:12, 5:18, 5:20 and 5:14 respectively. In this way there is change in the proportion between factors and minimum factors required changes.

The conclusions are –

1. Initially the short period production was called as law of diminishing marginal productivity which in recent times is called as law of variable proportion.
2. This law is applicable only in short run.
3. In short run production theory only the variable factor (labour) changes.
4. It is possible to change the combinations of factor ratio in the production theory. These changes in factor ratio is not visualised in law of return to scale.

Returns to Outlays -

In returns to scale all factors change proportionately. There is no change in proportion or ratio of factors of production. For example factors cannot be changed as follows capital by 10% land by 20% or labourer by 200 or 300%, The expenses incurred on these factors of production is changed in equal or in different ratios then it is called as returns to outlays.

There is difference between returns to scale and returns to outlay. In returns to scale the proportion (ratio) combination of factors is constant, but in returns to outlays, the proportion combination of factors changes. The long run production function is shown as O = f (L, lab, K, T, E). These factors do not have bars on top which shows that all factors of production are variable in the long run.

Types of production function:

In economics various production functions are well described. The economic problems are analysed with help of various production functions. Few production functions have been developed as improvement over the previous production functions.

In economics there are various forms of production

functions, some important ones are as follows:-

1. Linear Homogeneous production function.
2. Cobb-Douglas production function.
3. Input - output production function.
4. Activity - Analysis production function.
5. Constant elasticity of substitution production function (CES).
6. Variable elasticity of substitution production function.(VES)
7. Transcendental logarithmic production function.

The short run and long run production are differentiated. The output changes differently with changes in factors of production. The short run and long run changes in output are referred as -

1. Law of variable proportion.
2. Law of return to scale, respectively.

Importance of production function:

Production function is related to engineering. In economics it is necessary to know the various alternative production function of any good or services to take decision regarding the efficient production. By camparison of various production function appropriate decision, the knowledge or perception of production function is very necessary.

Important points

- Quantity of goods produced depends upon the following two factors:
  1) Prices of inputs or factors of production, and
  2) Physical or quantitative relationship between inputs and outputs.
- Normally, function means quantitative relationship between two variables (dependent and independent).
- According to Henderson and Quandt "Production function is an engineering concept which explains quantitative relationship between inputs and out puts with given technology".
- In short run production function, only labour is variable and other factors of production are constant. Therefore, it is denoted by drawing bar on the upper part of all fixed factors.
- For the first time in 1947, Prof Chamberlin gave the name of "law of variable proportion" to short run production function.
- Production function, in the long run, is known as returns to scale. In the long run, all factors are variable, however, improvement in technology is not considered. In return as to scale, the term scale means unit of measurement, like metre, litre, kilogram, acre etc.
- In short run and long run, change in quantity of production is known as:- Laws of variable proportions of factors of production. Laws of Returns to scale, respectively.
- Although production function has direct relationship with engineering, but in economics, it is important to have information about different alternatives of production functions while taking decision regarding production of goods and services at optimum output.

Excersice Questions

Objective Type Questions :-

1) Production function is a function of which two variables?
   (A) Inputs and outputs
   (B) Demand and price
   (C) Supply and price
   (D) Consumption and Income

2) What type of relationship exists between inputs and outputs in production function?
   (A) Quantitative
   (B) Qualitative
   (C) Economic
   (D) None of these

3) On the basis of time period, production functions are:
   (A) Short run
   (B) Long run

(C) Middle run

(D) Both (a) and (b)

4) Who did not use the term "law of diminishing marginal product"?

(A) Mrs. Joan Robinson

(B) Marshall

(C) Stigler

(D) E.H. Chamberlin

5) In the production function $P = f(L, \bar{K}, \bar{N}, \bar{T}, \bar{E})$, what does the line drawn above the factors of production mean?

(A) Factors below the straight line are variable.

(B) Factors below the straight line are constant.

(C) Factors below the straight line are homogenous.

(D) None of these

Very Short Answer Type Questions :-

1) What is function?

2) What is production function?

3) According to time period, what are the types of production functions?

4) What does input mean?

5) What is meant by scale?

Short Answer Type Questions :-

1) Explain in brief the concept of production function.

2) Explain in brief the characteristics of production function.

3) Mention the assumptions of production function.

4) From Law of Diminishing marginal production or Law of variable proportions of factors of production which name of the law, according to you, is appropriate and why? Explain in brief .

5) Explain in brief the difference between returns to scale and returns to outlay.

Essay Type Questions :-

1) Explain in detail the concept of production function

2) While differentiating the short run and long run production function, explain each in detail.

Answer sheet

1	2	3	4	5
A	A	D	D	B

LESSON 7

CONCEPT OF PRODUCTION

Introduction -

Consumption is considered as the beginning and end of all economic activities. In the previous chapter, we have studied two approaches of utility analysis, Cardinal and Ordinal related to consumer's behaviour. The power of a commodity to satisfy human wants is known as utility. It is created through production process. Consumption is possible only after production. The demand of goods and services is dependent on their consumption, similarly their supply depends on production. The level of production also decides the level of national income and per- capital income. The prosperity and economic progress of a country lies in the increase in the level of production. It has a positive impact on the standard of living of people.

Meaning of Production -

The act or process of creating, increasing or construction of utility is known as Production. There are many forms of production. For instance the production of food grain by the farmer, manufacturing of cloth, machine, toys, soap, cement furniture etc. are examples of production. Similarly, the provision of various services like education, health, banking, accounting, postal and telephone communications, transport etc. are all acts of production.

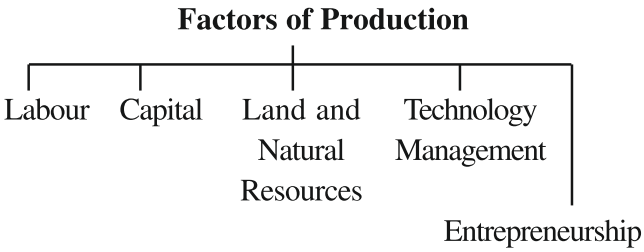
Definition of Production-

Economists have given various definitions of Production. Alfred Marshall has defined it as creation of utility. According to Fisher, production is restoration of utility. Similarly, Meyers has defined production in narrow sense as a process of converting inputs into output.

According to Gerald W. Stone "production is the process of transforming inputs into outputs". In simple words, production is a type of flow of goods and services. It is a special process. Production is a process of creating or increasing the power of goods and services to satisfy human wants.

Various factors of production and their classification:

Production is a process of creating utility. Through production, a flow of goods and services is created over a period of time. Production is done with the help of certain factors such as labour, capital ,land ,management, technology, entrepreneurship (L, K ,N, T, E). Factors of production are also known as "inputs". The production of goods and services is also called output. On analysing different factors of production we find that, they are different in nature. The different types of factors of production are as follows -



1. Land –

Land is a gift of nature. It has the quality of scarcity and is available in limited quantity. There is difference in the fertility of land.

2. Labour –

The meaning of labour is, any physical or mental work undertaken for some monetary reward . According to classical economists labour is the basic factor and it is a active factor of production. It uses all the other factors in production. (Capital, Land, Management, Technology). The supply of labour is both quantitative and qualitative. Today, in the world there is great importance of capital, management, technology and entrepreneurship. But still the value of labour has not decreased in production process. Labour is both, a producer and a consumer.

3. Capital –

Capital is the third important factor of production. In narrow sense it means "capital in cash". Presently, capital includes various types of machines, equipments etc.

4. Management and Technology –

Management and Technology is one of the most important factors of production. Management and Technology help in the organisation of production. Today, organisation of large scale production is done by specialists. The managerial part is looked after by the management team whereas the technical organisation is taken care of by technical experts. The technocrats choose the best available technologies in the production process. Similarly, the management experts adopt the optimum form of business organisation from different available forms like individual ownership, partnership etc.

5. Entrepreneurship -

It is the fifth important factor of production. Lots of risk and uncertainty are borne in production process. The risk factor involved in a Socialist Economy is less, compared to in Capitalist Economy, as it being a free economy, the role of government is negligible.

The organisation of factors of production is done in such a way that the technique adopted is best out of all the available techniques. The cheaper factors of production are used in larger quantity. For instance, if labour is relatively cheaper than capital, then more labour is used. This is known as labour intensive technique. Similarly, if capital is cheaper we adopt capital-intensive technique. Thus the factors of production are organised on the basis of prices of the inputs.

When the quantity of inputs is changed (increased or decreased), then there is a change (increase or decrease) in production too. On the basis of changes in inputs various concepts have been developed, which can be studied with the help of following table -

Table 7.1

Total, Average and Marginal Production

Land (in Hect.)	Unit of Labour	Total Production TP	Average Production AP	Marginal Production MP
5	0	0	0	0
5	1	5	5	5
5	2	12	6	7
5	3	21	7	9
5	4	28	7	7
5	5	30	6	2
5	6	30	5	0
5	7	28	4	-2

From analysing the above table 7.1, we can calculate total production, average production and marginal production when the value of either one is given. For instance, when the quantity of labour is increased respectively 1, 2, 3,..... then marginal production is 5, 7, 9,7, 2, 0..... etc. with the help marginal production we can calculate total production at 3 units of labour as follows -

Total production = Marginal production of 1^{st} unit of labour + marginal product of 2^{nd} unit of labour + marginal product of 3^{rd} unit of labour. Hence, TP = 5 + 7 + 9 = 21 units

Similarly, when the quantity of labour is increased 1, 2, 3.... then total production is 5, 12, 21, 28, 30..... respectively. By dividing total production by the units of labour we get average production 5, 6, 7, 7, 6, and 5 respectively.

Before explaining the theory of production, it is necessary to understand the following three concepts of production.

1) Total product

2) Average product

3) Marginal product

1. Total product (TP)-

Total product is the overall production in a specified time period, while using all the factors. It can be calculated in two ways.

A) By adding the marginal product obtained from various units of factors

B) By multiplying average product with units of factors.

TP = ΣMP or

= AP × Number of labour (units of factors)

2. Average product(AP)-

Average product is obtained by dividing total product with the quantity of various inputs (here labour).

AP = TP / L

3. Marginal product(MP)-

It is the change in total product resulting from change in variable inputs (labour).

$$MP = \frac{\Delta TP}{\Delta L}$$

Where ΔTP = Change in Total Product

ΔL = Change in Quantity of Labour

Marginal product can also be calculated by following formula:-

$MP = TP_n - TP_{n-1}$

On observing the above table 7.1 and the TP and MP curve in fig. 7.2 and 7.3, it is evident that when marginal product increases, total product also increases at a increasing rate. This is the first stage of production. In the above table the 1st stage starts upto the use of 1 to 3 units of labours. The second stage is when marginal product remains or constant or increases at a diminishing rate. In above table it is from 4 to 6 units of labour, here the total product is constant or increases at a diminishing rate. The third or last stage is when marginal product is negative and total product also starts decreasing, here with the use of 7 units of labour marginal product is negative. A rational producer carries on production only upto the second stage. Figure 7.1 to 7.3 help in understanding this situation.

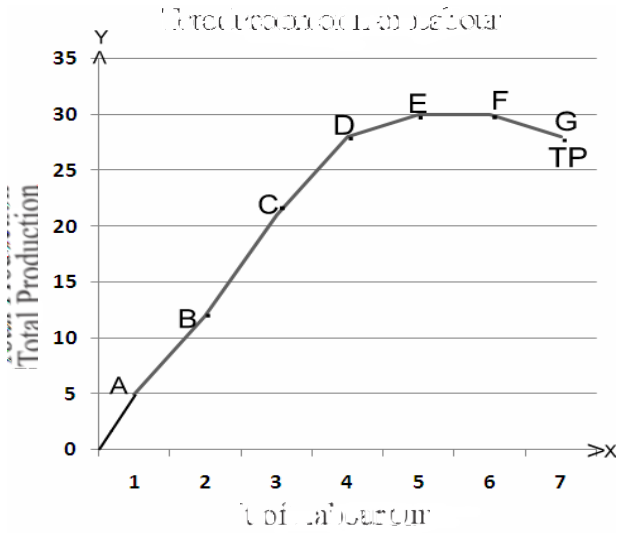


Figure 7.1

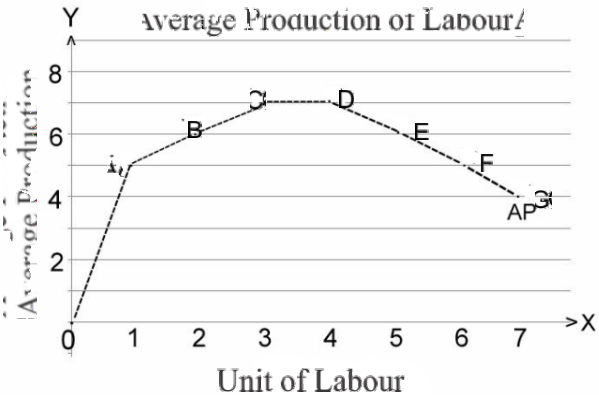


Figure 7.2

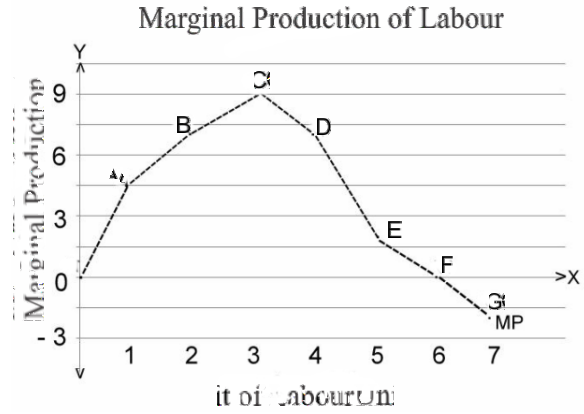


Figure 7.3

1) The changes in average production and marginal product are related to each other. Marginal production depicts the immediate change in production. The changes in marginal product are rapid in comparison to the changes in average production. When marginal product increases, it is situated above the average product and when

marginal product falls, it is below the average product.

2) Average product curve rises and falls gradually in comparison to marginal product. When average product increases, then marginal product increases rapidly. When average product falls, the marginal product falls rapidly.

Law of Variable Proportion-

The Modern economists claimed that the Law of Diminishing Marginal Product is applicable in all sectors of economy. They emphasised that marginal product will eventually diminish not only in agriculture but in all sectors of production. When some factors are constant and others are variable, then with increase in successive units of variable factor, after certain point, its marginal product will start declining. This in known as Law of Variable Proportion. According to Prof. Stigler- "As equal increments of an input are added the inputs of other production services being held constant, beyond a certain point, the resulting increments of product will decrease, i.e., the marginal product will decrease."

In words of Mrs. Joan Robinson- "If an increasing amount of a variable factor is applied to a fixed quantity of other factors, the increments in total output will first increase but beyond certain point it increases at a diminishing rate."

It is evident from the above definitions that due to decrease in the marginal product of a variable factor, after a certain point, total production starts diminishing, whether on keeping one factor constant and others variable or one factor variable and other factors constant.

1) When the quantity of one factor is varied, keeping the quantity of other factors constant. The ratio or proportion between the factors changes due to which the production also changes, hence it is called the Law of Variable Proportion. According to this law, due to change in proportion between factors, there is change in total, average and marginal product in different ways-

Assumptions of the law-

1. One factor of production is variable, whereas all other factors are constant.
2. The change in proportion between inputs is possible.
3. All units of variable input are homogeneous.
4. The state of technology is constant.
5. This law operate only in short-run.

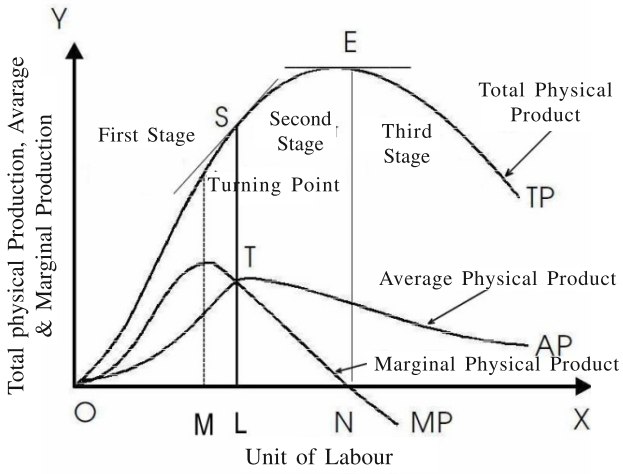


Figure 7.4

Three stages of Law of Variable Proportion-

The behaviour of output when varying the quantity of one factor combined with other can be divided into three stages-

1) Increasing

2) Constant

3) Decreasing

This is explained graphically in the above figure 7.4

A. First stage :-

In this stage, when some factors are kept constant, and labour is increased, the total product increases at an increasing rate. The quantity of fixed factor land or capital is relatively more in relation to the variable factor. With increase in labour the total fixed factors are more intensively and effectively utilised. This causes the production to increase at a rapid rate. In the above

fig. 7.4 from the origin point O to the point S, the total product increases at an increasing rate, the quantity of labour used is from point O to M. At point S where TP stops increasing at an increasing rate, is know as 'point of inflexion'. In this stage marginal product is increasing, hence it lies above the averge product curve. From point 'S' onwards till point 'E' TP increases at a diminishing rate. Here, the first stage of production ends. Stage first is known as the Stage of Increasing Returns because averge product increases throughout this stage.

B) Second Stage-

In stage second the total product continues to increase at a diminishing rate until it reaches the maxmium point 'E' Here, the quantity of labour used is from L to N. The size of fixed factors like land and capital and of variable factor labour is in optimum proportion. At the start of second stage marginal product curve cuts average product curve from above. Here, AP = MP and average product is maximum. At the end of stage at point N, marginal product touches the X axis and is zero. When MP is zero at point 'N' TP is maximim at point 'E'.

E) Third Stage-

After a certain point the combination of fixed and variable factor is not in optimum proportion. In third stage, variable factor is more, relative to fixed factor, hence when a producer increases labour after point N, total product declines. Therefore, TP curve slopes downward after the point 'E'. As a result marginal product is negative and MP curve is below the X axis. The average product also declines.

Stage of rational production -

The rational or optimum stage of production for a producer is a situation, where the production is maximum at given cost, or the cost of production of a given production is minimum. The optimum stage of production is known as Equilibrium of a Producer. In the above fig 7.4 a producer maximizes his output at point 'N' of second stage or corresponding point E of TP curve.

If the producer produces, in first stage with quantity of labour less then point N, then his output will be less than maximum output NE. Similarly, by using quantity of labour more than ON, then the marginal product will be negative, and his total output will be less than maximum output NE. Thus, a rational producer will use ON amount of labour and produce optimum production or optimum quantity NE.

Thus, second stage is known as the Stage of Rational Production. In the first stage, all three - total physical product, average physical product and marginal physical product increase. Hence, a producer is encouraged to increase his production and he enters the second stage. On the contrary, in the third stage, total physical product decreases and marginal physical output is negative. Hence, a producer will not produce in third stage. He will use ON amount of labour and produce optimum output at point E.

Importance

Production function and the concept of production are of greatest importance to a producer, society and government. A producer decides to produce a good or a service on the basis of comparison of production function and 'costs'. Generally a producer chooses the technology of that production function where the cost of production is minimum, quantity is maximum and quality is best.

To decrease the cost of production, governments and society spend large amount on new researches and establish 'Research and Development institutions'.

Thus, it is evident that inputs have important place in an economy. The coordination of all factor inputs is essential for production-process. Economic progress and development depend upon the quantity and quality of factors of production.

Important points-

- Production is the act of creation, increment or construction of utility.
- The factors of production such as labour, capital, land, management, technology, and entrepreneurship help in the process of production. They are called inputs.
- The more use of labour in comparison to capital is called labour intensive method / technique and more use of capital is known as capital intensive technique / method.
- The various concepts on basis of change in inputs, resulting in change in output are Total product= Σ (TPP_1 +TPP_2 + TPP_3.....TPP_n) . Average product AP = TPP_n/L_n, and marginal product (MP) = TPP_n - TPP_{n-1} = $\Delta TPP/\Delta L$
- The change in output, as a result of change in the proportion of inputs in known as Law of Variable Proportion.
- According to Law of Variable Proportion change in total, average and marginal product occurs in different ways when one factor is changed and others are kept constant.
- Initially, the output increases at an increasing rate due to optimum proportion of factors but optimum situation ends at a later stage and lack of coordination among factors is responsible for the diminishing rate in increase of production.
- A rational producer will achieve equilibrium in the second stage of production.

Exercise Questions-

Objective Type Questions:-

1) Which stage of production is chosen by a rational producer ?
   (A) First
   (B) Second
   (C) Third
   (D) Fourth

2) Labour is .....factor of production.
   (A) Active
   (B) inactive
   (C) Neutral
   (D) None of the above.

3) Factors of production are-
   (A) Labour and land
   (B) Capital and technology
   (C) Entrepreneur
   (D) All of the above

4) Generally, the variable factor in short run is-
   (A) Labour
   (B) Technology
   (C) Capital
   (D) Land

5) The point where total product is maximum, marginal product is-
   (A) Zero
   (B) One
   (C) Infinite
   (D) Two

Very Short Answer Type Questions:-

1) What is production?
2) Which are the factors of production?
3) What is total production?
4) Define average production.
5) Define marginal production.

Short Answer Type Questions:-

1) Write the importance of organisation in factors of production.
2) Write a short note on factors of production- land and labour.
3) Explain the relationship between average product and marginal product.
4) Define the law of variable proportion.
5) Describe briefly the rational stage of production.

Essay Type Questions:-

1) Explain in detail the various factors of production.

2) Explain in detail the different concepts of Total Product, Average Product and Marginal Product.

3) Explains in detail the Law of Variable Proportion.

4) Why a rational producer chooses to produce upto the second stage of production? Explain.

Answer Key

1	2	3	4	5
B	A	D	A	A

LESSON 8

CONCEPT OF COST

Every firm has to use some factors of production in the form of inputs for production, for example land, capital, labour, management, raw material etc. Any rational producer will increase the production of commodity to a point where marginal cost and price are equal.

Every firm tries to maximise its profit and minimise its cost. To understand these facts we have to study the concept of cost in detail.

Meaning of Cost:- In economics the expenditure of a firm on inputs for producing the output is called Cost. Classification of Cost is as follows:-

(i) Social Cost

(ii) Monetary Cost

(iii) Opportunity Cost

Similarly, Cost is divided in two types on the basis of accounts-

(i) Explicit Cost

(ii) Implicit Cost

Social Cost :- It includes all sacrifices and difficulties borne by the society indirectly during the production, e.g. loss of health, loss due to pollution, dust, smoke and noise etc. Similarly, it includes the inconvenience faced by public due to industrial and developmental projects. All of these are forms of social cost. It is difficult to estimate them exactly.

Opportunity Cost :- This is also known as Alternative cost. This is incurred mainly on rare and scarce resources. We know that each factor of production has alternative uses.

Opportunity Cost is equal to the value of next alternative use which is sacrified or given up. A firm in order to retain the services of factors has to pay a minimum amount which they could have earned in the best alternative use. This is called his opportunity cost. E.g. A labour is paid ₹ 400 per day, if he can get ₹ 500 per day in other place for the same work, then he has to be paid ₹ 100 extra to remain in present use. Thus, his opportunity cost would be ₹ 100.

Opportunity cost = Present Income – Alternative Income

Monetary Cost :-Whatever expenditure incurred on production or output, in form of money is called Monetary Cost. All types of cash payments are included in this.

Land	Rent
Capital	Interest
Labour	Wages
Management	Salary
Entrepreneur	Profit

Similarly, cost is divided in two types, on the basis of accounts-

Implicit(indirect) & Explicit(direct) Cost :-

Explicit Costs are those costs which are included in account of a firm. e.g. expenditure on raw material, payments of wages, payments of interest etc. These are also known as Direct Costs. They include the payments which are made by the employer to the factors of production which do not belong to himself. Where as Implicit Costs are those costs which are not included or written in accounts of a firm. e.g. value of his own services as entrepreneur, his own capital, furniture and vehicle etc. These are also called Indirect Cost. This includes cost of those factors of production which are owned and supplied by owner himself.

Short run Cost

We have read that time element has important influence on the production function, so we will separately study Short Run and Long Run production function. Similarly, cost is also affected by time element. Since in short run, some factors of production are fixed and others variables, so a firm has to bear fixed cost and variable cost in short-run.

Total Fixed Cost (TFC):-

Supply of some factor of production is constant in Short Run, so the total expenditure on these factors is called Total Fixed Cost. These costs are constant on each level of production. e.g. rent of building, plant or cost of machinery and capital equipments, premium etc. Even if a producer does not produce any thing or shuts down for sometime this cost will be incurred i.e. even at zero output level this cost is constant.

1. Total Variable Cost (TVC):-

In short run some factors of production are variable and total expenditure on these factors of production is known as Variable Cost. This cost increases with increase in the production. e.g. expenditure on raw material, electricity and water etc.

2. Total Cost (TC):-

In short run Total Cost of production is the sum of total Fixed Cost and Total Variable Cost, which is borne by a firm.

Formula : $TC = TFC + TVC$

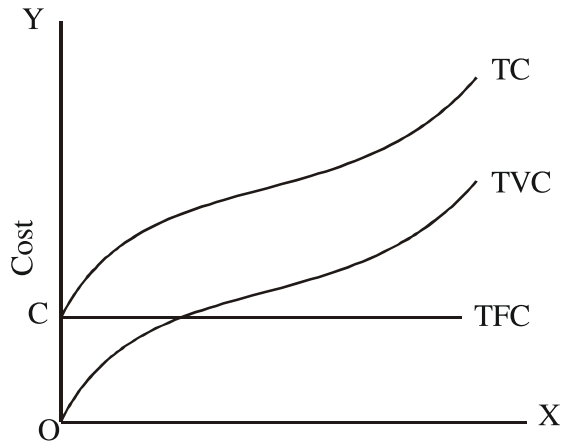


Figure 8.1 depicts the cost.

3. Average Fixed Cost (AFC):-

When total fixed cost is divided by total quantity of production, then we obtain Average Fixed Cost. This cost continuously decreases with increase in production. Due to this reason the shape of this curve is rectangular hyperbola.

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

4. Average Variable Cost (AVC):-

When Short Run Total Variable Cost is divided by Total Quantity of output, it is known as Average Variable Cost.

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

5. Average Cost (AC) -

In short run when Total Cost is divided by total quantity of production, then we obtain Average Cost. Alternatively, it can also be obtained by adding average fixed cost and average variable cost. Thus it becomes clear that in production process both fixed and variable factors are essential. It is a matter of time period, the factors which are fixed in short period can become variable in long period with expansion of plant.

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

$$AC = AFC + AVC$$

6. Marginal Cost (MC):-

In short run, Marginal Cost is the change in total cost on producing an extra quantity of output.

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

ΔTC = change in total cost

ΔQ = change in output

We can easily understand the above concept of cost with the help of following table:-

Table 8.1

Total, Average and Marginal Cost shedule

(in Rupees)

Quantity (Q)	Total Fixed Cost TFC	Total Variable Cost TVC	Total Cost TC	Average Fixed Cost AFC	Average Variable Cost AVC	Average Cost SAC	Marginal Cost SMC
0	10	0	10	∞	-	-	-
1	10	8	18	10	8	18	8
2	10	14	24	5	7	12	6
3	10	18	28	3.33	6	9.33	4
4	10	24	34	2.5	6	8.5	6
5	10	34	44	2	6.8	8.8	10
6	10	50	60	1.67	8.33	10	16

In above table 8.1 all values of various costs can be calculated by given formulas.

Explanation by Figure -

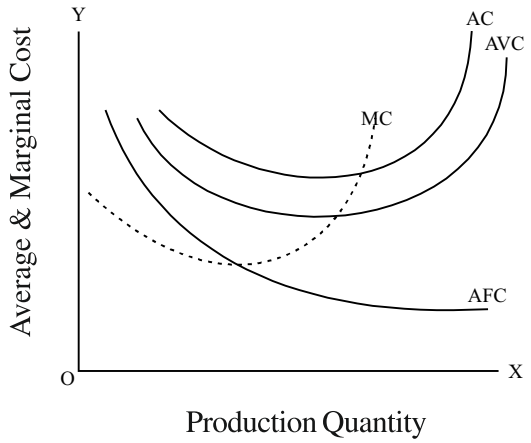
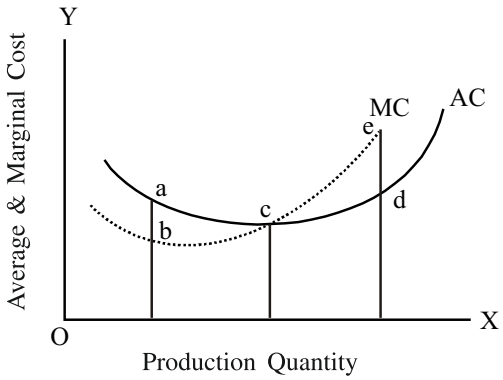


Figure 8.2

In the above figure, it is clear that almost all cost curves have the shape of english alphabet 'U'. When production is increased, then average fixed cost continuously decreases. Therefore, its shape is rectangular hyperbola. Similarly, initially average variable cost decreases, when production increases.



उत्पादन मात्रा **Figure 8.3** X

But after the minimum point is reached, it starts increasing. Average cost is the sum of Average Fixed Cost and Average Variable Cost. The Figure 8.2 shows the relationship between the average cost and marginal cost. It reveals AC and MC curves decrease up to the point c-MC curve falls more rapidly than AC curve.

MC and AC curve increases after c point but relatively MC curve increases more rapidly, then AC curve. At point c, AC curve is minimum, here AC=MC.

Relation between Average Cost and Marginal Cost -

The relationship between average cost and marginal cost is as follows:-

1. When average cost decrease, then marginal cost is less than average cost. MC < AC
2. When average cost is minimum, the marginal cost is equal to average cost. MC = AC
3. When average cost increases, then marginal cost is more than average cost. MC > AC

Long run Cost :-

In long run, change can be possible in all factors of production. They can be increased, to meet the increased demand. The size of plant can be increased if all the factors are variable, only a few factors can remain fixed in the long period. Thus, fixed cost exhibits less importance over long period. We study only Long Run Average Cost and Long Run Marginal Cost.

Long run Average Cost :-

In the long run, to find out the average cost of production, total cost is divided by total output or production.

$$\text{Long-run Average Cost} = \frac{\text{Total cost}}{\text{Total output}}$$

$$\text{LAC} = \frac{\text{TC}}{\text{Q}}$$

Long run Marginal Cost:-To find out the long run marginal cost, change in total cost is divided by per unit change in output.

$$\text{LMC} = \frac{\Delta\text{TC}}{\Delta\text{Q}}$$

Shape of Long run Average Cost Curve :-
Long run average cost curve comprises various short run average cost curves. Its shape is also that of the alphabet 'U' but it is comparatively flatter. It is also called 'envelope curve' and is tangent to SAC's curves. According the Figure 8.4 LAC curve is a tangent to SAC_1,SAC_2 ,SAC_3, SAC_4 and SAC_5

This indicates that firm can adjust the scale of

operation and produce any amount at lowest average cost according to the prevlant demand.

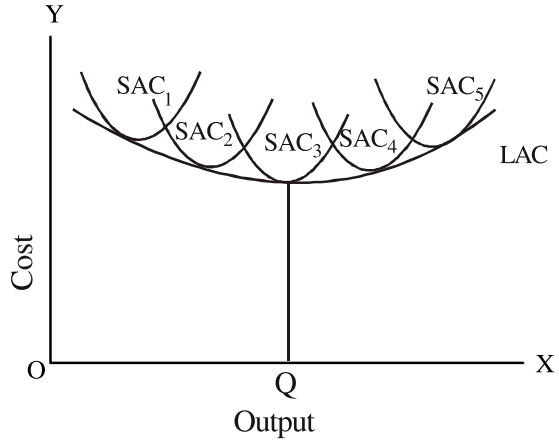


Figure 8.4

Figure 8.5 shows long term marginal cost curve (LMC) that intersects LAC curve at its lowest point and then goes upwards. As a firm establishes new plant in long term, the average production cost will decrease to certain level due to economies of scale after that the production cost increases due to dis-economies of scale.

Long Term Marginal Cost (LMC) :

The LMC curve depicts the change in long run total cost when an additional output is increased. The long run marginal cost curve has same shape as that of short run marginal cost curve (SMC).

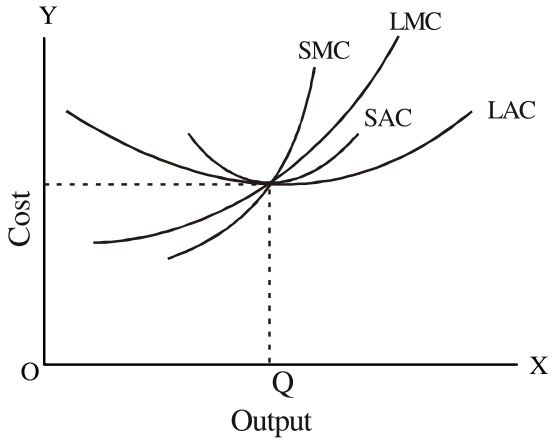


Figure 8.5

In Figure 8.5 LMC curve intersects the LAC curve at its lowest point. At this point SMC too intersects SAC curve.

Therefore, the optimum size of plant is where SMC and LMC curves cut the minimum point of SAC and LAC curves. Hence, all the four are equal.

LMC = LAC = SMC = SAC

Important Points:-

- All expenditures borne by a firm on inputs in production of product or output is called cost in economics.
- All the hardships and sacrifices borne by society indirectly during the production is called social cost for e.g. health loss due to pollution, dust fumes and noise.
- In order to retain the services of factors of production,a firm has to pay minimum amount, which they could have earned in alternative use, is called opportunity cost.
- All expenditure incurred the in form of money on production is called monetary cost.
- Explicit costs are those costs which are included in accounts of a firm e.g. expenditure on raw material, payments of wages, payments of interest etc. These are also known as direct cost.
- Implicit costs are those costs, which are not included or written in accounts of a firm e.g. value of individual labour of entrepreneur, his own capital, furniture and vehicle etc. It is also called indirect cost.
- Firms bear fixed cost in short run due to the fixed supply of some factors and variable cost on variable factors.
- As scale of production increases, the average fixed cost continuously decreases. Hence its shape is rectangular hyperbola.
- Average cost is the sum of average fixed cost and average variable cost.
- All factors of production can be changed in long run. Hence there is generally no fixed cost or it is of less importance.
- Long run average cost (LAC) curve is tangential to various short-run average cost (SAC) curves. It has shape of the alphabet 'U' but flatter and is also called envelope curve.

Exercise Questions

Objective type Questions :-

1. Which cost is borne indirectly by society during the production ?

   (A) Monetary cost

   (B) Average cost

   (C) Variable cost

   (D) Social cost

2. Which curve does not have 'U' shape?

   (A) AC (B) AFC

   (B) MC (D) AVC

3. Which of these costs is not included in accounts?

   (A) Monetary cost

   (B) Real cost

   (C) Explicit cost

   (D) Implicit cost

4. Which curve is also called 'envelope' curve?

   (A) SMC (B) LAC

   (C) SAC (D) LMC

5. If total cost is₹ 200 and quantity of output is 20 units the average cost will be-

   (A) 10 (B) 20

   (C) 30 (D) 40

Very Short Type Questions-

1. What is variable cost in economics?
2. What are Implicit Costs?
3. Define Cost.
4. Write the formula of marginal cost.
5. Which curve has shape of rectangular hyperbola?

Short Type Questions –

1. Give any two examples of fixed cost and variable cost each.
2. Explain the difference between Implicit and Explicit Cost.
3. Explain the relationship between Average Cost and Marginal Cost.
4. What is meant by opportunity cost?
5. Explain long run average cost (LAC).

Essay Type Question-

1. Explain in detail the concept of Cost.
2. Calculate the values of Cost in the given table with the help of formulas-

Q	TFC	TVC	TC	AFC	AVC	SAC	SMC
0	20		20				
1	20		30				
2	20		38				
3	20		44				
4	20		49				
5	20		53				
6	20		59				

Answer Table

1	2	3	4	5
D	B	D	B	A

LESSON 9

CONCEPT OF REVENUE

In the previous chapter, we have studied the concept of Cost in detail. Now we will study the Income (Revenue) which, a producer acquires by sale of his product. On the basis of competition, market is classified into three categories- Perfect Competition, Monopoly and Monopolistic Market. Large variations are found in the revenues of the above markets on basis of sale of commodity and their prices.

Meaning of Revenue:

Here the word 'revenue' refers to the amount of money received by firm, on account of sale of its product. Two elements- cost of production and profit are included in total revenue.

(i) Total Revenue:- Total revenue is obtained by multiplying quantity of a commodity (Q) sold by the price (P) received for it.

Total Revenue = Quantity sold × Price

$$TR = Q \times P$$

E.g. if the firm sells 100 units at the rate of ` 10 per unit, then total revenue will be ( 10 × 100= ` 1000)

(ii) Average Revenue:- Average revenue of any firm is obtained when total revenue is divided by total quantity sold.

$$\text{Average Revenue} = \frac{\text{Total Revenue}}{\text{Total Quantity sold}}$$

$$AR = \frac{TR}{Q}$$

E.g.If any firm's total revenue is ` 20,000 for one month, and total quantity sold is 100 units, then average revenue will be ` 200 (20,000÷100=` 200)

Note :- Average revenue curve is also a demand curve of any firm. Demand depends on the price.

(iii) Marginal Revenue :- By sale of additional unit of product the additional revenue obtained is known as Marginal Revenue. i.e. increase in income due to increase in sale is Marginal Revenue.

$$\text{Marginal Revenue} = \frac{\text{Change in Total Revenue}}{\text{Change in Total Quantity sold}}$$

$$MR = \frac{\Delta TR}{\Delta Q}$$

(Here Δ shows changes)

E.g. If any firm's sale increases from 10 units to 11 units and total revenue increases from 100 units to 105 units then-

$\Delta TR = 105 - 100 = 5$

$\Delta Q = 11 - 10 = 1$

MR = 5 ÷ 1 =` 5

Hence, Marginal revenue will be` 5

From the above analysis, it is evident that average revenue and marginal revenue are calculated on the basis of total revenue.

Revenue curves in various markets :-

Revenue in different types of markets are explained as follows:-

Perfect Competition Market:- In this market there are large number of buyers and sellers. The firm accepts the price determined by the demand and supply in an industry. Thus the total revenue, average revenue and marginal revenue in this market are as follows :-

Table 9.1

Quantity Sold	Total Revenue	Marginal Revenue	Average Revenue
Q	TR	MR	AR
1	5	5	5
2	10	5	5
3	15	5	5
4	20	5	5
5	25	5	5

As in Perfect Competition, firm accepts the price,

determined by the industries. Therefore AR curve is a horizontal straight line, parallel to x axis. TR is obtained by multiplying price with the quantity of sale. As the unit sold increases, TR also increases. Similarly, Marginal revenue (MR) is also equal to Average revenue (AR) and the curve is parallel to X axis, it is perfectly elastic, and depicts the price level. Fig. 9.1(A) and9.1(B) shows the above analysis. AR= MR= P

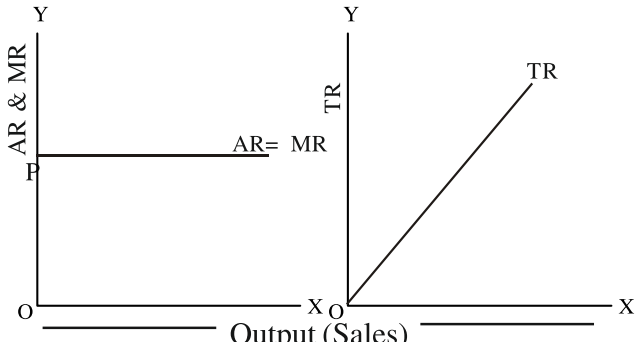


Fig. 9.1(a) Fig. 9.1(b)

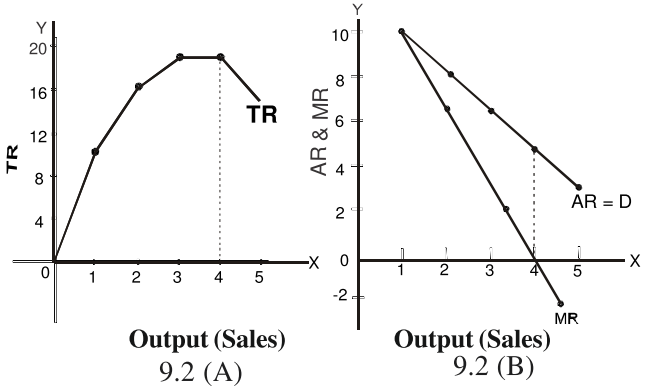
Figure 9.1

Revenue curve in Monopoly Market :-

A market where there is only one producer or one seller of a commodity is known as Monopoly Market. It is a specific type of market where producer determine both price and quantity of his product. In this market concept of revenue can be explained by the following table :-

Table 9.2

Total Sold (Unit) Q	Total Revenue (TR)	Marginal Revenue (MR)	Average Revenue (AR)
1	10	10	10
2	16	6	8
3	18	2	6
4	18	0	4.5
5	16	-2	3.25



9.2 (A) 9.2 (B)

According to the above Figure 9.2 in Monopoly Market total revenue (TR) increases in the begining at an increasing rate, then reaches the maximum point and then decreases onward.

Similarly, both MR and AR curve decreases. MR curve falls at a rapid rate than the AR curve. Both curves are less elastic and downward sloping. AR curve lies above MR curve . Average revenue curve is also the demand curve of a firm.

Revenue curve in Imperfect Competition Market :-

In this market, some firms compete with other firms to maximize the sale of their products. Monopolistic market is a real concept and is found in every economy. Revenue concept in this market can be explained by the given table :-

Table 9.3

Total Sold (Unit) Q	Total Revenue TR	Marginal Revenue MR	Average Revenue AR
1	10	10	10
2	18	8	9
3	24	6	8
4	28	4	7
5	30	2	6
6	30	0	5
7	28	-2	4

The features of this market are the mixture of Perfect Competition and Monopoly Market. The Imperfect Market Competition includes monopolistic competition, Oligopoly and Duopoly.

Monopolistic competition:-

In this market the number of firm is large. Its main characteristic is product differentiation on basis of colour, packing, brand, quality etc. Here non-price competition is also found. In this AR curve is relatively more elastic ($e > 1$) which shows demand is more sensitive to price. Therefore the slope of demand curve is gradual.

In Monopolistic Market TR curve increases in the beginning at a increasing rate, reaches at maximum point and then starts decreasing. In this market AR and

MR both curve are downward sloping. AR curve lies above the MR curve. The slope of AR and MR is more elastic. AR curve is also firm's demand curve. At a point where TR is maximum, MR is zero. Fig. 9.3 explain this analysis.

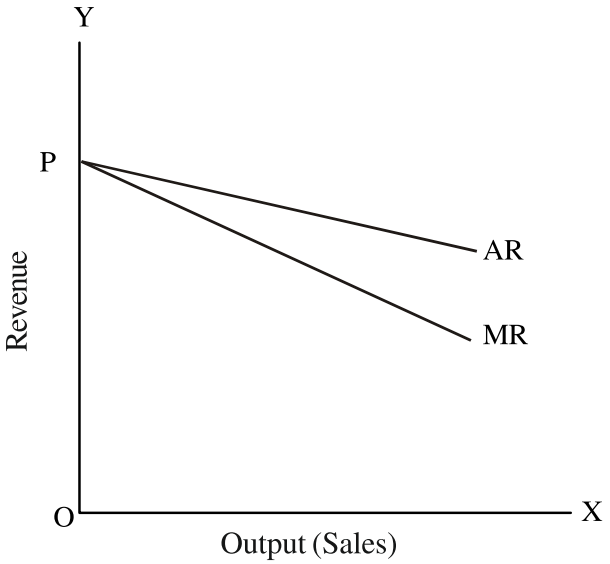


Figure 9.3

Oligopoly Market :-

In this market there are few firms which sell differentiate products. In this market number of sellers is very few therefore every seller has a large share in the total production of an industry. The Price Level increases or decreases on the basis of reaction to the changes in the price of the rival forms. Due to this uncertainty of price the demand curve of the sellers remains indefinite. The demand curve is kinked which shows price rigidity in the market.(fig. 9.4)

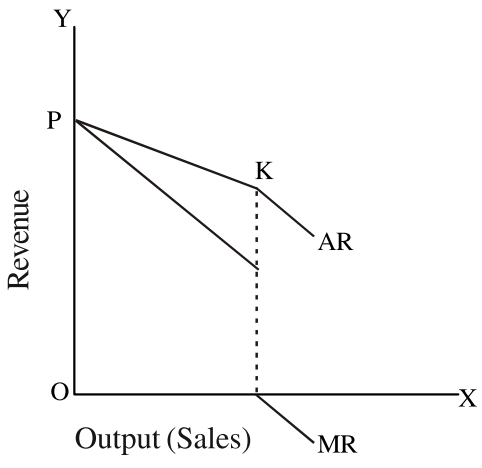


Figure 9.4

Importance of Revenue Curves :-

In this way, the concept of Marginal Revenue and Average Revenue are important to find a firm's equilibrium. Marginal revenue and average revenue play important role, in price determination. In all markets average revenue is producer's demand curve. Any firm or industry's financial condition is assessed on the basis of average revenue and average cost. If AR=AC, it means firm is getting normal profit. Similarly, to know the equilibrium of a firm, the concept of marginal revenue is important. Firm's equilibrium or optimum output is determined where marginal revenue is equal to marginal cost. Thus in economic analysis the average and marginal revenue curve are proved to be useful tools.

Important points:-

- We get total revenue of a firm by multiplying the price with total quantity sold.
- Any firm's average revenue is obtained by dividing total revenue (TR) with total sale (Q)
- The additional revenue obtained by the sale of an additional unit of product, is known as Marginal Revenue.
- In Perfect Competition there are many buyers and sellers. The firm accepts the price determined by demand and supply in an industry.
- The market, which has only one producer or one seller of a product, is known as Monopoly Market.

Exercise Questions

Objective Type Questions :-

1. When sold quantity is multiplied by the price of product we get-

   (A) Average revenue (B) Total revenue

   (C) Marginal revenue (D) Average output

2. If quantity sold is 200 units, at price ` 10 per unit in a month, then the average revenue will be-

   (A) 50 (B) 20

   (C) 25 (D) 10

3. In which market AR=MR-

(A) Perfect competition

(B) Imperfect competition

(C) Monopoly

(D) All the above

4. Which curve depicts price in perfect competition?

(A) AR=MR (B) TR

(C) TR=AR (D) All above

5. In monopoly market, relationship between AR and MR is-

(A) AR = MR (B) AR > MR

(C) AR < MR (D) AR × MR

Very Short Answer Type Questions :-

1. Write the formula of Average Revenue.
2. Define Marginal Revenue.
3. Explain the term 'Revenue'.
4. What is the shape of AR and MR curve in Perfect Competition?
5. Which curve depicts price in Perfect Competition Market?

Short Answer Type Questions :-

1. Explain Average Revenue and Marginal Revenue by an imaginary table.
2. Complete the following table-

Production in unit	1	2	3	4	5
Average Revenue Rs.	6	–	4	–	–
Marginal Revenue Rs.	–	4	–	0	–
Total Revenue Rs.	6	–	–	–	10

(Ans:- MR = 6, 4, 2, 0, -2 AR = 6, 5, 4, 3, 2 TR= 6, 10, 12, 12, 10)

3. Calculate Average Revenue and Marginal Revenue from the following table-

Production in unit							
Total Revenue In Rs.							

Ans. (MR- 10,15,26,9,0,-18 AR -10,12,5,17,15,12,7)

4. Calculate Total Revenue and Marginal Revenue by the following data-

Production in unit					
Total Revenue In Rs.					

Ans. - (TR- 30,56,120,108,80 MR-26,64,-12,-28)

Essay Type Questions :-

1. Explain the relationship between Total Revenue, Average Revenue and Marginal Revenue with the help of hypothetical table and a Figure.
2. What do you mean by Perfect Competition market? Why firm's demand curve is perfectly elastic in perfect competition market? Explain.

Answer key

1	2	3	4	5
B	B	A	A	B

LESSON 10

EQUILIBRIUM OF A FIRM

A firm uses the available resources for production process in an economy. It produces consumer goods and intermediate goods for household and business sector. The aim of all the firms is to maximize the profit. The firm determines such quantity of production at which its profit is maximum. To obtain this objective, it sometimes increases, sometime decreases the production in order to achieve equilibrium condition, where it gets maximum profit. Thus, a firm is in equilibrium when it neither increases nor decreases the output. If a firm sees the opportunity of more profits in future, then it will surely increase or decrease the quantity of output.

To know the profit of a firm, it is necessary to know its revenues and cost curve. In previous chapters, we have studied the revenues and costs in detail. We will explain the equilibrium of a firm in this chapter by using these concepts.

Total Revenue means the total amount of money recieved by the firm from the sale of its product. It is obtained by multiplying price with the quantity sold. Whereas, total cost includes all the expenditure which a firm incures on production of a good. The difference between revenue and cost shows the profit or loss. If the revenue of any firm is more than its cost, then a firm earns profit. While on the contrary if its revenue is less than the cost, then there is loss. In economics, there are two approaches prevelant to analyse equilibrium of firm. 1- Total Revenue and Total Cost approach. 2- Marginal Revenue and Marginal Cost approach . The Equilibrium Price and output refers to that quantity at which firm obtains maximum profit. The equilibrium of all the markets by these two approaches are explained in the successive chapters.

Firm Equilibrium- Total Revenue & Total Cost approach.

According to this approach, the equilibrium of a firm will be where the difference between Total Revenue and Total Cost is the maximum. It is the difference between TR and TC curves. The firm will be in equilibrium at that quantity / output where it obtains maximum profit. This can be explained with the help of following figure-10.1.

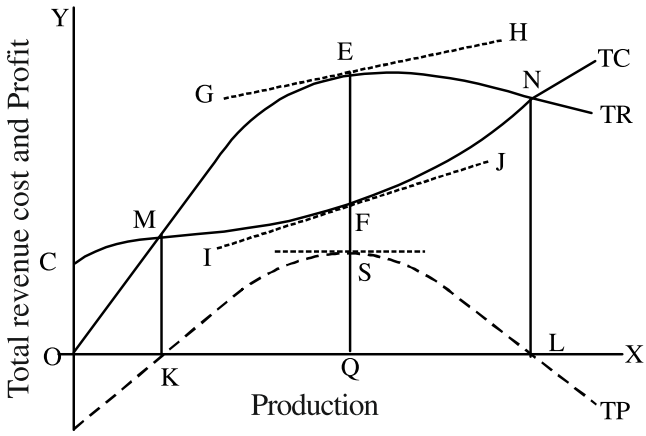


Figure 10.1

1. In figure10.1 on X axis output is shown and on Y axis, total revenue, total cost and profit are depicted.
2. Total revenue curve starts from the origin, which means that when no output is produced, total revenue is zero. As total output increases, revenue curve rises upwards.
3. Total cost curve starts from point C, which lies above the origin, it means OC is the fixed cost which the firm has to bear even if output is zero.
4. Total profit is derived from difference in the vertical distance between TR and TC.
5. Intially, up to the level of output OK, TC > TR showing that total cost is greater than total revenue. The firm incurs losses. The derived profit curve (TP) is located in negative zone.
6. At point M, total revenue just equals total cost

and the firm neither makes profit nor loss. This is known as break even point. The total profit curve touches X axis which shows that at K level of output profit is zero.

7. When total revenue is greater than total cost, between K and L level of output profits began to accrue to the firm. TR curve is above TC curve i.e. TR>TC.

8. In order to find out the maximum difference between TR and TC curves, tangents GH and IJ are drawn. These lines touch - TR and TC curves at E & F points respectively, where the distance between TR and TC is maximum. Therefore profit is also maximum. Equilibrium output is determined at OQ.At point S, the amount of profit is SQ, which is maximum.

9. In between K Q level of output the distance between TR and TC is widening, ie total profits are accrued at an increasing rate and is maximum at S. The profits are also accrued at Q L level of output but gap between TR and TC is narrowing down and therefore total profits are declining and TP curve is sloping downward.

10. At point N again total revenue is equal to total cost. This is called as break even point, where there is no profit no loss. The TP curve touches the X axis.

11. If a firm continues the production after OL level of output, the total cost increases and total revenue falls (TC>TR). The firm is in loss, the total profit (TP) curve lies below X axis. The profits are negative which shows loss to the firm.

The above figure and its analysis depict that the firm's equilibrium is at Q level of output at which the difference between total revenue (TR) and total cost(TC) is maximum. At this point the distance between TR and TC is maximum. The derived profit curve at this point is at apex i.e. the amount of profits SQ is maximum.

Criticism:-

This approach is simple and logical. Most of the firms use it but following flaws are found-

1. It is difficult to know the maximum distance between total revenue and total cost. To find the actual point of maximum output, many tangents are drawn.

2. It is not possible to find out price per unit on basis of the figure, as price is not shown directly.

Marginal Revenue and Marginal Cost approach-

Another approach to firm's equilibrium is marginal revenue (MR) and marginal cost (MC). Marginal Revenue means the additional revenue obtained by sale of an additional unit of commodity. Similarly, Marginal Cost is the additional cost incurred on additional unit of output.

When marginal revenue is greater than marginal cost, the firm makes profit. It is an ideal situation of production as the profit of the firm is maximium, when MC=MR. The firm maximises its profit.

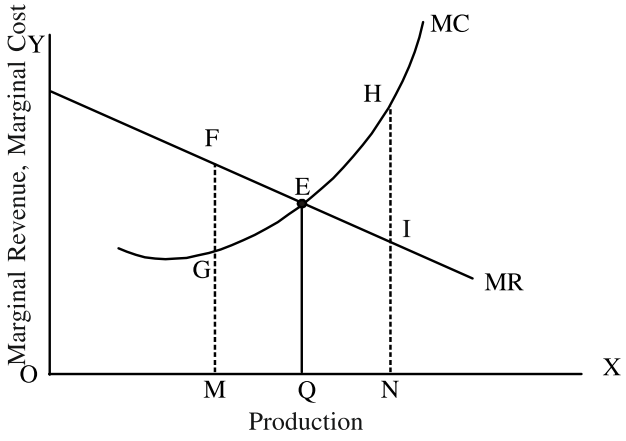


Figure 10.2

Explanation of the figure:-

1. On X axis the output is shown and on Y axis Marginal Revenue and Marginal Cost are depicted.

2. In Imperfect Competition and Monopoly Market, the Marginal Revenue curve falls downwards. The Marginal Cost falls in the beginning, and as the units of output increase, the Marginal Cost also increases.

3. The first condition of firm's equilibrium is that Marginal Revenue (MR) should be equal to Marginal Cost (MC).This equilibrium point is

depicted at point E at OQ level output profit is maximum.

4. If output level is OM, the marginal revenue FM is more than marginal cost (GM). The producer is motivated to increase the output, thus firm, in order to earn more profits, increases its production up to OQ level of output. The profit area is EFG.

5. If level of output is ON, the Marginal Cost HN is greater than Marginal Revenue IN. In such a condition, the firm incurs loss EHI.

Thus, the firm's equilibrium is at point E, where MC= MR. The output determined is OQ, at which profits are maximum.

The other conditions of equilibrium of a firm is that MC curve must cut MR curve from below (necessary in Prefect Competition).

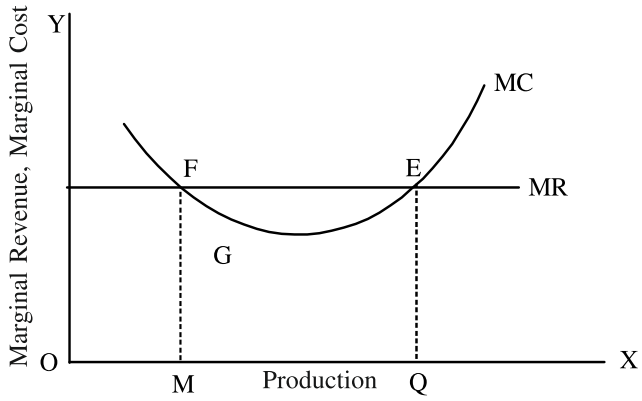


Figure 10.3

Explanation of the figure:-

1. At E point MR = MC i.e. Marginal Revenue is equal to Marginal Cost, thus first condition of equilibrium is fulfilled here. The second condition that MC should cut MR from below is also fulfilled. Thus, at OQ level of output the firm accrues maximum profit. This is called the equilibrium of the firm.

2. If the firm determines OM level of output the first condition MC=MR is fulfilled at point F but as the second condition is not satisfied, the firm cannot maximize its profit because after point F, more profits are obtained by expanding the output. Before point F, MC>MR firm will be in loss.

Thus the firm's Equilibrium is at OQ level of output where both the conditions are fulfilled (i) MC =MR (ii) MC cuts MR from below

Thus, both the approaches are used for firms' Equilibrium.

The marginal revenue, marginal cost approach is superior, as the profit and output can be known easily using the marginal revenue and marginal cost curve. The per unit price can also be known.

These approaches of firm's equilibrium are used in all types of markets. Its analysis is important from both producer and production point of view.

Important points

- A firm is in condition of equilibrium when it has no tendency to expand or contract the output.
- At equilibrium of a firm the producer accrue maximum profit.
- There are two approaches of firm's equilibrium- (i) TR & TC (ii) MR & MC
- According to TR/TC approach, a firm's equilibrium is at point where the difference (distance) between TR & TC is maximum.
- According to MR & MC approach there are two conditions for equilibrium of a firm (i) MR=MC (ii) MC cuts MR from below.
- Both these approaches are used in all types of markets for firm's/ industry's equilibrium.

Exercise Questions

Objective Type Questions :-

1. When firm's total revenue (TR) in greater than total cost (TC), then firm acquires -

   (A) Abnormal profit

   (B) Loss

   (C) No loss no profit

   (D) None of these

2. Break even point is where-

(A) MR = MC (B) TR = TC

(C) MR > MC (D) MR < MC

3. Firm gets loss, when-

(A) MR = MC (B) TR > TC

(C) TR < TC (D) TR = TC

4. According to first condition of firm's equilibrium-

(A) MR = MC (B) MR > MC

(C) MR < MC (D) MR # MC

5. Firm determines the output where

(A) MR = MC and MC curve cuts MR curve from below-

(B) MR # MC

(C) MR > MC

(D) MR < MC

Very Short Answer Type Questions :-

(1) What is the meant by Firm's Equilibrium?

(2) The point where TR=TC is called?

(3) What is the meaning of marginal revenue?

(4) How is total revenue calculated?

(5) What is the condition of the firm when MC=MR?

Short Answer Type Questions :-

(1) Which of the two approachs as (TR/TC/& MR/MC) of firm's equilibrium is superior and why?

(2) What do you mean by break even point?

(3) What are the two necessary conditions for firm's equilibrium, according to MR and MC approach?

(4) What is the meaning of total revenue and total cost ?

(5) How does a firm acquire (make) maximum profit?

Essay Type Questions:-

1. What is meant by firms's Equilibrium? Explain firm's equilibrium by MR=MC approach with the help of suitable figure.

2. Explain the firm 's equilibrium with use of TR and TC approach with the help of figure.

Answer Table

1	2	3	4	5
A	B	C	A	A

LESSON 11

PERFECT COMPETITION MARKET

The word Market signifies a special place where buyers and sellers are engaged in buying and selling of goods and services.

In Economics, the term is used in wider perspective. Market can, but need not be a specific place or location where buyers and seller come face to face for the purpose of transacting goods and services. It refers to all the formal and informal information network such as telephone or mobile, by means of which goods are bought and sold covering a vast area. There exists competition amongst buyers and sellers. It does not refer only to a fixed location.

Curnot's Definition- "Economists understand by the 'market' not any particular place in which things are bought and sold but the whole of any region in which buyers and sellers are in such free intercourse with one another that the prices of the same goods tend to equality easily and quickly".

Thus in Economics the term 'market' is used in a wider sense.

Types of markets:-

In real life we see many types of market which the economists have classified in four categories :-

1. **Local Market –** Local markets are confined to a locality, mostly a village a town or a city. Market of perishable goods like fish etc. falls in this category.
2. **Regional Market-** Regional market covers a wider area may be a district, state or inter-state. The turban of Marwar, Rajasthani chunri-lehanga etc are specific examples of a regional market.
3. **National Market-**When for a specific good its buyers and sellers are spread over the whole country then it is known as National Market. For e.g. markets of food grains, clothes, ornaments etc fall in this category.
4. **International Market-** If the buyers and sellers of a given product are scattered not only in a country but throughout other countries of the world, it is called as International Market. e.g. gems and jewellery, crude oil, engineering product & goods and services of MNC (Phillips, Toyota, Maruti etc.)

Shopping malls- In modern times to acquire the advantage of large gap between the prices of retail and wholesale market, some national and foreign companies buy and sell large varieties of goods under one roof, called shopping malls. For e.g. Big Bazar, Reliance Mart, Patanjali store etc.

On basis of goods :

The classification on basis of nature of work of buyers and sellers falls under this category -

1. **Common Market-** When various types of goods and services are bought and sold in one market then it is called Common Market. In cities and villages, various goods are available easily like foodgrains, clothes, books, vegetables, machinery etc. and goods and services of multi-national companies like Philips,Toyata, Maruti etc.
2. **Specific Market-** If only specific goods and services are sold in a market then it is known as Specific Market, like vegetable market, garments market, provision market, iron market, cloth market, food grain market etc.
3. **Sale by sample-** When goods are sold and purchased by sales representatives through samples. Then it is known as Sample Market. Today most of the companies use this method of sale.
4. **Sale through grading-** Goods are purchased & sold on basis of quality determined by grading

& standardization of goods like food grains, fruits and vegetables. Further for instance 'ISI' is standard used for the electronic goods, ***'FSSAI'*** for foods grains and 'Hallmark' for valuable goods.

Online market- At present time people in small towns to metropolitans, buy & sell, goods and services of their general need through online market, sitting at home like Amazon, Flipkart. Home shope18 etc.

On the basis of sales:-

1. **Retail market-** In this market, the items of daily use are bought and sold in small quantities. The price is slightly more in this market as compared to wholesale market for e.g. A provision store in a colony.
2. **Wholesale market-** In wholesale market, goods are sold and purchased in large quantity, as the price is comparatively less. In wholesale market, a specific good is bought and sold like vegetable and fruit, Iron, cement, hardware etc.

Classification on basis of time:-

A market can be classified on basis of the time elements-

1. **Very short period Market-** Market period is very short period in which supply of a good is fixed or constant. Supply does not increase or decrease. There is change only in the demand. Such market is called very short period market. The market of perishable goods like milk, fruits, vegetable, eggs come under this category.

Very short period market

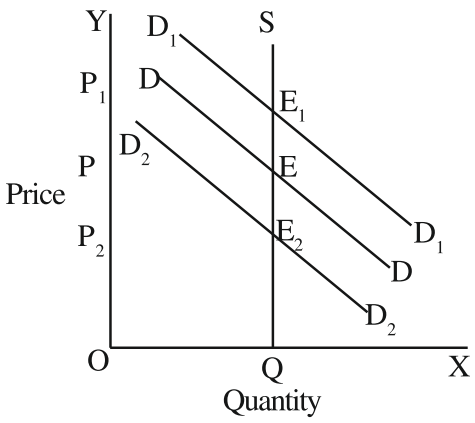


Figure 11.1

In the above figure 11.1on O X axis quantity and on OY axis price is depicted. At point E_1 DD the demand curve intersects the supply curve SQ (Vertical line) thus determining price OP. With an increase in demand, the demand curve shifts upward to D_1D_1 and new equilibrium is at point E_1. Hence the price increases to OP_1. On the contrary with the decrease in demand, the demand curve shifts downward to D_2D_2 with new equilibrium at point $E_2$the price decrease to OP_2. Thus in market period demand has greater influence than supply, as supply remains constant in price determination.

2. Short period market:-

The short period market is related to time in which supply can be increased or decreased in response to the demand, by changing the variable factors. A producer can change the supply of its product by fully utilising the existing capacity of plants and increasing the variable factors.

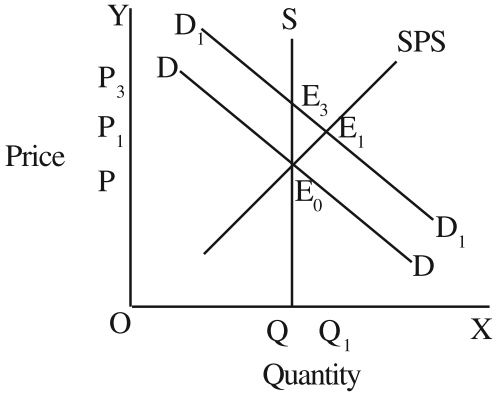


Figure 11.2

It is clear from above figure 11.2 that the initial demand curve DD intersects the initial supply curve SQ at E_0 and price determined is OP. In short period, a producer can slightly increase the supply by making change in variable factors, hence the supply curve is SPS. With increase in demand, the demand curve shifts to D_1D_1 and intersects SPS at point E_1, where the price increases to OP_1 and quantity bought and sold to OQ_1. In market period, with increase in demand equilibrium is at E_3 and price rises to OP_3.

3. Long period market- When the time period is sufficient to adjust supply fully according to the demand then the market is known as long period market. With sufficient time period, all the factors of production can be changed so as to increase or decrease supply

according to demand. Producer can make changes both in fixed as well as variable factors of production.

Long period market

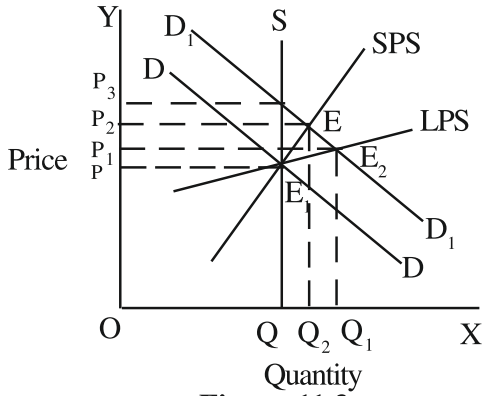


Figure 11.3

In the above fig 11.3 the initial demand is shown by DD, SQ depicts very short period supply, SPS (short period supply) and LPS (long period supply). The initial equilibrium of demand and supply is at point E, where price determined is OP and quantity is OQ. In the long period the equilibrium between supply curve LPS and demand curve D_1D_1 is at point E_2 hence the price increases to OP_1 and quantity demand & supply to OQ_1. The market period price is OP_3 and quantity OQ_2 while of short period the price is OP_2 and quantity OQ_2.

Very long period market- (secular period) When the time period is very long, in which supply fully adjusts to changes in demand. This is referred to very long period market. New products, new technologies, new invention, bring substantial changes in supply. On the other hand, changes in nature, fashion, change size and structure of population bring about changes in demand.

Classification on basis of Competition:

On the basis of competition, markets classification is given in the table below:-

Perfect Competition Market- A market in which the number of buyers and sellers of a homogeneous goods is very large. They possess complete knowledge about market conditions, which assures prefect & free competition in the market. There is one prevailing price of the good in the market. It is an imaginary condition.

Meaning of Perfect Competition- There are large number of buyers and sellers, so that none of them individually is in a position to influence the price

Table 11.1 Classification on basis of competition

Forms of market	Number of firms	Nature of goods	Price elasticity of individual person
Perfect Competition	Large	Homogeneous	E = ∞
Monopoly	One	No close substitution	E < 1 very less
Monopolistic	Few	Differentiated product	E > 1 more
Oligopoly	Few	Homogenous & differentiated	E < 1 E < 1

Classification of Market

- On Basis of area
  - Local
  - Regional
  - National
  - International
- On basis of goods-
  - Normal
  - Specific
  - Sale by sample
  - By classification
- On basis of time-
  - Very short period
  - Short period
  - Long period
  - Very long period
- On basis of competition-
  - Perfect competition
  - Monopoly
  - Imperfect competition
    - Monopolistic
    - Oligopoly
    - Duopoly

in market. Under perfect competition the price is determined by demand and supply of an industry. The supply of an indvidual seller is so small in fraction to total output that he cannot influence the price of the product.

According to Mrs. Joan Robinson- "Perfect competition prevails when the demand for the output of each producer is perfectly elastic. This enacts first that the number of sellers is large so that output of any one seller is negligibly small proportion of the total output of the commodity and second that buyers are all alike in respect of their choice between rival sellers so that the market is prefect."

A firm can sell its product at the price determined by the industry. The demand curve of the firm is perfectly elastic i.e. horizontal straight line. Thus, it is concluded that Perfect Competition is a market where there are a large number of buyers and sellers having cut throat competition amongst them which results in a single prevailing price of a commodity.

Table 11.3

Demand and supply schedule		
Price of x goods (in rupee)	**Demand of x goods (units)**	**Supply of x goods (units)**
10	100	20
20	80	40
30	60	60
40	40	80
50	20	100

In competitive market various firms together form an industry. The price is determined by an industry, which is accepted by all the firms. Thus, a firm is called price take and quantity adjuster.

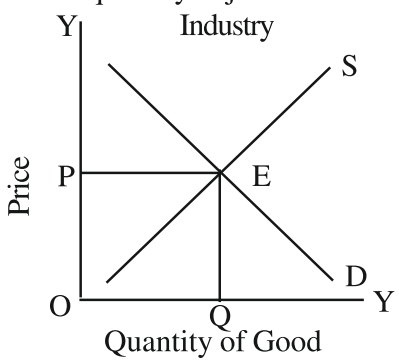


Figure 11.4 (A)

From the above fig. 11.4(A) it is clear that the equilibrium price is determined by the total demand and total supply in the industry. All firms have to accept the price determined and can sell any amount at this price.

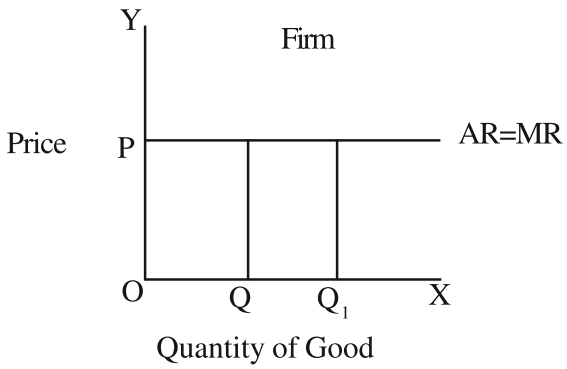


Figure11.4(B)

Fig. 11.4(B), the firm sells OQ quantity at OP price. This is firm's average revenue (AR). Quantity OQ_1 is also sold at OP price thus both Marginal Revenue (MR) and Average Revenue (AR) are equal.

Table 11.3

TR,AR and MR in perfect competition

Goods Unit	Average Income or Price AR / P	Total Revenue TR	Marginal Revenue MR
1	5	5	5
2	5	10	5
3	5	15	5
4	5	20	5
5	5	25	5

Features of Perfect Competition

Following are the features of prefect competition

i. **Large number of buyers and sellers-** As there are large number of buyers and sellers in a Perfect Competition Market, none of them individually is in position to influence the prices and output. The contribution of a buyer or seller in the market is insignificant. Thus, they cannot alter the price by individual action.

ii. **Homogenous product-** All sellers sell identical units of a given product. There is homogeneity

in colour, shape, size, design, quality packing, trademark etc. Thus, it does not create any preference amongst the consumer. The products are perfect substitutes of each other i.e. the cross elasticity of demand is zero.

iii. **Free entry and exit –** Under Perfect Competition, there is free entry and exit of firms. In Perfect Competition a firm gets only normal profit in long period. If the existing firms are making super normal profit in short-run, then new firms will enter the industry to compete away the profits. On the other hand, if firms are making losses in short-run, then some of the existing firm will leave the industry. Thus, it is evident that due to free entry and quit of firms in industry each firm earns only normal profit in the long run.

iv. **Perfect mobility of the factors of production –** Under Perfect Competition, there is free mobility of the factors of production, i.e. the factors are free to move from one industry to another and from one place to another. By optimum allocation of factors of production, they get maximum returns.

v. **Perfect knowledge of buyers and sellers –** Buyers and sellers have close contact in the market. They possess complete knowledge about the price at which goods are being bought and sold and prices at which others are prepared to buy and sell. So, they avoid charging higher price of a product. Such perfect knowledge of market condition forces the sellers to sell their product at prevailing market price.

vi. **Transport cost is ignored -** There is no transport cost in carrying the product from one place to another as buyers and sellers are closely situated. For the existence of Perfect Competition it is required that the commodity must have same price everywhere. Thus this condition is very essential. If transport costs are added to price of a product then the homogenous product would have different prices, depending upon transport cost.

vii. **Firms are price taker and quantity adjuster-** Firms accept the price determined by the industry and adjust their output to earn maximum profit.

viii. **Cut-throat competition –** The competition found in this market among the sellers is known as 'cut-throat competition.'

Perfect Competition is an imaginary concept:-

Perfect Competition is a rare phenomenon . Though real world does not fulfill the condition of perfect competition, yet perfect competition is studied in understanding the working of economy A hypothetical model of perfect competition provides the basis of appraising actual working of economic institutions and organization.

Important points

- In economics, market does not depict a specific place but refers to the competetive relationship between buyers and sellers.
- In a very short period market supply is constant, hence price is influenced by demand. The demand and supply in a very long period can't be foreseen at present time.
- Firm is a price taker and quantity adjuster in Perfect Competition.
- The demand curve of a firm is perfectly elastic or horizontal straight line.
- The contribution of an individual purchase and sale is negligible under Perfect Competition.

Excersice questions

Objective type questions :-

1. The market of perishable goods is :-
   (A) National
   (B) International
   (C) Local
   (D) Regional
2. Price of a good is determined in competitive market by:
   (A) Sellers
   (B) Demand and supply

(C) Government

(D) Finance minister

3. Under perfect competition in long run a firm gets-

(A) Abnormal profit

(B) Losses

(C) Normal profit

(D) Zero profit

4. In which of the following markets the number of buyers and sellers is very large?

(A) Oligopoly

(B) Perfect Competition

(C) Monopolistic Competition

(D) Duopoly

5. The market of ' Rajasthani chunri' will be called-

(A) International

(B). National

(C) Regional

(D) Local

Very Short Answer Type Questions:-

1. Define the word 'market'.
2. Give two examples of 'specialized market'.
3. What do you understand by online market?
4. Write any 2 features of a Perfect Competition market.

Short Answer Type Question:-

1. Explain the difference between 'retail market' and 'wholesale market' .
2. What do you understand by very short period market? Explain with a figure.
3. Classify markets on the basis of time.
4. What do you understand by Perfect Competition Market

Essay Type Question :-

1. Describe the main features of a Perfect Competition Market.
2. Explain price determination of an industry in Perfect Competition market with the help of a figure
3. Calculate Total Revenue and Marginal Revenue in the given table-

Unit of goods (Q)	Average revenue (AR)	Total Revenue (TR)	Marginal Revenue (MR)
1	8	–	–
2	8	–	–
3	8	–	–
4	8	–	–
5	8	–	–
6	8	–	–

4. "Perfect Competition is an imaginary concept" Explain the statement.

Answer Table

1	2	3	4	5
C	B	C	B	C

LESSON 12

OTHER FORMS OF MARKETS

In the last chapter we gained knowledge about different forms of market and studied in detail the meaning and special features of Perfect Competition. In this chapter we will study Monopoly, Monopolistic competition and Oligopoly. Monopoly is totally opposite of Perfect Competition. It provides insight into the operation of other imperfectly competitive market (i.e. Monopolistic competition and Oligopoly). In this chapter, the description of Monopoly and Imperfect Competition is given.

Monopoly -

Monopoly is a market situation where a producer produces such good, which has no close substitute. There is only one seller or producer.

Various economists have defined monopoly as follows-

Stonier and Hague- "The monopolist is the sole producer of a product which has no closely competing substitutes."

Prof. Lerner – "Monopolist is a producer who faces a sloping demand curve of commodity i.e his sale curve is inelastic."

Prof. Chamberlin- "Monopolist is one who generally has full control over the supply of a commodity and in most of the cases instead of conducting supply, he conducts price."

Features of Monopoly-

1) In a monopoly market, there must be only one seller, one producer or one supplier.
2) The good produced has no close substitute.
3) Their elasticity of demand is very less.
4) Monopoly firm is an industry in itself i.e there is no difference between an industry and firm.
5) The demand curve is downward sloping which signifies that a monopolist can sell more quantity at a higher price. As such the MR curve of a monopolist is situated below the AR(D) curve.
6) Monopolist can determine either price or supply. He cannot control both price and supply at one time. If he determines the price of his good then the level of production is determined be the demand of the consumer.
7) The aim of monopolist is to earn maximum profit.
8) There are strong barriers and hinderances on entry of new firms in the industry. These restrictions can by artificial, economic or financial . This can be explained by a simple example.

Sometimes product discrimination is so influential that a consumer recognises a commodity by its brand name. Financial restrictions mean inability of a firm to mange finance as large amount of capital is required .Structural restrictions like the government issues patent (licence) to many firms which is for a long period and a firm is the sole producer. Government provides degree or licence for instance a teacher cannot practice medicine without a medical degree. Economic reason proves to be a great hinderance in entry of firms. For example the average cost of a firm declines due to economies of scale. For this reason natural monopolies can be seen in field of public utility goods such as production of electricity, water and telephone etc. to be regulated by government.

Source of Monopoly-

There are many reasons for the emergence of monopoly situation. The chief among them is restriction on the entry of new firms. There are three main factors responsible for these restrictions.

- The control of producer over important raw material essential for production process.
- The patent right is given by government to a firm to produce and sell his good.
- Due to increasing economies of scale a firm produces at a low cost comparative to other firms.

The above description depicts Imperfect

Monopoly or Normal Monopoly. In a Pure Monopoly, firm produces such goods which have no substitute and the cross elasticity is zero. Beside this, the firm is so powerful that a consumer spends his entire income on the goods produced by that firm. As a result the average revenue curve (AR) is rectangular hyperbola. In reality, this is an impossible situation, hence we study Imperfect Monopoly. The examples of monopoly in India are – Indian Railways, State electricity corporation government's control over nuclear production etc.

Average Revenue and Marginal Revenue Curves in Monopoly.

Monopolist is the sole producer of such good which has no close substitiutes hence demand curve is a negatively sloping curve i.e if the sale of a good is increased its price has to be decreased. As a result, Marginal Revenue Curve falls twice the rate as the Demand Curve. Both curves originate from this common point on vertical line. This is depicted by following table and figure12.1

Revenue Curve in Monopoly- In table 12.1 Total Revenue (column 3) is obtained by multiplying price with quantity (column 1 and column 2) marginal revenue (column 4 is obtanied by dividing changes in total revenue with change in quantity.

Table 12.1

Revenue curves in Monopoly

Price (1)	Quantity (2)	Total Revenue(3)	Marginal Revenue(4)
9	0	0	-
8	1	8	8
7	2	14	6
6	3	18	4
5	4	20	2
4	5	20	0
3	6	18	-2
2	7	14	-4
1	8	8	-6

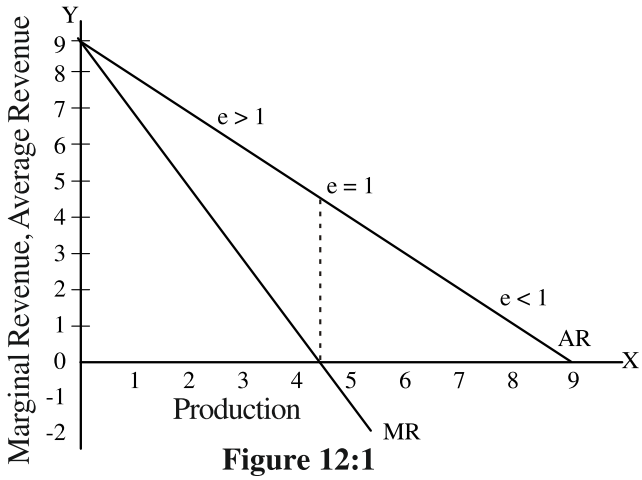


Figure 12:1

In the above Figure 12.1 both curves begin from a common point on the vertical axis MR Curve maintains an equal distance with the vertical line and AR curve. MR curve depicts the change between total revenue and change in quantity of production. When AR is elastic, MR is positive beacause increase in production causes TR to increase.When AR is unitary elastic i.e e =1, then MR is zero as increase in production leaves TR unchanged. Whereas when AR is inelastic i.e e<1, then MR is negative, an increase in production result in reduction in TR. That's why a producer does not produce in this stage. He tries to maximise his total revenue by selling less output at a higher price. On the other hand, cost of production is less on low production In this way he tries to maximise his profit.

The determination of price and output in a monopoly market is done through two methods 1.Total cost and total revenue method and 2. Marginal revenue and marginal cost method. In short run, a monopolist can get normal profit, abnormal profit or loss, but in long-run he earns only abnormal profit. A monopolist practices price discrimination to increase his profit.

Price discrimination- According to Prof. Stigler- "Price discrimination is sale of technically similiar products at different prices which are not proportional to their marginal cost."

Imperfect competition –

The book written by Mrs Joan Robinson- " The Economics of Imperfect Competion" and by Prof. E.H Chamberlin, "Theory of Monopolistic Competition" respectively are quite famous. The market situation found

closer to reality is described in these books. The features of both Imperfect Competition and Monopoly are found in imperfet competition. Now we will study the structure of Monopolistic Competition,Oligopoly and Duopoly market.

Monopolistic Competition -

According to E.H. Chamberlin – "Monopolistic Competition is a challenge to the traditional view point of economics that in competition and monopoly are alternative and that individual prices are to be explained in term of either one or the other. By contrast, it is held that most ecomomic situations are composites of both competiton and monopoly". The above definition clearly shows that monopolistic competition is the market situation midway between the extremes of perfect competition and monopoly. It is nearer to the real world situation. The structure of this market can be understood more deeply by studying its follwing features.

Features:-

1. Large number of firms – Under monopolistic competition there are large number of firms but their size is very small so they are unable to influence production, they all work independently. The quantity and policy of sale does not affect each other. Their need for capital is also less because of their small size. The production technique is simple. The economies of scale are limited. This market structure can be seen in retail market service sector. At national level cotton textile industry, food processing, electric appliances are some of its examples. This market structure is also visible in local market like retailer, petrol station, newspaper, shop, restaurant, etc.

2.Product Differentiation

Unlike Perfect Competition rather such goods are produced which are perfect substitute nor like Monopoly, which have no substitutes. Under monopolistic market, such goods are produced which have close substitutes. Goods produced are alike but not identical.

i. The products differ from one another in colour, shape, brand, quality packing etc.

ii. Products are also differentiated through patents and trademarks . In india which have patents like Dell, Hindustan Unilever Limited, Reliance industry limited etc. Similarly, the various trade marks of tooth paste are Patanjali, Colgate, Palmolive, Close-up etc.

iii. Today's age is called the age of advertisement because of advertisements & publicity. They play an important role in creating differentiation in products. It is done to increase sales. Beside providing information to consumers, advertisement also influences them psychologically.

iv Difference in work-skill and credit facilities also creates product discrimination.

In this way, price differentiation is the important feature of monopolistic competition which makes demand relatively elastic (e>1). Besides this, every producer has monopoly over the production of his specific product though it is very limited

3. **Free entry and exit of the firm.** As the size of firms is small so the less capital and easy technique is needed. For this reason new firm can easily enter the group and exit on incurring losses.

4. Many firms together in the market is known as group. Instead of industry the term 'group' is used. The products in industry are homogeneous. In monopolistic competition products are close subsitute of each other. That's why term 'group' is used.

5. There is difference in selling-cost. This is also an important feature of this market structure.

6. Non-price competition is also an important feature of monopolistic competition. The price of production being constant the firms compete by offering gifts, free maintenance services etc. to attract buyers.

Average and Marginal Revenue curves

The increase or decrease of price in Monopolistic Competition has a great influence on demand with slight increase in price of a good. The consumer in its place buys the good having lesser price as close substitutes are available.

Thus demand is relatively elastic e > 1. The demand of a good on specific price depends on the price of

substitutes, advertisements, interest, fashion and income

of the consumer. The slope of demand curve is less slanting or relatively elastic.

The elasticity of firm's average revenue curve depends on following elements-

A The amount of product differentiation between the firms.

B The preferences of consumers.

C The number of firms in the group.

The importance of concept of monopolistic competition is decreasing. Some of its criticism are as which products of firms should be kept under this market structure? There are limited number of firms having important brands which can be kept under Oligopoly. Sometimes very less product differentiation is found. Inspite of the criticism it is an important and real market structure which helps in the study of Oligopoly

Oligopoly-

Oligopoly is that form of market where there are few sellers. They sell both homogeneous and differentiated goods. If there are only two sellers of a good then, it is called Duopoly. It is the simplest form of Oligopoly.

Automobiles, cement, steel, and aluminium etc. are some of the in Indian examples of Oligopoly markets.

Many firms think it to be beneficial to organise themselves to do away with competition, the merger of the various firms take form of Oligopoly. Due to vast investment, only few firms are functional (operative) in production. The size of some firms becomes big due to economies of large scale of returns.

Features of Oligopoly

1. **Interdependence-** Mutual interdependence is found due to few number of sellers. Every firm

Table 12.1 Classification of Markets

Basis	Types	Features
Product Defferentiation	Pure Oligopoly	Firms produces homogeneous goods
	Impure Oligopoly	Firms produces differentiated goods
Agreement	Collusive	Firms determine output and price
	Non Collusive	There is no agreement between the firms.
Freedom of entry	Open Oligopoly	In a market when firms can enter an industry.
	Closed Oligopoly	When firms cannot freely enter an industry.
Co-ordination	Business Oligopoly	The sale of commodities is through centralised business.
	Organised Oligopoly	When firms get together to determine price and output.
Price Leadership	Partial	In partial industries the price is determined by leader (big) firm which is called Price Leadership Firm.
	Complete (Perfect)	All the firms are mutually inter-dependent and influence each other's price and output.

is capable of influencing the production and price as they have a large share in the market. The price policy, sale process(style), production policy, advertisement, type of product etc. Influence all the firms in the industry. If a particular firm wants to increase its sale by decreasing the price, then what will be the reaction of other firms ? Will they too decrease the price? Will they increase advertisement expenditure? Will they change the quantity of product? These are some of the questions which are to be ensured before determining the price- policy by a firm.

2. **Competition-** In Oligopoly, sellers are influenced by each other as they are few in number. Every firm keeps an eye on the move of other competitive firms and are ready for retaliation (counter-action). The actual competition is reflected in this market form.

3. **Advertisement –** In words of Prof. Baumol- "Under Oligopoly , advertising can become a life and death matter." Due to mutual dependency among firms, they have to incurr a good deal of cost on advertisments and other measures of sales promotion to maintain their share in the market.

4. **Price Rigidity-** If a firm cuts down the price to increase sales, then other firms will also follow it. As a result price-war takes place, which is not profitable to any firm. On the contrary, if any firm increases price to earn more profit then sales will go down. As a result in both the situations prices stay constant.

5. **Rivalry between the firms-** There is continuous competition among firms to earn profit and maintain their dominance. There is always a situation of struggle and rivalry among the firms.

Demand curve in Oligopoly (Average Revenue)

The Demand Curve in Oligopoly is indeterminate due to excessive interdependency among the firm, Initially, Paul M. Sweezy put forward the hypothesis of kinked demand curve.

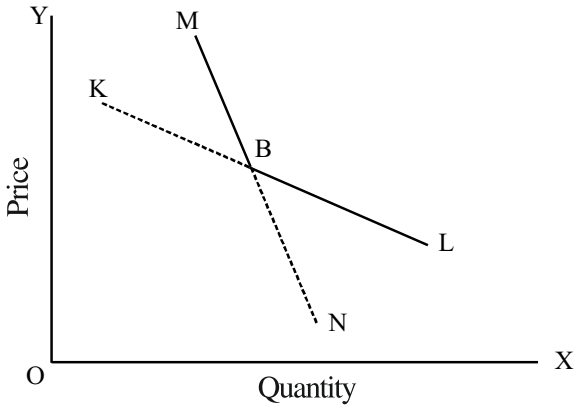


Figure 12.3

In the figure 12.3 there are two demand curves KL, which is more elastic and MN, which is less elastic. An oligopolist has to face more elastic demand curve at higher price and inelastic demand curve at lower price. The demand curve of a Oligopoly is kinked at a determined price.In the above figure, B is the kinked point.

Important points-

1. Monopoly means single producer or single seller.
2. A monopolist produces a good which has no close subsititutes.
3. There are external barriers on the entry of new firms in monopoly market.
4. Product differentiation is an important feature of monopolistic market.
5. In Oligopoly, there are few big firms which produce both homogeneous and differentiated products.
6. The demand curve in oligopoly is kinked.

Exericse Question

Objective Type Questions:-

1. In a Monopoly market there are/is-
   (A) Many sellers
   (B) Few sellers
   (C) One seller
   (D) Two sellers
2. Who propounded the "Theory of Monopolistic competition"-
   (A) Prof. E.F Chamberlin
   (B) Mrs. John Robinson

(C) Edwin Canon

(D) Alfred Marshal

3. Which is not the feature of Oligopoly?

(A) Interdependence

(B) Price rigidity

(C) Indefinite demand curve

(D) Single seller

4. Which type of goods are produced in Monopoly Market-

(A) goods which have close substitute

(B) goods which have perfect substitute

(C) goods which have no close substitute

(D) None of the above

5. The elasticity of monopolist demand curve is

(A) Less then 1 (e<1)

(B) More then 1 (e>1)

(C) Equal to 1 (e=1)

(D) Zero

Very Short Answer Type Questions :-

1. Write the meaning of monopoly.
2. What is the main objective of Monopolist?
3. What is the meaning of Price-discrimination?
4. Which market's feature is Product Differentiation?
5. Write one feature of Oligopoly market.

Short Answer Type Questions :-

1. Define Monopolistic Market.
2. Explain the statement. "actual competition is found in Oligopoly."
3. Write any two features of Oligopoly Market.
4. Write any two features of Monopolistic Competition.
5. Write the meaning of Imperfect Competition.

Essay Type Questions :-

1. Explain the statement, "Monopoly Market is the situation of extreme limit".
2. Write in detail the features of Monopolistic Market.
3. Write the meaning and features of Oligopoly Market.
4. What is Product Differentiation ? How it is done by various methods?
5. Compare Monopoly and Monopolistic Market.

Answer Table

1	2	3	4	5
C	A	D	C	A

LESSON 13

MARKET EQUILIBRIUM

Meaning of Equilibrium -

The word equilibrium is derived from the word, acquilibrium which means state of balance.

Prof. Stigler- "An equilibrium is a position in which there is no net tendency to move, we say net tendency to emphasize the fact, that it is not necessarily a state of sudden inertia but, may instead represent the cancellation of powerful forces."

Prof. J.K. Mehta - "The meaning of equilibrium is the position of rest where there is lack of change".

Prof. Boulding has explained -"Static equilibrium as mechanical analogy may be found in a ball rolling at a constant speed or better still of a forest in equilibrium where tree sprouts, grows or dies but, where the composition of a forest as a whole remains unchanged."

To conclude it can be said that the meaning of equilibrium is not rigidity. It refers to movement with no change.

Market Equilibrium –

Market Equilibrium is a situation of the market in which demand for a commodity in the market is equal to its supply at a particular price.

Thus, it is evident that when equality is established between the supply and demand of a commodity i.e. Market Equilibrium thus refers to condition when total demand is equal to total supply and there is no excess or shortage of a commodity in a market. Equilibrium is the condition which once achieved tends to persist in time. Market equilibrium that is also called the general theory of price determination or demand and supply theory of price determination. Marshall assumed that the price of commodity is neither determined by its demand (utility) nor by its supply (production cost) but is determined by the forces of demand and supply.

Price determination can be understood with the help of following factors:-

(A) Demand :

Why does a consumer make a demand of a commodity? Why is he ready to pay a price of a commodity? And what is the maximum price he can pay? On analyzing these questions it is evident that a commodity is demanded because of its utility i.e. the power of a commodity to satisfy wants. A consumer desires a commodity to fulfill his want, and for that he is ready to give away money, which is the price of a commodity. He is ready to give more price for a good which has more utility and less price for a good having less utility. The above analysis specifies that the price of a good cannot be more than its marginal utility.

The price at which a consumer is ready to buy a specific amount of a good is called Demand Price. The demand for a good at different prices is different for each consumer. Every consumer has a demand schedule. The sum of all the individual demand schedules is called Market Demand schedule which shows the quantity demanded at different prices.

Table 13.1 Market Demand Schedule

Price of goods (Rs.)	Demand of various Consumers (in units)			Total Market Demand
	A	B	C	
5	6	8	11	25
10	5	7	10	22
15	4	6	8	18
20	3	5	7	15
25	2	3	4	9
30	1	2	3	6

Explanation -

The above table shows that with the rise in price of a good the quantity demanded by different consumers decreases. For instance there are three consumers in the market whose demand is depicted in the table 13.1

on analyzing the table it can be said that with the rise in price, market demand decreases.

Total Market Demand Curve

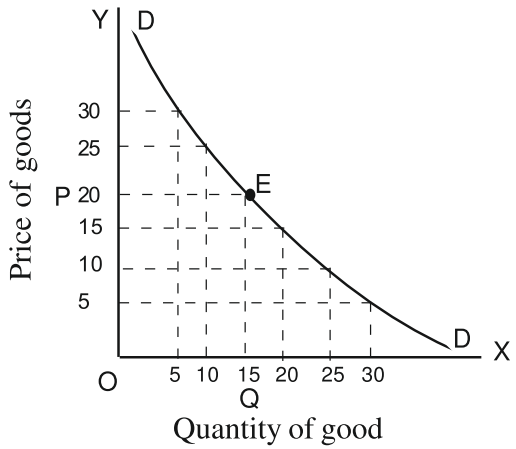


Figure 13.1

Explanation of the Figure:-

In the above Figure 13.1 on OX axis the quantity of a good is shown and on OY axis the price of a good. The sum total of all consumer demand is depicted by demand curve DD, where at price OP the quantity demanded is OQ. With rise in price, the quantity demanded decreases, the negative slope of demand curve depicts the inverse relationship of price and quantity demanded in the market.

(B) Supply :

What will be the price of a good? Why is a good supplied? What price will be charged of a good supplied? On analyzing the above questions, it is evident that a producer bears cost to produce a good. He charges price for supply of good. In short run a producer cannot take price less than, the marginal cost of a good. In the long run, the price should be equal to the average variable cost otherwise he will stop the production. Hence, marginal cost depicts the minimum level of the price of a good. Supply schedule in table 13.2 shows the quantity supplied of a commodity at each price for a given period of time by producer.

The sum of all individual supply schedule gives a market supply schedule.

Table 13.2 Market supply schedule

Price of goods (₹)	Supply by different producers			Market supply
	A	B	C	
5	0	1	1	2
10	0	2	3	5
15	1	3	5	9
20	3	5	7	15
25	5	8	10	23
30	8	10	13	31

Explanations of the table

It is assumed that there are three producers in the market. The above schedule shows that with rise in price the supply of goods by different producers increases. The total of all the individual supply gives market supply An increase in price leads to increase in supply of the commodity. There is direct relationship between the price and supply of a commodity.

Total Market Supply Curve

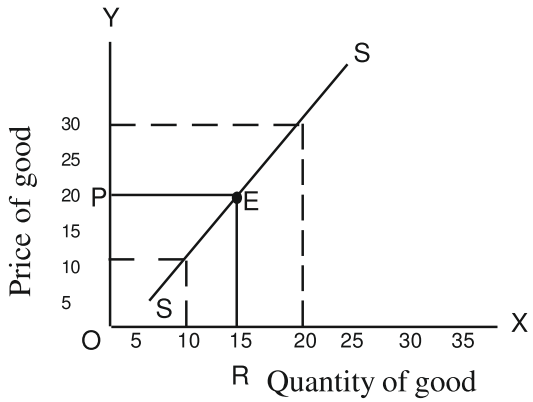


Figure 13.2

In the above Figure 13.2 on X axis the quantity of a commodity and on OY axis price is depicted. On OP i.e. price ₹20, OQ i.e. is 15 units is the quantity supplied.With increase in price, quantity supplied also increases. There is a direct relationship between price and quantity supplied of a good.

Demand and Supply Equilibrium

Analysis of demand side clarifies that the Marginal Utility of a good is the highest limit of its price, whereas by the analysis of supply side, it is evident that Marginal

cost is the lowest limit of the price of a good.

The actual price of commodity is determined at a point between these two limits. The demand analysis determines the upper limit of price by marginal utility while the supply analysis helps to determine the lower limit of price of a good by marginal cost. Buyer wants to pay the least possible price whereas seller wants to take the highest possible price. The price determined at the equilibrium, point is known as equilibrium prices and the quantity determined at this price is known as 'equilibrium quantity'. The Equilibrium Price of commodity is price at which quantity demanded of a commodity equals to its quantity supplied.

Table 13.3 Determination of Equilibrium Price

Price of x good	Demand of x good	Supply of x good
5	25	2
10	22	5
15	18	9
20	15	15
25	9	23
30	6	31

Explanation of table -

From the table 13.3 it is evident that with the rise in price of a good, its demand falls whereas supply increases. In the table, the equilibrium price is ₹ 20 where the quantity demand and supplied both are equal at 15 units each.

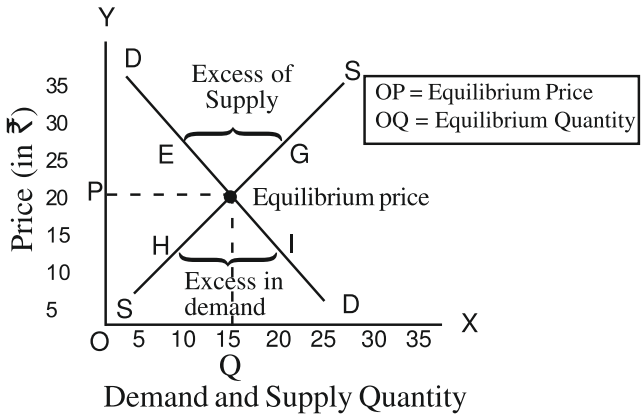


Figure 13.3

Explanation of the Figure -

In the above Figure 13.3 OX axis depicts quantity demanded and supplied whereas OY axis depicts the price of a commodity. DD is the demand curve and SS is the supply curve. Both demand and supply intersect at point E, where OQ is the equilibrium quantity and OP is the equilibrium price. When the price is ₹ 20 then demand and supply are 15 units. Thus, E is the equilibrium point where quantity demanded is equal, to the quantity supplied. If supply is more in comparison to the demand, then it is known as excess in supply. (EG in above figure) On the contrary, above Figure 13.3 shows that when demand is more than the supply, then it is known as excess in demand (HI in above figure).

Effect of change in demand and supply on equilibrium:-

Effect of changing in demand and supply on equilibrium, can be understood as follows:-

(1) Effect of change in demand on the equilibrium:-

The demand, for a commodity changes due to change in consumers income, taste, preference fashion and time. The equilibrium price increases on increase in demand of a commodity, other things and supply of commodity remaining constant. On the contrary, if the demand of commodity decreases, the equilibrium price will also decrease. To conclude, on supply remaining constant with increase in demand both price & quantity sold of a commodity increase. On the contrary, with decline in demand both the price and quantity sold also decline. **(A) Effect of Increase in demand:**

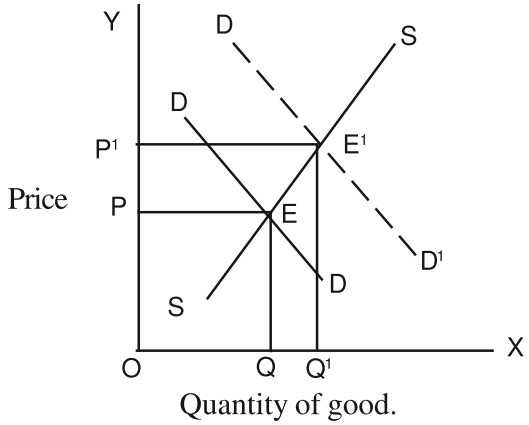


Figure 13.4

In the above Figure 13.4, the initial equilibrium price is OP with increase in demand D_1D_1 curve is the new demand curve and the new equilibrium is at E_1, hence the price rises to OP_1.

(B) Effect of decrease in demand:

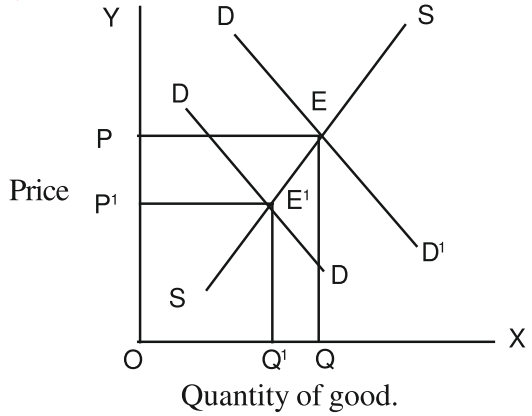


Figure 13.5

In the figure 13.5 The demand curve shifts backward due to decline in demand. New equilibrium is at E_1 and price falls form OP to OP_1.

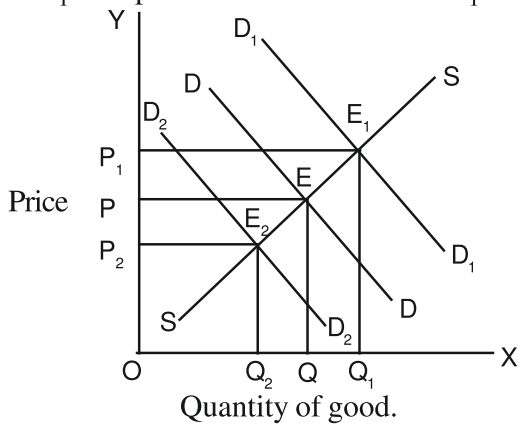


Figure 13.6

Explanation of the Figure-

In the Figure13.6 on OX axis demand and supply of a commodity and on OY axis price is depicted The initial equilibrium is established at point E and the price is OP and equilibrium quantity is OQ. Assuming other things constant with increase in demand, price increases and with decrease in demand, equilibrium price also decreases.

2. Effect of change in supply on the equilibrium:-

The following factors cause the change in supply-

A There is change in supply with the change in production cost. Increase in cost leads to decrease in supply and decrease in cost leads to increase in supply.

B Supply is also influenced by new inventions, due to increase in use of new substitutes the supply of old goods decrease.

C Change in technology affects supply through change in the production level of the commodity.

D The discovery of new sources of raw material increases the supply of good.

E There is change in supply of a commodity due to change in the perspective of the producer.

F Change in government polices also influences the supply of the commodity.

If the demand of a commodity and other factors are assumed to be constant, then with increase in supply of commodity the price will fall and quantity sold will increase. On the contrary, with decrease in supply of commodity, the price will rise and quantity sold will decline.

(A) Effect of increase in supply:-

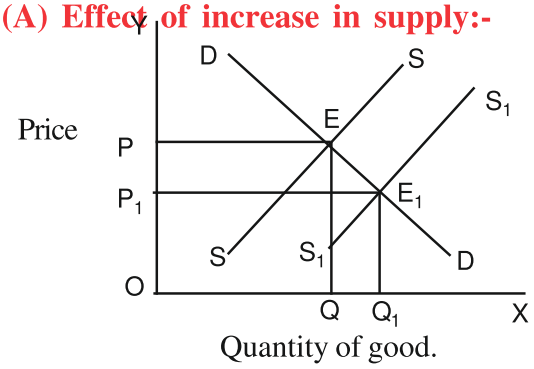


Figure 13.7

The figure 13.7 shows that with the change in supply of a good, equilibrium is also affected. With increase in supply, the supply curve shifts to S_1,S_1 and new equilibrium is at E_1. The price falls from OP to OP_1.

(B) Effect of decrease in supply:-

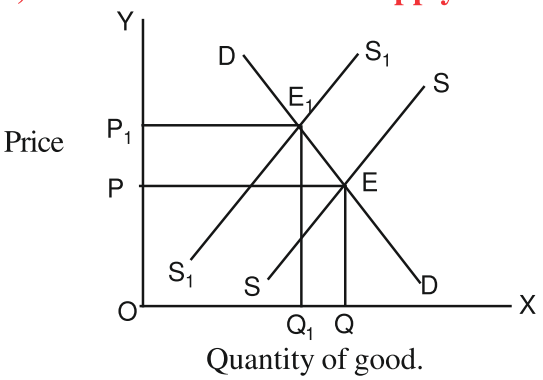


Figure 13.8

The above Figure13.8 depicts that on decrease in supply, the supply curve shifts to S_1S_1 and equilibrium point from E to E_1 and price also rises to OP_1.

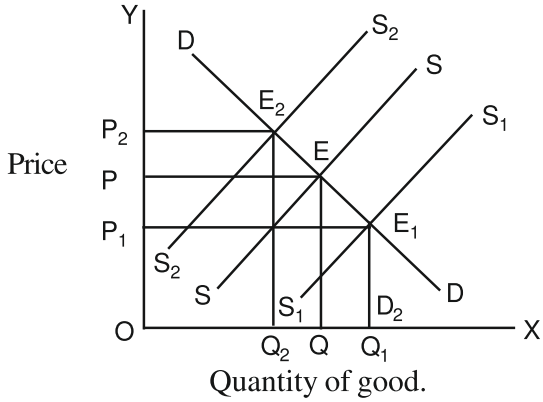


Figure 13.9

In the above Figure 13.9 the initial equilibrium is at point E where demand and supply curve intersect. OP is the equilibrium price and OQ is the equilibrium quantity. With increase in supply of a commodity the supply curve shifts to right i.e. S_1S_1 and new equilibrium is established at point E_1. Price decreases to OP_1 and quantity supplied increases to OQ_1. On the contrary, with decrease in supply, the supply curve shifts towards left to S_2S_2 and new equilibrium is established at E_2 the price rises to OP_2 and quantity supplied decreases to QQ_2.

Thus, change in supply of commodity brings change in equilibrium price in opposite direction. With increase in supply the equilibrium price falls and with decrease in supply the equilibrium price increases.

3. Impact on equilibrium price of simultaneous change in demand and supply-

The equilibrium price is affected with changes in demand & supply. At the same time both these forces have impact on the price. If changes in demand are greater in proportion to changes in supply then effect of demand will be more in price. On the contrary, if changes in supply are greater than demand then equilibrium price will have more effect on supply.

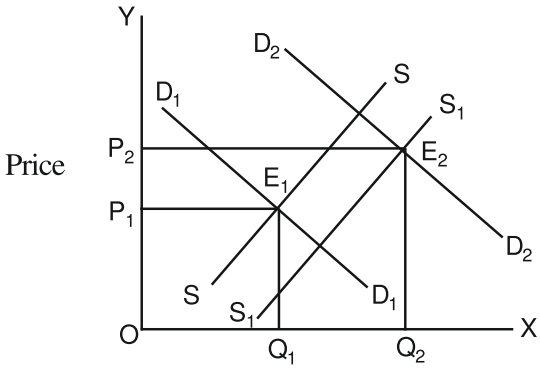


Figure 13.10

Analysis of Figure 13.10

The initial demand is DD and supply is SS Equilibrium price is OP_1 and equilibrium quantity is OQ_1. Due to increase in demand & supply, the demand curve shifts upwards to D_2D_2 and supply curve to S_1S_1 respectively. The new equilibrium is at point E_2. Thus, after change in demand and supply, the price increases to OP_2 and quantity of commodity to OQ_2.

The above analysis shows that if the demand and supply of a commodity both increase simultaneously, both forces have joint effect on equilibrium price. There can be increase or decrease in demand and supply. New equilibrium is established with change on any one side.

The effect of change in demand and supply of a commodity on equilibrium price and equilibrium quantity depands upon the change in direction and proporation of demand and supply. The possible situations can be as follows-

1. Increase in demand and supply : Increase in demand in comparision to supply can be more, less or in same proportion.

2. Decrease in demand and supply : Decrease in demand in comparision to supply can be more, less or in same proportion.

Important Points

- Equilibrium refers to point at which quantity of a good demanded is equal to its quantity supplied.
- The price of a commodity is determined at the equilibrium of demand and supply of a commodity.
- The slope of a market demand curve is negative.
- The slope of a market supply curve is positive.
- With rise in price of a commodity, its demand decreases
- With fall in price of a commodity, its demand increases.
- Generally. with increase in supply of a commodity its price falls.
- Generally decrease in the supply of a commodity leads to rise in the price.
- The summation of various individual demands is known as market demand.
- The summation of all individual supply is called the market supply.
- There is an inverse relationship between the price of commodity and its demand.

Exercise Questions

Objective Type Questions:-

1. The relation between the price and demand of a good is -
   (A) Positive (B) Negative
   (C) Zero (D) No relation
2. Equilibrium price satisfies -
   (A). Both buyers and sellers
   (B) Only buyers C) Only sellers
   (D) Neither buyer nor seller
3 The main reason for the demand of a good is-
   (A) Supply of money (B) Supply of good
   (C) The property to satisfy want
   (D) Availability of good
4. What is the objective of a producer to produce good
   (A) For social service (B) For self satisfaction
   (C) To earn profit (D) To earn prestige
5. The increase in supply of a good, the supply curve shifts towards -
   (A) Right (B) Left
   (C) Remains constant (D) Shifts any where

Very Short Answer Type Questions:-

1. Give the definition of equilibrium by Prof J.K. Mehta.
2. Which two factors determine the price of a commodity?
3. Explain the market equilibrium.
4. What is the meaning of market demand? Explain the concept of market demand.

Short Answer Type Questions:-

1. Write three factors responsible for change in supply.
2. Illustrate supply curve with the help of a Figure.
3. What is a Supply schedule.

Essay Type Questions:-

1. Construct a hypothetical market demand schedule and explain with the help of a Figure.
2. "Change in demand influences price equilibrium." Explain the statement with the help of a Figure.
3. Explain the equilibrium of demand and supply with the help of a Figure
4. Explain the market equilibrium.
5. What is the effect of change in supply on the equilibrium? Explain it.

Answer Table

1	2	3	4	5
B	A	C	C	A

LESSON 14

BASIC CONCEPTS OF NATIONAL INCOME

In present times, in all the countries various commercial activities like cattle rearing, agriculture, industry, trade, transportation, communication, banking etc. are practised. Economic activities mentioned above enable people to earn their livelihood. Some people earn income through physical efforts and some people earn income by mental efforts. Income is received through various sources. In countries where most of the people earn income through various sources has higher income as compared to the ones who have less sources of income. Countries having low income are considered poor where as the countries having higher income are considered rich. Today in ordinary language every country wants to get rich. The country's income is known an National Income.

With the help of national income the information of economic achievements of a country is known. It enable us to know the effective policies and programmes executed by the government of that country. National Income depicts flow in an economy of country.

Stock and Flow

The study of economic variables on basis of time are classified as stock and flow. When any economic variable is studied on a certain point of time, then it is called as Stock. On the contrary, when any variable is studied over a period of time, it is called as Flow. According to Shapiro-"Stock is a measure of quantity at a point of time and Flow is a quantity which can be measured over a period of given specific time."

These concepts can be simply understood with the help of an example. -

Assume the water level of a dam during a year is 20 feet, due to rainfall within three months it increases to 40 feet. During the whole year, water is used for drinking, agriculture and manufacturing. Due to which the level of water falls down to 25 feet on 30th June of the next year. Now there are three important things in this example - First, on 1st July the water level was 20 feet. Second in three months due to rain the inflow of water was 20 feet and outflow was 15 feet during the year. Third, on the last day of the next year i.e. 30th June the water level remained at 25 feet.

On the basis of three things mentioned above the stock of water on 1st July and 30th June was 20 feet and 25 feet respectively. 1st July and 30th June are points of time. Similarly, the period from 1st July to 30th June of next year is a period of time between these two points of time, inflow of water was 20 feet and outflow was 15 feet. In this way net inflow of water was 5 feet (20-15).

National Income is also a flow concept. This flow is related to a period of one year i.e from 1st April to 31st March which is known as Financial year in India. Similarly, the level of wealth at a particular point of time is called Stock. This type of flow of National Income is generated by economic activities. In a country people aquire flow of national income by performing productive economic activities and utlilisation of resources.

"The flow of National Income is in circulur form among the people of a country and producers who perform economic activities, this is compared to the circulation of blood in the body."

Circular Flow of income –

The Circular Flow of income means that the production of a country in form of income and expenditure flows in a circular form from one sector to another because the expenditure of one sector is the income of the other sector.

Idea of Circular Flow of income was initially given by a physiocrat, an agricultural economist, Francois Quesnay in 1758. Later Karl Marx again published Quesnary's economic table.

There are different sectors in an economy like family, consumer, businessmen (Producer) and government etc. All these various sectors like household (consumer) businessmen (Producer) are dependent on each another. Dependency can be understood with the help of Circular Flow of income. "Production of goods and services is possible because of productive activities of factors of production. According to Euler's Theorem

total output is fully distributed among the factors of production. In this way distribution of production among factors of production is called Factor Income. People spend this factor income to buy goods and services. Thus, in a country, the income flows from buisness firm to households in exchange of productive activities, again this income retuns to buisness firms because of expenditure made by households on goods and services produced by buisness sector. This is refered to as Circular Flow of Income. Circular flow of income can be understood with the help of two sector model.

MODEL

A model is a simplified version of complex realities. with the help of clay and plastic models it is easy to understand the human body and its functions. Similarly, we can understand the Circular Flow of Income between household and business firms in a country with help of a model. Circular flow of income model assumes the following necessary conditions :-

1. Total production of a country is done by only business firms.
2. Business firms sell all the goods they produce, Unsold product and raw material is not left.
3. Government is present in a country. but it neither imposes taxes nor provides any subsidy.
4. The economy of a country is closed economy, where there are no exports and imports with any foreign country.

When the economy, of a country is an open economy there are five sectors in Circular Flow of Income household, business firms, capital market, government and rest of the world. In a simpler model of circular flow of income, there are two sectors:-

1. Household Sector
2. Business Sector

1. Household Sector, - This sector refers to such a sector, which is the owner of all the factors of production, (Labour, land capital etc.) In household sector, there is only consumption of goods, produced by business firms.

2. Business Sector, - Business sector refers to the sector which produces goods with the help of the factors of production, (Land, Labour and capital) supplied by the households. It sells goods and services to the households for consumption. This can be understood with the help of the figure 14.1.

In this way, in a country the factors of production flow from household to business firm sector. In exchange of services given by factors of production, business firms make payment in form of money. Again the household sector spends this money on the purchase

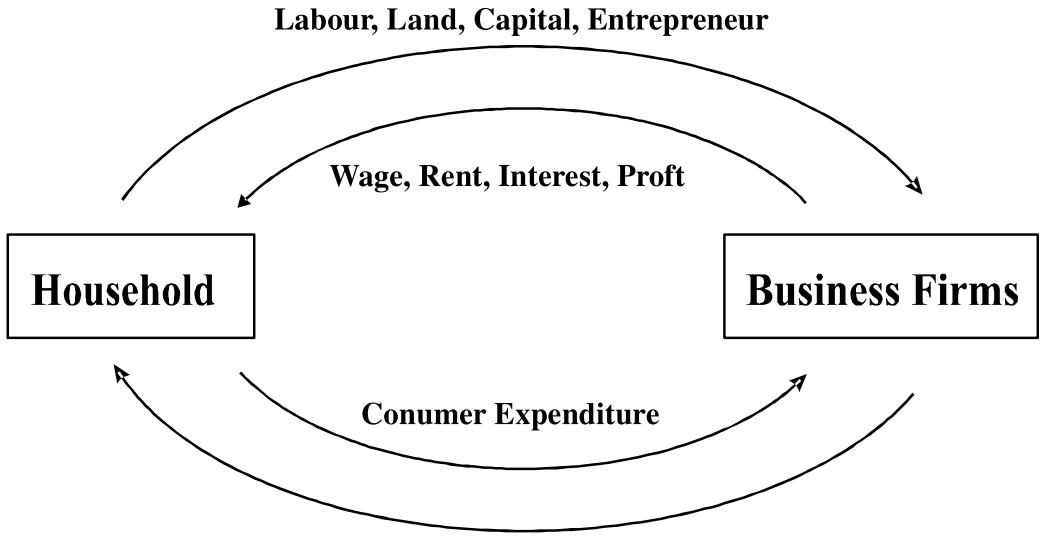


Fig – 14.1 Circular flow of Income in two sector economy

of goods and services produced by business firms. household sector in exchange of money receives goods and services from business firm for the consumption. In this way expenditure of household sector is the income of business firms and the expenditure of business firms is the income of household sector. This flow is of two types-

1. **Real flow-** The flow of factors of production from household sector to business firm sector and goods and services for consumption from business firm sector to household sectors is Real flow.
2. **Money flow -** The flow of factor payment from buisness firms to households and flow of consumption expenditure from the household to the business sector. Such money flows of transactions from one sector to another sector is a continious process in any economy of country.

From the above following conlusions can be drawn-

1. The amount of sale and purchase of goods and services is equal. In other words the income received by factors of production is equal to the expenditure on goods and services done by all the consumers.
2. Visualising the Figure 14.1 of Circular Flow of Income exhibits the flow in opposite direction from one sector to another. The flow of money is in opposite direction to the flow of goods and services.
3. The flow of money recieved as(payments) rewards to factors of production is in opposite direction to the flow of factor of production.

1. Consumer goods and Capital goods

Consumer goods- All those goods that are fully used up quickly after their purchase. In the society the people satisfy their wants by the consumption of consumable goods. Consumer goods are not used for production of other goods. Generally, the business firms keeps the stock of ready goods and services for sale. Consumer goods are final goods thus their value is included in measurement of national income. The examples of consumer goods are- eatables goods, clothes, vehicles, radio, television and books of your class etc. The cosumer goods and services include the durable and non durable goods, very often the durable consumable goods used by buisness firm are called capital goods.These goods are not used as raw material and in form of intermediate goods.

Capital goods - Capital goods are durable goods, which are used to produce other goods and services. In the production process capital goods are used to produce goods for many years. Examples of Capital goods are machines, tools, equipments, buildings, dams, canal and plants for generation of electricity etc. The development of a country depends on Capital goods.

2. Final goods and Intermediate goods

Final goods - Those goods which cannot be used as raw material for further production are known as final goods. These goods are directly used by the consumers, for examples food consumed by the consumer a pump set or tractor used by the producer(farmer). In other words goods and services used finally for consumption are Final good.

Intermediate goods - Intermediate goods are generally in the form of semi-finished product of raw materials. All types of semi-finished products can be included in this category. The Intermediate goods are used in production process in one or in many stages and transformed into Final goods. Example cotton, yarn are intermediate goods or semi-finished goods.

3. Gross Investment and Net investment

There are some important concepts related to Circular Flow of Income and National Income. Investment is an expenditure for production. When a producer spends in form of cash it is called Monetary Investment. Monetary Investment turns into real investment when it is converted into new machines, new building, new dams, new canals etc. Real Investment enhances the production and production efficiency. Investment are of two types Gross Investment and Net Investment.

The amount a producer spends on capital goods during a specified period (which is generally a year) is called Gross Investment. Examples of gross investment

are new canals, new machines, new buildings, new dams, new equipments for generation of electricity and electricity lines etc. Maintenance expenditure which includes expenditure on old machines, old buildings, old dams, old canals etc. is also included in Gross Investment.

Gross Investment = Net investment + depreciation

Net investment - To calculate Net Investment we deduct depreciation of physical capital goods during a definite period(year) from Gross Investment. Production and productive capacity improves with increase in Net Investment.

Net investment = Gross investment - Depreciation

Depreciation - The wear and tear of capital goods is called Depreciation. There is decrease in the value of capital assets. Due to depreciation productive efficiency of machine. building, dams, canals and equipment for generation of electricity decrease (declines). Thus in this way with wear and tear depreciation of capital goods, there is a loss. Thus to calculate Net Investment we deduct the value of depreciation from gross investments.

Depreciation = Gross Investment - Net Investment

(D = GI - NI)

Concept of Domestic boundary and normal residents of a country:

Concept of Domestic territory :- It is consider as important in the measurement of National Income, it refers to the economic activities performed within the geographical boundary of a country. In this way, economic activities performed outside the geographical boundary of country are not included in Domestic Territory.

Concept of Normal Residents:-

A normal resident of a country can be defined as a person who resides in a country and has its citizen ship. Total income acquired by the economic activities of all the normal residents of country is included in National Income. Since we differentiate between the economic activities of residents and non residents there fore the concept of normal resident is very important in the measurement National Income

Coneept of Net Factor Income from Abroad

Import and export play an important role in measurement of National Income and also determines the volume and direction of national income. If import value of a country is greater than export value of a country it means net exports (X-M) is negative and vice-versa.

In present perspective net factor income from aborad (NFIA) is called as the difference between factor income from abroad by the normal residents and factor income of non residents in the domestic territory.

Concept of Net Indirect Taxes -

Valuation of production in a country is estimated at market price. To calculate the production at market price we need to add factor cost and indirect taxes. Indirect taxes like GST (Goods and Services Tax) is added to the factor cost and subsidy is deducted. In this way, net indirect taxes are calculated by deducting subsidy from gross indirect taxes .

Net Indirect Taxes = Gross Indirect taxes - Subsidy

In real world, instead of two sector circular flow of income we have four sector circular flow of income. In macro economics we study wide and aggregate aspect of level of national income, level of employment, level of saving, level of investment, general price level and fluctuation in ecnomic development. National income is generated by economic activities like animal industry, agriculture industry, trade and other business activities.

Important Points

- A Flow is a quantity that can be measured over a specific period of time, for instance National Income and Stock is a quantity measurable at a particular point of time.
- The concept of Cricular Flow of Income was given for the first time in the year 1758 by Francois Quesney, a physiocrat and an agricultural economist.
- In a simplified circular flow of income there are two sectors :

  A. Household Sector

B. Business Firm Sector

- In a country, factors of production flow from household sector to business firm sector and factor remuneration flows from business firms to household sector. In this way expenditure of household is the income of the business firm and expenditure of business firm is the income of household sector.
- All those goods and services which are fully consumed after the purchase are called consumer goods, that is consumer goods are consumed in a financial year itself.
- Factors which help in production and are durable are called capital goods. Capital goods helps in productions for many years.
- Intermediate goods are in the form of semi finished goods and raw material. Final products are obtained by processing of intermediate goods through many stages of production.
- Investment is an expenditure for production. When a producer spends in form of money, it is called monetary investment. Monetary investment gets converted into real investment, when it is invested in new machines, new building, new dams and new canals etc.
- Investment are of two types-

  (a) Gross Investment

  (b) Net Investmnt
- In a fixed time period (i.e. a year) expenditure on productive capital goods is called Gross Investment and when we deduct depreciation form Gross Investment it is called Net Investment.
- Obsolescence and wear and tear of capital goods is called Depreciation.
- The concept of domestic territory is geographical boundary of a country within which economic activities are performed.
- Income earned by normal resident through economic activities is considered in the measurement of national income.
- Net factor income from abroad = factor income from abroad by normal residents - factor income of non residents in the domestic territory.
- In real world, circular flow of income is in four sectors and not in two sectors.

Exercise Questions

Objective Type Questions :-

1. Net Indirect Taxes are calculated from the following-

   (A) Gross indirect tax - subsidy

   (B) Gross indirect tax - interest

   (C) Gross indirect tax - profit

   (D) Gross indirect tax + subsidy

2. Who gave the concept of circular flow of income?

   (A) Francois Quesney

   (B) Karl Marx

   (C) Simon Kuznetes

   (D) None of these

3. What is deducted from gross investment to obtain net investment?

   (A) Net interest

   (B) Investment

   (C) Depreciation

   (D) Profit

4. Which of the following is not an example of cousumption goods?

   (A) Vegetable

   (B) Clothes

   (C) Bread

   (D) Pumpset for irrigation.

5. Which of the following is not an example of Capital Goods?

   (A) Machine, building, and tractors

   (B) Dams and Canals

   (C) Electricity equipments and electric devices

   (D) Eatables and clothes

Very Short Answer Type Questions :-

1. What is flow ?
2. What is stock ?
3. What is circular flow of National Income?
4,. Which are the two sectors in circular flow of income model?
5. What do you mean by Intermediate Goods ?

Short Answer Type Questions :-

1. Differentiate between Stock and Flow.
2. Describe in brief the difference between Consumption goods and Capital goods.
4. Explain Gross and Net Investment.
5. Explain in brief the meaning of Depreciation.
6. Explain the concept of Normal Residents.

Essay Type Questions :-

1. Explain in detail the Circular Flow of Income with the help of a suitable Figure.
2. Write short notes on :-
   A. Consumption goods
   B. Capital goods
   C. Intermediate goods
3. Differentiate between :-
   A. Stock and Flow
   B. Gross and Net Investment

Answer Table

1	2	3	4	5
A	A	C	D	D

LESSON 15

NATIONAL INCOME AND ITS RELATED AGGREGATES

In Economics, it is essential to study the level of income (National Income) of a country. In 1934, Simon Kuznets used national income data for calculation of economic growth . Even in India, the study and analysis of national income has been conducted by various economists. Before independence, Dadabhai Naoroji in 1868, William Digby in 1899, Findlay Shirass in 1911, 1922 and in 1932 respectively. Shah and Khambher in 1921, Dr. V.K.R.V. Rao (1925-1929) and C.R. Desai (1931-1940) attempted to measure national income in India.

After independence in 1949 , a committee to measure national income was constituted under the chairmanship of Shri P.C. Mahalanobis. Professor Simon Kuznets was the advisor of this Committee. From 1956 onwards, Central Statistical Organization (CSO) has been publishing the estimates of national income of India every year.

Meaning and Definitions of National Income:-

To understand the meaning of National Income, we must first know the definition of National Income. Some of the important definitions of National Income are given by Marshall, Pigou, Fisher and Simon Kuznets which are as follows :

According to Marshall : The labour and capital of a country acting on the natural resources, produce annually a certain net aggregates of commodities, material and immaterial, including services of all kinds. This is the true National Income or service of the country or the national dividend."

According to Pigou : National Dividends is that part of the objective income of the factual community including of income derived from abroad, which can be measured in Money. (Economics of Welfare).

In Dr. Fisher's Words : "The national dividend or income consists solely of services as received by ultimate consumers , whether from their material or from their human environment. Thus , a piano made for me this year is not a part of this year's income, but an addition to capital . Only the services rendered by these goods in current year is income.

The definition given by Simon Kuznets is considered as modern definition of national income. According to Simon Kuznets, "It is the net output of commodities and services flowing during the year from the country's productive system in the hands of ultimate consumer or into the net addition to the country's capital goods."

In other words, net value of final goods and services produced by the residents of a country at prevailing market price in terms of country's currency is known as flow of national income. Here final goods and services refer to those goods and services which are consumed by both consumer and producer.

Marshall emphasized on time period of one year and net aggregates of physical goods and non-physical goods and services. Pigou included productions which can be measured in terms of money. Fisher made consumption, instead of production as basis of measurement of National Income.According to him , a part of net production of physical and non physical goods received in form of services in a year i.e the part consumed is National Income.

On the basis of various definitions given by eminent economists the features of National Income can be summed up as :

1. National Income is related to the economy of a country.
2. National Income relates to a fixed time period, normally a financial year. (In India it is from 1st April to 31st March of the following year.)
3 National Income is related to economic activities of the residents of a country. But presently, economic activities of residents and non-residents of geographical area of a country are also included in the study of National Income.
4. National Income is related with productive

economic activities, that is non-productive activities are not included in National Income.

5. Calculation of National Income is related to the production of final goods and services. It means that production of intermediate or semi-finished goods and services are not included in National Income.
6. National Income is calculated at current market price.
7. National Income is expressed in terms of currency of a country.
8. National Income is the aggregate monetary value of goods and services.
9. National Incomes is a flow and not a stock.
10. National Income is calculated in net form i.e. depreciation is deducted from gross National Income / Output.

Different Concepts of National Income :-

National Income is calculated on two basis :

1. Geographical basis
2. Political basis

1. On Geographical Basis : To calculate national income on the domestic basis, the study is conducted on basis of the geographical boundary of a country. We add the value of total production of residents, foreign residents and companies in a geographical boundary of a country to find out the level of gross domestic product (GDP).

2. On Political Basis : The citizenship of a country is considered, to measure National Income on political basis. For measurement of National Income the citizenship of a person is taken into consideration. The income earned by the citizen of a country (whether residing in in the geographical boundary of a country or abroad) is considered in the measurement of Gross Domestic Product (GDP). The productive activities of the citizen of a country anywhere in world are taken into account to measure the level of gross national product (GNP).The above explanation can be understood from the flow chart given below :

There are various concepts related to National Income. The analysis regarding these are as follows

1. Gross Domestic Product at Market Price (GDP_{MP}) : The Gross Domestic Product at Market Price is the sum of the money value of all final goods and services produced and increase in inventories in a year, in the domestic territory by the resident of a country, foreign citizen and companies

$$GDP_{MP} = C+I+G+ (X-M)$$

Here

C = Consumption expenditure

I = Investment expenditure

G = Government expenditure

(X – M) = Net export

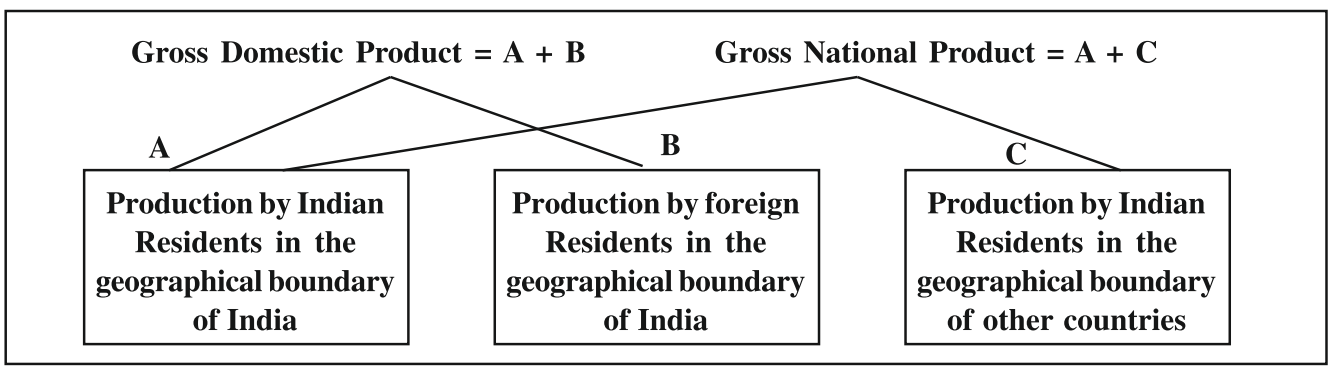
(a) Net domestic product at market price (NDP_{MP})

Net Domestic Product at market price can be calculated by deducting depreciation from Gross Domestic Product at market price.

- $NDP_{MP} = GDP_{MP} – D$
- D = Depreciation

(b) Net Domestic Product at factor cost (NDP_{FC}) :

Net Domestic Product at factor cost can be calculated by deducting indirect taxes and adding subsidy to net domestic product at market price.



· NDP_{FC} = NDP_{MP} – IT + S

· IT = Indirect Taxes

· S = Subsidy

(2) Gross National Product at market price (GDP_{MP})

Gross National Product at market price is defined as the market value of the final goods and services produced in the domestic territory of a country during an accounting year, by residents and non residents of a country,and companies including net factor income from abroad. In order to measure real gross national product, it is to be adjusted to change in prices. The following are the components of gross national product at market prices :

· GNP_{MP} = GDP_{MP} +NFIA

· Here NFIA = Net Factor Income from Abroad

or

· GNP_{MP} = C + I + G + (X-M) + NFIA

· Here = (X-M) = Net Export

C= denotes the value of consumption of final goods and services in a financial year by the household sector.

I = denotes the production of capital goods which includes finished and semi-finished goods, inventories and fixed capital formation in a financial year.

G = represents the value of expenditure on goods and services or the value paid by the government in a financial year.

NFIA = The net difference between income earned by our physical and human resources in other countries and the income earned by physical and human resources of other countries, in our country it is denoted by NFIA.

X-M = Similarly, net exports are denoted by X-M. It is obtained by deducting value of foriegn imports from the value of domestic exports.

Net National Product at market price (NNP_{MP})

Fixed capital is used, in the production of goods and services. During the production process machines get depreciated or sometimes they get damaged (wear and tear) or because of innovations old machines become obsolete. In this way the reduction or depreciation in productive capacity of capital assets is deducted from Gross National Product at market price. Accurate evaluation of a country's economy can be done by measurement of Net National Product at market price (NNP_{MP}). In this way, Net National Product (NNP_{MP}) is calculated after deducting depreciation in the following way :

(NNP_{MP}) = (GNP_{MP}) – D

D = Depreciation

4. Net National Product at factor cost (NNP_{FC}).

Net National Product at factor cost refers to expenditure made on the factors of production for producing goods/services in a country. For instance,the cost of labour- wages, cost of capital- interest, cost of land used-rent, cost of use of entrepreneurship-profit etc. is collectively known as Total Cost. Indirect Taxes levied by the government are deducted and grants or subsidies provided by Government are added to calculate Net National Product at Factor cost.

NNP_{FC} = NNP_{MP} - IT + S

Here

· IT = Indirect Taxes

· S = Subsidy

· Or NNP_{FC} = R + I + W + P + NFIA

Here

· R = Rent

· I = Interest

· W= Wages

· P = Profit

The most suitable measure of National Income of a country is its Net National Product at factor cost (NNP_{FC})

5. Private Income (PI) : Income obtained from the entire private sector, income obtained from other sources and residual income of corporation is included in private income. Elements which are added in net National Product at factor cost include transfer payments (unemployment allowance and pension) obtained from the government and abroad, interest on national loans,

gifts and unexpected profits. While elements which are deducted are income obtained from government enterprises and property, non-institutional savings and contributions to social security(provident fund, life insurance) etc.,

Private income is calculated as :

Private Income = (NNP_{FC}) + TP + IPD – CSS - PPU

Here NNP_{FC} = Net National Product at Factor Cost

TP = Transfer payments from Government and abroad

IPD= Interest on Public Debts

CSS=Contribution to Social Security

PPU=surplus profit of public undertakings

6. **Personal Income (PI) .** Personal Income is the sum total of income actually received by an individual or household sector. Personal income may be calculated as follows :

Personal Income (PI) = NNP_{FC} – Undistributed corporate profit –tax-social security contribution+Transfer payments+Interest on Public Debts

PI = NNP_{FC} - UCP – CT – CSS +TP + IPD

Here UCP = Undistributed Corporate Profit

CT=Corporation Tax

CSS=Contribution to Social Security

TP=Transfer Payments

IPD=Interest on Public Debts

Transfer Payments are those payments which if paid by the Government, without rendering any type of productive service to weaker sections of the society in the form of pension, unemployment allowance and for disabled. Here, purchasing power is transfered from one group to other.

7. Personal Disposable Income (PDI). Personal Disposable Income is calculated by deducting income tax and miscellaneous fees, fines etc. paid by the individuals from their income. Therefore:

Personal Disposable Income (PDI) = Personal Income (PI) – (Personal Taxes like Income Tax) – (fees and fines)

Per Capita National Income (PCI) :- Per Capita Income of the country is also important just like National Income of a country. It is obtained by dividing national income of the country with its population :

Per Capita Income (PCI) = National Income/ Population

8. **National Disposable Income (NDI) :** Standard of living is estimated by finding out the availability of different goods and services to the people of a particular country. Generally, level of availability of goods and services is determined by National Disposable Income (NDI). While calculating National Disposable Income, net indirect tax and net transfer earning from rest of the world are also included. This increases government's ability to spend more. Just like an individual's personal Disposable Income, components of National disposable income are as follows-

1. Government's final consumption expenditure
2. Private final consumption expenditure.
3. Savings.

NDI = NI + NIT + NTEW

Here NI = National Income

NIT = Net Indirect Taxes

NTEW = Net transfer earning from the rest of the world

Calculation of National Income in India :-

A hypothetical numerical example of calculation of various aggregates of National Income is as follows:

On the given information about National Income of a country calculate the following :

1. Net Domestic Product at Market Price (NDP_{MP})
2. Net Domestic Product at Factor Cost (NDP_{FC})
3. (GNP_{MP}) Gross National Product at Market Price
4. (NNP_{MP}) Net National Product at Market Price
5. (NNP_{FC}) Net National Product at Factor Price
6. Private Income
7. Personal Income (PI)
8. Personal Disposable Income (PDI).

9. PCI Per Capita Income.

Given values:-

1. GDP_{MP} = 400,000 Crores
2. X-M = 10,000 Crores value of net export
3. D = 10,000 Crores Depriciation
4. IT = 10,000 Crores Indirect Taxes
5. Subsidy = 5000 Crores
6. Populations of Country = 100 Crores
7. Income Tax from government Dept, Railways etc. = 10,000 Crores
8. Profit from government Non-department like SBI =10,000 Crores
9. Contribution of government employees for current year =5,000 Crores
10. Receipts from government to individuals for current year =5,000 Crores
11. Current year receipts from foreign countries to individuals =2,000 Crores
12. Interest receipts on government loan = 3000 Crores
13. Savings of Private Companies = 10000 Crores
14. Corporate Taxes of Private Companies = 15,000 Crores
15. Income Tax from People=10,000 Crores
16. Fees from individuals = 4000 Crores
17. Fines =2,000 Crores

Solution of Numerical Example-

1. Net Domestic Product at Market Price (NDP_{MP})= GDP-D= 400000-10000= 3,90,000 crores Rs.
2. Net Domestic Product at Factor Cost (NDP_{FC})= NDP_{MP} –IT+S = 3,90,000-10,000=3,85,000 crores Rs.
3. Gross National Product at Market Price (GNP_{MP})= GDP_{MP}+ Net profit income= 4,00,000+10,000= 4,10,000 crores Rs.
4. Net National Product at Market Price (NNP_{MP})= GNP_{MP}-D = 4,10,000-10,000 = 4,00,000 crores Rs.
5. Net National Product at Market Price (NNP_{FC}) = NNP_{MP} –IT+S = 4,00,000-10,000+5,000= 3,95,000 crores Rs.
6. Personal Income (PI) = NNP_{FC}- (Income from government department like railways+ non-government department profit like bank + contribution from government employees like pension) +(receipts from government for current year+ receipts from foreign countries for current year+ Interest receipts on government loan)

   =3,95,000 – (10,000+5,000)+(5,000+2,000+3,000) = 3,80,000 crores Rs.
7. Personal Income = Private Income (PI) – (Savings of Private Companies+ Corporate Taxes of Private Companies) = 3,80,000- (10,000 + 15,000) + 3,55,000 crores Rs.
8. Personal Disposable Income(PDI)= PI- (Income Tax of People) + (Fees of population + Fines)= 3,55,000- (10,000+4,000+2,000)= 3,39,000 crores Rs.
9. Per Capital Income (PCI)= National Income(NI)/ Population of country

   = 3,95,000 Cr./100 Cr. = 3,950 Rs. per person

Difficulties in Measurement of National Income :-

Number of problems are faced while estimating national income. Some of the theoritical problems are as follows:

1. It is a difficult task to calculate the income of self employed.
2. Problem of calculation of the value of old and intermediate goods.
3. Transaction of shares and debentures is a mere ownership transfer in papers, therefore it is not included in National Income.
4. Illegal activities like black marketing etc. also give rise to theoretical problems.
5. Calculation of holiday for leisure etc. is difficult.

Importance of National Income :-

National Income of a country is considered very

important. National Income gives a picture of a country's economy. Estimation of National Income presents correct economic information of a country. It helps the government to formulate suitable economic policies. The use of national income statistics helps, in equal distribution of income and increase in employment. It also gives factual information of inequalities in economic development of various regions. National Income data can be used to remove regional disparities by formulating suitable economic policies. Analysis of National Income is also used to compare economies of different countries.

National Income estimates help us to formulate economic policies for development of agriculture and livestock breeding. Every country in the world evaluates the progress of industry, trade and other business activities on the basis of National Income statistics. Data of National Income is very useful for research.

Level and structure of National Income gives useful information for purpose of economic planning. Per capita income can be calculated on the basis of national income. Per capita income encourages the government to adopt various financial empowerment programme for redistribution of income.

Important Points :-

- National Income estimates were used for the first time by Simon Kuznets in 1934 to evaluate economic growth.
- Before independence, National Income estimate was made by Dadabhai Naoroji (1868), William Digby (1899), Findly Shirass (1911, 1922 & 1931) Shah and Khambhar (1921) Dr. V.K.R.V. Rao (1925-1929), and C.R. Desai (1931-1940).
- From 1956 onwards, Central Statistical Organization (CSO) is regularly publishing estimates of National Income every year.
- National Income is the aggregate monetary value of production of final goods and services by the residents in a financial year (1^{st} April to 31^{st} march next year in India) at Market Price . It is a flow concept.
- To calculate National Income on domestic basis, we consider the geographical boundaries of a country.
- Income earned by citizen within the geographical area of a country and of those residing in geographical boundaries of other countries, is considered for estimation of National Income.
- Formulation of economic strategy for development of a country is done on the basis of National Income Statistics.
- Every country does evaluation of expansion of industry, trade and other economic activities on the basis of National Income Statistics. National income data is useful for research.

Excercise Questions :-

Objective Type Questions :-

1. Who was the first to estimate National Income in the world ?
   (A) William Digby
   (B) Dada Bhai Naoroji
   (C) Fisher
   (D) Dr. V.K.V.R. Rao
2. Who gave the concept of national income as net aggregates of production of material and non-material goods / services ?
   (A) Marshall
   (B) Fisher
   (C) Simon Kuznets
   (D) Pigou
3. Which of the following is not a transfer payment?
   (A) Pension
   (B) Gift
   (C) Unemployment Allowance
   (D) Salary
4. Which of the following is not a feature of national income?
   (A) National income is related to one year.
   (B) National income is a flow concept.
   (C) It is calculated as final production of goods and services.
   (D) Unproductive activities are included in it.

5. Suitable measure of National Income is :

(a) GNP

(b) GDP

(c) NNP_{FC}

(d) NNP_{MP}

Very Short Answer Type Questions :-

1. Who publishes the National Income estimates in India every year?
2. From which year are estimates of national income issued regularly?
3. Explain in brief the meaning of final goods and services.
4. What is the measurement of National Income called on domestic basis?
5. What is the measurement of National Income on citizenship basis called?

Short Answer Type Questions :-

1. Explain the following :

(a) NDP_{MP}

(b) NDP_{FC}

(c) GNP_{MP}

(d) NNP_{MP}

(e) NNP_{FC}

(f) Private Income

(g) Personal Income

(h) PDI

(i) Per Capita National Income

2. Explain in brief the importance of National Income.
3. Explain in brief the difficulties in measurement of National Income.

Essay Type Questions :-

1. Explain in detail the National Income and its characteristics.
2. With illustrations of an hypothetical example, explain various concepts of National Income.

Answer Table

1	2	3	4	5
B	A	D	D	C

LESSON 16

MEASUREMENT OF NATIONAL INCOME

It is very essential to take precaution while measuring National Income. For accurate calculation of National Income, it is necessary to have complete theoretical knowledge. Economic analysis, future production, formulation and implementation of policies, depend upon the measurement of National Income. Method of calculating national income depends upon various approaches. It is evident from previous chapters, that in a country, there is a circular flow of income. Because of this circular flow, one person's expenditure (like household) becomes income of another (like business). It is important to have understanding about various methods of calculating National Income.

Methods of measuring National Income

There are three main methods of measuring of National Income:-

1- Production method or Value added method.

2- Income method.

3- Expenditure method

The aggregate flow of National Income remains the same, irrespective of any of the three methods used. The basic reason behind this equality is as follows:-

The amount of money received by sale of the total production in a country. This total amount is received in the form of income by the owners of factors of production for their contribution, (Land, labour, Capital, organisation and entrepreneur) the expenditure by the people of the country is equal to their income.

Thus, the total output or production in a country becomes the total income of the country. The people of a country do expenditure equivalent to their income. Thus the total income of a country changes to total expenditure of the country. In this way:-

Gross National Product = Gross National Income = Gross National Expenditure

Production Method or Value Added Method:- In most of the countries National Income is measured by the production method. This is the simplest method of measuring National Income. To measure the National Income of any country by production method, the final consumption of goods and services produced by the agriculture, minerals, industries, and various services of tertiary sector are included. It should be remembered here that a consumer does the consumption of final goods and services. in order to satisfy daily wants and by a producer, for production (investment) purpose.

An important estimate which we have to make in this method is to make a detailed list of final goods and services. This list has mention the name of of goods and services, their quantity & prevalent market price. The quantity of goods and services produced by the particular industry is multiplied by their market prices to obtain the value of output (Table 16.1). Then summing up the value of output of all the producing sectors, national output (product) is measured.

Table 16.1

S. No.	Production Goods Name of Service	Quantity	Market Value	Price (in Rs.)
1.	A	20	2	40
2.	B	30	8	240
3.	C	10	6	60
4.	D	40	4	160
5.	E	10	2	20
—	——	—	—	——
—	——	—	—	——
Gross National Production				520

Some goods are intermediate or semi-finished good.

They are used as input in the production process. To measure National Income, such intermediate goods are not included, because there is fear of double counting of National Income.

Many precautions should be taken while measuring National Income through production method, to avoid double counting of national income, the value of only final consumable goods and services are counted. Value

added method is used to avoid double counting of national income. By value added method exact value of production at each stage is estimated.

To calculate the true value of Gross National Product from the value of output, the expenditure on factors of production is deducted i.e. The value of product is deducted at the first stage the following example helps to understand it :

Example of double counting or value added method :-

Suppose a baker sells 1 kg bread packet for Rs 60/-. For baking bread, he purchased 1 kg flour / maida from the flour mill for ₹ 40/-, flour mill owner purchased wheat from a farmer for ₹30/- per kg. In this situation it will be fallacious to add the total value of bread, the flour and wheat for 1 kg each, i.e.60+40+30=130. As a matter of fact, the total production is only one kg. Therefore, the actual value of production will be equal to the value of production of farmer + actual value of production of flour mill +actual value of production of bakery (confectionary)- (value of production of bakery - value of production of flour mill) + (value of production of flour mill - value of production of farmer) + value of production of farmer = 20+10+30=60 Rupees. Thus, in this way the exact value of 1 kg output is not ₹ 130 but only Rupees 60. Thus, this precaution is to be kept in mind otherwise the national income will depict wrong estimates, which will be misleading.

DEPRECIATION :-

Production is a continuous process. During production there is wear and tear, depreciation and other types of losses. There is wear and tear of capital (machines etc). With the invention of new technology, the older appliances (machines) become obsolete. The fertility of land declines due to production. Thus, depreciation is type of loss (reduction in value of an asset over time) in process of production, it is necessary to consider it for the measurement of net national income. Thus the depreciation is deducted from gross national income.

Income Method

Calculation of national income through Income Method provides the information of distribution of income in a country. The production is done by the factors of production (Land, labour, capital etc.). Production is done by creation of utility or increase in utility in goods or services. The distribution is in the form of Wages-price of labour, Interest – price of use of capital, Rent- price of use of land and Profit service of entrepreneur. The production is wholly distributed amongst the factors of production. The factors of payments are classified as follows:-

1-Wages – compensation of labour.

2- interest –

3-Rent – operational surplus

4-Profit –

5-Mixed income - In the form of salary and commission.

Thus, the remuneration received by the owners of factors (land labour, capital etc.) on account of complete distribution of production , is known as factor income. Thus, in the income method of measuring National Income, the factor incomes are summed up. In this way, gross national income is estimated by adding gross wages, gross interest, gross profit etc.

Gross national income = Wages + Interest + Rent + Profit + Depreciation

National Income (NNP_{FC}) NI= W+I+R+P+ Net factor income from abroad.

$NNP_{FC} = NDP_{FC} + NIFA$

Where, W-wages, I-Interest, R- Rent, P- Profit.

Precautions in measurement of National Income:- While estimating national income by income method, many precautions should be taken like wages paid in kind instead of cash for goods and services, house accommodation by self, some part of production kept for self consumption, income shown less to the government or very often not apprised (informed). Thus, while measuring National Income through income method all these items should be included.

Expenditure method

When expenditure method is used to measure National Income to estimate the Gross National Expenditure, all the expenditures during a year for example, subsistence living, expenditure on consumable

goods, for capital consumption, for more production, for private expenditure on capital goods, expenditure by the government and net export expenditure, and depreciation are added.

The chief components of expenditure method to measure National Income are as follows:-

1- Private consumption

2- Investmsnent/inventories

3- Government expenditure

4- Net exports (X-M)

1-Private consumption expenditure:- Expenditure on consumer goods and services by individuals and households is called private consumption expenditure. The goods and services included in private consumption expenditure are as follows –

1-Temporary consumer goods

2-Durable consumer goods

3-Consumer services

2-Investment Expenditure:-

Investment is a type of expenditure made on production. It is the expenditure incurred on capital goods and inventories or stock by the business sectors. There is increase in stock due to investment during a fixed period. During the production process there is depreciation of capital along with other factors of production. There is provision made for the depreciation which is called as Capital Consumption Allowance (CCA)

The Investment includes:-

1-Commercial fixed – investment

2-Investment in inventories (Addition to stock)

3-Investment in home-construction

4-Governemnt investment

3- Government Expenditure:

The government provides various goods and services in a country. The expenditure of the government is included in production. The government expenditure includes expenditure on education, health care, defence, maintenance of law and order etc. Besides government purchases, there are many other types of expenditure. Government to satisfy collective wants and create future benefits, such as infrastructure investment is called Gross Fixed Capital Formation. Government also makes transfer- payments to the public for social security. It should be remembered that many transfer payments are made for which no economic activities are performed. Hence while measuring the National Income transfer -payments are not included.

4-Net-Export Expenditure:-

For a definite period net export is calculated on the basis of difference of import and exports. The expenditure incurred by the individuals, business and government of a country on imports is deducted from the exports of a country, to derive the net exports. The Gross Domestic Expenditure is calculated with inclusion of net export expenditure in following manner:

Gross Domestic Expenditure = Household consumption expenditure + private investment expenditure + government expenditure + net export expenditure.

$GNP_{MP} = C+I+G+(X-M)$

Where C = Consumption expenditure, I= Private investment expenditure, G=Government expenditure, X-M= Net export.

Difficulties in measurement of National Income :-

There are several problems in the measurement of national income. There are not only theoretical problems but also many practical problems. In developing countries, most of the people are illiterate, most of the production is exchanged through Barter system. Many transactions conducted outside the market do not come to the knowledge of the government. In backward countries, there is lack of division of labour and specialization. The information regarding National Income is not easily available. Inadequacy, unreliability and unavailability of statistics, also makes it difficult to measure National Income.

Relationship between National Income and Economic Welfare:-

Welfare refers to a condition when both the individual and the society are happy and satisfied. According to economists, economic welfare means the

welfare which can be measured directly and indirectly by means of money.

The close relationship between National Income and Economic Welfare can be visualised. It is assumed that with the increase in national income the economic welfare of people of the country also increases.

The level of National Income increases with increase in production. The national expenditure also increases with the increase in production. The increase in national expenditure leads to increase in economic welfare. The economic welfare of the people of a country increases because of consumption of more goods and services. Similarly, the distribution of income amongst the people of a country should be just.

Generally it is assumed that there is a close relationship between satisfaction/happiness of the people and national income of a country. The more equal and just is the distribution of national income, greater will be the magnitude of economic welfare. Due to inequalities in distribution of national income, many economic inefficiencies arise, which hinder the economic development. Besides the distribution of income, the manner of earning income, the manner of spending of the income and conditions at working place also influence the economic welfare.

Nowadays, economic welfare has been linked with the environmental conditions. A new terminology 'Green Accounting' is in prevalence. Green accounting studies the loss (depletion) of the environment. Environment adjusted national income is calculated by deduction of environmental depletion (loss) cost from the national income. At present this new concept of environment adjusted national income is adopted. Every country attempts to move forward by just (equal) distribution of national income and maintenance of environmental conditions. Both these conditions are necessary for sustainable development of the country.

Sustainable economic development is known as a continueus development which attempts to satisfy present human needs without compromising the ability to meet the needs of future generations.

Important Points

- Production Method or value added, Income method and Expenditure method are three methods of calculating National Income.
- Gross national Production = Gross national income = Gross national Expenditure.
- While using production method or value added method for measuring national income, production of only final goods and services are taken into account.
- Value added method is used to avoid double counting in National Income.
- In the process of production, wear and tear of factors of production, depreciation and other such types of losses occur which are also called as Capital Consumption Allowances. (CCA)
- While using income method for measurement of National Income the gross wages, gross interest, gross rent, gross profit etc. are also added.
- While calculating National Income through expenditure method, the expenses in a year (private consumption, investment, government expenditure, net exports) and depreciation are added.
- The theoretical and other difficulties while measuring National Income are due to illiteracy and barter exchange system and transactions outside market.
- Along with increase in National Income, economic welfare also increases. Greater the equality in distribution of income, greater will be the economic welfare, so many economic inefficiencies crop up due to disparity of National Income.
- Nowadays economic welfare is linked to new terminology 'Green accounting' which is widely used. By the deduction of loss of environmental cost from the National Income. Environment adjusted National Income is estimated.

Exercise Questions

Objective Type Questions :-

1- Methods of measurement of national income are–
   (A) Production Method.
   (B) Income Method
   (C) Expenditure Method
   (D) All of these.

2- Which goods and services are included in the calculation of National Income in India –
   (A) Intermediate goods and services
   (B) Semi finished goods and services
   (C) Finally consumable goods and services
   (D) Raw material.

3- In which method of measurement of national income possibilities of double counting is more?
   (A) Expenditure method
   (B) Production Method
   (C) Income Method
   (D) None of these.

4- Which is not the component of measurement of National Income through income method-
   (A) Wages and Interest
   (B) Rent
   (C) Mixed income
   (D) Final consumption

5- What is included in Green-Accounting –
   (A) Irrational industrialization
   (B) Higher growth rate of employment
   (C) Depletion of environment
   (D) Rapid increase in personal consumption.

Very Short Answer Type Questions :-

1- What are the methods of calculation of National Income ?

2- What type of goods and services are included in the measurement of National Income?

3- Which method is used to avoid double counting of National Income?

4- What are the components of measuring National Income by income method?

5- What is Green-Accounting?

6- What type of distribution of national income causes increase in economic welfare?

Short Answer Type Questions :-

1- Explain in brief the methods of measurement of National Income.

2- How is value added method useful in avoiding Double Counting? Explain with an example.

3- Explain in brief the measurement of National Income by income method.

4- What are the problems faced while measuring National Income? Explain in brief.

5- Explain the relationship between economic welfare and distribution of National Income.

Essay Type Questions :-

1- Explain in detail the various methods of measurement of National Income.

2- Explain in detail the measurement of National Income by Income Method.

3- Explain in detail the measurement of National Income by Expenditure Method?

4- "Increase in National Income increases the economic welfare." Do you agree? Explain.

Answer Table

1	2	3	4	5
D	C	B	D	C

LESSON 17

MONEY : MEANING FUNCTIONS AND IMPORTANCE

The invention of money is perhaps the greatest of all, of mankind of mankin invention. For instance, invention of wheel in field of mechanics, fire in science, of vote in political science, money is an important evolution in economics and in commercial aspect of social life of a man.

In ancient times, human beings were dependent on nature for their basic needs. With the advent of civilization they learned to live in groups. While living in groups men started choosing different occupations on basis of their interests, skills & efficiency, so that their various wants could be accomplished. In primitive period, as people lived in small groups, men made simple easy exchange of goods they wanted. Exchange of goods with goods, is called Barter System.

Barter Exchange system:

There was exchange between two or more than two persons of their surplus production of goods and services in Barter System. In ancient period, man was involved only in primary occupation e.g. agriculture, animal husbandry, fishery, hunting etc. Hence, through this system generally grains in exchange of clothes, clothes in exchanges of milk, milk in exchange of grams and exchange of domestic animals was done in this system. This system was completely based on mutual understanding and trust.

Difficulties of Barter system :-

With the development of human civilization, there was increase in economic activities of man and many difficulties started arising which were not there early. The monetary system replaced the Barter system . A few major difficulties of the barter system may be traced as below:-

(1) Lack of double coincidence:- Two persons can have barter exchange only if their disposable possessions mutually suit each other's needs. This double coincidence of wants is often difficult. For instance, a farmer wants to purchase sugar in exchange of his surplus wheat, then he would have to search a person who has surplus sugar for exchange but also has a desire for what he has to offer. In practice , it is difficult to have such a person who not only has surplus sugar for exchange but also has a desire to buy wheat. In practice, it is difficult to have such double coincidence of wants.

(2) Lack of common measure of value:-It is difficult to measure the value of surplus produce available for exchange. Both persons exchange goods on the basis of mutual understanding and utility. It is very difficult to determine the exchange ratio of goods available in every transaction..

(3) Store of value was not possible :-There was also exchange of such goods in this system which were difficult to store in long for period, specially milk, fruits, vegetables, etc. can't be stored for future, so in this system there was no possibility of future saving of surplus products.

(4) Difficulties in exchange of indivisible goods :-On account of indivisibility of many kinds of goods, the barter system also suffered from severe inconveniences. For instance, if exchange value of a buffalo is four sackful of wheat and if the farmer requires only one sackful of wheat then the buffalo (which is indivisible) cannot be exchanged for one sackful of wheat.

(5) Lack of standard of deferred payments:- In Barter system only immediate transactions are possible. Credit transaction cannot be promoted smoothly under this system. Mode and value of exchange can't be easily estimated.

To recapitulate, the main difficulties in barter system:-

- ➢ Lack of double coincidence.
- ➢ Lack of a common measure of value.
- ➢ Future savings are not possible.
- ➢ Difficulties in exchange of indivisible goods.
- ➢ Problem in keeping account of creditor deffered

payment.

It follows that because of these difficulties and inconveniences of the barter system, it was replaced by Monetary System with invention of money.

Evolution of money :

Ancient Indian history has been the history of kings. In such state of governance, in all economic & social policies, the final decision maker was the king. The metal on which they punched mark their symbols, it became state money. The issue of currency depicts the development of this system. Copper, bronze, gold, silver coins were issued according to circumstances of those times. Thus, in this manner money came to be regarded as any object with properties of general acceptability, legality and as medium of exchange in transacting goods & services.

Meaning and definition :

Goddess Juno was regarded as the Goddess of Heaven. They believed that goddess Juno provided the pleasure of heaven in the same way, coins minted in her temple also provided heavenly pleasure.

Different economists have defined money differently. In fact, it is a difficult task to define money in exact sense. Still in wider perspective of our analysis, we make an effort to study the definition given by some scholars.

Prof. D.H. Robertson - "Any thing which is widely accepted in payment for goods or in discharge of other kinds of business obligations".

According to Nep- "Any commodity which is declared as a money by state is called money." -

Seligman defines- "Money is the thing that possesses general acceptability."

According to Marshall- "All those commodities which at any time or place have general acceptability without doubt or special enquiry as a means of purchasing commodities and services and of defraying expenses are included in the money."

According to Kinley – "Money is such commodity which we generally use and accept as a mode or medium of exchange."

After the study of above definitions, we draw two main characteristic of money. First-general acceptability and second legality. Thus, money may be defined as- Money is something which is freely used and generally accepted as a medium of exchange and as a unit of account.

Reserve Bank of India introduced four measures of money supply in India which are denoted by-

M_1 = C + DD + OD

M_2 = M_1 + Post office saving bank deposits

M_3 = M_1 + Time deposits with commercial and co-operative banks

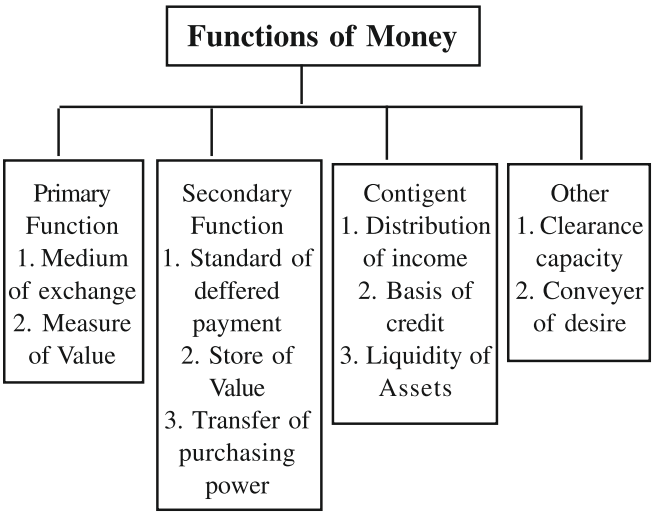
M_4 = M_3 + Total post office deposits

Here:

DD- demand deposits at commercial and co-operative banks

C- Cash in hand with the public (Notes and coins)

OD- Other deposits in RBI



Functions of Money:

Main and primary functions of money are as follows:-

1. Medium of exchange:- The fundamental role of money is to serve as a medium of exchange because it has property of general acceptability. This function gives major identity to money. Money is a suitable mode for transactions in the market.

2. Measure of value:- It is the second important function of money.. The value of exchange of all goods and services can be easily expressed in money. It also

becomes easy to measure the National Income. By expenditure method, product method and income method the National Income of any country can easily be estimated in terms of money.

Secondary functions of Money

Some functions of money are called secondary functions of money as the invention of money was not for these purposes but still for economic convenience, they are now used. These secondary functions are as follows:-

1. Standard of deferred payments:- The economic transactions where repayment is done in future, money serves as a standard of deferred payment. It is a unit in terms of which debts and future transactions can be settled. Thus, money functions in form of Standard of Deferred payment. The various types of loans transaction, like house loan, education loan, industrial loan etc., become easy. It enables people to effectuate wide scale credit transactions like sale and purchase of shares, debentures, and securities. In this process, the development of the money and capital market becomes possible which is essential to strengthen the economy.

2. Money as a store of value:- Those goods which are less durable can't be stored but, by means of money their value can be stored for future by selling these goods. This function facilitates large scale production. The property, house, gold, silver and bonds purchased through money can be stored for longer period. Though sometimes the value of money changes, the possibility of profit and loss is always there.

3. Money as a transfer of value:- A man can easily transfer their accumulated purchasing power to other person. Thus, money serves as a means of transfer of purchasing power. A man can also transfer the purchasing power to others in form of cash. In present cashless transaction economy, a person can transfer his purchasing power by using debit cum ATM card, credit card, or cheque to other person. The purchasing power is also transferred by sales of securities to another person. Moreover, he can sell his assets at one place and purchase at another place. Thus, money facilitates transfer of value between persons and places.

Contingent functions:-

Money performs some contingent functions which prove it to be of more utility and convenience. These are as follows-

1. **Distribution of National Income:-** In present times, large scale production and consumption is possible only by means of money. Money helps in distribution of National Income. Rewards of factors of production are determined and paid in terms of money.
2. **Basis of credit system:-** In this period of Globalization, banks and all financial institutions provide various types of loans and also accept deposits. All these functions are performed by means of money.
3. **Liquidity of assets:-** According to J.M. Keynes, an important function of money is to provide liquidity to capital and wealth. Money in the form of liquid can be used immediately for any work.

Other Functions of Money:-

Money also performs other important functions beside the above mentioned functions which are as follows:-

1. **Indicator of clearance capacity:-** The availability of money shows the clearance capacity of an economic agent (man or firm). The person who has money with him, has the ability to pay.
2. **Helpful in making decisions:-** Money is means which provides help to a man in taking economic decisions according to his will. With the help of money, a man can fulfill his desire and wants. Such goods are produced more in the market for which a consumer is willing to pay high price. Thus, there is a famous quote on capitalism market "Consumer is the king of the market".

Importance of Money

At present time, in economic field money has become an important factor. Thus we can understand the importance of money on the basis of following points:-

1. **Axis of market system:-** In modern times, in an economy money is an easy medium of exchange. Thus, all transactions in a market system

are done by means of money.

2. **Measurement of economic development:-** Money is an index of measurement of economic growth and development in country. In public welfare increasing by the government, public expenditure sets the path of expansion to development.

3. **Change in investment or saving in an economy:-** In an economy the savings done by the people in the form of money are deposited with the banks which provides funds for purpose of investment in future.

4. **Work division and specialization:-** In a country, money facilitates higher level of production by means of division of labour and specialization.

5. **Freedom in economic life :-** Both consumers and producers are free to take rational decisions by use of money.

6. **Basis of social prestige :-** In an economy, money with provisions of economic freedom also provides facility of storing value in the form of money, which becomes the basis of prestige.

It is clear from the above points that money has much importance in economic sphere but some economists suggest to keep a control over money in circulation because if not controlled it leads to inflation, due to which economy has to face several bad consequences. Therefore, a scholar has rightly remarked- "Money is good servant but a bad master"

Demonetization :- Demonatization is a process when the legal tender of currency units is declared invalid, and replaced with new currency by Central Bank of a country to eliminate black money and fake currency and put them out of circulation.Thus, in this way black money earned by illegal activities and fake currency automatically gets destroyed.

Important points

- Exchange of goods for goods is called Barter System.
- Money is that commodity which is freely used and generally accepted as a medium of exchange and as a store of value and transfer of value sanction to it is legal.
- Main functions; Medium of exchange, Measure of value
- Secondary functions- Standard of deferred payments, store of value, transfer of purchasing power.
- Contingent functions- Distribution of national income, basis of credit, liquidity of assets.
- Other functions- Conveyor of desire, Index of clearance of capacity.

Exercise Questions :-

Objective Type Questions :-

1. From the following M2 can be measured as-
   (A) M_1 + Net Time deposits of banks
   (B) M_3 + Total deposits with post saving organization
   (C) M_1 + C + DD
   (D) M_1 + Post office saving bank deposits
2. Which of the following is the main function of money?
   (A) Medium of exchange
   (B) Basis of social prestige
   (C) Payments of bills
   (D) Distribution of National Income
3. Which of the following is not the contingent function of the money ?
   (A) Medium of exchange
   (B) Measure of value
   (C) Basis of credit
   (D) Price stability

4. Which of the following is the main difficulty of Barter System?

   (A) Double coincidence

   (B) Not having currency value

   (C) Future saving are not possible

   (D) All of the above

5. Exchange of goods for goods is known as—

   (A) Monetary system

   (B) Goods and monetary system

   (C) Barter system

   (D) Paper currency system

Very Short Answer Type Questions:-

1. Write the meaning of Barter System.
2. Write any one definition of money.
3. Write any two functions of money.
4. Write any two difficulties of Barter System.
5. How does money help in the consumer decision making?

Short Answer Type Questions:-

1. Explain the Barter System of exchange with the help of an example.
2. What do you understand by value of money?
3. Explain the importance of money in the present scenerio.
4. What are the Contingent Functions of money?
5. Write any two Secondary Functions of money.

Essay Type Questions:-

1. Explain briefly the primary(main) functions of money.
2. What is Barter System? Describe the limitations of this system.
3. Giving the definition and meaning of money, throw light on its importance.

Answer Table

1	2	3	4	5
D	A	D	A	C

LESSON 18

COMMERCIAL BANK – MEANING AND FUNCTIONS

In the present times, 'bank' is most popular and most widely used word, the meaning of which is well known to all. Etymologically, however the bank is derived from the Italian word 'Banco' referring to a bench at which money changer used to display their coins. Later from 'Banke' in French it came to be known as Bank in English.

Another conception is that the word 'bank' is derived from German language 'Banck' which means joint stock fund. Thus, nothing can be definitely said about the origin of the word 'Bank'.

The development of modern banking was in Europe, which later on spread in the whole world.

Definition of Bank:

On basis of meaning and multifarious activities of bank, economists have given many definitions which are as follows-

According to Findlay Shirras:- " A banker or bank is a person, firm or company having a place of business where credits are opened by deposit or collection of money or currency or where money is advanced or loaned."

According to Crowther:- "The banker's business is to take the debts of other people to offer his own in exchange, and thereby create money."

Banking companies Act, 1949- Defines banking company in India as one " which transacts the business of banking which means the accepting for purpose of lending or investment, of deposits of money from the public, repayable on demand or otherwise and withdrawable by cheque, draft, order or otherwise".

From the above definitions, it is clear that bank is an institution which provides all the transactions related to money its customers.

Functions of Commercial Banks:

In present times, the functional area of commercial banks has became very vast. These banks provide multifarious facilities to its customers. Besides financial clearance it provides insurance, lockers and investment facilities to the customers. The crucial functions traditionally performed by the banks are:-

1. Acceptance of deposits
2. Granting loans
3. Credit creation
4. Agency services
5. Other services

Acceptance of deposits:- The primary function of a commercial bank is accepting deposits from it's customers. The customer deposits his small savings in current or saving accounts. The bank mobilizes such small savings of customers in funds and give interest on them.

Saving account: Such accounts are opened by small savers and service class people. On such accounts bank pays interest at fixed rate. The rate of interest is low.

Current account : Such accounts are maintained by industrialist and businessman whose daily cash transaction is more.

Time deposits:- The banks accept some deposits, for a fixed time which are called Fixed Deposits. The banks pay higher rate of interest on these deposits.

Demand deposits: Demand deposits are such deposits which are withdrawable by the depositor at any time and banks have to pay them.

In present times, to provide banking facility to the public in 'Pradhan Mantri Jan-dhan Yojna' under bank accounts are opened at zero balance also. There is provision of overdraft facility worth Rs. 5000 for the customers who regularly make transactions on such an account.

Granting loans:- Another major function of commercial banks is to extend loans. Bank provides facility of loan to its customers. Banks provide loan for home, education, marriage, and vehicles. Banks give a fixed time period for repayment of loans to its customers. Generally, the loans granted for purpose of assets are for long-term. Banks also provide simple loans to weaker section, under various government schemes.

Overdraft - A commercial bank grants overdraft facility to its customers on their current account. A customer can draw an amount in excess of the balance held in the account for a small period. This facility is provided by the banks to its prestigious borrowers of business class.

3. Credit creation :

Credit creation is the major function of commercial banks, like other banks their objective is also to earn profits. A bank accepts the deposits from depositors collect them and then grant loan to its customers on a certain rate of interest. This is called credit creation process by banks which we will study further.

4. Agency services :

Banks also provide agency services to its customers. Banks accept cheques, exchange bills, drafts etc and provide financial facilities in form of an agent. It acts as executor, trustee and attorney for customer's will.

Bearer Cheque:- It is encashable immediately at the bank by its possessor.

Crossed Cheque:- This cheque is crossed by parallel lines on its face. It is deposited only in the payee's account.

5. Other Functions :-

(i) Internet Banking : Commercial banks also provide its customers 24 hours service through Internet Banking. The customers with internet access can convienently make the payment of fees for various services from their account sitting at home. Payment for online shopping is also possible through internet banking. For this, it issues login ID and password to its customers which has to be kept secret.

(ii) ATM facility : The commercial banks, enable a customer to withdraw cash for 24 hours by providing ATM machines at public places (bus stand, railway station, hospitals, airport etc). Any customer can withdraw cash to a certain limit per day with his ATM card. It also provides facility of money tarnsfers and account, balance information can also be obtained. ATM refers to automated teller machine. It is fully computerised and connected to bank server.

(iii) Mobile banking :- In present times, with the increased prevelance of smartphone the bank by means of mobile app provides banking facility to the customers. The customer can download the related bank app from play store to get the benefit of the facility. The customer with his user id and password with internet banking can make the payments with his mobile at any place and at any time.

(iv) Locker facility - Banks provide lockers facility at certain fees, so that customers can keep their valuable jewellery, property papers and legal papers with them for safe custody.

(v) Credit card facility - Commercial banks provide banking facility to its customers by means of credit card. The bank uses the payment card on its account of certain credit limit which enables the card holder to make payments by means of credit-card at any time anywhere. In very short period, online payments can be made.

Credit creation by commercial banks

In modern banking system, credit creation occupies an important place. Banks play a vital role in economic development of a country. Bank accepts small savings of the public in form of deposits. It performs the function of credit creation on basis of the deposits of small savings by granting loans for productive works. Now, we attempt to understand the process of credit creation by the commercial bank-

Credit creation-

Credit creation by derivative deposits - The small savings in form of deposits with the bank referred as

bank money or credit money, can be withdrawn by cheques from the banks. This money is payable on demand, thus is called as Demand Deposits. With increase in demand deposits, Banks grant loans multiple times to create credit money. This way the more the bank grants loans, the more will be credit deposit created. Thus, it is said every loan creates a deposit and deposits give birth to loans

According to Halm- "The creation of derivative deposits is the creation of credit". In this way, there is manifold increase by credit creation with respect to the money accepted in forms of deposits by commercial banks.

According to Prof. Halm, there are two types of deposits - primary deposit and derivative deposit

Parimary deposits :- Arises from the actual deposit in cash form in a bank made by its customer.

Derivative deposits :- Which arises from granting of loans, by opening accounts on basis of primary deposits.

Thus, primary deposits create derived deposits. These derivative deposits are also called credit deposits.

Process of credit creation -

A simplified hypothetical example is given here to illustrate the process of credit creation by the banks.

I Stage – Assume that the primary deposit with commercial bank is worth ` 10,000. The cash reserve ratio is 20 % the banks has to keep ` 2000 as cash reserve (20% of primary deposit) and the rest of the fund worth ` 8000 can be used for granting loan. This credit is given by opening an account in name of customer. Thus, every loan creates a deposits.

II Stage - Now again bank will keep 20% of 8000 rupees (1600) in form of cash reserve and will grant loan of a balance amount of ` 6400 , thus another preson is granted loan of ` 6400 and amount is deposited in his account.

III Stage - Now, again 20 % of 6400 ` (1280) is kept as cash reserve and balance of ` 5120 is given as loan. Thus, in this way in name of third person account loan worth 5120 is deposited.

It follows that a bank starts the process of credit creation with a primary deposit worth Rs.10,000. This process will continue to operate till the banks create credit five times (20%) of its primary deposits.

The process of credit creation can be more clear by illlustrating the above example in given table.

Total Derived demand = Total Deposit - Total Cash Ratio

In Formula :- $\Sigma Dd = \Sigma Td - \Sigma Rra$

Table 18.1

Credit Creation Process By Bank			
Assets			Liabilities (Rs.)
Stage	Deposites	CRR (20 %)	Loan/ Derived Demand
I	10000	2000	10000-2000 = 8000
II	8000	1600	8000-1600 =6400
III	6400	1280	6400-1280 = 5120
IV	5120	1024	5120-1024 = 4096
V	4096	819.2	4096-819.2 = 3276.8
	.....	.....	.....
Total	Td = 50000	Rr = 10000	Dd = 40000

The above table 18.1 clearifies how commercial bank create derived deposit from primary deposit and create credit manifold. The creation of derived deposits will depend upon credit multiplier coefficient. In the above example, when CRR in 20 % ie 1/5. The total credit creation will be 50,000. Because the credit

$$\text{multipies coefficient} = \frac{1}{RR}$$

Where RR= cash reserve ratio

This determines the credit expansion by the banks. In above example, the primary deposits in the banks is 10,000 and CRR is 20% the credit multipler coefficient will be-

$$\frac{1}{RR} = \frac{1}{20\%}$$

$$= \frac{1}{20}$$

$$\frac{100}{20} = 5$$

Then credit creation will be-

$$\frac{1}{RR} \times D = 5 \times 10,000$$

$$= \text{`} \ 50,000$$

Similarly, the derivative deposits will be obtained by substracting total amount of reserves from total deposits.

Derivative deposit = total deposits – total cash reserves

$$50000\text{-}10000 = \text{`} \ 40000$$

Limitations of credit creations:-

Bank cannot create credit in unlimited amount. Many economic conditions have direct influence on it. A few limitations in the creation of credit are as follows-

1. Level of development of bank- In countries where banking services are not sufficiently developed, the credit capacity of banks are limited.
2. Banking habits among public - The banking habits among the people in a country has direct effect on credit creation capacity of the banks.
3. Business and industrial development. Countries which have achieved high industrial development, there the bank transactions are also highly developed. Hence, the credit creation capacity is more.
4. The monetary policy of central bank - Easy monetary policy of a country encourages credit creation.

Important points

- "Indian banking companies act 1949."which transacts the business of banking which means the accepting for purpose of lending or investment, of deposits of money from the public, repayable on demand or otherwise and withdrawable by cheque, draft, order or otherwise."
- The deposits accepted by the banks for certain period is called Fixed Deposit where the rate of interest is high.
- Demand deposits are withdrawable by the depositers at any time. The banks is liable to pay on demand, the bank interest is low.
- The commercial bank to provide 24 hour service to its customers grants internet banking services. Customers can make payment for various services very conviniently from their account from their homes.
- ATM is automated teller machine, it is fully computerised which is connected with bank server.
- In present times, with the increases use of smartphone by means of mobile app banks provide its customers banking facilites.
- A commercial bank grants overdraft facility to its customer by which he is allowed to draw an amount in excess of the balance held in the account up to the stipulated limit.
- A commercial bank provides banking facilities to its customers by means of a credit card. It grants a limit of the card holder from which he can borrow the money for payment.

Exercise Questions

Objective Type Questions :-

1. The main fuction of commercial bank is-
   (A) Accepting deposits and granting loans
   (B) Issue of notes
   (C) Function as banker of the government
   (D) Grant economic help to the banks
2. Which of the following deposit account gets highest rate of interst-
   (A) Current account
   (B) Recurring deposit account
   (C) Saving account
   (D) Fixed deposit account
3. What is ATM facility-
   (A) Counter open for 24 hour
   (B) Immediate loan facility by bank
   (C) 24 hours banking facility by computerised automatic machine
   (D) General teller counter of bank

4. For mobile banking, it is necessary-
   (A) Smart phone
   (B) Internet
   (C) Bank account
   (D) All of the above
5. Under which scheme people can open an account in bank at free of cost-
   (A) Pradhan Mantri Rojgar Yojna
   (B) Pradhan Mantri Jan Dhan Yojna
   (C) Pradhan Mantri Rahat Kosh Yojana
   (D) Rashtriya Bachat Yojna

Very Short Answer Type Questions :-

1. Define commercial banks.
2. Write any two functions of commercial banks.
3. Explain overdraft facility.
4. What is internet banking?
5. Write full form of ATM?

Short Answer Type Questions :-

1. Write difference between saving account and current account.
2. Write the main function of commercial banks.
3. What is mobile banking? Explain.
4. Explain any two services provided by the banks in modern times.
5. Write two limitations of credit creation by the commercial banks.

Essay Type Question:-

1. Define commercial banks. Explain the functions of commercial bank in detail.
2. What is credit creation? Explain in detail the process of credit creation by commercial banks.

Answer Table

1	2	3	4	5
A	D	C	D	B

LESSON 19

CENTRAL BANK: FUNCTIONS AND CREDIT CONTROL

Central Bank plays a pivotal role in regulating and controlling the banking and monetary system of all countries. It is responsible for a country's steady economic development, full employment, price stability and favourable balance of payment. The central bank issues directions to all banks and financial institutions. It is known as Federal Reserve Bank in America, Bank of England in England and Reserve Bank Of India in India. Central bank is an apex bank. **According to M.H. De Kock**- A central bank is "a bank which constitutes the apex of the monetary and banking structure of the country."

Definitions of Central Bank :-

Many scholars have attempted to define central bank from their point of view :-

According to A.C.L. Day- "A central bank is to help control and stabilise the monetary and banking system".

According to Samuelson- "A central bank is a bank of bankers. Its duty is to control the monetary base...and through control of this 'high powered money' to control the community's supply of money."

Thus, it is clear that central bank is apex institution in a country which is authorized to control the monetary and banking system.

In India, this role is played by Reserve Bank of India. It regulates the entire monetary and financial system of a country. It is empowered to issue currency notes, to issue authorization letter to the banking institutions. Thus, in a country it is known as apex bank or central bank.

Function of Central Bank:

Central bank performs the following functions-

1. It issues the currency notes.
2. It serves as Banker's bank and controller
3. It serves as a banker and advisor to the government.
4. It is the custodian of foreign exchange reserve.
5. Lender of the last resort
6. Central bank acts as a clearing house
7. Regulation and control of credit.

1. Issues the currency notes- The major function of central bank is to legally issue the currency notes. In India the Reserve Bank of India has the monopoly of issuing notes, to give uniformity in note and facilitates the exchange. Minimum reserve system is adopted to issue sufficient note currency in the country. A minimum fixed amount of gold and foreign currencies is to be kept against note issue by the Central Bank. Central Bank has direct control over the currency in circulation of a country.

Minimum Reserve System: This system is operative in India whereby the Reserve Bank of India is required to keep 115 crores in gold and Rs. 85 Crores in foreign securities. There is no limit to issue of notes after keeping this minimum amount of Rs. 200 crores and minimum reserve in gold and foreign securities. In India in 1956 this system was adopted for issuing notes.

2. Banker's bank and controller:- Central bank regulates and controls all the financial activities of commercial banks. All the commercial banks are required by law to keep reserve equal to certain percentage of their total deposits with the central bank. To develop the banking system of the country, the central bank gives directions from time to time. It plays the role of decision maker in order to resolve any disputes among the banks. Central bank also grants protection to the rights of banking in a country.The Reserve Bank of India issues directives to the related banks on the grievances received from the customers.

3. Banker, Agent and Advisor to the Government:- Central bank in order to achieve high growth rate of a country, plays a cooperative role. It acts as an advisor in policy making for economic development . The central bank keeps the deposits of

the government and makes the payment on behalf of the government. In India Reserve Bank as central bank plays a role of advisor of the government. The central bank announces the monetary policy of the country from time to time this purpose.

4. Custodian of foreign exchange reserve:- The central bank is custodian of foreign exchange reserves. Besides this, it also functions to increase these reserves. It collects foreign currency received from various sources and makes payment on behalf of the government. It tries to bring stability in foreign exchange rate for which tools like devaluation and revaluation are adopted. In India, this work is performed by central bank.

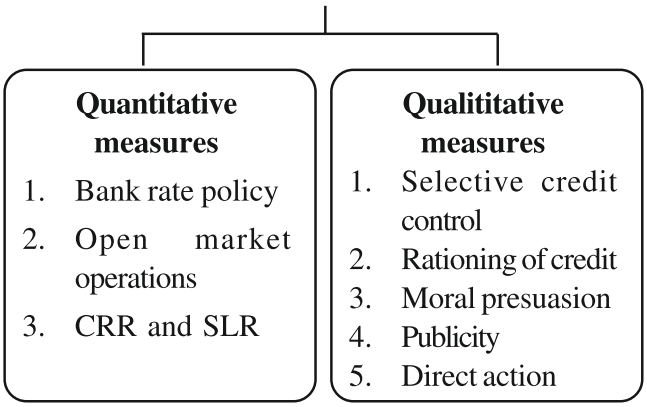
5. Lender of last resort:- In financial stringency, central bank plays the role of lender of last resort to its affilated banks. It lends to them immediately against their securities.

6. Clearing house for transfer and settlement:- Since Reserve Bank holds reserves of commercial banks, it performs the function of clearing house for its affiliated banks. It settles the mutual claims of commercial banks. It transfers funds from one to another without use of cash by making transfer entries in their accounts. It transfers the funds for commercial banks from one place to another. Thus, central bank by means of payment and funds transfer serves the functions of clearing house.

7.Regulation and Controller of credit:- Central bank performs the function of controlling both the supply of money and amount of credit money in country. The total quantity of money and its velocity directly influences inflation and deflation in a country. The central bank controls the supply of money in an economy keeping in view the goals of economic development. The central bank implements the monetary policy for the expansion and contraction of credit, which we will discuss later.

The most important of all the functions of the central bank is credit control. It is necessary to control the credit creation capacity of the commercial banks. The main objective of credit control by central bank is to overcome the instability like inflation and deflation, i.e. to maintain price stability in the country. Besides this, to stabilize the rate of foreign exchange, growth with stability and to provide quantity of credit according to trade of the country.

Methods of credit control by Central bank



Quantitative Methods:-

The adoption of these measures has a direct effect on total quantity of credit without regard for the purpose for which credit is provided. They are used for controlling the total volume of credit but not the direction of flow of credit. Whenever in an economy of a country there is excess or scarcity of liquidity of money, then the measures adopted by central bank to check the volume of credit and its cost are called Quantitative Measures. The quantitative measures adopted in a developing country like India to control credit are as follows:-

1. Bank rate policy:- Bank rate is the most prevalent measure of credit control by the central bank. The credit potential of affiliated banks is directly affected with the use of this measure by central bank. "Bank rate is the rate at which central bank provide loans to the commercial banks."

Bank rate is the rate at which central bank rediscounts the bills of exchange held by commercial banks. In India, this function is performed by the RBI. When credit is to be contracted in the economy, then the central bank raises the bank rate which makes borrowing costly for the commercial banks, its credit potential also decreases. On contrary, if the need of the economy is to expand credit, it lowers the bank rate, the borrowing from central bank becomes cheap. So, commercial banks borrow more and advance more loans to its customers at lower rate.

2. Open Market operation:- The sale and purchase of government securities by the central bank is referred as open market operation. Central bank adopts this measure to regulate the volume of credit in an economy. If the central bank wants to control expansion of credit by commercial banks, it sells the government securities in the money market, the cash reserves of commercial banks decrease to the extent they purchase these securities. Hence, credit contracts conversely, when central bank purchases the securities in the open market, there is an increase in the commercial banks cash reserve, so they grant more loans, this leads to expansion of credit in an economy.

Cash Reserve Ratio (CRR) & Statutory Liquidity Ratio(SLR):-

The central bank uses both tools - the cash reserve ratio(CRR) and statutory liquidity ratio(SLR) for credit control. By law, banks have to keep a certain amount of liquid assets such as gold or approved securities as a percentage to total demand and time liabilities before providing credit to customers, is called Statutory Liquidity Ratio. Similarly by laws banks have to keep certain amount of cash as reserves ratio against total deposits is called cash reserve ratio. When central bank wants to do expansion of credit it lowers both the ratios and on contrary, when contraction of credit is desired then both the ratios are increased.

Qualititative Methods:

The selective or qualititative methods of credit control adopted by central bank is to regulate and limit the availability of credit to a specific sector of an economy. The aim of selective credit control is to channelize the flow of funds from unproductive sectors to productive (economically useful) sectors. The main types of selective measures of credit control are as follows:-

1. Selective credit control :- For specific sectors and specific requirments the central bank adopts the selective measures for credit control, which are as follows.

i. Changing the limits of loans

ii. Maintain difference in interest rates and discounting rate for bill of exchange

iii. Regulate grant of loans in specific sector

iv. Fixation of installment of luxury goods

2. Rationing of credit:- The central bank does the rationing of credit in different sectors i.e. margin or limits are determined by the bank. The rationing of credit is done by central bank by varying the minimum ratios.

- Variable portfolio ceiling - Central bank fixes a ceiling on portfolio of commercial banks, so loans do not exceed this ceiling.

- Variable capital assets ratio - Central bank may fixes minimum ratios regarding the capital of commercial bank to its total assets.

Besides the above measures, the central bank controls and regulates the credit by other measures, which are as follows:-

3. Moral persuation:- The central bank gives advise and directions to the commercial banks to regulate the credit creation by them. Central bank persuades and requests the commercial banks to cooperate in credit control policy. It is psychological and purely informal measure.

4. Publicity:- Advertisement has much importance in the age marketization. The central bank of every country publishes weekly or monthly statements, bulletins, journals and magazines etc. The aim is to make public aware of policies adopted by banks in the light of prevailing economic issues and challenges in the country. This measure of central bank also proves helpful in credit control.

5. Direct action:- The central bank is legally empowered to take direct action against the commercial banks if they fail to follow the above measures, or market failure conditions seem to appear. The central bank may refuse rediscount facilities to commercial bank, who does not follow the policy. It is most powerful measure of credit control which is not practically much used.

From the above discussion, it can be concluded that central bank for successful credit control appropriately, integrate and coordinate both quantitative and qualitative measures; where the quantitative measures directly influence the volume of credit and on the other hand the qualitative measures determine the direction of credit.

Reserve Bank of India

Reserve bank of India is the central bank of India.

It was established on 1 April 1935. Earlier its central office was established in Kolkata. Then in 1937, it was transferred to Mumbai untill then it was under private ownership. It was nationalized in 1949.

RBI is managed and directed by a Central Board of Directors which is as follows:-

Central Board of Directors

Governor

Deputy Governor

Executive Governor

Principal Chief General Manager

Chief General Manager

General Manager

Deputy General Manager

Asstt. General Manager

Manager

Asstt. Manager

Supporting Staff

Reserve Bank of India was established under the Reserve Bank of India Act, 1934.

According to the above Act, the working of Reserve Bank is governed by central board of directors. The government of India under the Reserve Bank of India Act appoints the board:

Constitution - Appointment of Board for 4 years

Government - Fulltime period

Director - One Governor & maximum four Deputy Governors

Non Government Director - Nominated by Government

- 10 Directors in different areas and 2 government officers
- 4 Directors - one from each Regional Board

Function of the Reserve Bank of India

The major functions performed by the Reserve Bank of India are as follows:

1. **Issuing currency notes:-** It issues currency notes with the objective that the public could get good quality currency notes in sufficient quantity. The currency of Reserve Bank of India is rupee of which symbol is **(₹)**. The currency and notes which do not remain suitable for circulation, are destroyed.

The one rupee note is issued by Ministry of Finance and it bears the signature of Finance secretary. The Reserve Bank of India issues the notes of the dinomination of it 2, 5, 10, 20, 50, 100, 200, 500 and 2000 Rs. Bears the signature of the governor of Reserve Bank of India.

Monetary Authorities:- It formulates the monetary policy for the economy of a country, it executes and regulates it. The main objective of monetary policy is to maintain price stability and provide sufficient loan to productive sector.

Regulator of financial sector:- The chief objective of central bank is to protect interest of the depositors and trust of the people in banking system. Besides this, with the objective to provide reasonable

Foreign Exchange Management:- Reserve bank under the foreign exchange management Act 1999, functions to facilitate external trade and facilitates payment of foreign exchange it also works for steady development of foreign exchange market.

Developmental role:- To achieve the national goals, Reserve Bank of India performs stimulating functions widely. It provides directions for development of various sectors, thus Reserve Bank makes the financial institutions financially strong.

Related functions:- Beside the above functions reserve bank performs many other functions also which are as follows:

Banker to a Government:- The Reserve Bank of India serves as a banker to the central government and state government. It grants economic help to the government of India at time of financial crisis.

Publication of information:- Reserve Bank publishes the confidential information regarding money, credit and economic condition of country. It also publishes annual, half yearly, quarterly and monthly bulletins.

Annual publications:- Report on Trends and Progress of Banking in India, Report on Currency and Finance, Handbook of Statistics on Indian Economy.

Monthly publication:- RBI Bulletin, Monetary and Credit Information Review.

Monetary policy of Reserve Bank of India

Monetary policy refers to the regulation and control of money and credit. In modern times, money and credit occupy an important place in economic progress of country. There is need of proper management and regulation of money and amount of credit in accordance with the monetary need of the country. In India, monetary policy is implemented after the recommendation of its central board. The principle tools of monetary policy of Reserve Bank are as follows:-

Repo rate:- It is the rate of interest at which RBI lends money to commercial banks for short term transactions. Central bank provides such loans for very short period; it is called 'overnight'. It increases the repo rate to decrease the liquidity with banks by use of this tool.

Reverse repo rate:- Interest rate offered by RBI to commercial bank for depositing their excess funds in the central bank. Reserve bank uses this instrument to limit the liquidity of the banks with increase in reverse repo rate, the rate of interest received on bank deposits increases resulting increase in bank deposits with reserve bank.

Cash Reserve Ratio(CRR):-Reserve Bank is an apex bank of all commercial banks. All the banks have to keep a certain amount of cash money as reserves against their deposits. This is called cash reserve ratio. An increase in cash reserve ratio leads to decrease of credit potential of its affiliated banks. There is contraction of credit in a country but when cash reserve ratio is reduced, it leads to expansion of credit in the economy of a country.

Statutory Liquidity Ratio(SLR):- The affiliated banks of reserve bank are required to maintain in form of fund(Gold, government approved securities) certain percentage to its total deposits which is called statutory liquidity ratio. Reserve bank expands the credit in a country by reduction of SLR, whereas on other hand to reduce the credit amount in a country it increases the SLR. Thus, in this way SLR is an important instrument of monetary policy of Reserve Bank of India.

The Reserve Bank has followed a targeted credit expansionary policy to achieve the objective of price stability and economic development.

Comparison of Central bank and Commercial banks:-

The central bank and commercial banks have crucial role in the economy of a country. The difference between central bank and commercial bank are found on the basis of objectives and functions. Both the institutions carry important responsibility in monetary and banking system of a country. The comparison between central bank and commercial banks on the basis of objectives and functions are as follows:

1. The chief objective of commercial bank is to earn profits whereas central bank's main objective is to control and regulate the banking system of a country.
2. Commercial banks provide short term and long term loans to their customers where as central

bank provide short and long term loans to government and commercial banks.

3. Commercial banks accept deposits from customer whereas central bank do not have direct transaction with the customer.
4. Commercial banks follow the monetary and credit policy implemented by the central bank whereas central bank serves as advisor to government and is banker of the banks.
5. In commercial banks, the customers can deposit the cash according to their will, but the commercial banks by law are required to keep certain percentage of their total deposits as reserves with the central bank.

In this way the commercial banks follow the directions given by central bank, thus cooperate in operating efficiently monetary and banking system of the country.

Important points

- The two primary functions of a central bank- is to issue of currency notes, Banker's bank and controller.
- Central bank is an apex banking institution of any country who is authorized to control the monetary and banking system.
- The adoption of these measures has a direct effect on total quantity of credit without regard for the purpose for which credit is provided.
- The selective or qualitative methods of credit control adopted by central bank is to regulate and limit the availability of credit to a specific sector of an economy.
- Bank rate is the rate at which central bank rediscounts the bills of exchange held by commercial bank.
- By law, banks have to keep a certain amount of liquid assets such as gold or approved securities as a percentage to total demand and time liabilities before providing credit to customers. is called statutory liquidity ratio(SLR).
- By law banks have to keep certain amount of cash in with themselves as reserves ratio against total deposits is called cash reserve ratio(CRR).
- The central bank does the rationing of credit in two ways (a) variable portfolio ceiling (b) variable capital asset ratio.
- The central bank is legally empowered to take direct action against the commercial banks if they fail to follow the above measures, or market failure conditions seem to appear. The central bank may refuse rediscount facilities to a commercial bank, who does not follow the policy.

Exercise Questions:

Objective Type questions :

1. Bank rate means-
   (A) The rate at which commercial banks lends to central bank
   (B) The rate at which central bank rediscounts the bills of commercial banks
   (C) Rate at which moneylenders lend to the banks
   (D) The rate at which banks lend to the public
2. Which of following is not the Qualitative Measure of credit control?
   (A) Credit rationing
   (B) Moral presuasion
   (C) Open market operation
   (D) Direct action
3. Which of the following is the main function of central bank?
   (A) Issue of currency notes
   (B) Accept deposits from the public
   (C) Grant loan to public
   (D) All of the above
4. The central bank of India is –
   (A) State Bank of India
   (B) Reserve Bank of India
   (C) Union Bank
   (D) Syndicate Bank

5. One rupee note bears the signature of-

(A) Governor of RBI

(B) Prime minister

(C) Finance Secretary

(D) Finance Minister

Very Short Answer Type Question:-

1. Define central bank.
2. What is meant by bank rate?
3. What do you understand by credit rationing?
4. Write the name of central bank of India.
5. Write the name of monthly bulletin issued by Reserve Bank of India.

Short Answer Type Questions:-

1. Explain the function of issuing currency notes of central bank.
2. Write the Quantitative Measures adopted for credit control by central bank.
3. Explain the measures of direct action by Central Bank.
4. Explain the central director board of RBI by means of a flow chart.
5. Write the names of at least four annual publications published by RBI.

Essay Type Question:-

1. Define central bank and explain its main functions in detail.
2. Explain in detail the measures adopted for credit control by central bank.
3. Explain in detail the monetary instruments of Reserve Bank of India.
4. Compare central and commercial bank on the basis of functions performed.

Answer Table

1	2	3	4	5
B	C	A	B	C

LESSON 20

CONCEPT OF CONSUMPTION FUNCTION, SAVING FUNCTION AND INVESTMENT FUNCTION

The classical economists believed that full employment exists in an economy. Say's law of market was also based on the same assumption. According to him, if there is a situation of unemployment in an economy and if there exists free and perfect competition in the economy, then some forces in the market will work in such a way that economy will achieve the situation of full employment.

During the period 1929-33, there was economic depression in countries like Great Britain, America and other countries, which caused increase in unemployment and fall in national income. Many factories were shut down and in many industries the production was below production capacity. The people had to face great economic problems because of widespread severe unemployment. The economic principles prevalent at that time could not provide any solution to this recession.

In this context, in the year 1936 Prof J.M. Keynes in his book "The General Theory of Employment, Interest and Money" criticized the classical theory of employment and propounded a new theory of income and employment which was helpful in solving the immediate economic problems. Keynes recognized the factors influencing employment and also described the factors accountable for unemployment in an economy. Keynes mentioned that full employment does not exist in capitalist economy and generally under-employment equilibrium situation exists in the economy.

The Keynesian theory of income and employment was a short run theory. According to Keynes, population, capital, labour force, technique, efficiency of workers does not change during a given period. Increase in income and production is only possible by employing more and more labour force.

Thus, in short run if the national income of a country is more, simultaneously employment will also be more. On the contrary, if the national income is less, then the employment will also be less. Thus, before analyzing the Keynesian theory of income and employment, it is necessary to understand the following determining functions:

Consumption Function

Consumption function is the main key component of Keynesian theory. It is also known as fundamental psychological law. According to this law, as income increases consumption also increases, but not in the same proportion as increase in the income. Thus, a part of increased income is consumed and another part of income is saved.

According to Keynes, income of consumers plays an important role in influencing the consumption of the consumer. Similarly, with increase in income, consumption also increases and with decrease in income, consumption also decreases. Consumption depends upon disposable income. Disposable income is derived by subtracting direct taxes from income. This disposable income is equal to consumption and saving (C+S). Consumption function may be expressed mathematically in the following form:

$C = f(Y_d)$

Where C = Consumption

Y_d = Disposable income.

When consumption function is linear then :

$C = a + bY_d$

Here a = autonomous consumption

b = marginal propensity to consumer

or

$$b = \frac{\Delta C}{\Delta Y_d}$$

(slope of consumption function) or $b = \frac{\Delta C}{\Delta Y_d}$

Change in consumption due to change in disposable income is called marginal propensity to consume.

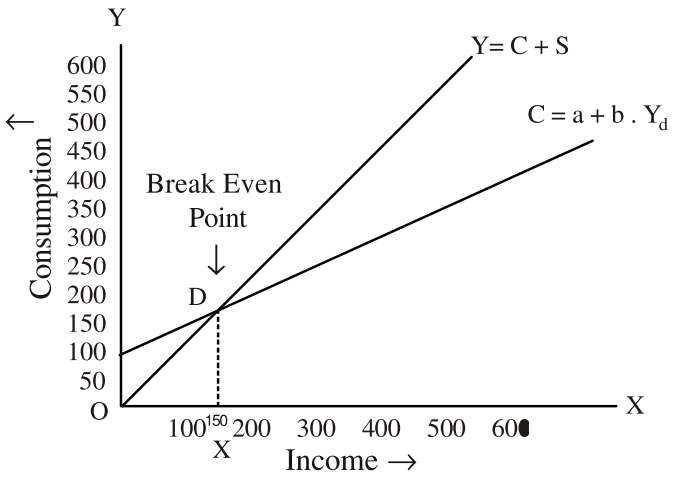


Figure 20.1 (a)

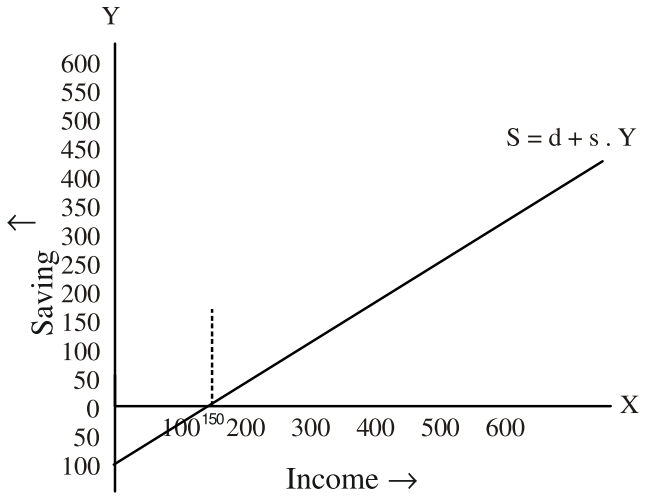


Figure 20.1 (b)

Figure 20.1(a) shows straight line consumption function. It tells us that consumption expenditure varies with the change in personal disposable income. This figure shows relationship between income and consumption expenditure, the other economic variable of consumption such as wealth, previous income, (distribution of income), tax rate etc. remain constant.

Shown in the figure 20.1(a), $C=a+bY_d$ is a straight line linear consumption function and equal proportion line of 45° (aggregate supply line). This line explains that total income is equal to consumption expenditure and savings, and also that Y=C+S.

According to Consumption function a consumer consumes something at zero level of income which is referred as autonomous consumption. In figure 20.1(a), the consumer consume 100 units at zero level of income.

Thus, at this level of income there is negative saving. This is represented by constant consumption variable (a).

At the income level of 150, savings are zero. At this level of income consumer neither saves nor dis-saves. This level is known as the Break Even point of income. Before Break Even point, society dis -saves because level of income of society is less than consumption.(shown in figure, area below OXD)

After Break Even level of income, society starts saving. This is based on the fact that the level of income is more than the level of consumption.

Average propensity to consume (APC): Average propensity to consume explains relationship between total income and total expenditure on consumption.

It is proportionate to consumption expenditure with total income at specific level of income.

Average propensity to consume (APC)

$$(APC) = \frac{C}{Y} = \frac{\text{Total consumption expenditure}}{\text{Total Income}}$$

Table 20.1

Income	Consumption	APC	MPC
0	100	$\frac{100}{0}=\infty$	-
100	150	$\frac{150}{100}=1.5$	$\frac{50}{100}=0.5$
200	200	$\frac{200}{200}=1.0$	$\frac{50}{100}=0.5$
300	250	$\frac{250}{300}=0.83$	$\frac{50}{100}=0.5$
400	300	$\frac{300}{400}=0.75$	$\frac{50}{100}=0.5$
500	350	$\frac{350}{500}=0.7$	$\frac{50}{100}=0.5$

By dividing total consumption by total income, we get average propensity to consume (APC). Average

propensity to consume changes along with change in various levels of income. With the help of schedule (20.1) average propensity to consume is explained. It is clear from the table that at different levels of income the value of APC changes. As income increases, value of APC decreases because the ratio of income spent on consumption declines.

Marginal Propensity to Consume (MPC)

By dividing the increase in consumption with increase in income, we get Marginal propensity to consume.

$$MPC = \frac{\Delta C}{\Delta Y} = \frac{\text{Change in consumption expenditure}}{\text{Change in income}}$$

Thus, the ratio between the change in consumption expenditure and change in income is known as marginal propensity to consume. Marginal Propensity to Consume also explains the additional increase in consumption expenditure due to additional increase in income. The coefficient value of MPC lies between 0 to 1. In mathematical equation form :

$$O<MPC<1$$

If MPC= 0.7,

It means that if income increases by one rupee, consumption expenditure will increases by 70 paise only. MPC tells us the slope of consumption function. Table 20.1can be used to explains the calculation of MPC.

It is clear from table 20.1 that in a linear consumption function, MPC remains unchanged at various levels of income. This is depicted in Figure 20.1(a) & 20.2 According to Keynes , MPC is constant

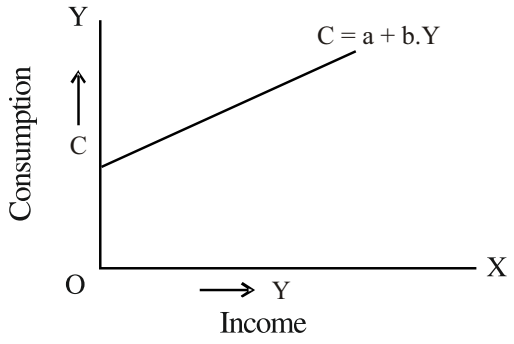


Figure = 20.2

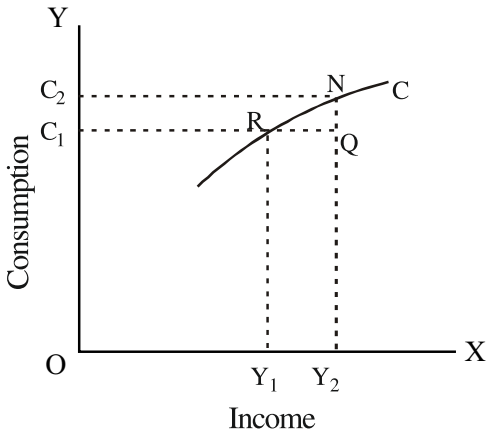


Figure = 20.3

in short run. In this condition APC>MPC. According to various economists, APC = MPC in the long run. The MPC for linear consumption function is equal to its slope.

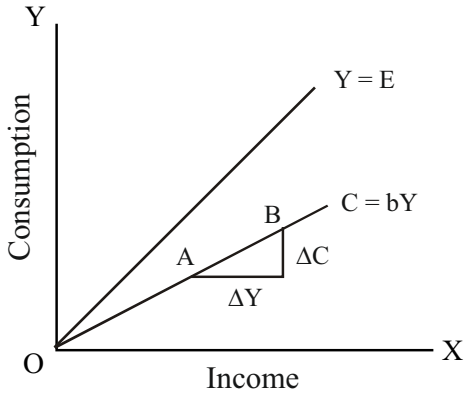


Figure 20.4

In figure- 20.3 $\frac{NQ}{RQ}$ depicts the slope of consumption curve. $\frac{C_1C_2}{Y_1Y_2}$

Here, NQ = change in consumption (ΔC) and RQ = Change in income (ΔY).In this figure, APC at R point is $\frac{OC_1}{OY_1}$ and at point N, $\frac{OC_2}{OY_2}$. The curve C is flatter towards right which depicts decreasing tendency of average propensity to consume.

Figure 20.4 is also a linear consumption function OC = bY, Both start at same point of origin O in long run, it is called a long run consumption function.

In the long run APC = MPC.

Saving Function :-

Saving is residual income after consumption i.e. to calculate the saving, total consumption expenditure is deducted from total income.

Since $Y=C+S$

therefore $S=Y-C$

We have already explained earlier and shown consumption and saving function together in the figure 20.1 (a) & (b). To find out the saving function, we shall have to deduct consumption from 45° line of equality at various level of income. Saving function has been shown in figure 20.1(b).

$\therefore \quad Y = C + S \quad \ldots (1)$

And $\quad C = a + bY \quad \ldots (2)$

Keeping the value of C as in (2) in equation (1)

$$Y = a + bY + S$$

$$- a + (1 - b)\, Y = S$$

Therefore, mathematically saving function can be represented as:

$$S = - a + (1 - b)Y$$

Average Propensity to Save :-

Average propensity to save shows the ratio between total saving and total income.

Average propensity to save

$$(APS) = \frac{S}{Y} = \frac{\text{Total Saving}}{\text{Total income}}$$

APS is obtained by dividing saving by income. APS is shown in following table 20.2

We know that

$$Y = C + S$$

The above equation divided by Y

$$\frac{Y}{Y} = \frac{C}{Y} = \frac{S}{Y}$$

$$1 = APC + APS$$

$$APS = 1 - APC$$

To find the value of APS, we have to subtract APC from 1.

Table 20.2

Income	Consumption	Saving	APS
0	100	0	-
100	150	-50	$\frac{-50}{100} = -0.5$
200	200	0	$\frac{0}{200} = 0$
300	250	50	$\frac{50}{300} = 0.16$
400	300	100	$\frac{100}{400} = 0.25$
500	350	150	$\frac{150}{500} = 0.3$

Marginal Propensity To Save :-

The Marginal Propensity to Save is the ratio of change in saving (ΔS) to change in income (ΔY)

$$MPS = \frac{\Delta S}{\Delta Y} = \frac{\text{Change in Saving}}{\text{Change in Income}}$$

We know that

$$Y = C + S$$

$$\therefore \quad \Delta Y = \Delta C + \Delta S$$

Dividing the above equation by ΔY

$$\frac{\Delta Y}{\Delta Y} + \frac{\Delta C}{\Delta Y} = \frac{\Delta S}{\Delta Y}$$

$$1 = MPC + MPS$$

$$\therefore \quad MPS = 1 - MPC$$

To find the value of MPS, MPC is subtracted from one.

Table 20.3 can be used to find marginal propensity to save.

Income	Consumption	Saving	MPS
0	100	0	-
100	150	-50	$\frac{-50}{100} = -0.5$
200	200	0	$\frac{50}{100} + = 0.5$
300	250	50	$\frac{50}{100} = 0.5$
400	300	100	$\frac{50}{100} = 0.5$
500	350	150	$\frac{50}{100} = 0.5$

Investment Function :-

In economics, investment means to acquire new productive assets and produce goods and services from these new productive assets. In layman language, investment means to purchase bonds, shares of company and land etc. but in economics, investment means to obtain new productive assets and to use it in the production of goods and services. If we obtain productive assets and do not use them to produce goods and services, then this will simply be called capital formation. But as soon as these assets are used in production of goods and services then capital formation turns into investment.

In an economy, investment is of three types:

1. **Public Investment**- This type of investment is made by Government and local bodies. Government invests in infrastructure like roads, bridges and dams etc.

2. Private Investment- This type of investment is undertaken by private investors, for establishing new factories, new buildings, new equipment etc. It is called private investment.

3. Autonomous Investment- This investment does not depend on change in income, rate of interest and rate of profit. It is shown as a parallel line to OX axis. (In Figure 20.5) Normally, this type of investment is made by government in form of public utility works like roads, dams and canals etc.

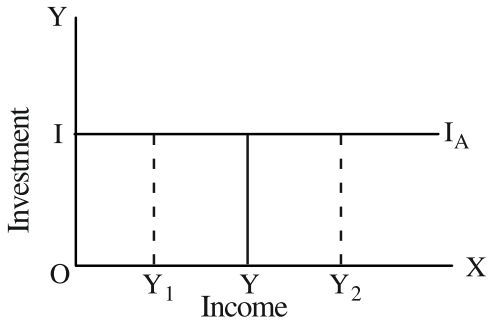


Figure 20.5

According to the above figure 20.5, autonomous investment I I_a is parallel to OX axis. This depicts that at all levels of income. i.e. OY, OY_1, OY_2 the level of investment is OI. Therefore autonomous investment is income inelastic. It is affected by independent factors like population, research, innovation etc.

(iv) Induced Investment :-

Induced investment is the investment expenditure incurred by the business sectors to earn profit or income. If income increases, investment also increases. Induced investment is positively co-related with income. It is income elastic.

Induced investment curve is an upward sloping curve. It increases along with increase in income. When income increases, consumption also increases which induces the increase in investment. Induced investment which is induced by profit is affected by prices, wages and rate of interest.

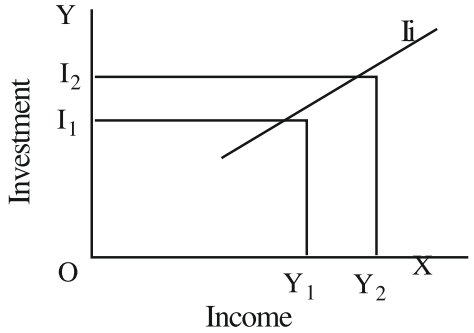


Figure 20.6

As per figure 20.6 when level of income is OY_1 then level of investment is OI_1 and when level of income increases to OY_2 then level of investment becames OI_2.

Two Aspects Of Saving and Ivestment-

(a) Ex-ante saving and Ex-ante investment-

The savings which are planned (intended) to be made by all the households in the economy for a year in beginning of period is called ex-ante saving.

Similarly, the investment which is planned to be made by the firms or entrepreneur in the economy for a year is known as ex-ante investment. If the firms have expectation of price rise and increase in sales, then to increase its stock it plans the investment. We know that savers and investors are two separate groups and both are influenced by different objectives. Therefore, ex-ante saving and ex-ante investment are not equal to each other.

There are two possibilities:-

1. When ex-ante investment is greater than ex-ante saving.

Suppose an entrepreneur is ready to invest ` 50,000 Crores. The Ex-ante savings of the household are ` 45,000 Crores. In this condition aggregate demand is greater than aggregate supply, (AD>AS). To fulfill this gap, entrepreneurs will employ more resources to increase production. This will lead to increase in national income which will increase savings and equilibrium will be attained by equalizing saving and investment.

2. Ex-ante investment is less than ex-ante savings.

Suppose entrepreneurs like to invest ` 45,000 Crores and household savings are ` 50,000 Crores. In this condition aggregate supply is greater than aggregate demand (AS>AD). In this situation, stocks of unsold goods pile up with entrepreneurs. Therefore, entrepreneurs will decrease the level of employment and produce less and as a result, the level of income will decrease. This in turn, will decrease the saving and ultimately the saving will be equal to investment.

(b)Ex-post savings and Ex-post investment-

Ex-post (actual) savings are those which the households actually save from their income. Ex-post (actual) investment- refers to actual investment made by the entrepreneur in an economy during a given period. At all levels of income, ex-post savings are equal to ex-post investment.

Marginal Efficiency Of Capital-

In a capitalist economy, investment is influenced by profit. So investment depends upon two fundamental things:

1. Marginal efficiency of capital and

2. Rate of interest.

The marginal efficiency of capital (MEC) is that rate of discount which would equate the price of fixed capital assets with its present discounted value of expected income. The MEC is the net rate of return that is expected from the purchase of additional capital.

According to Professor Kurihara, "Marginal efficiency of Capital is the ratio between the prospective yield of additional capital goods and their supply price." In a simple way, marginal efficiency of capital is expected rate of return on an additional unit of capital goods over its cost. It is determined by two economic factors- Expected income of capital and supply price. Expected profit (returns from project) means how much profit can be obtained from this capital in the future. Similarly, supply price of capital is the cost of capital.

$$C = \frac{R_1}{(1+r)} + \frac{R_2}{(1+r)^2} + \ldots\ldots + \frac{R_n}{(1+r)^n}$$

C = Supply price of Capital

r = Discount rate

$R_1, R_2, R_3 \ldots\ldots R_n$ = Prospective yield from first, second and upto ....n...years

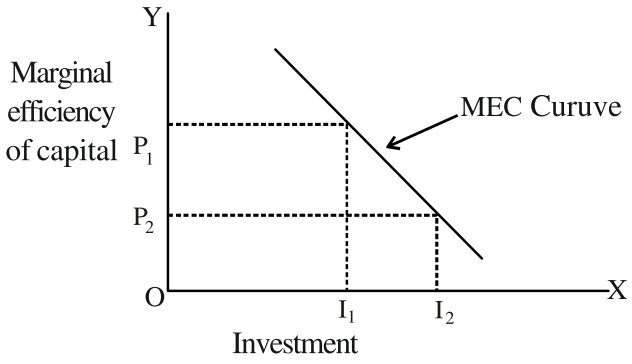


Figure20.7

Above figure 20.7 shows marginal efficiency of capital curve. OX axis shows investment and OY axis shows marginal efficiency of capital. When investment increases from OI_1 to OI_2, then marginal efficiency of

capital decreases from OP_1 to OP_2. It means marginal efficiency of capital decrease with increases in investment. There are two reasons which are responsible for this phenomenon:

1. With increasing production, demand for capital increases and volume of expected yield decreases because with increasing production the price gradually decreases.

2. Demand for capital increases and this increases its supply price i.e. increase in cost of production. Therefore as investment increases, MEC curves slope downwards towards the right.

An investor makes decision regarding investment, compares marginal efficiency of capital with rate of interest. Investment is done at the level when marginal efficiency of capital is greater than rate of interest. The equilibrium level of investment is at a point where marginal efficiency of capital is equal to present rate of interest.

IMPORTANT POINT

- Keynes psychological law of consumption – According to this law, with increase in income, consumption also increases but in less proportion to increase in income. So, part of an increased income is consumed and rest part of the income is saved.
- Consumption function can be expressed mathematically as $C=f(Y_d)$ or $C= a+ bY_d$

  (Simple linear consumption function)

  Here

  a = autonomous consumption

  b = marginal propensity to consume

  C = consumption expenditure

  Y_d = disposable income
- Average propensity to consume = total consumption expenditure , divided by total income

$$APC = \frac{C}{Y}$$

- Marginal propensity to consume = When change in consumption expenditure (ΔC) is divided by change in income (ΔY), we get MPC.

$$MPC = \frac{\Delta C}{\Delta Y}$$

Here MPC = Marginal propensity to consume

ΔY = Change in income

ΔC = Change in consumption

The value of MPC lies between 0 and 1

- **Saving function -** It is a functional relationship between saving and income

  $S = f(Y_d)$

  or $S = -a + (1- b)Y$
- Average propensity to save (APS) = total saving divided by the total income

  $APS = S/Y$

  $APC + APS = 1$ or $APS = 1 - APC$
- Marginal propensity to save ((MPS). It is the ratio between change in saving (ΔS), and change in income (ΔY)

$$MPS = \frac{\Delta S}{\Delta Y} \quad \text{and} \quad MPC + MPS = 1$$

$$MPS = 1 - MPC$$

- An investment is the purchase of new productive assets to produce goods and services is known as investment.
- **Public investment –** Investment made by government is known as Public Investment.
- **Private Investment –** This type of investment is made by private investors for establishing new factories, new building and new equipment. It is called private investment.
- **Autonomous investment -**This type of investment does not depend on production, income, rate of interest and profit.
- When investment undertaken with the aim of earning income or profit is known as induced investment.
- **Marginal efficiency of Capital-**Expectation rate of profitability on new investment is known as marginal efficiency of capital.

Exercise Questions

Objective Type Questions :-

1. Formula for marginal propensity to consume is:

   (A) $\frac{\Delta S}{\Delta Y}$ (B) $\frac{C}{Y}$

   (C) $\frac{\Delta C}{\Delta Y}$ (D) $\frac{Y}{C}$

2. Maximum value of MPC will be :

   (A) Zero (B) 1

   (C) Infinity (D) None of these

3. If APC=APS than what will be the respective value of APC and APS respectively

   (A) Zero (B) 1

   (C) 0.5 (D) 0.7

4. The value of MPC+MPS equal to :

   (A) Zero (B) Infinity

   (C) None of these (D) One

Very Short Answer Type Questions :-

1. What do you understand by Marginal propensity to consume?
2. What is consumption function?
3. If MPC = 0.5 what will be the value of MPS?
4. What is investment function?
5. What is average propensity to save?

Short Answer Type Questions :-

1. What is average propensity to consume? How is it measured?
2. What do you mean by investment?
3. Differentiate between – autonomous investment and induced investment.
4. What do you understand by MPS and MPC?

Essay Type Questions :-

1. Explain saving function with the help of a suitable table, figure and mathematical formula.
2. Explain in detail the Marginal efficiency of capital.
3. Explain consumption function with the help of suitable table, figure and mathematical formula.

Answer Table

1	2	3	4
C	B	C	D

LESSON 21

INCOME – OUTPUT DETERMINATION

In the previous chapter, we studied the concept of Consumption function, Saving function and Investment function. In this chapter, we will study the Determination of Income and Output with the help of aggregate demand and aggregate supply curves.

Aggregate demand (AD): Aggregate demand refers to the total demand for final goods and services in the economy at a given level of income and employment. Aggregate demand equals to aggregate expenditure in an economy.

There are four components of Aggregate demand in an open economy -

1-Consumption expenditure (C)

2-Investment expenditure (I)

3-Government expenditure (G)

4- Net-Export (X - M)

(In an open economy) AD = C + I + G + (X-M)

(In closed economy) AD = C + I

In this chapter, we will analyse the determination of income and output in two sectors economy. Aggregate demand consists of the following economic elements in two sector economy.

1- Consumption demand

2- Investment demand

Consumption demand depends upon marginal propensity to consume and level of income. If marginal propensity to consume is given, then consumption demand depends upon income. Therefore, consumption is the function of income .

In the form of equation C = f (Y)

Investment demand depends upon two factors–

1- Marginal efficiency of capital.

2- Rate of Interest.

Out of these two, rate of interest is relatively stable and generally does not change in short run. So, Investment demand mainly depends upon change in marginal efficiency of capital. "The marginal efficiency of capital (MEC) is that rate of expected profit from the investment of capital assests."

Domestic investment demand = Gross domestic capital formation + change in unsold stocks of goods.

Aggregate supply:

Aggregate supply refers to the total supply of goods. One part of aggregate supply is sold for consumption and other part of is unsold stock of goods.

Aggregate Supply is summation of total consumption expenditure (C) and total savings (S) in an economy. Consumption expenditure is done on production of goods and services and total savings are invested in production of capital goods.In form of equation :-

Aggregate Supply (AS) = C + S

Aggregate supply is the total value of all goods and services available for sale in the market.

Determination of equilibrium level of income in two sector economy.:

In an economy which has two sectors-one is household sector and the other is business sector.AD and AS curves can be obtained in the following manner:-

Aggregate demand curve – In an economy which consists of two sectors, the demand of goods in household is for final consumption and in business sector demand is for domestic investment. It is also assumed that investment is autonomous.

I = Ia (autonomous investment)

AD = C + Ia

AD = a + bY_d + Ia (because C = a + b.Y_d)

So, an aggregate demand curve can be drawn graphically in the following manner –

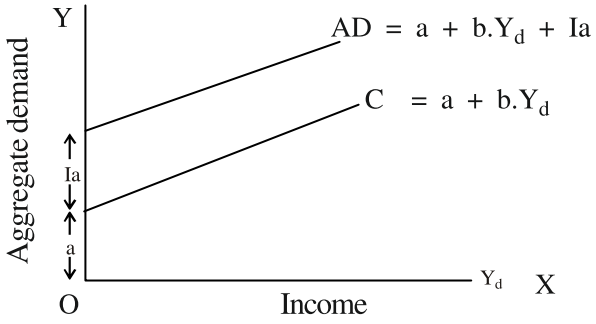


Figure 21.1

In the above figure 21.1 the consumption curve (C = a + b (Yd) is drawn , a stands for autonomous consumption . It shows the constant level of consumption, at zero level of income.When Ia is added to C then Aggregate Demand curve is obtained, therefore it is added to parallel consumption function.The aggregate demand can be calculated as-

Suppose autonomous consumption is (a) = 1000 cr. and autonomous investment (Ia) = 5000cr., and MPC = b = 0.7

Table 21.1

Y_d	autonomous consumption a = 1000	b . Y_d 0.70 x Y_d	C = a+b.Y	Ia	AD = C+Ia
1000	1000	700	1700	5000	6700
2000	1000	1400	2400	5000	7400
3000	1000	2100	3100	5000	8100
4000	1000	2800	3800	5000	8800
5000	1000	3500	4500	5000	9500

Aggregate supply depicts the money value of total output to be sold in the market.

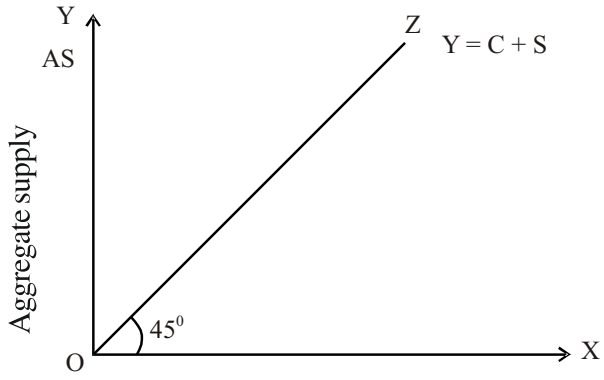


Figure 21.2

Aggregare supply curves has been shown in the figure 21.2

In the above figure 21.2 OZ is equal proportion line . It is 45° from both axis. It represents aggregate supply curves, and is also known as income line.This 45°simple line depicts two things –

1-Aggregate production

2-Money value of national income. Actually national product and national income are synonymous.

Income line OZ which has angle of 45°. The consumption curve C (fig.21.1) shows as income increases consumption also increases.

Determination of equilibrium level of Income

Equilibrium level of income is that level of income and output where (AD = AS) aggregate demand is equal to aggregate supply.

AD = AS

By depicting both curves together,(AD=AS) the equilibrium level of income is determined in figure below:

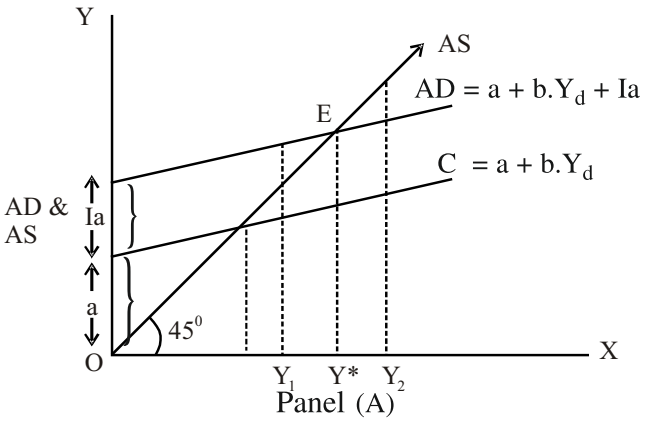


Figure 21.3

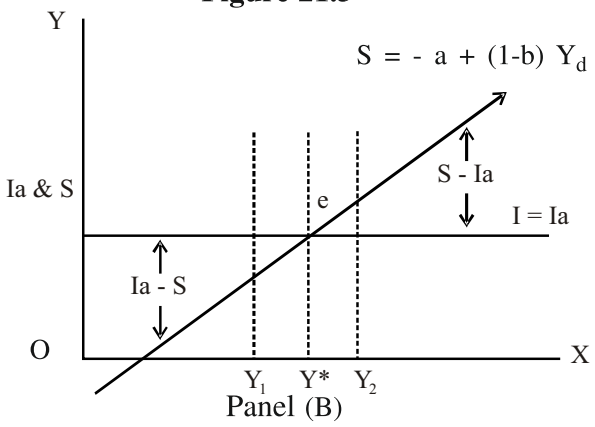


Figure 21.3

In figure 21.3 (A) Point E is equilibrium point of income. At this point AD = AS

$$C + Ia = C + S$$

$$Ia = S$$

In figure 21.3 (B) saving function $S=- a+(1-b)Y_d$ has been depicted.

Investment is autonomous and constant. So it's drawn parallel to OX axis. Investment function and saving function cut/intersect each other at point e and it is exactly below the above point E (shown in figure 21.3 (A)).

Therefore, the point where aggregate demand (AD) intersects aggregate supply (AS) and is the point of equilibrium. At this point, Ia and S equal, which shows the equilibrium level of income. If the level of full employment is determined at the Y_1 then $Y_1 < Y^*$ or AD > AS. Therefore, this gap is equal to Ia-S, which is known as inflationary gap.

If the level of full employment is at the income level is Y_2, then $Y_2 > Y^*$ or AD < AS

This gap is equals to S-Ia. This gap is known as deflationary gap. If there is situation of inflationary gap then it can be eliminated by reducing aggregate demand (AD) and if there is situation of deflationary gap then it can be eliminated by increasing AD.

We can understand the equilibrium level of income and output mathematically as follows :

$$AS = Y$$

And $AD = C+Ia$

For equilibrium level of income AD = AS

$$Y = C + Ia$$

$$\therefore \quad C = a + b\ (Y)$$

$$Y = a + bY + Ia$$

$$Y - bY = a + Ia$$

$$Y(1 - b) = a + Ia$$

$$Y + \frac{1}{(1-b)}(a = Ia)$$

This is equilibrium level of income.

Here, b is stands for marginal propensity to consume.

1 - b = 1 - MPC = MPS (Marginal Propensity to save)

Here equilibrium income is

$$Y + \frac{1}{1-MPC}(a = Ia)$$

$$\text{or } Y + \frac{1}{MPS}(a = Ia)$$

Example : Autonomous investment in an economy is ₹ 200 cr. And the given consumption function C=80+0.75y,then

1- What will be the equilibrium level of income?

2- How much will national income increase if investment is increased by ₹ .25cr. ?

Solution : Ia = 200cr.

$$\Delta I = 25$$

$$C = 80 + 0.75Y$$

$$AS = Y,\ AD = C + I_a$$

$$AS = AD$$

$$Y = C + Ia$$

$$Y = 80 + 0.75Y + 200$$

$$(Y - 0.75Y) = 80 + 200$$

$$Y(1 - 0.75) = 280$$

$$0.25Y = 280$$

$$Y = 280 \times \frac{100}{25} \times 1120$$

Equilibrium income level will be Rs. 1120 cr.

Value of multiplier :-

$$K \quad \frac{1}{1-MPC} = \frac{1}{1-0.75} = 4$$

$$K = \frac{\Delta Y}{\Delta I}$$

$$\Delta Y = K.\Delta I$$

$$= 4 \times 25 \text{ Crores}$$

$$= 100 \text{ Crores}$$

The national income will increase by 100 crores if investment increases by ₹ 25 crores.

Concept of Investment Multiplier

The theory of multiplier occupies an important place in the modern theory of income and employment. The concept of multiplier was first developed by Prof. R.F. Kahn in 1931.

In the decade of 1930's, there was a great depression in economy of America and Europe, then Keynes suggested the idea of increase in aggregate demand to face the challenges of Great Depression. Keynes multiplier is known as investment multiplier or income multiplier .The concept of multiplier occupies an important place in the theories of income, production and employment.

It explains the amount of increase in national income as a result of an initial increase in investment. According to this concept,income increases manifold to the initial increase in investment. Investment multiplier refers to manifold increase in income caused due to initial increase in a investment. Suppose, initial investment is$_c$ 100cr. in the economy and due to this investment, income increases to$_c$ 500cr. then –

$$\text{Investment multiplier} = \frac{500\ Cr.Rs.}{100\ Cr.Rs.} = 5\ Cr.$$

So the value of investment multiplier is equal to the ratio of change in income to the change in investment. In mathematical form :

$$K = \frac{\Delta Y}{\Delta I}$$

Here, K – investment multiplier

ΔY – change in income

ΔI – change in investment

The concept of multiplier is based on the idea that one's expenditure is the income of another. The part of income spent on consumption depends upon MPC. If marginal propensity to consume is high, then it means people will spend large part of their income on consumption. In other words, increase in income is many times more than initial increase in investment. Therefore ,there is a direct relationship between (K) and marginal propensity to consume (MPC).

On the contrary, higher the marginal propensity to save (MPS) lower will be the size of multiplier. Therefore, there is inverse relationship between investment multiplier and marginal propensity to save (MPS),

We can also see the relationship between K, MPC and MPS.

If MPS = 0.75

then $K = \frac{1}{1 - MPC}$

$$\frac{1}{1-0.75} = \frac{1}{.25} = 4$$

We know that MPC + MPS = 1

Or MPS = 1 - MPC

MPS = 1 - 0.75

Or MPS = 0.25

Or $K \quad \frac{1}{MPS} = \frac{1}{0.25} = 4$ is the value of multiplier

If MPC is zero which is rare case, then

$$K = \frac{1}{1-0} = 1$$

and if MPC = 1, Then

$$K = \frac{1}{1-1} = \frac{1}{0} = \infty$$

Two values mentioned above can be seen as lowest and highest values of multiplier i.e. 1 and .

Since MPC lies between limits of 0 to 1

Diagrammatic representation of multiplier

We know that equilibrium point in an economy is where aggregate demand is equal to aggregate supply or where savings and investment are equal to each other i.e. S = I.

1- Aggregate demand and aggregate supply curve method :

Aggregate demand is equal to consumption expenditure and investment expenditure. When investment expenditure increases, then aggregate demand curve shifts upwards and equilibrium points

changes and reaches to higher income level. This is explained in figure 21.4

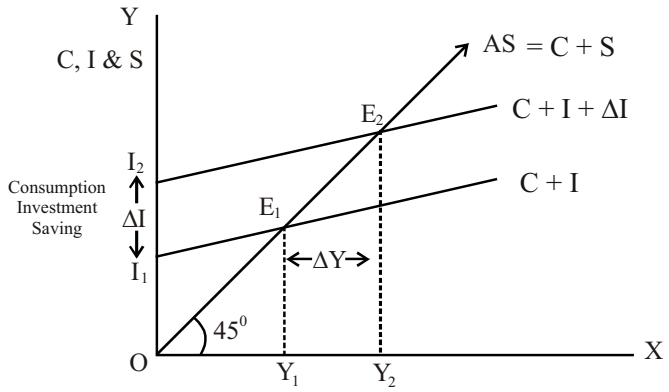


Figure 21.4

According to figure 21.4 when investment increases by $I_1 I_2 = \Delta I$ then income increases by $Y_1 Y_2 = \Delta Y$

Because, Investment multiplier $= \frac{Y_1 Y_2}{I_1 I_2} = \frac{\Delta Y}{\Delta I}$

This is known as forward working of the multiplier. On contrary, if there is a decrease in investment in the economy, then income decreases by many times. This is known as backward working of the multiplier.

2. Saving and Investment Method

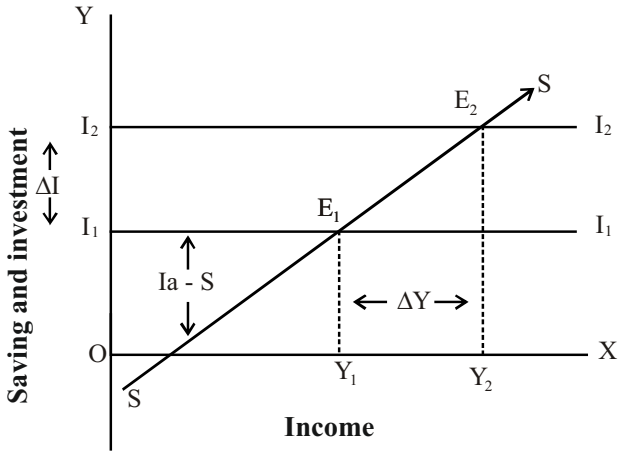


Figure 21.5

In figure 21.5 saving and investment curves are equal at point E_1 Initally, where initial investment has been depicted by I_1. When investment increases, investment curve shifted upward to I_2 and new equilibrium point is at E_2, where $S = I_2$.

Therefore, if investment increases by $I_1 I_2$ then income increases $Y_1 Y_2$.

Investment multiplier $= \frac{Y_1 Y_2}{I_{12} I} = \frac{\Delta Y}{\Delta I}$

The concept of multiplier is very important in Keynes theory of income and employment. When there is increase in investment, national income increases manifold. Similarly, at any specific level of income if AD>AS then inflationary situation appears in the economy and if AD<AS then deflationary situation appears in economy. The study of multiplier helps to understand trade cycle and it also helps in policy making. Equality can be achieved between saving and investment with the help of the multiplier. The amount of investment necessary to achieve the objective of full employment can be determined by the value of multiplier. Public investment has an important role in economic development. Government also determines the volume of public expenditure. Thus the concept of multiplier reveals the importance of investment and public expenditure.

Important points

- Equilibrium level of income and employment – is at the point were aggregate demand is equal to aggregate supply. The equilibrium level of income and employment.

  AD = AS

  C + I = C + S

  I = S

- Equilibrium level of income and employment is also at the point where total savings are equal to total investments.
- In an open economy, aggregate demand has four components :-

  (i) Consumption Expenditure (C)

  (ii) Investment Expenditure (I)

  (iii) Government Expenditure (G)

  (iv) Net Export (X-M)

- Equilibrium income

$$Y = \frac{1}{1 - MPC}(a + Ia)$$

$C = a + bY$

Here a= autonomous consumption

Ia = autonomous investment

- Concept of investment multiplier: The value of multiplier is equal to the ratio of change in the income to change in investment.

$$K = \frac{\Delta Y}{\Delta I}$$

Here K= multiplier

ΔY = change in income

ΔI = change in investment

- Value of multiplier depends upon the level of marginal propensity to consume (MPC). Higher the value of MPC, higher is the value of K and vice-versa.
- Multiplier can be expressed in the form of MPS as below:

$$K = \frac{1}{1 - MPC} = \frac{1}{MPS}$$

- Lower the value of MPS, higher the value of multiplier (K)
- If an investment increases then it will increase the level of income manifold times this process is known as forward working of multiplier. On the contrary if an investment decreases, then it will also lower down the level of income, this process is known as backward movement of multiplier.
- Aggregate demand is the sum of total demand for goods and services in an economy. It is expressed in the form of total expenditure on goods and services in an economy in a year.
- Total goods available in an economy in a given period of time is aggregate supply.

Exercise Questions

Objective type Question:-

1- Aggregte demand is equal to-

(A) I + S (B) C + I

(C) Zero (D) Infinity

2- When MPC is zero, what will be value of multiplier-

(A) 100 (B) 1

(C) 0 (D) infinity

3- When MPS equal to 0.5 what will be the value of K ?

(A) 1 (B) 2

(C) 0 (D) infinity

4- Which of follwing is the formula of multiplier-

(A) $\frac{1}{1 - MPC}$

(B) $\frac{MPC}{MPS}$

(C) $\frac{1}{MPC + MPS}$

(D) $\frac{1}{MPC}$

5- Who developed the concept of Employment Multiplier -

(A) Richard Goodwin

(B) J.M.Keyens

(C) J.S.Ducsnbery

(D) R.F.Kahn.

Very Short Answer Type Questions :-

1- What do you understand by multiplier ?

2- If MPC=0.9, what will be the value of multiplier?

3- What do you understand by equilibrium level of income and employment?

4- What are the important components of aggregate demand?

5- What are the important components of aggregate supply?

Short Answer Type Questions :-

1- Expalin the working of multiplier with the help of the Figure.

2- How is the value of multiplier determined by MPC?

3- Find out the value of multiplier using formula when MPS =0.25?

4- What are the lowest and highest value of multiplier?

5- What is the practical importance of multiplier?

Essay Type Questions :-

1- Explain the equilibrium level of income with the help of Figure and formula.

2- Explain the equilibrium level of income through saving and investment with the help of a suitable figure.

3- What do you understand by investment multiplier?

4. What is the relationship between marginal propensity to consume and investment multiplier?

Answer Table

1	2	3	4	5
B	B	B	A	D

LESSON 22

CONCEPT OF EXCESS DEMAND AND DEFICIENT DEMAND

In the previous chapters we have studied the theory of Income Determination propounded by Keynes, Keynes severely criticized the Classical ideology.

It is very important to understand the chief thought of Classicals and Keynesian before we deal with this chapter. According to Classical economists, income and output were determined by real factors such as capital, stock, labour supply. There is no effect of general price level. According to them, general price level was determined by the supply of money.

Keynes thought because of the prevailing world wide Economic Depression of 1930. Keynes in his theory of income and output determination assumed that price level remained constant. According to him, income was determined at a point where aggregate demand equals to aggregate supply. The problems of economy under the grip of Depression characterised by unemployment and excess production capacity for which the main cause responsible was lack of effective demand.

Aggregate Demand (AD) and Aggregate Supply (AS) model explains the determination of general price level and fluctuations in output. On the basis of which government adopts the monetary and fiscal measures. First, it is necessary to know what is aggregate demand and aggregate supply. Let us first understand these concepts in following manner.

Aggregate Demand (AD)

Aggregate Demand includes consumption expenditure, private investment expenditure, government purchases of goods and services and net export ($Y = C + I + G + X_n$). Aggregate demand is total quantity of goods and services that are bought by the consumer, investors, government, and foreigners at each price level, other things remaining constant.

The components of aggregate demand in the equation can be expressed as :-

$$Y = C + I + G + X_n$$

Where

C = consumption expenditure

I = investment expenditure

G = government expenditure

X_n = X-M (X = total exports, M = Total Imports)

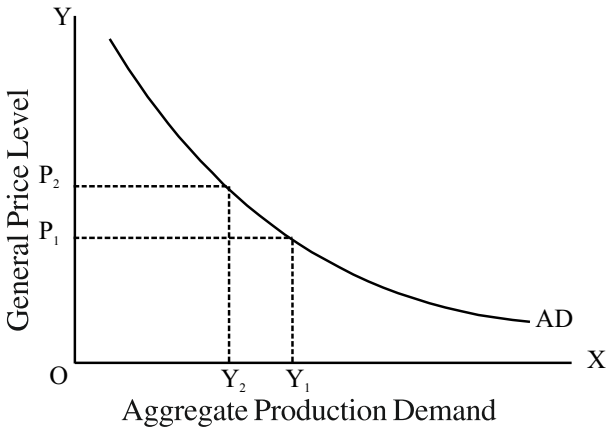


Figure 22.1

Figure 22.1 depicts the Aggregate Demand Curve. On X axis, level of aggregate output demanded and on Y axis, general price level is measured.

The curve shows the relationship between aggregate demand of goods and services and price level. The initial price is OP_1 and output OY_1, if price increases from OP_1 to OP_2 then there are three effects:-

1. With rise in price, consumption expenditure falls.
2. At a higer price level, people will require more money for conducting transactions, which cause the rate of interest to go up resulting decrease in demand for investment.
3. A rise in price leads to increase in imports and decline in exports which cause a decline in net exports(X-M). Thus while rise in price the aggregate demand declines. Figure 22.1 depicts that the aggregate output demand decreases from OY_1 to OY_2. On the contrary, with the fall in price the aggregate output demand increases.

Derivation of Aggregate Demand Curve:- The derivation of aggregate demand curve can be done using Keynesian income determination model.

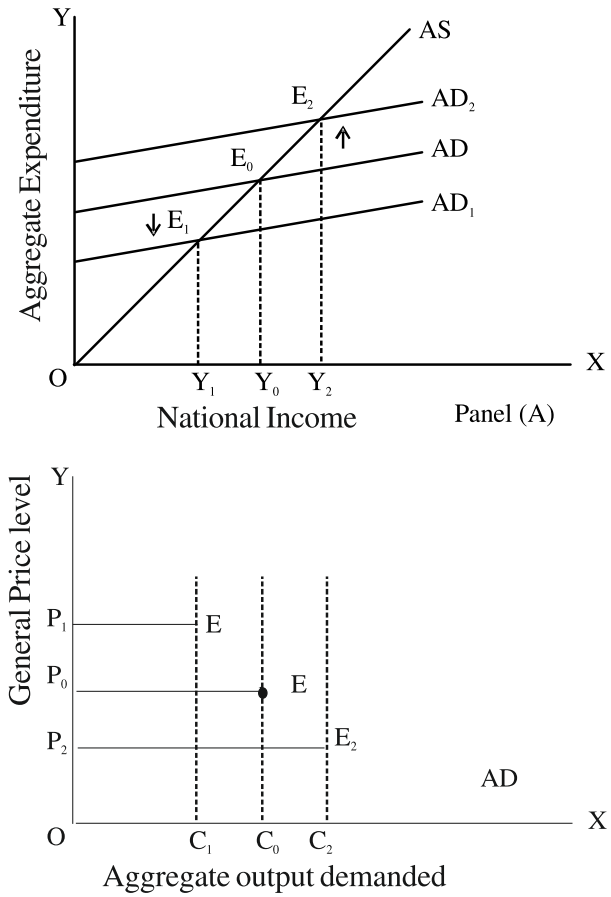


Figure 22.2

As depicted in panel of fig.22.2(A), the aggregate expenditure (planned expenditure) at various levels of national income (GNP) is shown. In panel B derived aggregate demand at various level of price is depicted.

As Initially, the aggregate demand and aggregate supply (45^0 line) intersect each other at E_0. At which income determined is Y_0. In panel B at Y_0 level of income the aggregate demand is C_0 and general price level is OP_0 in a similar manner, if the general price level decreases to P_2 , then the purchasing power of people increases leading to rise is consumptions expenditure. AD shifts to AD_2 upwards. The equilibrium is at AD_2 = AS (45 line) at E_2 where income is Y_2. The aggregate demand is OC_2. Thus, at lower price the aggregate output demanded is high. On contrary, at a high price equilibrium is at E_1 where AS = AD_1 level of income is Y_1 and aggregate demand falls to OC_1. In this way inverse relation exists between the general price level and aggregate output demanded which is shown in panel B by AD curve.

Aggregate supply (AS)

The quantity of goods and services that firms in an economy are willing to produce at each possible price level, other things remaning constant is called Aggregate Supply. The theory of Classical Economists is based on the assumption of full employment. Thus, the aggregate supply curve is vertical line under full employment conditions which is depicted by fig 22.3 AS is perfectly inelastic.

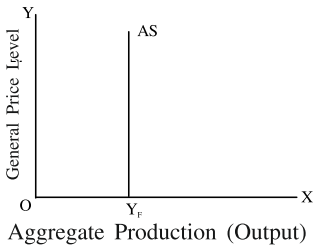


Figure 22.3

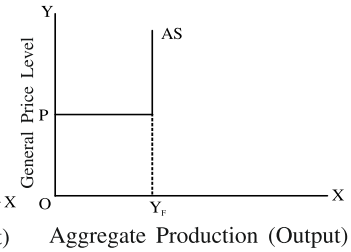


Figure 22.4

Keynes considered the situation of economic depression thus initially the aggregate supply curve is a horizontal straight line up to the level of full employment, then after this level it is vertical line at OY_F level of aggregate output shown in fig 22.4. In the horizontal zones with increase in aggregate demand the output increases but price remains unchanged whereas with vertical aggregate demand the output does not increase, but there is rise in the price as resources are fully employed.

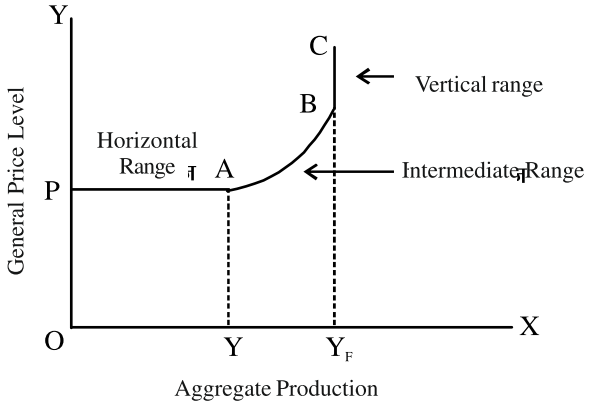


Figure 22.5

In figure 22.5, the horizontal aggregate supply curve (PA) is called Keynesian range. The idle or unused

resources can be put to use without causing any rise in unit cost of production and therefore without any rise in the price level, if any output is expanded in this range. The PA part of the curve depicts the depression in an economy.

The intermediate range is between in the levels of aggregate output Y and Y_f. The increase in aggregate output brings about rise in price level. Before full employment of resources the per unit cost increase as the output increases which causes an increase in the price level.

Aggregate supply in the vertical range (BC) is perfectly inelastic, which depicts the full employment level of output. This range is also called the classical range. It imples that change in price level will fail to cause any change in output (unchanged) because the available resources are already used up to full potential.

Macro economic equilibrium:-

Having explained the necessary concept of aggregate demand and supply we shall now try to understand how the macro economic equilibrium is achieved by AD=AS model.

Short run equilibrium depicts the actual state of the economy, the real GDP fluctuates around the potential GDP. The purpose of the AD=AS model is to explain how the monetary and fiscal policies are effective.

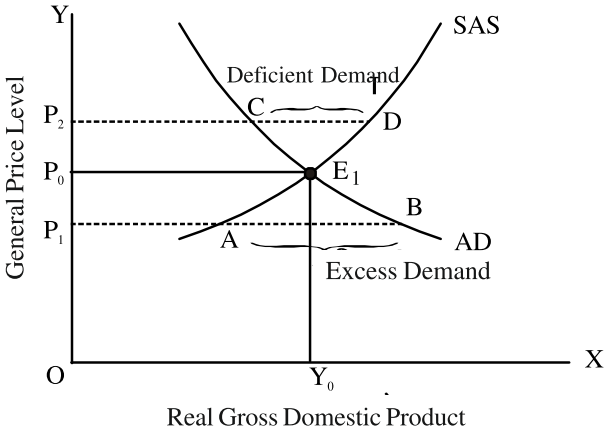


Figure 22.6

The equilibrium point E_1 occurs at which aggregate demand and short run aggregate supply, curve are equal. The income level OY_0 and P_0 are determined. Suppose, if price level is P_2 the quantity of real GDP supplied is more than real GDP demand (CD) which is called deficient demand. As a result, unintended inventories gets piled up the firms are not able to sell all their output. The firms will cut both the production and prices. This process of cutting prices will continue until the equilibrium price level P_0 is reached.

On the contrary, suppose the price level is OP_1 then the aggregate demand is more than the aggregate supply (AB) which is called excess demand. The high demand will induce the firms to increase the production. For this, the producers will increase the demand for factors of production which will cause rise in production cost. The price of goods will keep on increasing until price level P_0 is reached.

In short run, the money wage rate is fixed. The real GDP can be less than or greater than potential GDP.

In the long run, equilibrium is achieved, where aggregate demand is equal to long run aggregate supply curve. In the long run, aggregate supply curve being vertical is equal to potential GDP. In the long run, equilibrium occurs when real GDP equals potential GDP.

Depression

When there is a slow down in economic activities like fall in production of goods & services, employment, income, demand and prices over the course of a normal business cycle.

Prosperity

There is inflationary rise in prices. The levels of output, employment and income are high. There is increased demand for goods & services

Monetary and Fiscal Policy

The above discussion clarifies that the cause of depression is deficiency of aggregate demand i.e. aggregate demand is less than aggregate supply. In such a situation, the government adopts fiscal policy. A major measure is the increase in expenditure by the government on several types of public works which cause rise in aggregate demand. The public expenditure for instance includes, road construction, dam construction, building construction for schools and hospitals etc. which will generate employment, income and demand. Another

measure is reduction is taxes which increases the disposable income of the people. This effort will be only effective when government does not make any increase in variety of taxes. Similarly, under monetary policy the supply of money is increased which results in fall of rate of interest this causes increase in private investment, which leads to increase in aggregate demand. For this purpose the bank rate is decreased, purchase of securities by Central Bank through open market operation, the cash reserve ratio is also decreased. To conclude, it can be said that in situation of deficient demand the government adopts expansionary, monetary and fiscal policy. During depression fiscal policy proves to be more effective than monetary policy, the business firms are unable to sell their piled stock during deficient demand (depression). Thus, even with fall in rate of interest they are not motivated for new investment. The consumer class too, because of unemployment and low income does not desire to take loans for durable goods. Hence, monetary policy is not much successful.

Fiscal policy- The government adjusts it's spending levels and tax rate to achieve full employment and price stability.

Monetary policy is adopted when central bank controls the supply of money to achieve the goals of economic policy.

In contrast, in situation of excess demand and inflation contractionary monetary and fiscal policy is adopted by the government. The government while implementing the fiscal policy should increase the taxes. So unnecessary expenditure could be reduced, the aggregate demand can also be reduced. There should not be high increase in the tax otherwise, it would adversly affect investment and production. Government can also execute compulsory saving schemes and repayment of public debt can be stopped. Similarly, tight monetary policy should be adopted. To combat, the increasing prices because of excess demand, central bank should increase the bank rate, sale the securities in open market and the reserve ratio should also be increased. The qualitative measures like credit margin requirement should be increased. Beside these measures, demonetisation of currency can also be done. Thus, the situation of deficient and excess demand can be overcome by adoption of balanced measures of both monetary and fiscal policy.

Demonetization - When the government of a country legally bans the old currency. Recently on 8 Nov. 2016 mid-night the government banned 500 and 1000 rupee notes.

Important points

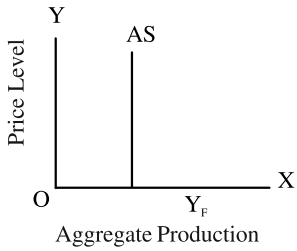
- The aggregate demand includes consumption expenditure, Investment expenditure, government expenditure and net export AD= $C+I+G+X_n$
- Aggregate demand depicts the quantity of total good and services demanded on various price levels
- There is inverse relation between aggregate demand and general price level.
- Aggregate supply shows the firm's total production of goods & services at various possible price levels.
- Deficient demand means, when aggregate demand is less than aggregate supply,
- Excess demand means, when aggregate supply is less than aggregate demand or aggregate demand is more than aggregate supply.
- Deficient demand apprise of the situation of depression.
- Excess demand apprise of the situation of inflation.
- During depression expansionary monetary & fiscal policy are effective.
- During excess demand (inflation) contractionary monetary and fiscal policy are adopted which causes decline in aggregate demand.

Exercises Questions

Objective TypeQuestions :-

1. Deficient demand is when-
   (A) AD < AS
   (B) AD > AS
   (C) AD = AS
   (D) AD # AS

2. Aggregate demand is-
   (A) Consumption of investment expenditure
   (B) Government expenditure
   (C) Net exports
   (D) All the above
3. The measure of fiscal policy in depression is-
   (A) Increase in taxes
   (B) Increase in public expenditure
   (C) Decreases in public expenditure
   (D) Increase in prices
4. To control inflation the measure of monetary policy is -
   (A) Increase in bank rate
   (B) Reduction in taxes
   (C) Increase in public expenditure
   (D) Decrease in bank rate
5. The aggregate supply in the figure is according to-



   (A) Keynesion
   (B) Classical
   (C) Monetarist
   (D) Ratex

Very Short Answer Type Questions:-

1. Write the meaning of aggregate demand.
2. Write the four components of aggregate demand.
3. Write the meaning of aggregate supply.
4. What is the meaning of macro economic equilibrium?
5. Write meaning of depression.

Short Answer Type Questions:-

1. Explain deficient demand.
2. What is the meaning of excess demand ?
3. What is meant by monetary policy ?
4. What are the tools of fiscal policy ?
5. What measures of monetary policy are adopted during inflation ?

Essay Type Questions:-

1. Explain the AD and AS model in detail.
2. Differentiate between the Classical & Keynesian supply curve with the help of a Figure.
3. How fiscal policy is effectively used during depression?
4. Write four measures adopted by government to control inflation.

Answer Table

1	2	3	4	5
A	D	B	A	B

LESSON 23

GOVERNMENT BUDGET AND ECONOMY

Government undertakes economic activities such as public expenditure, public borrowings, public revenue and their control and management are considered as financial administration. In the financial administration, it is remembered that revenues are collected in a just manner and public expenditure is done in an expedient manner. Budget is a practical form of government revenue policy. In India, generally budget is an arrangement of necessary anticipated expenditure determined for the forthcoming financial year.

In financial administration, budget is very important, it can also be called as axis of administration. The revenue expenditure, debt and others. related activities are determined by means of budget.

Meaning and Definition of Budget.

The word 'budget' is said to have its origin from the French word 'bougete' which refers to small leather bag. In 1733 the word 'budget' in England was used to mean "Box of magic".

Budget is statement of government's revenue and expenditure. It is a document of detailed anticipated revenue and outlay of social and economic programmes, and recommendations for increase- decrease of revenue and expenditure during the forthcoming year. Generally, budget refers to statement of income and expenditure during a given year. Secrecy is maintained of the facts in a budget until it is presented before the parliament of the country

Many scholars have defined budget as follows:-

Bastable:- "The budget has came to mean the financial arrangements of a given period, with the usual implications that they have been submitted to the legislative for approval."

Findlay Shirras:- "The budget is an annual statement of expenditure and revenue to meet the expenditure prepared by public authorities and usually covers atleast two fiscal periods- The closing period and the period to come"

There are two sides of a budget. One depicts the anticipated revenue of government while the other depicts the anticipated expenditure. In a democratic system, every year the government presents the budget before the parliament and after the approval by the parliament it functions according to the recommendation.

Objectives of the Budget

The primary objective of the budget is to give directions to the economy of a country. The budget influences the economy of the country. The chief objectives of the budget are as follows:-

1. The budget not only influences the development but the direction of development is also determined by the budget.
2. Budget also plays an important role in increasing the production. Concessions given on taxes and fees in the budget serve as incentives for increase in production.
3. The government by means of budget controls the price level by imposition of new taxes and borrowing from public causing decrease in purchasing power.
4. To accelerate the economic and social development of the country and redistribution of income and wealth.
5. To give direction to production structure and level of production of a country . The concessions in relxation to taxes in a budget are motivational for increase in production.
6. They overcome prevelant inflation or deflations in an economy. Changes are made in the budget to achive the objective of economic price stability.
7. The budget can help in achieving the goal of establishment of welfare state.
8. By means of budget provision, removal of economic inequalities, implementations of schemes of social security, plans for economic development are possible.

Type of budget:

The budget can be classified on the basis of trends and balance in income and expenditure of the government.

Revenue and capital budget

Budget depicts the income and expenditure of the government. On its basis it is divided into following two parts.

1.Revenue budget-

This is depicted in beginning part of budget. It is divided into two parts on basis of receipts.

Revenue receipts & Revenue expenditure- It includes the revenue received during the financial year also known as current account. It includes all the sources of income for which no payment is to be made. For income received from tax, profit earned from public enterprises, interest received from government industries etc.

Revenue budget consists of revenue receipts.(a) Tax revenue(b) Non tax revenue. The tax revenue includes income tax, property tax, excise tax, custom etc. The non tax revenue includes interest receipts, fines, fees etc.

Revenue expenditure in the budget can be classified as non-developmental expenditure and developmental expenditure. The non-developmental expenditure includes expenditure on government services government subsidy, government grants and interest payments. Whereas the developmental expenditure includes expenditure on social and community services, agriculture and subsidiary services, industry minerals, fertilizers subsidy, general economic services electricity, irrigation flood control, public construction, transport and telecommunications and subsidies to the states.

Revenue expenditure is also classified as- (a) non planned expenditure in revenue account (b) planned expenditure- revenue account.

After revenue reciepts the next section of budget shows the revenue expenditure. The revenue expenditure is also classified into two part-

(a) Non planned expenditure in Revenue Account

(b) Planned expenditure in Revenue Account

2.Capital Budget- The second section of budget consists capital budget which has two parts:-

Capital reciepts and capital expenditure -

It includes all the sources of income for exchange of payment to be made is compulsory. Capital expenditure account includes those expenditure, on which expenditure is incurred during current year but the social welfare increases not only in current year but in forthcomming year also.

The capital receipt includes receipts from loans and other types of receipts. The capital expenditure is depicted as planned and noplanned expenditure in capital account.

A. **Capital Receipts –**This includes the recovery of loans, various receipts, borrowing and other liabilities. The summation of these receipts is called Capital Receipts,

B. **Capital Expenditure –**The capital expenditure is also divided into two parts (1) Non planned

Table 23.1 Budget

Revenue Budget		Capital Budget	
Item of Receipt	Item of Expenditure	Item of Receipt	Item of Expenditure
Taxes on Income	Expenditure on Government Serviceses	Net Domestic Loans	Formation of Assets
Profits & Dividend	Interest Payment	Net Foreign Loans	Accumulated Funds
Income from Interest	Grants	Loan Repayament	Contingent Funds
Non Tax Revenue	Subsidy	Payment from Public Services	
	General Economics Services		
	Public Works		

expenditure in Capital Account (2) Planned expenditure in Capital Account.

Government budget is classified in following manner on the basis of difference between total revenue and total expenditure

1. **Surplus budget-** A budget is referred to as surplus budget when in comparison to expenditure of government,the income is in excess. The total revenue of government is more than its total expenditure

   Total revenue > total expenditure

   (positive difference)

2. **Balanced budget-** In a budget statement where government income is equal to government expenditure is called balanced budget.

   (Balanced budget=Total revenue=Total expenditure)

3. **Deficit budget –**The budget statement presented by government in which government income is less than government expenditure is called Deficit Budget. In recent times generally in all the democratic countries the government has to incur many types of expenditure for public welfare works. The demand for increasing economic development, increasing expenditure on social security schemes and the increase in demands in a country has caused a rapid increase in public expenditure. This is the reason why deficit budget is a popular concept.

Deficit budget = Government total expenditure > Government total income

Types of budget in changing scenario:-

Generally, the government budget is related to period of one financial year, In India the financial year is from 1 April to 31 March. Due to the changing scenario, increasing government interference in an economy changes are visualized in the process and forms of budget, which can be classified as follows-

1. General Budget – It is also called traditional budget. The chief objective of the budget is to establish financial control of legislature over executive. The primary objective of this budget is to have control over the government expenditure rather than inducing development at a rapid rate. Thus, budget includes the expenditure on salary, wages instruments machines etc and income recieved from various items.

Supplementary Budget:-Is a request for additional funds by the government (ministers and departments) before the parliament in a situation when sanctioned financial resources get over during the course of the year.

Accounting Budget:- The budget ends on 31st march with financial year and it cannot be extended. The government requires a new budget to incur its expenses on 1st April.In such situation the parliament temporarily gives advances to government to meet out its expenses.

Performance Budget:- The budget made on basis of outcome of work or on basis of performance is called performance budget. It is assumed to be a statement of wider proceedings. The budget is basically goal oriented and objective oriented. It measures the performance of programs and projects implemented on the basis of their related statistics available.

Zero based budget:- Peter.A.Pyhrr of America is known as Father of Zero based budgeting. In 1979 the president of America Jimmy Carter adopted the Zero Based Budgeting.

Zero based budgeting is based on logical system to control the expenditures. In this system, all the expenses(every function) in the organization are analyzed and justified starting from zero base for a new period, regardless of the previous expenditure. The previous expenditure are not accepted as a logic base for acceptance of new expenditure. It is also called sunset system.

Outcome budget:- In comparison to general budget this is a difficult process which is looked with reference to the outcomes of financial provisions. The physical goals are so determined for the evaluation of the budget with the objective to examine the quality of implementation of the budget. In the outcome budget, the sanctioned fund is made available at appropriate place and in appropriate quantity for the performance of the function at any level without any obstacle.

Gender budgeting:- The provisions of definite funds are determined to be allocated for schemes and

projects initiated for women welfare and empowerment and development by means of Gender budgeting. It is prepared and analyzed with gender perspective. It helps in finding solution to gender discrimination and highlights the opportunities available among two distinct group men and women.In a developing country like India, there is great importance of Gender budgeting in circumstances where there is lack of awareness towards right of women, lack of education opportunities and unable to take independent decisions.

Federal state and local bodies budget:- The federal and state government budgets are prepared by the executive. The executive gets it approved and the responsibility of its implementation also rests upon them. The budget of local bodies is independent.

Ordinary and Emergency budget:- The ordinary budget deals with the functions which are relatively permanent while the emergency budget is concerned with abnormal or exceptional circumstances like war ,depression etc. Responsibilities, participation and potentials of both the budgets vary.

Concept of Budget deficits

In modern times, democratic governments in their budget present various types of budget deficits which are helpful in understanding the nature of the economy.

Prof. Dalton- "If over a period of time, expenditure exceeds revenue, the budget is said to be unbalanced."

Different concepts:-

(a) Revenue deficit:- When in the budget total revenue expenditure is more than total revenue receipts then this difference is called revenue deficit. Thus revenue deficit budget expresses the excess of revenue expenditure over revenue receipts.

Formula:

Revenue deficit= Revenue receipts- Revenue expenditure

e.g. Total revenue receipts `1300 crores – Total revenue expenditure `1700 crores therefore total Revenue deficit= `400crores.

Explanation:

Revenue deficit = (Total tax revenue + total non tax revenue) – (Non planed expenditure in revenue account + planned expenditure in revenue account)

(b) Fiscal deficit:- The excess of government total expenditure (revenue and capital expenditure includes amount of net loans borrowed) over total revenue receipts, excluding money from borrowings.

Formula:

Fiscal deficit = Total expenditure – Total revenue (excluding borrowings)

(c) Financial deficit:- It depicts the real situation of the government funds. It adds net borrowings of government to Budgetary deficit.

(d) Primary deficit:- After the deduction of interest payments from fiscal deficit, the balance amount is referred as Primary deficit.

Formula:

Primary deficit = fiscal deficit – interest payments

From the above analysis, it is clear that government budget plays a crucial role in accelerating the growth of the economy. In modern times, the government budget not only influences the entire economy but also provides directions.

Recent trends in the Union Budget of India

The union budget for 2016-17 presented by Mr. Arun Jaitly, Union Minister of Finance to make an improvement in system of fiscal administration announced to scrap the distinction between planned expenditure and non planned expenditure. This tradition will be ended from 2017-18 and the budget will be classified in form of revenue expenditure and capital expenditure.

The 2016-17 budget approved many schemes to be launched like *Digital Saksharta Abhiyan* to control black marketing, *Make in India* and *Ek Bharat Shrest Bharat* scheme.

In September 2016, according to a decision of the cabinet of government of India the merger of Union budget and Railway budget was proposed. It will be shown as a part of General Budget.

The Fiscal Responsibility and Budget Management Act, 2003 (FRBMA) is an act of Parliament of India to maintain financial discipline in union and state

government and reduce the fiscal deficit. The main purpose was to eliminate revenue deficit.

Finance Commission makes suggestions to government for division of resources between central and state government. The 13th Finance Commission suggested for fiscal strengthening an attempt can be made during union and state. The 14th Finance Commission under the chairmanship of Y.V. Reddy was constituted in Jan,2013. The recommendations are implemented in the period 2015-20.

In Indian constitution annually the budget has to be presented before the legislative for its approval, the provision of sanction of expenditure of government by the Parliament guarantees the supremacy of the Parliament.

Budget as an instrument of economic policies:

Budget is considered as an important instrument of economic policy of the economy of a nation. budget is not only the presentation of future estimates but if is also a comprehensive plan of projects and programmes for future based on past experiences and depicts the social and economic philosophy of the government. Budget is an important and necessary instrument of government economic policy. It is an integral part of economic development of a nation. It is an effective instrument in the hands of government to achieve the desired goals.

Important points:

- Revenue budget: In this budget is included all, government income from taxes & fees and all expenditure incurred on its collection.
- Capital budget: This budget includes the debt of government and expenses on them and also includes income and expenditure from government assets.
- Union budget is an annual account of economy of any country.
- Prior to submission in Parliament, it is kept confidential.
- Main work of Finance Commission is the division of resources between central and state governments.
- From the year 2017 Railway Budget is merged in Union Budget.
- In modern times concept of deficit budget is most popular.
- Fiscal deficit = Budget deficit + Loan + all liabilities
- Generally budget is presented for one financial year only.
- Objective of gender budgeting is creating awareness for women.

Exercise questions

Multiple choice type questions

1- Meaning of balance budget is-

(A) Total income > Total expenditure

(B) Total income < Total expenditure

(C) Total income = Total expenditure

(D) Total income = Zero

2. Which of the following is not the revenue receipt-

(A) Tax revenue

(B) Dividend

(C) Grant

(D) Non tax revenue

3. The main measure of government is to reduce the purchasing power of the people –

(A) Reduction in taxes

(B) Imposition of new taxes

(C) Increasing government expenditure

(D) Grant Subsidy

4. The budget in which the basis of past expenditure is not made-

(A) General budget

(B) Deficit budget

(C) Supplementary budget

(D) Zero base budget

5. Whose supremacy is proved by passing budget from parliament every year—

(A) President

(B) Prime minister

(C) Parliament

(D) Finance minister

Very short type question-

1. Revenue receipts are divided into two parts, write the names of two parts.
2. Write the formula for determining Revenue Deficit.
3. What is India's financial year period?
4. Who is known as the Father of 'Zero Based Budgeting'?

Short type questions –

1. What do you mean by the 'General Budget'?
2. Why budget is compared to a magic box ? Explain.
3. What is budget?
4. What do understand by Primary Deficit?
5. If the budget deficit in a country is ` 700 crore and the total revenue expenditure is ` 1800 crore, then find the revenue receipt?

Essay type question-

1. What do you understand by budget deficit? Explain its various concepts.
2. Explain the term budget and briefly explain its importance.
3. What do you mean by Revenue Receipt and Revenue Expenditure? Explain.
4. What do you mean by budget? Why gender budgeting has been useful?

Answer Key

1	2	3	4	5
C	C	B	D	C

LESSON 24

CONCEPT OF INTERNATIONAL TRADE

Introduction:

In the era of Globalisation there is hardly any country which is able to satisfy all the needs of its citizens with its available resources. The increasing trend of consumerism amongst the people attracts country to buy and sell the goods and services from other countries. In such conditions to assume any country to have closed economy is absurd. Every country is engaged in trade and other economic transactions with various countries in order to fulfill the wants (needs) of its population.

We will first try to understand the close and open economy.

Closed economy:

A close economy of a country is so called when it has no economic transactions or trade with another country. It is self sufficient, provides all goods and services produced within the economy's borders.

Open economy: It is an economy in which there is mutual transaction of goods & services and trade of financial assets with other countries.

For example in India we consume many goods and services imported from other countries. Similarly, some part of our production is also exported abroad.

Meaning of International Trade

Generally, the meaning of trade refers to purchase and sale of goods and services. There is internal and international trade. In internal or domestic trade transaction takes place within the geographical boundries of a nation between different regions. For example banana, rice and coconut from southern India are sent to other parts of the country under internal trade. Similarily, other examples include apples, spices, saffron produced in Kashmir. On the contrary international trade refers to exchange of goods and services between two or more countries. Thus trade across the political frontiers is called international trade, for example the trade between India and America is called international trade. In simple words it is called foreign trade.

Need of International Trade :

The need for International Trade can be understood by the following points

1. All the countries are not equally efficient in producing all types of goods.They have to depend on the other countries for some goods. For example oil is required by all countries but as it is found in few have international trade for it takes place.
2. There is unequal distribution of resources in the world viz fertile land, mineral resources, forest resources etc. Climate also differs. There is no perfect substitution between the factors of production, hence every country specialises in the production of those goods for which the factors are found in abundance. In doing so, its cost of production becomes less. To earn profit the country exports these goods. On the contrary, due to non-availability and scarcity of resources and due to their high prices, such goods are imported from other countries. Thus it makes efforts to decrease its production cost and earn profit through international trade.
3. The development of backward and developing countries is possible by acquiring advanced technology from international trade.
4. The international trade also increases the competitiveness amongst the domestic industries, to earn profit from international trade they increase both the quality and quantity of goods.
5. At present the revenue earned from international trade has a large share in gross national produce. International trade is a responsible factor for the development of all developing countries.

Importance

The definitions given by renowned economists reveals the importance of international trade.

According to Jacob Viner- "Foreign trade thus involves some degree of specialization"

According to Walter Krause "International trade permits more people to live to gratify more varied tastes and to enjoy a higher standard of living than would be possible in its absence". The Importance of International Trade can be explained through the following points :-

1. It gives more opportunities to consumers, producers and investors by providing choice of more goods.
2. It is helpful in optimum use of natural resources.
3. Every country gets an equal opportunity for development.
4. It is helpful in providing necessary goods in condition of natural calamity.
5. It enhances the possibilities of rapid industrialization in developing countries by promotion of financial facilities and advanced technology.
6. International trade helps in harmonizing the mutual relations amongst nations.

Trade Balance and Balance of Payment-

There is a marked distinction between balance of trade and balance of payment. Balance of trade is a component of balance of payment. Every country exports and imports goods and services. Some items are visible and some invisible. Visible items refers to physical goods which can be seen and measured. The value of these goods is included in balance of trade. Thus balance of trade refers to the visible items only. If the export of any country is more in comparison to its imports than the balance of trade is favourable. On the contray if imports are more than exports then balance of trade is unfavorable. Balance of payment is a broader concept and it includes both visible and invisible items. The invisible items includes services like banking, insurance, technical knowledge etc. There are payments between the nations but there is no account of them on the harbour (ports). Some famous economists has defined the balance of payment as follows :-

Table 24.1 Balance of Payment Account

Credit (Receipts)			**Debit (Payment)**		
Current Account					
S.No.	**Item**	**₹ (Crores)**	**S.No.**	**Item**	**₹ (Corese)**
1.	Goods exported	300	8.	Goods imported	400
2.	Services exported	100	9.	Services imported	200
3.	Income from foregin investment	200	10.	Foreign income from investment at home	100
4.	Unilateral receipts	100	11.	Unilateral payment	100
		700			**800**
Capital Account					
5.	Long term borrowings	200	12.	Long term lending	100
6.	Short term borrowings	200	13.	Short term lending	100
7.	Sale of gold assets	100	14.	Purchase of gold assets	100
		500			**300**
			15.	Errors & omission	100
	Grand Total	**1200**			**1200**

According to Bo Sodersten- "The balance of payment is merely a way of listing receipts and payments in international transactions for a country".

Balance of payment can easily be understood by the following hypothetical table:

In the above (table 24.1) 100 crore rupees deficit is depicted in balance of trade. The goods exported are worth 300 crore whereas goods imported are worth 400 crore. But both (credit and debit) side of balance of payment are 1200 corers rupees. Balance of payment is exactly balanced, it always remains balanced because it includes both visible and invisible goods.

Meaning of Foreign Exchange Rate :-

According to Sayers "The prices of currencies in terms of each other are called foreign exchange rates."

According to Haynes "Exchange rate is the price of one currency stated in terms of another currency"

The definitions of Sayers and Haynes clearifies that exchange rate is the rate at which one currency is exchanged for another currency like one rupee in India is equal to 0.015 dollar or 1 US dollar is equal to 68.26 Indian rupees. If an Indian tourist visits America, inorder to fulfill his daily wants he has to exchange the Indian currency into dollar, for one dollar he will give 68.26 rupees. The foreign exchange rate is determined in foreign exchange market.

Foreign exchange market is where two or more countries exchange their currencies. Foreign exchange markets are made up of commercial banks, authorized dealers and monetary authorities.

Exchange rate is of various types namely spot rate, favourable and unfavourable, fixed and flexible rate of exchange. Economists is have propounded many theories of foreign exchange like demand and supply theory, purchasing power, parity theory, balance of payment theory and mint par parity theory.

Determination of Exchange rate :

Demand and Supply Theory - Like the determination of price of commodity in the market by demand and supply of commodity, similarly the foreign exchange rate is also determined in the foreign exchange market by the demand for supply of foreign exchange. With the help of simple example we can make an effort to understand it. Like in India the demand for foreign exchange (dollar) is because India imports goods and services from America. For this India makes capital transfer to America. In exchange America provids US dollars because payments of imports have to be made in dollars. The slope of the demand curve for dollar is negative. It implies that lower the exchange rate the larger will be quantity of dollars demanded. This is because in India goods and services will become cheaper. The import elasticity of demand affects the demand curve.

Supply

It arises from India's export of goods and services and capital movements from America to India

Rupees are offered in exchange of dollars because American holders of dollars wish to make payments in rupees to India.The supply curve is positive which depicts a positive relationship. As the exchange rate increases the greater is quantity of rupees supplied. The elasticity of supply influences the supply curve.

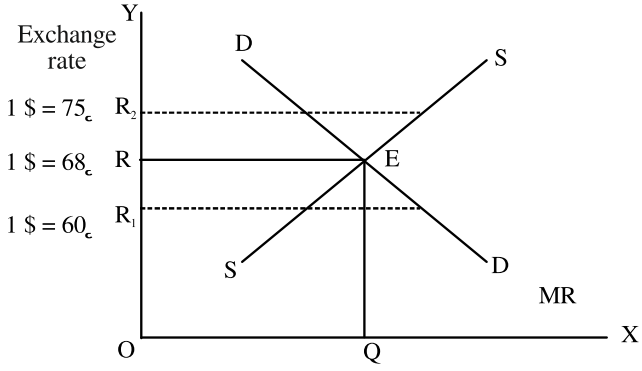


Figure 24.1

The equilibrium exchange rate is determined where DD the demand curve for foreign exchange intersects SS supply curve for foreign exchange at point E in figure 24.1. OQ is the amount of foreign exchange that is demanded and supplied. The equilibrium exchange rate is OR at which 1$ =₹ 68. At any higher rate than this ie, OR_2 the supply of foreign exchange would be larger than demand, this will lead to decline in exchange rate and equilibrium will be established at E. On the

contrary, at OR_1 exchange rate the demand for foreign exchange is greater than supply of foreign exchange, which will increase the exchange rate and equilibrium will be re-established at E. Thus under flexible exchange rates the balance of payment remains in equilibrium.

The exchange rate between countries changes due to changes in demand or supply of the foreign exchange The other economic factors which can be responsible for change are quantity of export and import, capital movements of the country, bank rate, uncertainty in internal money market and political conditions of the country.

Devaluation and Revaluation

According to Paul Enzing:

"Important tool to make balance in Balance of Payment of a country are devaluation & revaluation."

Devaluation is a process of lowering the value of a country's currency with respect to foreign currency by the monetary authority (government) of that country. Devaluation means when the country devaluates the external value of its currency. It is the most commonly adopted method to correct the adverse balance of payment. The impact is that the country's imports, becomes costlier and exports become cheaper. This helps in eliminating the deficits in the balance of payment.

Revaluation is also an instrument (tool) adopted to correct the balance of payment. The value of country's currency is increased compared to foreign currency. This leads to costlier exports and cheaper imports. If rupee becames costlier to foreign currency the surplus in foreign trade can be eliminated.

Devaluation and revaluation both are done under stable exchange rate monetary system. If revaluation is implemented under unstable (Floating) exchange rate system then it is called Appreciation.

Important points

- International trade refers to exchange of goods and services between two or more countries.
- International trade enhances the spectrum of choices of goods for the consumers, producers and investors.
- Balance of trade includes import and export of goods (visible items).
- Exchange rate depicts the price of one currency in form of other currency.
- The rate of exchange is determined at a point where demand for foreign exchange is equal to supply of foreign exchange.
- Devaluation of a country's currency unit is meant to decrease in external value of unit of that currency.
- Upward increase in value of currency with respect to another currency is called revaluation.

Exercise Questions

Objective Type Questions :-

1. Foreign Exchange market can be defined as where there is -
   (A) Transactions of goods
   (B) Transactions of exchange money
   (C) Transaction of resources
   (D) Transaction of services
2. Which of the following condition depicts the trade deficit -
   (A) Imports > Exports
   (B) Exports = Imports
   (C) Imports < Exports
   (D) None of these
3. The depreciation of external value of its currency by a country is called -
   (A) Depreciation
   (B) Devalution
   (C) Revaluation
   (D) Inflation
4. Balance of trade includes -
   (A) Import of services
   (B) Export of services
   (C) Imports of assets
   (D) Import and Export of goods.

5. If value of 1 dollar changes from ₹ 65 to 60 rupees then it will be called -
   (A) Revaluation
   (B) Devaluation
   (C) Depreciation
   (D) Price increase

Very Short Answer Type Questions :

1. What is the meaning of international trade?
2. Write the meaning of foreign exchange market?
3. What do you mean by trade?
4. Explain any one importance of foreign trade.

Short Answer Type Questions :

1. Define devaluation?
2. What are invisible itemes ?
3. What is the meaning of exchange rate?
4. What do you mean by visible goods?
5. What is close economy?

Essay Type Questions :

1. Explain the determination of foreign exchange rate in detail.
2. Explain the meaning of international trade. Why is it needed ?
3. Differentiate between devaluation and revaluation?
4. "Balance of payment is a broader concept than balance of trade". Explain the statement.
5. Illustrate the various items of balance of payment with the help of a hypothetical example.

Answer Table

1	2	3	4	5
B	A	B	D	A

LESSON 25

CASHLESS TRANSACTION

In the 21st century with the rapidly changing environment the economies of many countries are moving from developing to developed stage. This results in wide use of money in cash form in economic transactions in an economy. The circulation of cash increases with increasing cash transaction resulting in rapid increase in demand for money. The burden on central bank in the economy increases. The bank has to bear the increased cost of printing and issue of notes and currency. Thus, the government of developing countries has encouraged the people for cashless transaction in the economy.

Indian economy which is one of the 10 biggest economies of the world is also confronting this problem at present. It is a big challenge in a country, with great geographical diversity and big area and with population more than 100 croers to provide money in cash for economic transactions. Thus the scholars have laid emphasis on the need to encourage cashless transactions for the emerging economy of a country like India. Government is making efforts to bring awareness amongst people while moving towards a cashless society.

The use of e-commerce in India has been started for over one decade. E-commerce or E-business is an advanced and modern technique in which trade is operated by means of internet. The consumer not only is able to purchase goods and services sitting at home but a seller too is able to sell his commodity in any part of the world. The trader can also get the rating of his product from the purchases.

Internet provides many opportunities for basic infrastructure business of consumer services and value added services. At present it is widely used in computer, telecommunication and television business. Since 1990 the commercial firms had started the use of internet for advertisements of their products and to increase their sale. Online shopping captures a big share in the network of commercial activities. In the 21st century competitive environment and opportunities for online trade are being increasingly provided.

Meaning

The simple meaning of the word cashless transactions is financial transaction without money (cash). Thus buyers and sellers exchange goods and services without use of cash. This is possible through transfer of money in bank accounts. Cashless transactions are conducted by means of credit cards, ATM cum debit card internet banking and cheques etc. These can be said as means of e-commerce which was started in India approximately a decade back.

Modes of cashless transactions are as follows:-

- Payment by cheque and draft
- Payment by internet banking
- Payment by swipe machine
- Payment by ATM machine
- Mobile App.
- Through USSD (unstructured supplement any service Data)
- Through Micro ATMs

Digital transaction

1. Payment through cheque or draft -

One of the simplest mode of cashless transaction is payment by cheque or draft. In this the purchaser keeps the cheque book with him issued by bank and can make payment of any transaction, anywhere by means of cheque to the seller. Similarly, drafts are used for big deals. It is a payment on behalf of a payer that is guaranteed by the issuing bank. Both these modes do not need the use of internet.

2. Payment through internet banking -

The second important mode of cashless

transactions is the internet banking by which a buyer can purchase online goods, services from various companies. Thus, without cash payment a buyer can purchase goods from home a means of internet banking payment of railway tickets, air tickets, cinema tickets etc. can also be made. It is believed to be the most simple & convenient mode Online shopping is the process where a consumer directly buys goods and services from the comfort of their homes by placing the purchase order.

3. Payment through Swipe Machine -

Swipe machine is a payment terminal provided by the bank on which merchants can swipe to receive payments. The amount of payment is directly transferred to the firm s account. The purchaser, to get benefit of this service uses credit debit cum ATM card. Every purchaser can use it successfully.

Swipe machine

4. Payment through ATM Machine -

In cashless transactions a buyer can directly transfer the amount of money in seller s account by his ATM card. To get this benefit the accounts of both buyer and seller should be in the same bank. It is necessary to know the IFSC code. Thus it is a limited facility.

ATM machine

5. Through Mobile app -

In present time use of mobiles is rapidly increasing. The various apps in smart phones help in cashless transactions very conveniently. Many banks have introduced e-wallet app for purpose of cashless transactions. Similarly, many Indian and foreign companies have launched several types of apps for android phones. Such apps can be downloaded from google play store at free of cost. The purchaser can transfer the money in e-wallet account by means of ATM card or internet banking. With the help of e-wallet many bills can be paid from home. The Government of India currently introduced BHIM app. The prime minster, to show trust in digital transactions has launched this government app. This app has been dedicated in name of Dr. Bhimrao Ambedkar, the constitution maker and an economic and social thinker. This app is related to all nationalised banks and a few private banks. Thus the people can easily use this for the purpose of simple digital transactions.

Welcome to

Bharat Interface for Money

BHIM

BHARAT INTERFACE FOR MONEY

भारत इन्टर्फेस फॉर मनी एप्प

6. Payment Through USSD Technique :-

This service allows mobile banking transaction using basic feature mobile phone. There is no need to have smart phone and internet banking facility for using USSD based mobile banking. The customers can avail this service by dialing *99# and the first three letters (of their bank) of four digits of IFSC code of their bank. After giving the necessary information, he gets the MMID code and MPIN. To make the payment to any person, his mobile number, MMID number (code) should be known and to ensure the payment he has to register his MPIN (secret). Thus this is the most easy and simplest mode of cashless transactions.

Micro ATM - Micro ATM is based on Aadhar Enabled payment system AEPS. This machine contains finger print scanner. It is mandatary to link the Aadhar Number to bank account. To get the benefit of this mode a person should know his bank account & addhar number.

Utility of Cashless Transactions:-

In a country, where on one hand more use of cash for economic transactions increases black-marketing and corruption, on the other hand it lays much pressure on note issuing system. Cash transactions have also much burden directly or indirectly on banks. As a result, the banking facility is not easily and systematically availed by the customers.

Thus where cashless transaction is the need of the hour, it is also considered necessary for safe transactions in an economy. At present it is the best alternative.

Benefits of Cashless Transactions -

Viewing the increasing economic transactions in an economiy cashless transaction is visualized as the simplest and most convenient alternative. From economic and social point of view some important benefits are as follows :-

1. Saving of time & money -

The greatest benefit of cashless transaction is to the consumer class. The bills are no longer to be deposited on the office counter, due to which time and money are not wasted. Today online shopping provides special offers to the customer. Thus, the consumer choosing any options of cashless transaction, can save his time and money.

Free from holding Cash -

On many occasions excessive amount of cash is carried in wallets for a big purchase which is inconvinent and risky. Thus by adopting the mode of cashless transactions one gets rid of keeping cash. Hence, cashless transactions are convenient.

Pressure on banks decreases -

In an economy as people adopt more and more the mode of cashless transaction, the unnecessary burden on banks decreases. People do not go frequently to banks for cash. Thus banks have to maintain less records of cash. As the accounts in the bank are computerised withdrawls and deposits of the account holder are automatically maintained . Hence the workload of bank employees is lessened and they can provide their customer better services.

Increase in Revenue -

One of the benefits of cashless transaction is that the payment made by the buyer gets directly deposited in the seller s current account. This enhances the feasibility of accurate estimation of the income. This also increases the purview of the tax revenue of the government and the amount of revenue received from taxes increases.

Decline in Black Marketing -

If the economic transactions are cashless, then it is easy for the government to know about when and what goods are purchased by the trader. This will regulate the hoarding of necessary goods for the purpose of black marketing. The trader is unable to create artificial scarcity of the good for purpose of profiteering.

Control of illegal activities -

In an economy there are several economic transactions which are performed for the purpose of speculation, but escape from the eyes of the government.Such illegal activities are deals of property and sale of land in real state.

Cash transaction takes place by depicting lower prices of higherenes or showing lower price as high. This results in huge revenue losses to the government. Thus cashless transaction proves to be beneficial in regulating the illegal activities.

Limitations of cashless transactions -

On one hand, there are many economic and social benefits of cashless transaction, but on the other hand there are a few difficulties and limitations in its implementation, they are as follows:

1. Problem of illiteracy-

The greatest hindrance in move towards cashless transaction economy is that there is big group of less educated and illiterate people. The less educated people avoid modes of cashless transaction.

2. Lack of banking habits -

In developing countries an important economic problem is that people have less banking habits. In a big country like India under Pradhanmantri Jandhan Yojna free accounts have been opened in banks for

crores of people, but people do not use them properly. Thus lack of banking habits hinders cashless transactions.

3. Fear of cheating -

People avoid the use of cashless transactions because of the fear of cheating. If the password is kept secretly and safely then the fear of cheating is not possible. This usually happens because of cheating, fraud, carelessness and ignorance.

4. It is ineffective in many transactions -

In the economy there are many transactions for which cashless transactions is not significant for example - as employees (workers) of small business, cobbler, washerman vegetable seller, milkman, worker on daily wages, mechanic, refuse collector etc. They give importance to cash payment. Because of small cash they find it easy to receive money in cash mode.

5 Limited expansion of banking facilities -

The limited expansion of banking facilities in big economies too hinders cashless transactions. In India today also in rural areas banking facilities are not sufficient. Thus cashless transaction is generally used by the urbans citizens.

Lack of effective laws for regulation of cyber crimes:

In present times in India there are very few laws for protection of right of customers of cashless transaction. In absence of effective laws, to check the frauds involved in cashless transactions made the people suffer from economic loss for many years.

Inspite of the above limitations the importance of cashless transactions cannot be ignored. Cashless transaction is the need and demand of the hour in rapidly expanding economies.

Precautions during digital transactions:-

- Don t response to any messages to provide your user ID passwords, credit or debit card number. No banks will ever ask for your user ID.
- If any enquiry seems doubtful immediatlly contact your bank.
- One should not keep written his pin number with debit and credit card
- Secrecy should be maintained while using ATM card on swipe machine.
- Use of mobile app after seeing the official source.
- While using net banking an eye should be kept on account statement & password should be changed from time to time.
- Don t give your mobile to be used by some unknown person otherwise by use of OTP password he can do digital transactions on your account.
- The registered mobile number in account should never be changed because the messages of the transaction and OTP are received on it.

Relevance of cashless transaction with reference to India -

Recently, on 9 Nov. 2016 the government of India took a step to demonetize ₹ 500 and ₹ 1000, which means legal tender of currency was declared invalid. The cash with the people was deposited in banks and in exchange 500 and 2000 new currency was replaced. Most of the people and traders for sometime faced some problems due to less cash in the economy. The government encouraged the people for cashless transactions. In economy, definitely from the printing of notes to its management the government has to bear expenditure of crores of rupees. The private companies offered cash back offer on such transactions The goverment is also providing special offers to encourage and create awareness. The government after demonetization spent 94 crore rupees on advertisements to popularize digital and cashless transactions. Thus digital transaction is simple and convenient means on one hand and it is a necessity for rapidly emerging Indian economy on the other hand.

Important Points

- The simple meaning of cashless transaction is economic transaction without cash.
- This transaction is made by means of credit card, ATM cum debit card, internet banking and

cheques.

- E-commerce or E-business is a newly developed technique in which trade is conducted by means of internet.
- The simplest mode of cashless payment is through cheque or draft.
- By means of e-wallet, payment of bills can be made easily from home. Recently government of India has launched BHIM App.
- USSD technique can be used by simple mobile phone, with out the use of smartphone or internet.
- By aadhar (AEPS) the payment is done by fingers scanned on micro ATM.
- Cashless transaction helps in regulating illegal activities.
- Cashless transaction is introduce with the objective to control black-marketing, restricts the hoarding of goods.
- Recently the Govternment of India to control black marketing and fake notes announced the demonetization of all 500 and 1000, which means that the legal tender of currency units was declared invalid.
- The Government to encourage digital transaction is not only creating awareness but also providing special offers.

Exercise Questions

Objective Type Questions :-

1. Saving of time and money is possible in
   (A) Barter system
   (B) Monetary system
   (C) Cash transaction
   (D) Cashless transactions
2. Which of the following is called cashless transaction -
   (A) Cash payment
   (B) Payment by cheque
   (C) Payments by only in big note
   (D) Payment only by coins.
3. Which of the following techniques is not used by bank in online payments -
   (A) NTGS (B) NEFT
   (C) RTGS (D) IMPS
4. In which of these following digital transaction internet facility is not necessary -
   (A) Internet banking (B) E-wallet
   (C) Swipe card (D) USSD Technique
5. Which of the following was the digital APP launched by Government of India
   (A) Digital App (B) BHARAT App
   (C) BHIM App (D) PAYMENT App
6. Which of these following method is the traditional method of cashless transaction -
   (A) E-wallet
   (B) Internet Banking
   (C) Cheque or Draft
   (D) Credit / Debit card

Very Short Answer Type Questions :-

1. Write the meaning of cashless transaction.
2. From where is cheque book received ?
3. From where is any type of mobile app downloaded?
4. Write any one method of online payment by bank.
5. Write the expanded from of BHIM App.

Short Answer Type Questions :-

1. Give any four modes of cashless transactions.
2. Write a short note on the utility of cashless transactions.
3. Give the definition of e-commerce.
4. What percautions are necessary in digital transactions?
5. Give any four limitations of cashless transactions.

Essay Type Questions :-

1. How are the methods of digital payment helpful in e-commerce ?
2. What is cashless transaction? Explain its important modes of payments in detail.
3. Give the meaning of cashless transaction? Explain

its benefits in detail and also write its limitations.

4. Write short notes on -

(i) E-wallet (ii) USSD

(iii) AEPS (iv) NEFT

Answer Table

1	2	3	4	5	6
D	B	A	D	C	C

Glossary

- Average Fixed Cost- Total cost divided by output.
- Aggregate supply curve- The curve which depicts the amount of goods sold and produced by the producer at various prices.
- Aggregate-demand curve- The curve depicts the demand of goods and services by the consumer, investor, government and foreign consumers at various prices.
- Average Product (AP)-The total product divided by quantity of the variable input used.
- Average Revenue (AR)- Total revenue divided by quantity sold.
- Average Total Cost (ATC)- Total cost divided by output also equals AFC+AVC
- Average Variable cost (AVC) Total variable cost divided by output.
- Break even point- The point where total revenue is equal to total cost and profits are zero.
- Budget Constraint- The purchase limit of the quantity of a commodity which is determined by the limited income of a consumer and price of the good.
- Budget deficit- When the income of government received from tax is less than its expenditure.
- Central Bank - Is the apex bank which controls and regulates the entire banking system.
- Circular flow of income - The flow of goods and income expenditure between household and business firms.
- Close economy- When the economy of a country does not have any exports and imports with other country.
- Concept of Marginal- The central unifying theme in all micro economics, according to which the total net benefit is maximized when the marginal benefit is equal to marginal cost.
- Cost- Expenditure by the producer on production of a commodity.
- Consumer equilibrium- The point at which utility or satisfaction is maximum.
- Consumption Cost- The expenditure on goods and services by the household sector.
- Cross price elasticity of demand- The percentage change in quantity purchased of a commodity divided by the percentage change in price of another commodity.
- Demand curve- Demand curve depicts the relationship between the price of a commodity and the quantity demanded.
- Demand deposit- the deposits of the people with the banks which can be withdrawn on demand.
- Diminishing marginal utility of money - The decline in the extra utility received from increase in each income rupee.
- Economic resources- Resources that are limited in supply or are scarce and command a price.
- Economics- A field of study that deals with the allocation of scarce resources among alternatives uses to satisfy human wants.
- Efficiency- The situation where the price of a commodity equals to the marginal cost of producing the commodity.
- Elasticity- the measure of responsiveness of a determining variable of other quantity demanded or supplied.
- Excess Demand- The amount of the quantity demanded of a commodity is larger than the quantity supplied of the commodity at below equilibrium price.
- Excess Supply- the amount by which quantity supplied of a commodity is larger than quantity demanded of a commodity at above equilibrium price.

- Exchange-The mutual transactions of goods and services.
- Exchange rate- The prices of a unit of a foreign currency in terms of domestic currency.
- Explicit Costs- The actual expenditure of the firm to purchase the inputs.
- Firm- An organization that combines and organizes resources for the purpose of producing goods and services for sale.
- Giffen Goods- An inferior good for which the positive substitution effect is smaller than the negative income effects, so less good is purchased when its price falls.
- Gross Domestic Product- The final market value of all goods and services produced in a country in the year.
- Human wants- all the goods, services and the condition of life that an individual desires.
- Implicit Cost- The value of the inputs owned and used by the firms, value is imputed from the best alternatives using inputs.
- Indifference Curve- A curve which shows various combinations of two commodities which yield equal level of satisfaction and consumer remains indifferent between them.
- Inferior Goods- A good which a consumer purchases less with increase in income.
- Inflation- Increase in general price level in an economy.
- Investment- Expenditure on capital goods and inventories.
- Law of demand- Shows the inverse relationship between price and quantity demanded other things remaining constant.
- Law of Supply- Shows the positive relationship between price and quantity supplied, other things remaining constant.
- Long-run The time period when all inputs can be varied.
- Macro Economics- the study of aggregate economic variables of an economy.
- Marginal rate of Substitution- The amount of a good that a consumer is willing to give up for an additional unit of another good.
- Marginal Revenue The change in total revenue per unit change in quantity sold.
- Marginal Utility- The extra utility received from consuming one additional unit of a good.
- Market- An institutional arrangement under which buyers and sellers can exchange some quantity of a good or service at a mutual agreeable price.
- Market equilibrium A situation when demand for a commodity is equal to its supply.
- Micro economics- The study of a small or an individual unit.
- Mixed economy- An economy characterized by private enterprise and government regulations
- Monetary Policy- The policy makers of central banks adopt measures to control the supply of money.
- Money- A legal and general acceptable commodity which is used by public for purchase of goods and services.
- Money Supply- Available amount of money in an economy.
- Monopolistic Competition- The situation where there are many firms producing differentiated products.
- Net Exports Net exports are deductions of total imports value from total exports value of a country.
- Non Price Competition Competition based on advertisment and product differentiation rather than on price.
- Normal Good A good which the consumer

purchases more with an increase in income.

- Oligopoly The form of market organization in which few firms are producing / selling either a homogenous or a different product.
- Open economy An economy which has interactions with other economies.
- Ordinal Utility The rankings of the utility received by an individual from consuming various amounts of goods.
- Perfectly Competitive market A market where there are large numbers of buyers and sellers, no one can affect the price of a commodity.
- Price Elasticity of demand The percentage change in the quantity demanded of a commodity divided by the percentage change in its price.
- Production The transformation of resources or inputs into outputs of goods and services.
- Production Possibility Curve Shows the alternative combinations of commodities that a nation can produce by fully utilizing all its resources with best technology available to it.
- Reserve Ratio The part of deposits which bank keeps with it in the form of reserves.
- Shut down point The output level at which price equals average variable cost and losses equal total fixed costs, whether the firm produce or not beside this MC equals to (MC = AVC) lowest point of AVC.
- Substitutes Two goods are substitutes if an increase in the price of one of them leads to more purchase of the other.
- Supply Curve The figure which shows the price and quantity supplied.
- Total Fixed Cost The expenditure incurred on fixed factors.
- Total Revenue The price of commodities times the quantity sold of the commodity.
- Total Utility The amount of satisfaction received from consumption of all the units of a commodities.
- Util The arbitrary unit of measure of utility.
- Utility The power of a commodity to satisfy human wants.
- Variable inputs The factors of production which can be varied easily during a fixed period of time.