



**M.A.(ECONOMICS) PART-I SEMESTER-I PAPER-II**

**MACRO-ECONOMIC ANALYSIS**

**UNIT NO. 1**

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**LESSON NO. 1.1**

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**INTRODUCTORY CONCEPTS**

- 1.1.1 Introduction
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- 1.1.3 Significance of General Theory
- 1.1.4 Micro-Economics and Macro economics
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**1.1.1 Introduction**

The classical economists always assumed a state of full employment in the economy. The normal situation in an economy, according to them, was full employment equilibrium. Less than full employment, they believed, was an abnormal situation. Classical always held that there are no lapses from full employment equilibrium and even if there are any, there is always a tendency to return to full employment. This belief of the classical economists was based on the views of a French Economist, J.B. Say (1767—1832) called Say's Law. Briefly stated it means that "Supply creates its own demand". He asserted that there cannot be any general over-production or general unemployment in the economy as whatever is produced is automatically consumed. In other words, every producer who brings goods to the market does so only to exchange them for other goods. Say believed that people work not for its own sake, but to obtain other goods and services that go to satisfy their wants.

Economist Say, no doubt admitted that supply of a particular commodity may exceed its demand temporarily on account of the wrong calculations of businessmen, but general over-production and hence general unemployment is impossible. He admitted that specific commodities might be overproduced, but a general glut in the sense of a general depression was unthinkable, for the very process of production, created the required effective demand necessary to absorb total output.

If, however, but by some mistake, over production comes to exist in respect of a particular industry, it will be corrected automatically when businessmen suffer losses and switch over from the production of

goods, they cannot sell to the production of goods they can sell. Say was supported in his view by Ricardo and Mill for which they also held the view that a general glut of the market could not occur.

However, with the advent of the Great Depression (1929—34), Keynes faith in the classical scheme of things was rudely shaken as he saw mass unemployment of men and materials, all round. Keynes felt that classical policy of laissez faire or non-intervention could not mend matters. It only deepened the depression as men were found running in search of jobs; raw materials lay idle along with 'no vacancy' sign boards on the factory gates. Keynes was shocked to see this paradox of poverty amidst plenty and wanted to reform capitalism. Actually, Keynes was neither in favour of its abolition nor wanted to part with the basic features of capitalism, like free market and price mechanism. He simply wanted to alter it, so that capitalism could continue to deliver goods under changed circumstances, "To Keynes, the wastage of economic resources through unemployment seemed non-sensible and suicidal. He concentrated more of his energies on the solution of this problem than any other and he had considerable success". (S.E. Harris). Keynes, therefore, wanted : (a) to reform capitalism according to the changed circumstances by making it more dynamic in contents, (b) to evolve a theory of employment which could specify the factors which go to determine employment at a particular time.

Classical economists assumed full employment of resources and thus, ruled out any possibility of unemployment. Assuming the income and employment to be given, the only problem that deserved attention was a better use of existing resources by avoiding their malallocation. The choice, according to the classical economists, was not between employment and unemployment but between employment here and employment there as the resources were taken to be fully employed. Keynes was, therefore, in search of a theory which could determine the factors on which the level of employment at a time in any economy depends. He however was able to evolve such a theory and called it a 'General Theory'. Keynes did not agree with the classical view that employment could be increased by cutting wages.

Keynes' Income Theory is general because it can explain every situation whether it be one of full employment, under-employment or over-full employment. Keynes called classical theory as a special case theory, applicable to only one of the limiting cases of General Theory, Keynes was of the opinion that under 'laissez faire capitalism', under-employment is the rule and full employment, an exception. Moreover, his theory is general in the sense that it explains 'inflation' as readily

as it does 'unemployment' because both are linked with effective demand. Inflation is caused by an excess and deflation, by a deficiency of effective demand. Further, Keynes theory is general in the sense that it relates to change in employment and output in the economic system as a whole. Those who feel that it is not general because it is not applicable 'any where' and 'everywhere' or under all circumstances or in all types of economies or fails to lay down truths of universal validity, would better not waste their time on the 'General Theory', as we know the theory is general by virtue of its treatment of all levels of employment.

### **1.1.2 Objectives**

The objectives of this theory is to study the significance of Keynes General Theory and the distinction between macro-economics and micro-economics. It covers the basic terminology of economics.

### **1.1.3. Significance of General Theory**

'The General Theory is a book which has won for Keynes an everlasting name in the field of economics, it is his chief work. Within a few years of its publication, the book profoundly influenced the thinking of economists and public policy makers. It can be easily compared to Adam Smith's 'Wealth of Nations' or Karl Marx's 'Das Capital'. If "Smith's book is a ringing challenge to mercantilism, Marx's book is a searching criticism of capitalism, then Keynes' book is a repudiation of the foundations of laissez-faire."

General Theory was concerned with the general factors which go to determine employment at a particular time, may it be full employment over or under-employment. Keynes' General Theory had a revolutionary impact on all fields of Economics. His ideas proved helpful in the solution of major economic ills associated with depression, war etc., though his practical remedies differed from place to place and from time to time. Keynes, because of his 'General Theory', received more attention than did Ricardo over a period of more than 100 years or Marshall over the last 50 years. P.A. Samuelson believes that the broad significance of the General Theory lies in the fact that it provides a relatively realistic, complete system for analysing the level of effective demand and its fluctuations. Since 1936 a large number of economists all over the world have read the General Theory; and the thousands carried out its perusal with painstaking care. The General Theory has given birth to hundreds of articles, inspired the writing of many books for and against; in fact, there are few writings today which are free from the influence of Keynes' General Theory. According to Prof. Samuelson, the General Theory though badly written and poorly organised, is a work of genius and should be placed in the first rank of classics with those of Adam Smith, Walras and Cournot.

Prof. Hazlitt feels that even the book's faults seem somehow to add to its greatness. These, in brief, are the circumstances in which the General Theory was born.

#### **1.1.4. Micro Economics and Macro Economics :**

Modern economic analysis has been divided into 'Micro economics' and 'Macro economics' for the sake of convenience and understanding. For a clear grasp and appreciations of 'Income Theory' the distinction between the two approaches becomes necessary. These terms were coined by Prof. Ragnar Frisch of Oslo University in 1933 and since then adopted widely by other economists so that these are now a part and parcel of economic terminology.

Microeconomics is the obverse of macroeconomics. It is the analysis of the economy's constituent elements 'micro', of course being Greek for 'small'. As the name suggests, it is not aggregative, but elective as it seeks to explain the working for markets of individual commodities and the behaviour of the individual household, firm or industry, or of individual prices, wages or income. In micro economics, we study the various constituents or parts of the economy and not the economy as a whole. It is in microeconomics that the concept of marginal analysis assumes special importance as some of the important laws of micro economics are based on it. Here we study the economic motive and behaviour of individual consumers and producers and the principles involved in organising and operating the individual firm or industries. For example, we take an individual consumer and see how he attains the equilibrium, we therefore, need not to study consumption of the economy as a whole. In Microeconomics, we study the demand of an individual firm or industry.

Macroeconomics is the study of economic system as a whole. It is that branch of economic analysis which studies the behaviour of not one particular unit, but of all the units taken together, like total national income, output and employment, total consumption, saving and investment, aggregate demand, supply and general level of prices. Macroeconomics, thus, becomes the study of aggregates and is often called "Aggregative Economics". It studies the behaviour of these aggregates over time and space. According to Prof. Boulding, 'Macroeconomics deals not only with individual quantities as such, but with aggregates of these quantities, not with individual income but with national income, not with individual prices but price levels, not with individual outputs but with national output. The study which analyses the

determination and fluctuations in various aggregates and averages in the economy as a whole is called macroeconomics, 'macro' being the Greek word for 'large'. In short, macroeconomics attempts to answer the truly big questions of economic life such as full employment or unemployment, capacity or under-capacity production, a satisfactory or unsatisfactory rate of growth. Inflation or price level stability, the questions which provide the basis of macroeconomics are :

- (a) What determines the magnitude of the total output of a country during some given period of time?
- (b) What determines the rate at which the output grows ?
- (c) What determines the level of prices ?
- (d) What determines the direction and rate of change of prices ?
- (e) What determines the direction and country's exports and imports?

In attempting to answer these questions, we shall be considering the theory of employment, the theory of price level and the theory of economic growth. In other words, we shall be examining such aggregates as output, employment, consumption, investment, supply of money, general price level, exports and imports. Besides, our study will require an application of the role of government in determining the levels of these aggregates and the manner in which it uses its policy instruments for these objectives.

#### **1.1.4.1 Distinction between 'Micro' and 'Macro' Economics**

The distinction between micro and macroeconomics is not very clear cut because what is macroeconomics in one situation or from one viewpoint may become microeconomics in another situation or from another viewpoint, for example, in the case of closed economy, a study of income, saving, consumption, employment etc. for the whole economy is macroeconomics as it is the study of aggregates. If, however, the country has trade relations with other nations than a single country becomes just one unit in the international set-up and the study of its economic entities becomes microeconomics. In this sense, it seems that a microeconomy, is an open economy while a macroeconomy is a closed one.

Microeconomic theories are concerned with the analysis of price output determination under different market conditions and the allocation of economic resources to particular uses, whereas macroeconomic theories are concerned with analysis of the levels of national product analysis, on the assumption of *ceteris paribus*. It examines the problems of relative prices and changes in these prices. Macroeconomics theory, on the other hand, depends on the technique of general equilibrium analysis and studies the inter-dependence between different market prices, output of goods and services produced in the economy.

What microeconomics takes essentially as given—namely, the total output for the economy as a whole—is what macroeconomics takes as the main variable whose size or value is to be determined. Similarly, what macroeconomics takes as given—namely, the distribution of output, employment, expenditure amongst particular goods and services of individual industries and firms—are all variables in microeconomics. Again, microeconomics takes the general price level as given and relative prices as variables, whereas macroeconomics treats general price level as variable and relative price as given.

**Self-Check Exercise-I**

Q. What is the difference between Micro and Macro Economics?

Ans. ....  
 .....  
 .....  
 .....

**1.1.5 Variables**

**1.1.5.1 Endogenous and Exogenous Variables**

A variable is a quantity that varies over a range. In other words, it is a quantity subject to continual increase or decrease, a quantity which may have as a measurable or scaleable magnitude which varies, and in whose variations we have an interest, partly, because of its direct importance and partly because of its effect on other variables. It is interesting to note that these variables vary a lot, as a result of which a static system becomes dynamic, though there are a large number and types of variables—continuous, dependent, independent, discrete, random etc. yet macroeconomics is not interested in studying them all. However, important amongst them are follows :-

Sometimes these variables belong to a system as its integral part when they are called endogenous variables and sometimes they may be external to the system when they are described as exogenous. Variables explained within the structure of a model or system are called endogenous variables. These are the economic variables whose determination is the purpose of the model, e.g., if the model provides how national income is determined, then national income is an endogenous variable. Variables which are not explained, but are taken as given outside the model or from outside the system, are called exogenous variables. Exogenous variables may be either non-economic or economic in nature and are determined independently of the system or model. These variables are included in the model to show how changes in them influence the system, but are not themselves determined within the system. For example, if the money stock is assumed to be determined by the monetary authority and its values given to the system implied by the model then the money stock is an exogenous variable.

**1.1.5.2 Stock and Flow Variables**

Whether a variable is endogenous or exogenous, is either a stock or a flow. A stock variable has no time dimension, whereas a flow variable has. The weight

of a bus is a stock variable and its speed is a flow variable. The magnitude (amount) of the stock has no time dimension, but a flow can only be expressed per unit of time. The speed of the bus say 80 kms. per hour, is a flow concept, while a fleet of 200 buses with Haryana Roadways, plying between Delhi and Chandigarh, is a stock concept. The main distinction between the stock and flow variables depends on the time, a flow variable is a quantity which can be measured only over any given period of time. Stock variables have a time reference associated with them; while flow variable have a time dimension. Although both stock and flow variables are dated, a stock variable is different from a flow variable because a point in time is different from a period of time. The balance sheet or stock statements show the assets and liabilities of a business firm at a point of time. The profit and loss statements show the receipts and expenditures incurred over a period of time.

#### **Self-Check Exercise-I**

Q. Differentiate Stock and Flow Variables.

Ans. ....  
 .....  
 .....

#### **1.1.6 Functional Relationships :**

Relationships between variables are described by the term function, e.g., consumption is a function of income. Consumption in this case is a dependent variable, whereas income is an independent variable. To say that something is a function of something else does not specify any thing more than a general relationship. Consumption could rise or fall with income; it could be a function of income in either case. The responsiveness of one variables to change in another is an important feature of macroeconomic models. Major arguments in macroeconomic theory involve such issue as the responsiveness of the demand for money to changes in the interest rates, of consumption to changes in income and prices and investment expenditure to changes in marginal efficiency of capital and interest rates.

A constant is a magnitude that does not change. When there is a constant attached to a variable, it is often referred to as the coefficient of the variable. However, coefficient may be symbolic rather than numerical. For example, let that symbol 'a' stand for a given constant and use the expression 'a' in lieu of 7 in a certain model, in order to attain a higher level of generality. This symbol behaves in a very peculiar way it is supposed to represent a given constant and yet since we have not assigned any value to it, it can take virtually any value. In short, it is a constant that is variable. To identify its special status, we call it as parametric constant (parameter).

##### **1.1.6.1 Tautologies**

Tautologies are the statements which are true solely by virtue of their truth—functional, structural or mode of composition. They are statements that cannot be proved false because there is no empirical or operational way to examine them. Tautologies play an important part in economic thought. There are many tautological statements in Keynes' 'General Theory' for example, Keynes' multiplier, has been described merely a tautological concept.

### 1.1.6.2 Identities

Identities simply specify a relation that hold by definition, for example, to take demand (or purchases) as the sum of consumption & investment demands  $Z=C+I$ , or investment equal to saving export, by definition as in national income accounting. This is an identity being a needless repetition explains nothing as that the amount of wheat purchased in New York market on 1st April, 1980 was equal to the amount of wheat sold, explains nothing about wheat prices. Thus, identities like 'MV = PT' and 'I=S' hardly tell anything fruitful.

### 1.1.6.3 Behavioural Equation :

A behavioural equation specifies the manner in which a variable behaves in response to change in other variables. Broadly defined, behavioural equations can be used to describe the general institutional setting of a model including the technological and legal aspects.

For example.

$$C=a+by$$

If we know a, b and quantity of y then we can find c (cost) at different income levels.

### 1.1.6.4 Lags :

Modern production is based on process which occupies time. For example, if there is an increase in income, it is not necessary that consumption will go up simultaneously : it may take sometime for consumption to increase, thus, the gap or the time involved between the increase in consumption and the increase in income is called 'lag' in macroeconomics. These lags include consumption expenditure lags, wage-lags, production lags, administrative lags etc. These lags play a significant role in the theory of income, output and employment. The importance of 'period' analysis' lies in the study of the working of lags. In Keynesian theory, the lagging adjustment that the economic system makes in response to the introduction of a disturbance is often skipped over. In other words, Keynes, ignored the working and influence of lags, and he broadly took into consideration the instantaneous behaviour of macro-economic variables. However, post-keynesians took account of the influence of lags on their theoretical tools like consumption and investment functions, liquidity preference, multiplier etc.

### 1.1.7 Summary

This chapter focuses on the general theory which disagree with the classical view of Full employment. It discuss about the different types of variables i.e. stock variables which has no time dimension and flow variables which has. It also describe functional relationship and other terminologies.

### 1.1.8 Technical Terms-

1. Micro Economics- is a branch of economics that studies the behaviour of a particular unit like individual firm household etc.
2. Macro Economics- is a branch of economics which studies the behaviour of all the units taken together like national income, output etc.
3. Endogenous variables:- variables explained within the structure of a model or system.
4. Exogenous variables- variables taken as given outside the model.

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**LESSON NO. 1.2**

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**NATIONAL INCOME**

- 1.2.1 Introduction
- 1.2.2 Objectives
- 1.2.3 Definitions
- 1.2.4 Keynes concept of National Income
- 1.2.5 Post-Keynesian Development in the concept of National Income
- 1.2.6 Calculation of National Income
- 1.2.7 Circular Flow
- 1.2.8 Summary
- 1.2.9 Technical Terms

**1.2.1 Introduction**

The concept of 'Income' forms the basis of the Keynesian theory of employment. Although in his 'General Theory' Keynes was mainly concerned with the factors determining the level of employment in the economy at a particular time, nonetheless, he gave us the theory of income. Let us start with the discussion of various economic activities that give rise to national income.

Men have unlimited wants and in order to satisfy them, they have to perform various types of economic activities. Economic activities are those activities by doing which men earn wealth to satisfy their infinite wants, Some of them are engaged in agriculture, while others are engaged in manufacturing industries, transport or commerce and services. By participating in these economic activities individuals earn income also called sum of distributive shares. The size of the national income changes from year to year because of changes in contribution made by different economic activities which are as follows :

- (i) Agriculture, including animals husbandry, forestry and fishery.
- (ii) Mining, manufacturing and trades including factories establishments and small enterprises.
- (iii) Commerce, transport and communications including post and telegraph, railways, banking and insurance.
- (iv) Other services including professions and liberal arts, government services, domestic services etc.

These activities may be performed in business sector, personal sector like household, government sector or rest of the world sector. The income earned from these four sectors when added together give rise to 'national product' at a particular time and period.

The concept of income forms the very basis of the Keynesian theory of employment. As a matter of fact, we can take income, output and employment as equal to each other for all practical purposes. Whenever income and output increases, employment also increases, though the increase in employment is not proportional to an increase in income and output according to Prof. Hansen, it may not be appropriate to speak of strict accounting equality between income, output and employment. However, it does no harm to the basic argument that when income and output increases employment also increases. Infact, when we speak of employment theory and the fact that go to determine employment, what we really have in mind is an analysis of the factors that go to determine income; it is also called income theory vis-a-vis Marshall's price theory. Just as price occupies a central position in the theory of value, income occupies the same position in the theory of employment. The trio (Y,O and N) will move in the same direction, though not hand in hand with each other. "In the short run, all the three would tend to rise and fall together." Thus, while not strictly correct, for all practical purposes we can assume that income, output and employment are equal to each other. For the sake of simplicity and convenience, Keynes adopted a short period analysis, in which organisation, equipment and techniques are assumed as given. On this basis also, employment and output could be expected to fluctuate closely together and similarly wage and prices may also move together.

### **1.2.2 Objectives**

The main objectives are:

1. To Study the concept of National Income given by Keynes and other economists
2. To know the process of calculating National Income.
3. To Study the circular Flow in two sector model, three sector model and four-sector model.

### **1.2.3 Different Definitions :**

Let us be clear at the outset that there are many acceptable ways of defining the national income and there is nothing absolutely right or wrong about any of these definitions. The essential thing is to realize how it is defined in each case and to choose the most suitable which are as follows.

Dr. Marshall in his 'Principles of Economics' has defined national income as follows : 'The labour and capital of a country, acting on its natural resources, produce annually a certain net aggregate of commodities, material and immaterial including services of all kinds.... and net income

due on account of foreign investments must be added in. This is the true net annual income of revenue of the country or the national dividend'. No doubt, Dr. Marshall's definition is theoretically sound, simple and comprehensive, even then it has serious practical limitation; for example, it is not easy to make statistically correct estimates of the total production of goods and services in a country. Besides this, there are difficulties of avoiding double counting and of making allowance for that portion of the produce which is retained for personal consumption.

According to Pigou, "the national dividend is that part of the objective income of the community including, of course, income derived from abroad which can be measured in money". According to Prof. Pigou, only those goods and services should be included (double counting being avoided) that are actually sold for money. Pigou's definition is precise, convenient, elastic and workable because it does away with the difficulty of measuring the national dividend inherent in Marshall's definition. But Pigou's definition makes an artificial distinction between goods that are exchanged for money and the goods that are not so exchanged. The bought and the unbought goods do not differ in kind from one another in any fundamental respect. Again, according to Pigou's definition, we cannot find the total amount of national dividend because we are to include only those goods and services that are exchanged for money. In a country where most of the goods and services are not exchanged for money, but simply bartered away Pigou's definition is of no use.

Prof. Fisher adopts consumption instead of production as the basis of the national dividend. According to Prof. Fisher, "the national dividend of income consists solely of services as received by ultimate consumers, whether from their material or from their human environment. Thus, a piano or overcoat made for me this year is not a part of this year's income, but an addition to capital. Only the services rendered to use during this year by these things are income. "Prof. Fisher's definition is better than Dr. Marshall's and Prof. Pigou's in as much as, it is nearer to the concept of economic welfare because welfare depends upon the goods and services that are made available to the individuals of the community. But it is more difficult to have an idea of net consumption than production. Moreover, the life of durable goods which last beyond one year is difficult to measure. Estimates are at best estimates and they can at times differ from the actual figures.

Again according to the Nobel Prize winner Prof. Simon Kuznets, "It is the net output of commodities and services flowing during the year from the country's productive system in the hand of the ultimate consumers or the net addition to the country's capital goods" Another Nobel Prize winner Prof. Samuelson says, "It is loose name we give for

the money measure of the overall annual flow of goods and services in an economy". Prof. Ackley defines national income as the sum of all (a) wages, commissions, bonuses and other forms of employees earnings; (b) net income from rentals and royalties; (c) interest income; and (d) profits.

However, none of these definitions suited Keynes as he wanted to know the factors that go to determine the level of income and employment in an economy at a particular time. He wanted to know the considerations that weigh with the entrepreneurs when they decide to employ a certain number of men. Keynes himself said, one thing which impeded my progress in writing the 'General Theory' was the suitable definition of national income. Keynes defines in this respect that his definition differed from those of his predecessors, as their definition did not throw any light on one of the factors which go to determine income or its relation with employment but this purpose was amply achieved in the definition adopted by Keynes.

#### **1.2.4 Keynes Concept of National Income**

Keynes concept of national income lies somewhat midway between Gross National Product and Net National Product. Keynes does not deduct the whole amount of depreciation from the Gross National Product, he subtracts a little less than the whole amount of depreciation called 'User Cost'. It is the cost of using capital equipment rather than leaving it idle. User Cost is the difference between the depreciation in the value of the machine when it is put to use and the depreciation which should occur if not in use plus the expenditure incurred on its maintenance and upkeep. For example, a machine worth Rs. 1,000 in the beginning of the year remains worth Rs.750 at the end of the year having suffered a reduction in the value worth Rs.250 as a result of depreciation. Even if the machine was not put to use it would have suffered a loss of value on account of say rusting etc. But in this case, the value of machine has been maintained at Rs.900 at the end of the year by incurring a small maintenance cost of Rs.10. Thus, the user cost would be  $\text{Rs.}250 - (\text{Rs.}100 + 10) = \text{Rs.}140$ . In this way by adding together the user costs of all the firms in the economy, we get the aggregate user cost of the whole economy. When we deduct the aggregate user cost from the Gross National Product, we shall get national income of the economy in the Keynesian sense represented by  $A - U$  (Where A is the Gross National Product being the total produce or value of goods and services obtained in a year and U (represents the total user cost). According to Keynes, number of people to be employed (N) depends upon income (Y) in this sense.

Keynes, however, felt that the idea of income in terms of  $A - U$  is of little use when the community has to decide how much to spend on consumption.

Thus, the idea of 'net income' assumes special significance. Net income is found by deducting supplementary cost (V) from the income (A-U). Thus, net income is A-U-V. In other words, both user costs (U) and supplementary costs (V) have to be subtracted from Gross National Product (A) to obtain net national income. Supplementary costs are those costs which cannot be foreseen or are beyond the control of entrepreneurs i.e., these are contingent costs like plant becoming obsolete, catching fire, etc. Even if the entrepreneur wished, he could not avoid this loss. Such costs have to be deducted from gross income to get net income, on which the consumption of the community depends. Since consumption depends upon net income, it is necessary that net income must be calculated as accurately as possible. To conclude, Keynes uses the term income in two senses—Gross income (A-U) on which the volume of employment depends : net income (A-U-V) on which consumption of community depends.

### **1.2.5 Post-Keynesian Development in the Concept of National Income:**

Since the publication of the 'General Theory', national income accounting has become an official job; statistics of national income reflect changes in the economic health of the economy. They indicate the performance of the economy; the fluctuations in economic activity. As a result, many new concepts have come to be associated with the study of national income and social accounts. These concepts have become popular after Keynes. The association of these concepts with national income has made its study more broad based and comprehensive. The modern concepts of income are more dynamic in contents than earlier concepts. The National Income Committee of India defined national income as : "A national income estimate measures the volume of commodities and services turned out during a given period, counted without duplication." We think of the aggregate income of an economy in the three different ways. In an economy there are three flow (streams) flowing at the same time : income, output and expenditure. When something is produced the factors of production are paid which is their income, which they (income receivers) spend on consumption or investment. Actually, expenditure is just another name for income. Three types of flows-income, output and expenditure are always equal to each other for particular period of time giving rise to what we call triple identity : Output = Income = Expenditure. Schumpeter was the first economist who treated national income as a study of three flows in 1917. Later on W.C Mitchell and Simon Kuznets in U.S.A, Meade and Richard Stone in U.K. and Perroux in France made popular the study of national income or the basis of these three flows. This modern approach of national income as the study of three flows has been accepted by even the United Nations. Therefore, national income can be seen :

(1) As net national product i.e., as the aggregate of net value added in all branches of economic activity during a specified period, together

with the net income from abroad.

(2) As the sum of distributive shares i.e., as the aggregate of income payments made to the factors of production in a specified period; these payments take the shape of wages, salaries, profits, interests and rents, etc. and,

(3) As net national expenditure i.e., as the sum of expenditure on final consumption goods and services, plus domestic and foreign net investment.

These three ways of looking at national income give rise to what we have called above "Triple Identity". In these definitions, the period is always one year and all of them lead to the same results provided all the constituent items are treated consistently in these three approaches.

**Gross National Product (GNP) :** Gross National Product is the total amount of final goods and services and inventories (stock of manufactured and semi-manufactured goods) which the labour and capital of a country (factors of production) working on its natural resources produced in a year. When we express the value of this final aggregate output in money, it is called Gross National Income. Gross National Product at Market Price is the market value of the final aggregate of goods and services produced in a country in a year. However, the following precautions are necessary while understanding this concept :

- (i) While measuring the Gross National product, only those goods and services are counted which are to be finally consumed i.e., intermediate product to be used for producing other products excluded. An automobile is a final product while, steel is an intermediate product. Sometimes, however, it is not easy to distinguish between a final and an intermediate product. Therefore, an alternative method of avoiding double counting is to find out the total net value added in different 'industries' in the economy. The concept of Gross National Product is a rough and ready measure of the performance of the economy. It is easy to calculate and understand it. But for a better theoretical analysis, Net National Product is more suitable which is given below:-
- (ii) The value of the final aggregate of goods and services is always found at the current market prices, that is why it is called gross national product at market price.
- (iii) No deductions are made on account of depreciation and replacement costs.
- (iv) Goods and services which have a market value and which are brought in the market for sale and purchase are counted in gross national product. However, the imputed values of these

goods which are not brought in the market are included in national income like the rent of self-occupied houses, value of the produce kept for self consumption etc.

- (v) Transfer payments are not included like pensions, maternity benefits, unemployment or free scholarship or help to orphans, or needy persons because no economic activity, mentioned, above is rendered against such payments.
- (vi) Capital gains are also excluded. Gains which accrue on capital, say a house worth rupees ten thousands is sold for rupees fifteen thousands, the difference of rupees five thousands, being in the nature of capital gains cannot be included in gross national income.
- (vii) **Taxes** : Income received by the government through taxes is not included in the national income as it will amount to double counting.
- (viii) **Dividends** : Dividends paid by companies to their shareholders are also not included in national income to avoid double counting.
- (ix) **Assets Transformations** : To avoid double counting, earnings resulting from asset transformations like sale of property, bonds and securities are not included in gross national product, income being in the nature of transfer of titles.

**Net National Product (NNP) (Income)** : When we deduct depreciation charges for renewal, repairs and obsolescence from gross national income we have Net National income at Market Prices. Thus,  $GNP \text{ at MP} - \text{Depreciation} = NNP \text{ at MP}$ . Depreciation means the loss of value suffered by nation's stock of fixed capital (building, machinery, equipment etc.) through wear and tear. The problem of finding the value of depreciation of the capital stock is one of the most troublesome problems in the field of national income accounting. The convention has been to accept business records as a measure of depreciation without attempting to rework the estimates in terms of current replacement cost.

**Gross National Expenditure** : It may be understood that in an economy total income always equals to total expenditure, on account of dual nature of monetary transactions. Without expenditure, there cannot be any income, as one man's expenditure is another man's income. The earnings of the factors of production are made of expenditures on goods and services by individuals, central, state and local governments including net investments from abroad, GNP, therefore, may also be defined as the sum of all monetary expenditures on current final output. According to McConnell, "Gross National Expenditure is the total of

expenditure on final goods and services including net exports." GNE is the sum total of all consumption and investment expenditures which equals Gross National Income and the same is expressed in the fundamental equation,  $Y=C+I$ . Gross National Expenditure consists of personal consumption expenditure, gross private domestic investment on new construction, net foreign investment and government purchase of goods and services excluding transfer payments (like social security payments, pensions, etc. being in the nature of mere income transfers.) Personal consumption expenditure done by consumers on final consumption of goods and services. It includes expenditure on durable goods like scooters, cars, furnitures, etc. on non-durable goods like food, cloth, fruit, etc. and services like that of doctors, lawyers, domestic servants, etc. Gross domestic private investments include business and investment expenditure on new structures, producer's durable equipments like machines tools, computers, etc; expenditures and investments on new residential building including repairs and change in inventories. Net foreign investment includes the difference of exports and imports (surplus is added and deficit deducted). Government purchase of goods and services includes expenditure on these items during the years.

**Net National Income (NNI) at Factor Cost :** It is the sum total of all income payments made to the factors of production. The sum total of goods and services in a year are produced by the cooperation of the factors of production and as such, their money value is also distributed among the factors of production or by persons supplying the services or resources used in production. Hence national income may also be regarded as the total of incomes received by the factors of production. These payments take the form of wages, rent, interest and profits. Thus, the chief constituents of national income at factor cost are as follows :

(1) All wages, salaries and supplementary income earned by employees against productive services rendered.

Plus (2) Net interests paid to private individuals.

Plus (3) Net rents of all individuals including imputed payments like the rents of self-occupied houses.

Plus (4) Net profits of all kinds of business including the income of individual business like farmers, partnership, professional men like lawyers, earning of joint stock companies comprising dividend payments, undistributed profits and corporate taxes.

Minus (5) Transfer payments i.e., those income payments for which no productive service is made in return, e.g., unemployment benefit and old age pension etc. These transfer payments must be deducted from the total national income as determined by adding the total payment made

to the factors of production.

**The Relation between National Income at Market Price and National Income at Factor Cost :**

**Indirect Taxes :** The phrase at factors cost is to be contrasted with the phrase at market prices. Goods produced are sold at market prices which include the indirect taxes imposed by the Government. Indirect taxes are levied on commodities, such as excise duty on beer and cloth etc. Thus, the market value of the national product exceeds the income paid to the factors of production by the amount of indirect taxes. Hence net national income at factor cost shows the income actually received by the factors of production. Let us assume that the actual cost of producing a certain output is Rs. 100 which is given to the different factors of production as wages, rents, interest and profits. The Government impose taxes worth Rs.25 on this output so that it is sold in the market for Rs.125. This is the market value of output while income payments made to factors of production amount to Rs.100 only. Thus, from the money value of national income at market price we deduct the amount of indirect taxes to arrive at the national income at factor cost.

$$\text{NI at MP- Indirect Taxes} = \text{National Income at factor cost}$$

**Subsidy :** On the other hand, a subsidy causes the market price to be less than the factor cost. Subsidy is an aid in money. Suppose handloom cloth is subsidized at the rate of 10 paise per yard and sells at 90 paise per yard. Thus, while the consumer pays 90 paise per yard the factors of production will receive Rs. 1 per yard. The money value of cloth at factor cost would be equal to its market prices plus the subsidies paid on it.

$$\text{NI at factor Cost} = \text{NI at MP plus Subsidies minus Indirect Taxes.}$$

**Government Surplus :** Sometimes Government renders productive services and earn profits—these profits or surplus earned by the Government must be deducted before we can find out Net National Income at Factor Cost because profits do not go to factors of production in the form of incomes, but are deposited in the government treasury and, therefore, must be deducted.

$$\text{NI at factor Cost} = \text{NNI at MP plus Subsidies minus Indirect Taxes and Government earned Profits.}$$

**Self-Check Exercise-I**

Q. What are the post Keynesean developments in the concept of National Income?

Ans. ....  
 .....  
 .....

### 1.2.6 Calculation of National Income

The methods of estimating the national income of a country depend upon the availability of statistics. Broadly speaking, the important methods are as follows :

**1. The Product Method :** Also known as 'Inventory Method' or Commodity Service Method, it consists in finding out the market value of all goods and services produced in a country during a given period. We sum up the value of the gross product of all producers in an industry and from this total are deducted the value of the intermediate product consumed and depreciation of equipment during the process of production. And net figure of this kind is found for each industry. The total of estimates would give us net domestic product at factor cost classified by industrial origin. The addition of net income from abroad to this total would give us national income at factor cost.

**2. The Income Method :** This method consists in adding together all the income that accrue to the factors of production by way of wages, rents, interests and profits. This gives us national income classified by distributive shares. The factor owners are paid in money for the productive services rendered by them. The total money payments made to the factors of production in the economy represent the total money value at factor cost. What is factor payment (cost) for the producers is factor income (earning) for the factor owners. Thus, under income approach GNP is found by adding up the total factor income generated in production.

**3. The Expenditure Method :** Under this method, we add up personal consumption expenditures; the gross private domestic investment, the Government's purchase of goods and services and the net foreign investment to obtain GNP at market prices. We deduct depreciation to obtain NNP at market prices. Subtraction of indirect taxes gives us net national product at factor cost. In this method of national product measurement, the GNP is regarded as a flow of total goods and services through the money payments by the community. However, money value of GNP obtained through expenditure method might differ from the value of the GNP obtained through the product method as mentioned above because the total purchases by the community during any given time period may be either more or less than the production of the period. In case there are excess purchase during the given period, inventory stock will decline; otherwise inventory stock at the end of the period will be higher to the extent the purchases during the period fall short of total production during that given period.

However, after necessary adjustments in inventory changes, the measurement of GNP by both the methods should be identical. Further, if the goods do not find place in the market for sale or are consumed directly or bartered away, as in developing economies the estimates of GNP by adding up total expenditures may be less than actual GNP by product method. Under these circumstances, excluded market transaction will have to be imputed, which is rather a difficult conceptual problem.

The three methods of measuring national income give us the same figure of national income provided our counting is consistent. The equality

of national income output and expenditure arises because there are three flows : output, income and expenditure in the economy which are interrelated. When output takes place, income accrues to the factors of production which manifests itself in total expenditure. Thus aggregate output, income and expenditure must equal.

**4. Social Accounting Method :** This another method of measuring national income was developed by the Richard Stone in recent times. According to the social accounting method, various types of transactions are classified in different groups. These are producers, traders, final consumers etc. Estimates of national income are prepared after taking into consideration the figure of transactions of certain representative persons with similar economic position belonging to different groups.

**5. Combined Method :** It is not possible to estimate correctly the national income by adopting a particular method. Each method has its own weakness. In order to overcome these practical difficulties, we make use of two or three methods to find out national income. It is called mixed or combined method. Mixed or combined method is used in under developed countries to estimate the national income because the dependence on any particular method does not give correct results for want of accurate figures. The mixed method was followed in India in 1948-49 by the National Income Committee because production or income method alone could not give correct results.

#### **Value added Versus Final Goods Method**

GNP is the money value of the final goods and services produced in an economy during a given period; it has to be seen that intermediate goods are excluded as their inclusion may amount to double counting in over-estimation of the GNP. There are two possible solutions to this problem :

- (a) take the sum of the values added at each stage or
- (b) take the values of the final products.

In the final goods method we exclude the value of all goods and services which are of intermediate nature to the process of production (like wheat, flour, dough etc.) in the preparation of bread, and include only final goods and services in the computation of GNP. The other method is the 'value added' approach. Economy imparts value during the production to the inputs which it gets from other sectors, and then we add up the value increase made by all different producing sectors of the economy. The value added by a process to the products passing through it during a given period can be found by subtracting the value of the inputs from the value of the products leaving the process. The GNP estimates prepared in this way exclude the value of imports because their cost is automatically deducted from the value of the output of the industries using them. Again, in GNP, depreciation has to be deducted from the sum of values added. The GNP is the sum total of the values added by the processes of production.

The concept of value added can be most easily explained with the help of a simple example. Suppose, we imagine a simple economic system producing bread only. This system produces all the necessary inputs for the production of bread, but the final product is bread alone. We assume there are mainly four parts in the production process. First wheat is produced, then flour, then dough and finally bread as shown in the table

**Table I : 2.1**

Production Process	Sales (Rs.)	Cost of Intermediate Goods (Rs.)	Value added (Rs.)
1	2	3	4
Wheat	4	0	4
Flour	6	4	2
Dough	12	6	6
Bread	20	12	8
	(Value of Final Product)		
Total	42	22	20

(Sum of all Value added)

In the table I, we find that wheat is produced and sold to the flour maker for rupees four. Since there is no production prior to wheat, the wheat producer added value of Rs.4 to the economy's output. The flour maker further sells the flour to the dough maker for Rs.6. Thus, value added by the flour maker, therefore, is Rs.2 when the dough maker finishes his work with the flour (i.e., he mixes flour with water and make it wet), he sells the product (flour mixed with water called dough) to the bread maker for Rs.12; the value added by the dough maker is Rs.6. The bread maker works with the dough and prepares breads worth Rs.20, thereby adding a value of Rs.8 to the product. The total of sales is Rs.42, but this includes the value of many intermediate products and thereby represent more than final product (bread) alone. If we subtract from Rs.42 the cost of intermediate (goods Rs.22) as shown in column 3, we get the value of final goods i.e., bread worth Rs.20. In our example, Rs.22 is the value sales of bread. Thus, we find that the sum of all the values added (Rs.20 in column 4) is equal to the value of final output (i.e., bread worth Rs.20). This is obtained by adding the value of all the output(i.e. sum of total of values added by the wheat producer 4, plus flour maker 2, plus the dough maker 6 and the bread maker 8, we get 20). It is the final value of goods and services. In order to avoid the problem of double counting, value added method must be employed. Moreover, this shows that both the method-value added as well as the final goods method give us the same total. It is, therefore, clear that logically it is immaterial whether the value added method or the final product method, is employed in the computation of GNP because both lead to the

same results and both have its merits and limitations. While former takes into consideration the flow of output past each process; the final product method counts the quantity of commodities which are delivered at the end of a given period, with suitable adjustment for the goods still in the beginning and at the end of the period.

**Self-check Exercise**

**Q.** What is the difference between value Added method and Final goods Method?

**Ans.** .....

**Difficulties in Calculation of National Income**

Although all methods are used almost in all countries to calculate national income, yet calculation is a complex affair and is beset with conceptual and statistical difficulties. Kuznet mentions the following difficulties:

1. The definition of 'nation' as used in the studies of national income doesn't include income produced within the country only, but also income earned in other countries by way of shipping charges, interest, insurance and banking minus payments made to foreign countries. Therefore, the definition of nation goes beyond the political boundaries.

2. The kind of goods and services which should be included in national income : Commodities and services having money value are included in the national income, but there are goods and services which may have no corresponding flow of money payments. Services which are performed for love, kindness and mercy and not for money have an economic value, but have no money value. The difficulty is whether these services should be included in national income and again how to measure their money value; if included. For example, a paid maid servant's services are included in the national income but later when she marries the master, she is not paid any more though she continues to perform the same services. There is, thus, a reduction in the national income.

3. Another difficulty is regarding the method to be used in the estimation of national income. It is, however, agreed to use these methods simultaneously depending upon the availability of statistics.

4. Regarding the stage of economic activity at which national income should be calculated. It is agreed that any stage-production, consumption and distribution may be adopted depending upon the function which the national income estimate is expected to discharge. If the aim is to show the economic progress and power of the economy, then the production stage would be more suitable, if the aim is to measure the welfare of individuals, then consumption stage would be more useful.

5. Another difficulty in the calculation of national income is that of transfer payments which are associated with the income method of national income calculation. A person receives income of say Rs. 1000, per year, part

of it may have been received as interest payments on government loans. This part is in the nature of transfer payment and be taken either as the income of the individual or of the government. If it figures under both the categories aggregate national income will be unduly, inflated. Therefore, the transfer of money from one person or group to another group should be avoided and the best way to solve the difficulty is to consider only the disposable income of individuals or groups, i.e., personal income minus all transfer payments.

6. Another important difficulty is the non-availability of statistical material. The difficulty is not peculiar to underdeveloped countries, even in advanced countries reliable and sufficient statistics are lacking; According to the National Income Committee of India, the available statistics, specially for agriculture and small-scale industries, are extremely unreliable and incomplete.

7. Double counting is one of the difficulties usually associated with the inventory method. Double counting implies the possibility of a commodity like raw material or labour being included in national income more than once e.g., farmer sells maize worth rupees two hundred to a mill-owner who further sells the maize flour to a wholesale dealer, who further sells it to a retailer and who in turn sells it to consumer; if we calculate it at every stage, its money value will increase to rupees eight hundred, but actually the increase in national income has been to the extent of rupees two hundred only. The best way to avoid this difficulty is to calculate only the value of all goods and services that enter into final consumption.

8. Another difficulty, mostly, peculiar to backward countries, is that a substantial part of the output is not exchanged for money in the market. It is either consumed directly or is exchanged for other goods and services in the unorganised sector. The existence of a vast unorganised and non-monetised sector makes calculation of national income very difficult.

9. As a result of little specialisation of function, a precise calculation of income by industries of origin or by distributive shares is rendered almost impossible. The production in agricultural industries, as a matter of fact in all sectors is highly scattered and unorganised, rendering the calculation of national income very difficult.

10. Other difficulties pertain to the social backwardness of people, they are superstitious by nature. People do not disclose their incomes easily and correctly, they are illiterate and do not keep proper accounts ; or if at all they keep any accounts, they are highly unreliable. Moreover, it is very difficult to find out the total of a large number of goods and

services of different varieties and categories e.g., it is very difficult to add up the services of 20 gallons of oil and 20 mounds of wheat or 20 yards of cloth.

In order to solve this difficulty their money value is found and added up. All these difficulties exist in India and the calculation of national income had been rendered difficult in the past. Efforts are, however, being made to solve these difficulties and to find out correct estimates of national income and per capita income in India.

### **National Income Calculation in Under-developed Economies :**

These conceptual and statistical difficulties of national income calculation present themselves in a more formidable manner in under-developed economies like India. The National Income Committee (appointed in 1949) pointed out the following difficulties in measuring the national income in India. It was primarily on account of these difficulties that the National Income Committee, while computing the national income did not adopt any single method and 'Product method' and 'Income method' were both adopted simultaneously. The major conceptual and statistical difficulties are as follows :

- (i) A good portion of the produce is not brought to the market to be exchanged with the measuring rod of money. It is either consumed directly by the producers or is exchanged for other goods and services. Only rough estimates are made about part of that produce. The difficulty is mostly found in rural areas in agricultural sector of the economy. Much reliance, therefore, cannot be placed on the national income figures, thus, obtained.
- (ii) Large number of producers do not keep any accounts of their produce because most of them are illiterate. They mostly produce for self-consumption and not for the market. Thus, the national income estimates are based merely on oral enquiries from these producers and are not dependable as such.
- (iii) It is very difficult to estimate the national income of India by industrial origin because there is a little specialisation of functions, and occupational classification is not scientific. People have been found engaged in a number of economic activities simultaneously.
- (iv) Besides there are statistical difficulties in computing national income of India. Reliable statistics are not available, therefore they are not dependable.

In underdeveloped countries many facts and figures essential for the income method are either lacking or cover only a small proportion of the population, same applies to statistical complications (like census of production) which are available in advanced economies. Use has to be made, therefore, of 'mixed method' i.e., the inventory method and income method.

### **Importance of National Income Studies :**

National income is generally believed to be most important single index of the overall economic situation of a country and as such commands a great deal of public interest. An individual as well as the government, have to maintain the accounts of their incomes and expenditure in one form or another. They must have a clear idea as to the sources of income and the heads of expenditure. Accounts maintained by private individuals are called 'Private Accounting', where as the account of the entire economy is called 'Social Accounting'. In order to have an accurate idea of the economic progress in different sectors and sub-sectors of an economy, it is but essential to maintain social or national accounts. It is the foremost duty of a welfare government to know changes in national and per capita real income in order to have proper assessment of the economic progress in the economy. Since the publication of Keynes' 'General Theory of Employment, Interest and Money' in 1936, there has been a change over from microanalysis to macroeconomy consideration like the aggregate national income, national consumption, national saving and investment. There is a shift from the constituent parts of an economy to the economy as a whole. The development of modern macroeconomic analysis was primarily due to the concept of national income or national dividend. As such national income analysis has assumed great importance after the publication of Keynes' 'General Theory'. Before its publication, the study of national income remained confined to a few academic scholars. The study of national income is basic to the study of Keynesian theory of employment as the performance of an economy is judged by an increase in income and employment. The growing importance of national income studies in recent years is due to the following reasons :

**1. Economic Policy :** National income figures are an important tool of macroeconomic analysis and policy. National income estimates are the most comprehensive measure of aggregative economic activities in an economy. It is through such estimates that we know the aggregative yield of an economy and lay down future economic policy for development.

**2. Economy's Structure :** National income statistics enable us to have a correct idea about the structure of an economy. They enable us to know the relative importance of the various sectors of the economy and their contribution towards national income. From these studies, we learn how income is produced and how it is distributed, how much is spent, saved or taxed.

**3. Economic Planning :** National income statistics are the most important tools for long-term and short-term economic planning. A country cannot possibly frame a plan without having a prior knowledge of the trends in national income. The Planning Commission in India also kept in view the national income estimate before formulating the five year plans.

**4. Inflationary and Deflationary Gaps :** National income figures enable us to have an idea of the inflationary and deflationary gaps. For accurate and timely anti-inflationary and deflationary policies, we need regular estimates of national income.

**5. National Expenditure :** National income studies show as to how national expenditure is divided between consumption expenditure and investment expenditure. It enables us to provide for reasonable depreciation to maintain the capital stock of a community. Too liberal allowance of depreciations may prove harmful as it may unnecessarily lead to reduction in consumption.

**6. Distribution of Grants in Aid :** National income estimates help in a fair distribution of grants-in-aid by the federal government to the state governments and other constituent units.

**7. Standard of Living :** National income studies help us to compare the standards of livings of people in different countries and of people living in the same countries at different times.

**8. International Sphere :** National income studies are important even in the international sphere as these estimates not only help us to fix the burden of international payments equitably amongst different nations, but they also enable us to determine the subscriptions and quotas of different countries of international organisations like U.N.O., I.M.F., I.B.R.D. etc.

**9. Budgetary Policies :** Modern Governments try to prepare their budgets within the framework of national income data and try to formulate anti-cyclical policies according to the facts revealed by the national income estimates. Even the taxation and borrowing policies are to avoid fluctuations in national income.

**10. Public Sector :** National income figures enable us to know the relative roles of public and private sectors in the economy. If the most of the activities are performed by the state, we can easily conclude that public sector is playing a dominant role.

**11. Defence and Development :** National Income estimates help us to divide national product between defence and development purposes. From such figures, we can easily know how much the civilian population can pay for war.

### 1.2.7. Circular Flow :

Circular flow of income and product refers to flow of money income or the flow of goods and services across different sectors of the economy in a circular form. This flow is known as circular flow of income because this flow has neither any beginning nor an end. It continuously moves in a circular form. Two main causes of the circular flow are :

- (i) Corresponding to each **real flow** to one direction, there is a **money/income flow** from the opposite direction. **Example :** Corresponding to the flow of factor services (real flow) from household to the producer sector, there is a flow of factor payments (money/income flow) producer to the household sector.
- (ii) Receipts of one sector from other sectors are equal to the payments to other sectors. In case receipts are less than the payments or payments are less than the receipts, circularity is bound to stop at one point or the other.

It should be noted that money income or goods and services flow across different sectors of the economy because one sector depends on the other sector. **Example:** Households depend on the producers for the supply of goods and services, and producers depend on the households for the services of factors of production.

Interdependence between different sectors of the economy is studied because this helps to understand the level of macroeconomic variables in the economy, viz. the level of production, consumption, investment etc.

## 2. Circular Flow of Income and Product

### The Concept of Money Flow and Real Flow

Flow of income refers to the flow of money, while the flow of product refers to the flow of goods and services. Accordingly, flow of income is often described as '**money flow**' and flow of product (goods and services) is described as '**real flow**'.

#### (i) Real Flow

Real flow of income means the flow of factor services from the household sector to the producing sector and the corresponding flow of goods and services from the producing sector to the household sector.

#### Illustration :

Let us consider a simple economy consisting only of two sectors, viz:

(a) producer sector, and (b) household sector.

How are the two sectors dependent upon each other? Note the

following observations :

- (a) Producers supply goods and services to the households, and
- (b) Households (as the owners of factors of production) supply services of factors of production (or factor services) to the producers.

This interdependence can be explained with the help of following model or flow chart :

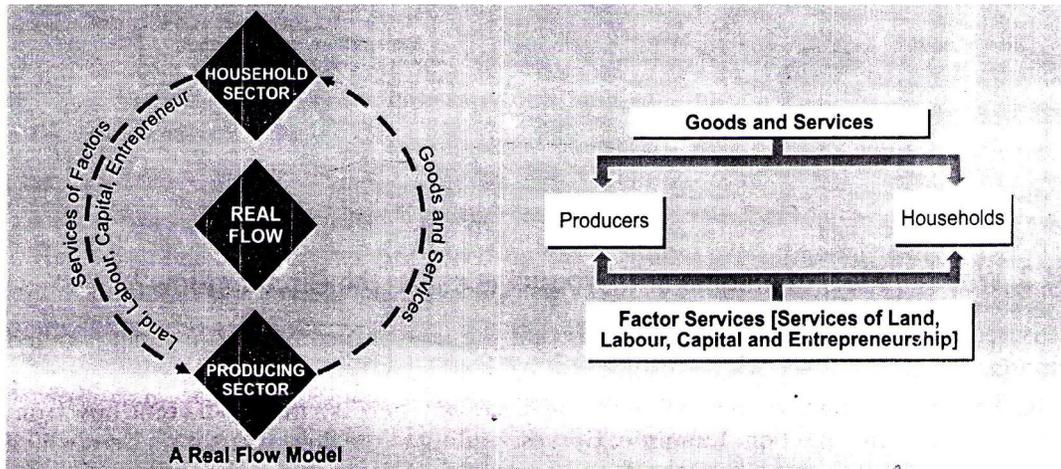


Fig. 1: Circular Flow Model showing Real Flows

This circular flow chart shows real flows in terms of (i) the flow of goods and services from producers to the households, and (ii) the flow of factor services as labour, capital, land and enterprise from households to the producers.

### (ii) Money Flow

Money flow refers to the flow of factor payments or income, viz., rent, interest, profit and wages from the producing sector to the household sector as monetary rewards for their factor services. The households spend their incomes on the goods and services produced by the producing sector. Accordingly, money flows back to the producing sector as household expenditure.

This circular flow model shows money flows. As a reward for their factor services, the households get factor payments (rent, interest, profit and wages) from the producers. For the purchase of their goods and services, the households incur expenditure in terms of money that goes to

the producers.

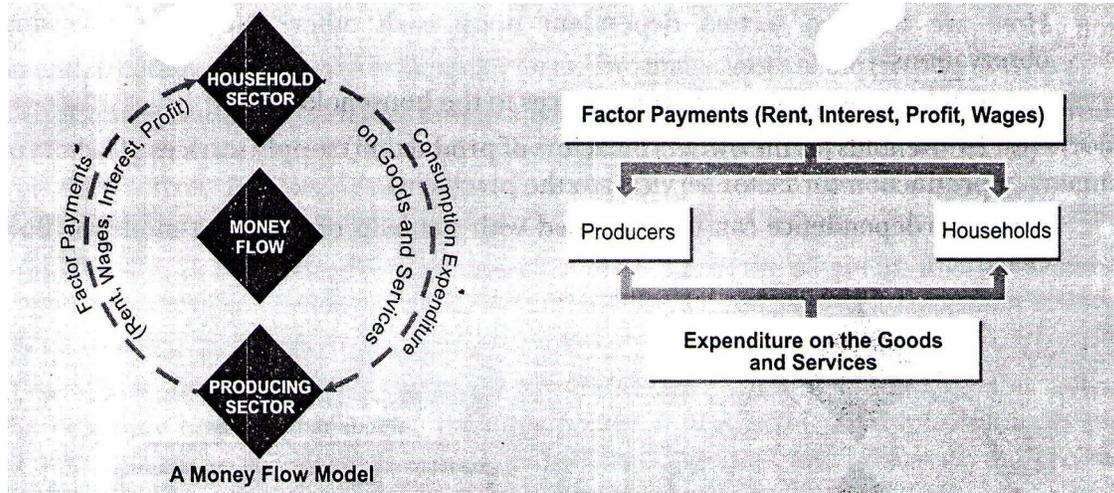


Fig. 2: Circular Flow Model showing Money Flows

### 3. Circular Flow of Income in Different Sectors

In order to facilitate study, circular flow of income is analysed under three different situations based on certain simple assumptions:

- (1) **Two Sector Model** : It studies the circular flow of income between (i) household sector and (ii) producing sector, on the assumption that there are only two sectors in the economy.
- (2) **Three Sector Model** : It refers to the study of the circular flow of income among (i) household sector (ii) producing sector and (iii) government sector, on the assumption that the economy comprises of these three sectors. It is a **closed economy**.
- (3) **Four Sector Model** : It implies the study of the circular flow of income among (i) household sector (ii) producing sector (iii) government sector and (iv) foreign sector or rest of the world sector. In other words, it studies flow of income in an **open economy**. The model studies all sectors of the economy dropping all assumptions made earlier.

These different situations of circular flow are studied in the form of the following models :-

#### (1) Two Sector Model of the Circular Flow of Income

Under this model circular flow of income between two sectors of the economy i.e., (i) Household sector and (ii) Producing sector (Firms) is studied.

### Assumptions

- (i) It is assumed that there are only two sectors in the economy:
  - (a) Producing Sector.
  - (b) Household Sector
- (ii) Government has no influence over the economic activities.
- (iii) It is a closed economy.
- (iv) Household sector spends all its income on goods and services.

On the basis of the above assumptions, circular flow of income is explained with the help of Fig. 3.

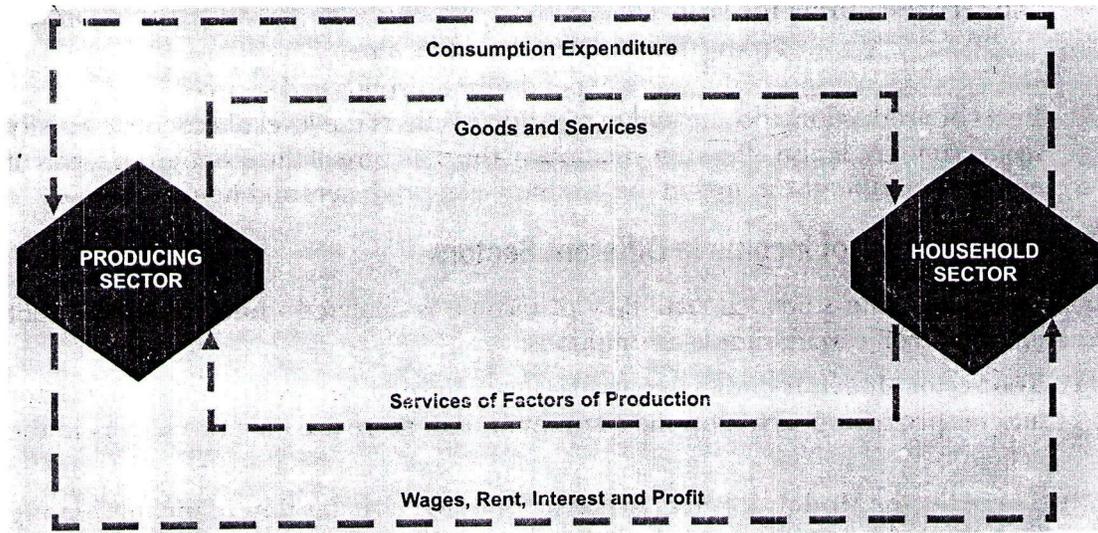


Fig. 3: Two Sector Circular Flow Model

This model offers following information :

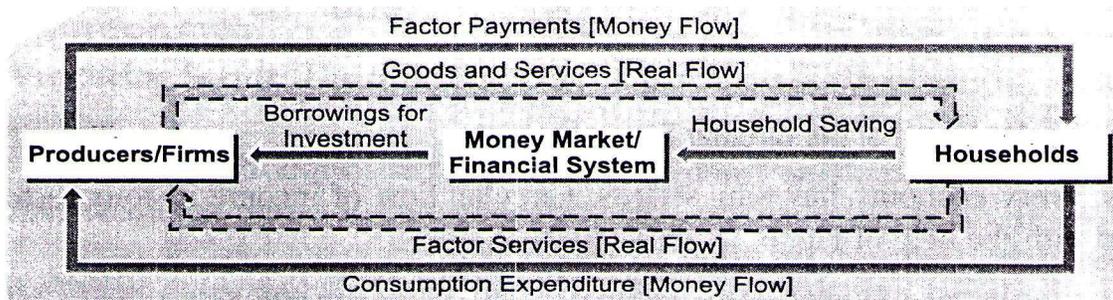
- (i) Total production of goods and services by firms = Total consumption of goods and services by the household sector.
- (ii) Factor payments by firms = Factor incomes of the household sector.
- (iii) Consumption expenditure of household sector = Income of household sector ( $\therefore$  Saving = 0).
- (iv) Real flows of production and consumption of firms and

households = Money flows of income and expenditure of firms and households.

## 2. Two Sector Model with Savings - Investment/Financial System

So far our discussion proceeded on the assumptions that households spend the entire income on the purchase of goods and services. As a matter of fact, households tend to save a part of their income. Emergence of savings implies the emergence of a financial system. It refers to the existence of a money market (and capital market) in the economy including a variety of financial intermediaries such as commercial banks and insurance companies.

The activity of 'saving and borrowing for investment' is reflected in the circular flow model as under :



**Fig. 4: Two-Sector Circular Flow Model (with Savings/Financial System)**

## 3. Three Sector Model of the Circular Flow of Income

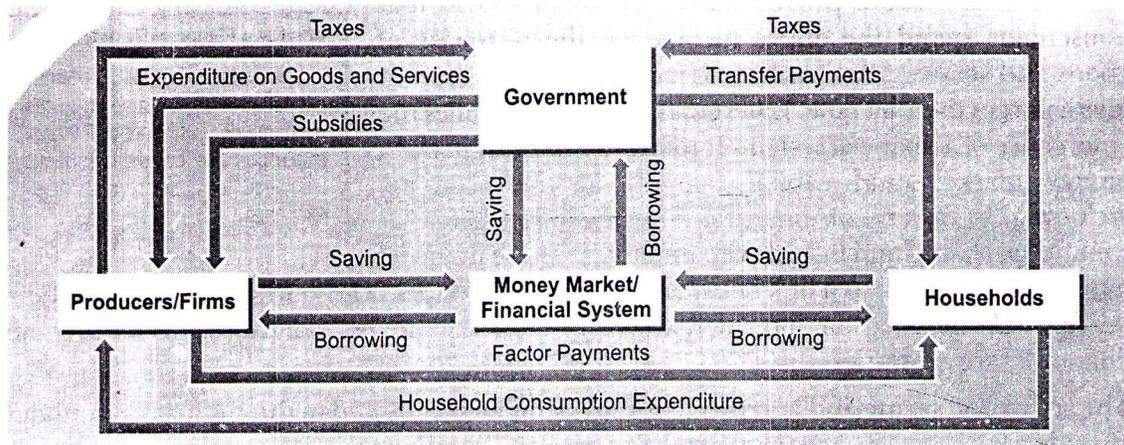
Let us now introduce another sector into our circular flow model, viz. the government sector. The government performs the following activities in an economy :

- (i) The government levies taxes on the households (like income tax, house tax). Accordingly money flows from the households to the government.
- (ii) The government levies taxes on the producers/firms (like excise duty, sales tax). Accordingly money flows from the firms to the government.
- (iii) The government offers subsidies to the producers. Accordingly money flows from the government to the producers.
- (iv) The government offers financial help to the households in the form of (say) old age pension to the senior citizens. Accordingly

money flows from government to the households. These are called transfer payments.

- (v) The government saves, causing flow of money from government to money market.
- (vi) The government borrows money, causing flow of money from money market to the government.
- (vii) The government buys goods and services. Accordingly money flows from the government to producers.

Flows of money from (and to) the government sector is explained in a 3-sector circular flow model in Fig. 5.



**Fig. 5: Three Sector Circular Flow Model  
(Only Money Flow is shown)**

#### **4. Four Sector Model of the Circular Flow of Income**

In reality, every economy has four sectors. Circular flow of income in four sectors is explained with the help of Fig. 6.

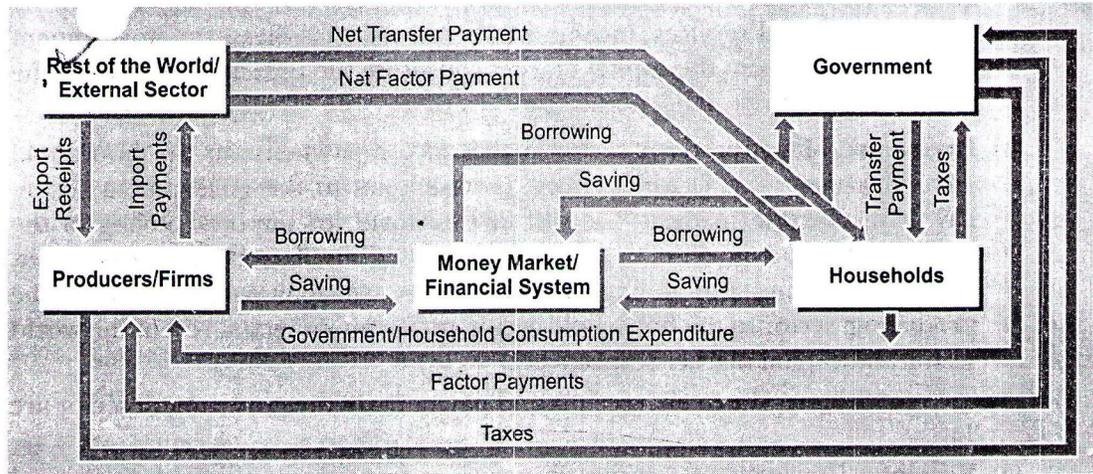


Fig. 6: Four Sector Circular Flow Model

From the point of view of circular flow of income, each sector plays a dual role; it receives certain payments from other sectors as well as makes certain payments to other sectors of the economy. Circular flow of income in different sectors can be expressed in the following manner :

- (i) **Household Sector :** The receipts and payments of household sector are as under :
  - (a) **Receipts :** The household sector receives factor incomes (as reward of factor services) from the producing sector. These factor incomes are wages, rent, interest and profit. It also receives certain transfer payments from the government sector. Accordingly, there is a flow of income to the household sector in the form of factor income and transfer payments.
  - (b) **Payments :** Household sector makes payment to producing sector for the goods and services that it buys from the latter. It is its consumption expenditure. It also pays direct taxes to the government sector. Saving of this sector flows into capital market. Thus, the income of the household sector flows in the form of consumption expenditure, taxes and saving into producing sector, government sector and capital market respectively.
- (ii) **Producing Sector :** The main receipts and payments of the producing sector are as follows :
  - (a) **Receipts :** Producing sector receives its income from household and government sectors in return for the

goods and services that it sells them. It also receives income from rest of the world sector in return for its exports. It obtains loans from the capital market as well. Producing sector may also get subsidies from the government sector in order to increase production. In this way, income from the sale of goods and services, income from exports, subsidies from government and borrowing from the capital market constitute the principal receipts of the producing sector in an economy.

- (b) Payments :** The producing sector makes factor payments to the household sector for using the factor services. It pays taxes to the government sector. Payments are also made to the rest of the world for imports. Saving of the producing sector goes to the capital market. Thus, factor payments, taxes, import payments and saving constitute the principal payments from the producing sector to the household sector, government sector, rest of the world sector and capital market respectively.
- (iii) Government Sector :** The main receipts and payments of the government sector are as follows :

  - (a) Receipts :** Government receives direct taxes from the household sector and indirect taxes and corporation taxes from the producing sector. Thus, there is a flow of income in the form of taxes from household sector and producing sector to the government sector.
  - (b) Payments :** The government sector makes payment to the producing sector for the purchase of goods and services. It also pays the producing sector by way of subsidies. Various kinds of transfer payments are made to the household sector, viz. in the form of old-age pensions, scholarships, etc. If the receipts of the government are more than its payment, the surplus goes to the capital market. If it is the other way round, it borrows from the capital market.
- (iv) Rest of the World Sector :** The principal receipts and payments of the rest of the world sector are as follows :

  - (a) Receipts :** (i) Out producers/firms export their goods and services to rest of the world. Accordingly money flows from external sector to producers/firms in the form of export receipts.
  - (ii) Our residents receive gifts/transfer payments from rest of the world. They also make gifts/transfer payments to rest of the world.
  - (iii) Our residents receive factor payments (rent, interest, profit and wages) from rest of the world for rendering their factor services.

Likewise, we makes factor payments to rest of the world.  
 Factor payment received from rest of the world–Factor payments made to rest of the world = Net factor payments (income) received from rest of the world. This is shown as a money flow from external sector to household sector.

- (b) **Payments :** Our producers/firms import goods and services from rest of the world. Accordingly, money flows from producers/firms to rest of the world in the form of import-payments.
- (v) **Capital Market :** Household, producing and government sectors save a part of their income. Households do not spend all their income on goods and services. They save for the rainy days or to buy consumer durable sometimes in the future. Likewise producing sector also saves. It does not distribute all its profit among the shareholders. The firms retain a part of their profits in the form of saving, with a view to meeting the depreciation cost or expanding their business or increasing their reserve funds. Government sector also saves a part of its income. This saving is deposited in the capital market. Thus, savings flow from household sector, producing sector and government sector to capital market. These savings are borrowed by the producing sector or government sector for the purpose of investment. In this way, savings flow in the form of investment to producing sector and government sector.

**1.2.8**

**Summary**

The concept become popular after the Keynesian theroy of employmenty. His concept of income lies somewhere between GNP adn NNP. Whereas Post Neynesian era came up with three approaches of National Income i.e. Gross National product, Net National product and Gross national Expenditure. This chapter also discussed about the circular flow of income in various sector model in terms of real flow and money flow.

**1.2.9**

**Technical Terms:**

1. Gross National Product (GNP): Total amount of final goods and services and inventories which the labour and capital of a country on its natural resources produced in a year.
2. Net National Product: Total amount of final goods and services produced by factors of productiar minus depreciation in a given year.
3. Circular Flow: Flow of money or the flow of goods and services across different sectors of the economy in a circular forms
4. Real Flow: Flow of factor services and corresponding flow of the goods and services from the household sector to the prodcuing sector from the producing sector to household sector.
5. Money Flow: Flow of factor payments four producing sector to the household sector and coursponding flow of income spend on goods and services by corses ponding household sector to producing sector.

**Self-Check Exercise-I**

Q. Write a Note on the Circular Flow of Income in three-sector model?  
 Ans. ....  
 .....  
 .....

**SOCIAL ACCOUNTING**

- 1.3.1 Introduction
- 1.3.2 Objectives
- 1.3.3 Various Developments
- 1.3.4 Four Accounts of the Nation
- 1.3.5 Summary
- 1.3.6 Technical Terms

**1.3.1 Introduction**

Social accounting embraces national income accounting and is a much broader concept. But what follows, unless, otherwise stated, social accounting will imply national income accounting. It is a statistical description of economic changes in inter-related activities and subsequent adjustment in it explain the dynamic working of the economic system. The aggregative behaviour of the economy is the consequence of interrelatedness of its constituent parts, transactions, transactors, sectors etc. As such the system of national income accounts assist theorists, policy makers, and decision makers alike. Alternatively stated, national income accounting is a statistical cross-section of economic activity, built on the edifice of models describing economic reality. National income is defined as the income accruing to inhabitants of a country from their participation in domestic and world production. All types of incomes received by individuals (wages, salaries, dividends, interest, income etc.) retained in private business sector, and accruing to government as a result of economic activity is included in the concept of national income. But what is economic activity? In national income accounting such activity is estimated as the market value of three types of activities, namely, production and its allocation between consumption and investment.

2. The term production is co-terminous with value added. Value can be added by transformation through actual production, exchange, or holding of resources through time. This yield production or "Domestic Product Account" is a statement of incomings and corresponding outgoings. Before we lay down statement of account, the term production needs to be defined. Production refers to production of goods, 'services for sale' purchase in the market, inclusive of the portion retained for self consumption. The unpaid household activities of amateurs, and non-training activities (like civil services) of the government also contribute to production. But for the sake of convenience, these are kept outside the orbit of production. However, for the purposes of accounting we can straightway lay down the incomings and outgoings related to production account. In the first place, major source of incoming is sale of products

intermediate and final. The former refers to sale of products to producers for furthering current production. Later refers to product sales to households, non-profit institutions, government departments and product sales again to producers for making additions to capital stock. The second source of incoming is value of the increase in stocks of finished products. The outgoings on the domestic product account are identifiable with the cost of product. There are three components in the outgoing account. The first element in outgoing is value of input stocks. The second element of outgoing is depreciation in value of fixed assets used up in the production. The third source of outgoing is indirect taxes and sales tax. The major problems in the preparation of the domestic product account are (1) definitional issues, (2) valuation at market prices and (3) inter-temporal relative price changes.

3. The end of all productive activity is consumption. The act of physical consumption involves time i.e., a day, a week, or a year. The term consumption may refer to consumption by households or public consumption-expenditure on education, defence, social security etc. This gives consumption or "Income and Outlay Account". This account is a statement of receipt and disposal of income. The outgoings or cost incurred by producers is the major source of incoming (income) to consumer. The direction of flow is from production to consumption. The only exception to this rule is depreciation. It is retained in business for replacement of fixed capital assets. The main ingredient of consumer's income is income accruing from productive activity at home and abroad. This is the same as national income. In addition to it, some income from indirect taxes is also taken into account, net of subsidies. Three outgoings constitute the use of income by the consumer sector. In the first place, a major portion of income is spent on purchase of goods/services. This is consumption expenditure. It amounts to flows from consumption to production. The second element in the outgoing is current transfers abroad. These are outgoing flows from domestic economy to the rest of the world. This outgoing may be in the nature of private remittances and government grants abroad. Finally, the last item on the outgoing side is saving. Saving is an excess of income over consumption expenditure plus net transfer abroad.

4. Again production or productive activity depends on capital formation and investment. The source of capital formation is excess of production over consumption in the current period. This excess provides for future consumption, or production meant for future consumption. Thus, we get accumulation or "Capital Transaction Account". These refer to flows of capital. The two sources of incoming are (i) depreciation flowing from production and (ii) saving flowing from consumption. The outgoings in

the capital account are (1) domestic investment and (2) foreign investment. The domestic investment refers to expenditure on fixed assets (less sale of existing assets) plus investment in stocks. Domestic investment minus depreciation yields net domestic investment. Foreign investment refers to net increase in a country's claim against other countries. As such an increase in a country's wealth (at home and abroad) equals the sum of net domestic investment and foreign investment. On these outgoing side of capital transaction account is capital transfer abroad. The problems attending the preparation of capital account are (i) definition of fixed assets, (ii) treatment of durable goods other than fixed assets, (iii) measurement of depreciation, and (iv) the classification of investment in stocks and stocks appreciation.

5. Finally, it is notable that the quantum of imports supplement domestic production. Similarly, the domestic production is not exhausted by consumption plus accumulation alone. The excess of production over consumption is exported.

This gives the notion of the rest of the world or "Balance of Payment Account". It is obvious that incomings of country -A, will be equal to the sum of outgoings of the countries other than A. Conversely outgoings of the country A, will be equal to the sums incomings of the countries other than A. But this would involve a digression into the proforma of international accounts. This does not concern us. Therefore, the balance of payment account from the point of views of country -A, is nothing, but the mixture of resultant of various income flows and transfer flows and of current and capital transactions.

6. The above discussion helps us to crystallise the nature of 'National Income Accounting'. National income account measures production, consumption and investment. It measures the formation and disposal of national product by decision-making units called transactors, grouped according to their specific functions. As such the national income account records (a) value of production in any given period which is the sum of sales by producers to consumers that is consumption and the value of investment which is a flow to producers ; (b) value of flows of resources to factors of production called income; and (c) other transfers (like taxes, interest on government debt, subsidies etc.) accruing to transactors-households or firms. The Reports on National Accounting System 1908, published by the United Nations indicated that the procedure of accounting can be rendered more scientific by incorporating :

- (i) Sub-division of production account in terms of inter-industry commodity flows. This is basic to input-output studies.
- (ii) Financial flows.
- (iii) Sectoral balance sheets and
- (iv) The principal flows/stocks should be expressed at constant prices not in terms of current prices.

### **1.3.2 Objectives**

The objectives of this chapter is to study the development concept of social accounting and how it is presented in four different focus of account.

### **1.3.3 Various Developments**

7. These suggestions gave birth to a fresh (1968), the latest available literature on the subject. The Report incorporates two developments in the field of national accounting. The first development was an elaboration and extension of the system of national accounts. It led to clarification of the concepts and definitions splitting these aggregates into their component parts. The main product flows are valued at constant prices. The national income accounting system was integrated, while national product account was subject-wise, sub-division wise and other producers, alongwith product flows between industries. This integrated accounting system with input-output studies. The financial sectors were identified. The details of their sectors issues and redemptions of financial liabilities and acquisition of financial assets widened the scope of accounting system. The flows of fund account reflects the transfer of surplus saving from one sector to the other sector where capital expenditure is excess of saving.

The second development was an exercise, in disaggregation as an aid to analysis and policy maker. The arithmetical and accounting identities linking the components of aggregate had to be precisely laid down. The classification of component had to be consistent with accounting requirement from different angles of analysis. For example, the counterpart of consumption demands were categories of product of an industrywise basis. This led to the use of balancing statement, where in the alternative classification are inter-related. Such accounts demonstrate the source of income industry-wise which is allocated in various receiving units.

8. This lends significance to the presentation forms four accounts. This is because (i) the consumption and production plans may or may not be consistent and that (ii) analysis of transaction in 'terms of decision making units may be very complex. The system of presentation require a detailed treatment. The National Income Accounting is composed of production, consumption, capital and external transaction account. These accounts can be presented in four alternative ways straight forward account (para 9) and as Equations (para 12). We take up the straight forward account first. A single transaction on the basis of double entry book keeping is recorded as outgoing and incoming. It is obvious that outgoing (payment) always implies an equivalent amount of incoming (receipt). Accordingly an entry in the account of payer requires a corresponding entry in the account of the receiver.

### **1.3.4 Four Accounts of the Nation:**

The four accounts of the nation are presented in Table-1. Each item in the four accounts is numbered from (1) to (10). The logic of double entry book-keeping reduces 20 items into 10. This is for the simple reason the each incoming in a particular account is equaljust to the outgoing in some other

account and vice-versa. The Domestic Product Account is No.1; the Income and Outlay Account is No. 2; Capital Account is No. 3; and External Account is No. 4. In what follows, only account numbers will be used for illustration. On this basis, the ten accounts are as follows :

(1) The outgoing (in Account No.1) is gross income payments=incoming (of Account No. 2 item 9) which is gross income receipts from domestic production.

(2) The outgoing (in Account No.1) purchase of imports=Sale of imports (Account No.4 item 18) as incoming.

(3) The incoming (Account No. 1) sale of consumption goods = Purchase of consumption goods (Account No. 2 item 6) as outgoing.

**Table 1**

<b>Four Accounts of the Nation</b>			
Outgoings (Payments)		Incomings (Receipts)	
<b>1. Domestic Product Account</b>			
1. Gross income payments (8)	255	3. Sale of consumption goods (6)	210
2. Purchase of imports (18)	54	4. Sale of capital goods (12)	47
		5. Sale of exports (16)	52
<b>TOTAL</b>	<b>309</b>	<b>TOTAL</b>	<b>309</b>

**2. Income and Outlay Account**

Outgoings		Incomings	
6. Purchase of consumption goods (3)	210	9. Gross income receipt from domestic production (1)	255
7. Saving (15)	27	10. Less provision for the consumption of fixed capital(13)	-19
8. Net current transfer abroad	4	11. Net distributed factor incomes from abroad (17)	5
<b>TOTAL</b>	<b>241</b>	<b>TOTAL</b>	<b>241</b>

**3. Capital Transaction Account**

12. Purchase of capital goods (4)	47	15. Saving (7)	27
13. Less provision for the consumption of fixed capital (10)	19		
14. Net lending abroad (20)	-1		
<b>TOTAL</b>	<b>27</b>		<b>27</b>

**4. Balance of Payment Account**

16. Purchase of exports (5)	52	18. Sale of imports	52
17. Net distribution factor income payment (ii)	5	19. Net current(2) transfers(8)	4
		20. Net borrowing (14)	1
<b>TOTAL</b>	<b>57</b>		<b>57</b>

**Source :** U.N. Publication-A System of National Accounts (1968)

(4) The incoming (Account No. 1) sale of capital goods = Purchase of capital goods (Account No. 3. item 12) as outgoings.

(5) The incoming (Account No. 1) sale of export=Purchase of export (Account No. 4. item 16) as outgoing.

(6) Outgoing (Account No.2) saving=Saving (Account No. 3. item 15) as incoming.

(7) Outgoing (Account No.2) net current transfers from abroad=net current transfer (Account No. 4. item 19) as incoming.

(8) Incoming (Account No.2) gross incoming receipts less provision for consumption of fixed capital=Purchase of capital goods, less provision for the consumption of fixed capital (Account No.3 item 13) as outgoing.

(9) Outgoing (Account No.3) net lending abroad = Net borrowing (Account No.4 item No. 20) as incoming.

(10) Incoming (Account No. 2) net distributed factor incomes from abroad=Net distributed factor income payments (Account No. 4, item 17) as outgoing. This reduces all the transaction to a few aggregates. As stated earlier, each entry as incoming in one account has counterpart entry as outgoing in some other account and vice-versa.

(11) A balance statement of the production, consumption, accumulation and balance of payment account can be presented in much concise form. The alternative mode of presentation is given in Table-II. In Table-II double entries incomings and outgoings are recorded for consumption goods, capital goods, exports, imports, gross income from domestic production, provision for fixed capital, net current transfers from abroad, saving and net lending abroad.

**TABLE-II**  
**A Balance Statement of the Four Accounts of the Nation**

Outgoings				Incomings				
1.	2.	3.	4.		1.	2.	3.	4.
	210	47	52	consumption goods	210			
				accumulation	47			
				exports	52			
54				imports				54
255				gross income from		255		
				domestic production				
		-19		provision for the con-		-19		
			5	sumption of fixed capital				
				net distributed factor		5		
	4			income from abroad				4
	27			net current transfers				27
		-1		abroad saving				-1
				net lending abroad				
309	241	27	57	TOTAL	309	241	27	57

**Source :** A System of National Accounts

The total on the incoming side of the four accounts are exactly to their respective outgoing in the corresponding four accounts.

(12) The third method of presentation of accounts is "Matrices". There is no system of double entry now. Each transaction in the matrix is denoted by a single entry. The position of entry reflects the nature of transactions. The transactions by their very nature imply sale or receipt or incoming which is recorded in the 'row' of the matrix. The counterpart of the sale side of transaction is purchase. The purchase operation implies expenditure, or payment, or outgoing which is recorded in the 'column' of the matrix. The four accounts given in Table-I are presented in Table -III in the form of a matrix.

**TABLE-III**  
**The Four Accounts in Matrix Form**

	1.	2.	3.	4.	Total
1. Production	0	210	47	52	309
2. Consumption	255	0	-19	5	241
3. Accumulation	0	27	0	0	27
4. Rest of the world	54	4	-1	0	57
TOTAL	309	241	27	57	

Two comments are in order. In the first place, it may be observed that the total of production row (=309) is identical to total of production column (=309). Similar equality between rows and column can be read from Table-III respectively for consumption, accumulation and accounts of the rest of the world. In the matrix of 4 by 4, analogous to Table-I, there are only 10 non-zero entries in all. We shall call this matrix (4 by 4) as the main matrix. This is more concise and economical statement of accounts.

(13) But there is one more point worthy of observation. The economic counterpart of the arithmetic presentation should be noted carefully. Once again take the example of productive activity from Table-III. It was noted earlier that total of the production row will as a rule equal the total of the production column. Consider the component part of the production row and compare it with the production column. The production row total (=309) is equal to the sum of purchase of consumption goods (=210=sale of consumption goods) plus purchase of capital goods (=47=sale of capital goods) plus purchase of exports (=52=sale of exports). The production column is composed of gross income payment (=255=gross income receipts from domestic production) plus purchase of imports (=54=sale of imports). It is obvious that matrix form of presentation of accounts describes equally effective the information supplied by the four accounts in Table-I.

(14) But the matrix presented in Table-III is highly aggregative in character. This drawback can be effectively removed. Let us take up the consumption account (-241, row-2, column-2) in the main matrix. In fact, each in the main matrix can be sub-divided in the form of sub-matrix. The function of the sub-matrix is to reflect the component details of a particular type of transaction. Each transaction is sub-divided into sub-transactions. These sub-transactions yield, on the principle that row totals will equal column totals, the construct of sub-matrix. For example, let production be sub-divided to reflect the quantum of outputs in different industries. The output of each industry is absorbed in the system by the act of consumption. Consequently, the entry of consumption will have to be classified on the basis of output (of different industries) consumed by various consuming units. Then we get another rectangle or sub-matrix. The number of rows in the sub-matrix would be equal to the number of industries which again would be equal to the number of columns reflecting consumption by different consumption units. Thus sub-matrix for each entry in the main matrix yields the necessary details regarding the working of the economic system. Therefore, this method of presentation combines the advantage of aggregation as well as that of disaggregation of accounts.

(15) The fourth method of presentation is to state Table-III in terms of

equations. The basic principle is again the incomings are equal to outgoings. The system of four equations described national income accounting. The equation (1) is  $255+54 = 210+47+52$ ....(i) that is, it reflects the constituent parts of the value added, as income. The gross income payments (255) plus purchase of imports (54) are equal to sale of consumption goods (210) to which sale of capital goods (47) is added, plus sale of exports (52). The equation (1) can be rewritten as  $255 = 210 + 47 + (52 - 54)$ . That is value added equals the sale of consumption and capital goods plus net exports. The equation (2) reflects the use of income  $210+27+4 = 255-19+5$ ....(2) That is purchase of consumption goods (210) plus saving (27) plus net current transfer abroad (4) are equal to the sum of gross income from domestic production (255) out of which depreciation (-9) is deducted plus net distributed factor incomes from abroad (5). The equation (3) reflects the concept of saving specifically use of saving as :  $47-19-1 = 27$ .....(3). That is saving is use for the purchase of capital goods (49), keeping aside depreciation charge on fixed capital (-19) and net lending abroad (-1) equals saving (27). The equation (4), reflects the balance of payment accounts. It is obtained by adding together equations (1), (2) and (3). The common terms cancel out leaving purchase of the exports (52) plus net distributed factor income payment (5) are equal to the receipts from sale of imports (54) plus net transfers (4) and net borrowing (-1) from abroad. The equation (4) can be stated as :  $52 + 5 = 54 + 4 - 1$ .....(4).

(16) Now the set of national income accounts can be examined from different angle altogether. Thus, for the economic activity or transactions were analysed as flows. Alternatively one can analyse the same from the standpoint of stocks. This requires the introduction of balance-sheets. The difference between the opening and closing balance-sheet in a given period reflects the stock magnitudes. The stock variable is always reckoned at a point of time. The balance sheet contains (i) value of the holdings of tangible assets plus the excess of financial assets over financial liabilities and (ii) net worth. The value of (i) as a rule equal to the value of (ii) at any point of time. The opening and closing balance sheets are not connected. The first linkage is provided by revaluations. The term revaluations refers to re-estimation of tangible and financial assets and liabilities at prices existing at the time of the closing of the balance-sheet. Now definitions of net assets and net worth (at the beginning of the period) should be made out. The former is equal to sum of the value of net assets at beginning plus net investment at home and abroad) plus revaluations. Similarly, latter is equal to the sum of net worth (at the beginning plus increment in saving plus revaluations. As such the opening and closing balance-sheet are connected by revaluations and items included in the capital transaction account. The Table-IV reflects balance-sheet in a matrix form. The item opening assets (693) in the row-I and column-4) is equal to opening net worth shown in (row-4 and column-1). Similarly, closing net asset (=764, row-7, column-4) is equal to closing net worth (row-4, column-4). The revaluations of net assets (=44, column-4,row-6) is equal to revaluation of net worth (row-4, column-6).

**TABLE-IV**  
**National Account, including Balance Sheet in Matrix**

	1	2	3	4	5	6	7
1. Opening assets, net				693			
2. Production		0	210	47	52		
3. Consumption		255	0	-19	5		
4. Accumulation	693	0	27	0	0	44	764
5. Rest of the World revaluation		54	4	-1	-0		
6. Closing assets, net			44				

**Self-Check Exercise-I**

Q. Describe the four Accounts of National Accounting in a Matrix form.

Ans. ....  
 ....  
 ....

(17) The notion of balance sheets can be given diagrammatic representation. The Figure-I records flows. The nature and size of flows are also indicated in the Figure-I. The four rectangles reflect the production, consumption, accumulation, and rest of the world accounts. The arrows between these rectangles reflect inflows and outflows. The accounts of each rectangle tend to balance. This aspect is reflected by the fact the sum of inflows into a rectangle is always equal to the sum of outflows from the same rectangle. For example, take the consumption rectangle. The sum of inflows (241) is equal to gross value added (255) -net distributed factor income from abroad (5)-consumption of fixed capital (19).

The aggregate of inflows are equal to aggregate of outflows (241) which is equal to consumption expenditure (210) + saving (27) +net current transfer from abroad (4). One can work out the balance of accounts for the production, accumulation and external sector rectangles as well.

(18) The Figure-II records the nature and size of stocks. The production, consumption, accumulation and the rest of the world accounts are divided into (a) accumulation and (b) the remaining accounts. That is, the production consumption and external account are consolidated and put in the inner rectangle. The opening and closing net assets and liabilities are shown by circles. The circles are connected by arrows.

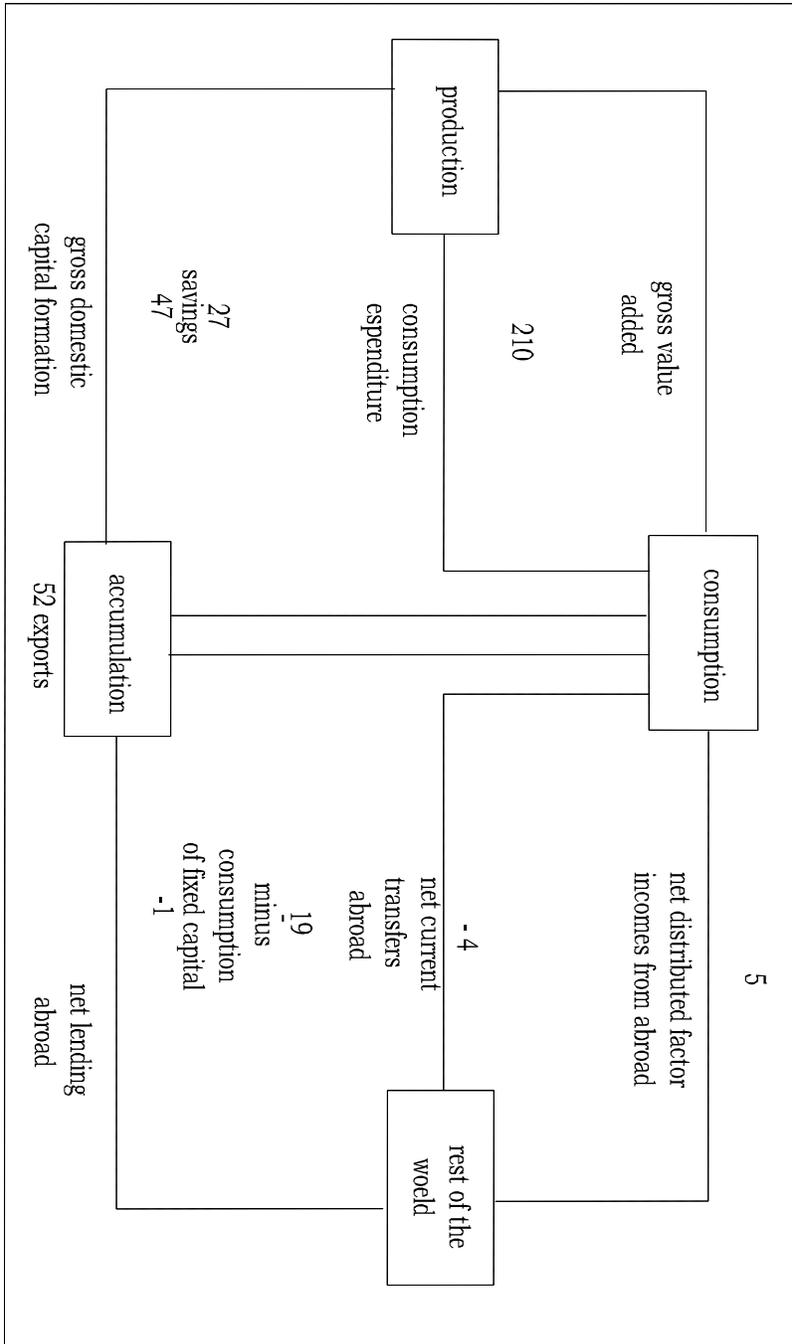
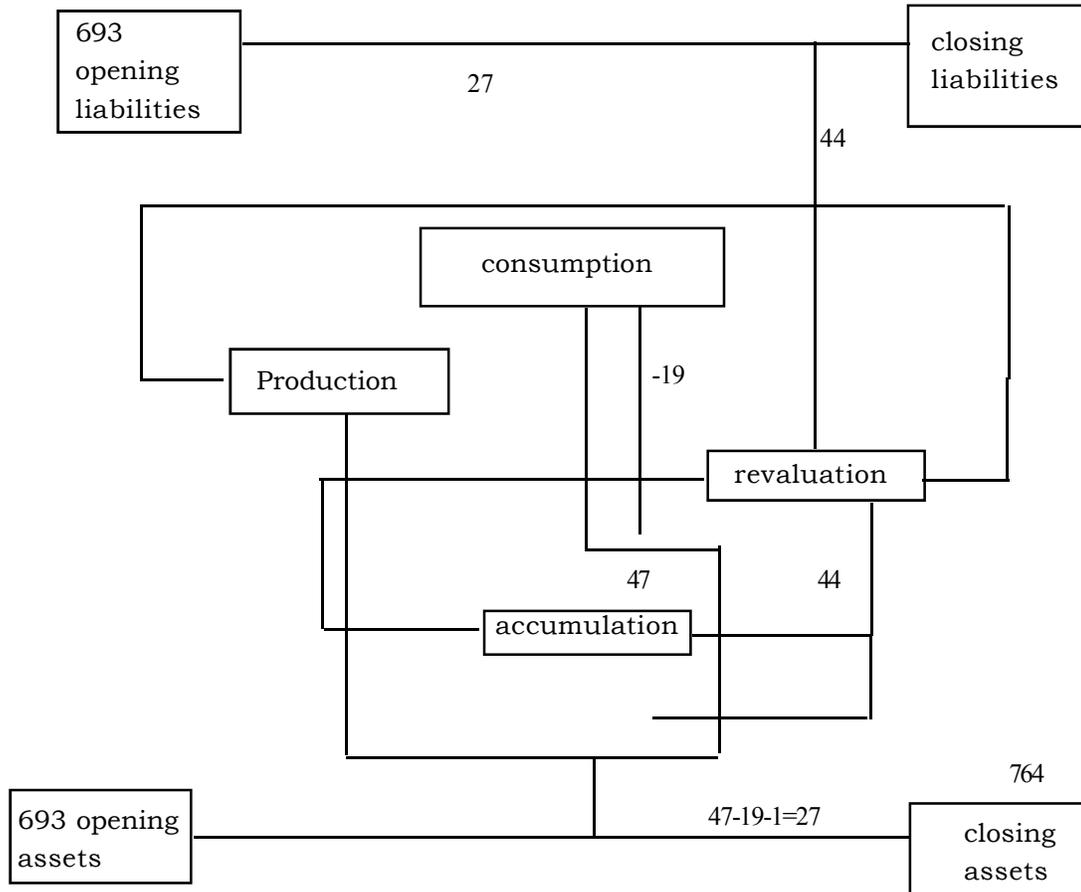


Figure 1  
The Four Accounts of the Nation  
54 imports

**Figure-II**  
**Connection between Opening and Closing Assets and Liabilities**



Any change in the net assets and liabilities due to inflows in accounts and/or due to revaluations given period are indicated by arrows. Thus, the opening net worth (693) is increased by 27 units due to (i) saving or flow consumption to accumulation accounts and (ii) by 44 units due to revaluation. Thus, closing net worth is increased by 71 units from 693 to 764 units. Similarly, the opening net assets increase by 27 units (= 47-19-1). These represent domestic capital formation (47) minus provision for consumption of fixed capital (19) plus net lending abroad (-1). Thus, the each side of balance sheet balances on 693 units (opening) and on 764 units (closing).

Note : The material of this lesson is drawn from : "A System of National Accounts" published by United Nations (1968) Studies, in Methods of Social Accounting Series F. No. 2, Rev. 3.

**1.3.5 Summary**

The term Social accounting is much broader concept and is a statistical description of economic change in inter linked activities. It takes into account two types of activities i.e. Moduation and its allocation between consumption and Investment. It can be presented in four types of accounts that are Demestic Product Account, Income and outlay account, capital Transaction account and Balance of Payment Account.

**1.3.6 Technical Terms:**

1. Social Accounting: Statistical description of economics change in inter-related activities and subsequent adjustment in it explained the dynamic working of the economic system.

**Self-Check Exercise-I**

Q. Explain the various development in the field of National Accounting?

Ans. ....  
.....  
.....

**CLASSICAL THEORY OF EMPLOYMENT**

- 1.4.1 Introduction
- 1.4.2 Objectives
- 1.4.3 The Classical Model
- 1.4.4 Change in Money Supply
- 1.4.5 Change in Production Function
- 1.4.6 Savings and Investments
- 1.4.7 Critical Review
- 1.4.8 Conclusion
- 1.4.9 Technical Terms

**1.4.1 Introduction**

As we stated in the last lesson, before Keynesian economics, there was no coherent body or economic knowledge which could be given the name of a macroeconomic model. There were some vague and scattered ideas, some of them highly developed which were studied individually. All pre-keynesian writings are frequently referred to as classical economics, but the macroeconomic writers of the twentieth century are called neo-classicals. The best known of the neo-classicals are A.C. Pigou and Alfred Marshall; whereas classical economists included economists like Adam Smith, Ricardo, J.S. Mill, T.R. Malthus and James Mill. Basically, all the pre-keynesian concepts and analyses have been given by the classical economists, but the neo-classicals defined and extended the classical precepts. It is difficult to generalise the thought of such a diverse group of men, but some comments can be made to indicate their general philosophy, their assumptions, and their approach to basic economic problems.

The classical and neo-classicals, in general, placed great faith in the ability of human beings to analyse and solve problems. If men were presented with accurate information and alternatives, they could make rational choices. These economists believed that men were rational and ultimately it was man's rationality that could solve most of man's problems. It follows that these economists propagated *Laissez Faire*. Their philosophy was, "that government governs best that governs least." They reached this conclusion by viewing the economy as composed of small, independent firms operating in free and open markets. They assumed pure competition in all markets.

Methodologically, the classical economists were primarily interested in the determination of value (price, wage rate, interest etc.) and the distribution of output

(wages, rents, interest, profits). Thus, they tended to use partial equilibrium analysis. They were more interested in the long-run, i.e., how things worked out over time. It is, therefore, very important to keep in mind the classical emphasis on the long-run for it helps to explain some of their preoccupation and conclusions.

#### **1.4.2 Objectives**

The main objective of other this lesson is to study the classical ideology with respect to change in money supply and production function. It also studies the determination of equilibrium in saving-Investment Model. It also discuss the critical appealisal of classical model given by Keynes.

#### **1.4.3 The Classical Model**

Before classical's model is studied in full it is very important to know the direction towards which the model is directed and the aim which this model should fulfil. As in the case of all models of macroeconomics, the classical model also poses the problems of the employment and economic growth. Economic growth was studied through changes in the national product, but there was a controversy regarding the concept of full employment. Therefore, it is in the fitness of things that the concept of full employment is examined before studying the classical model.

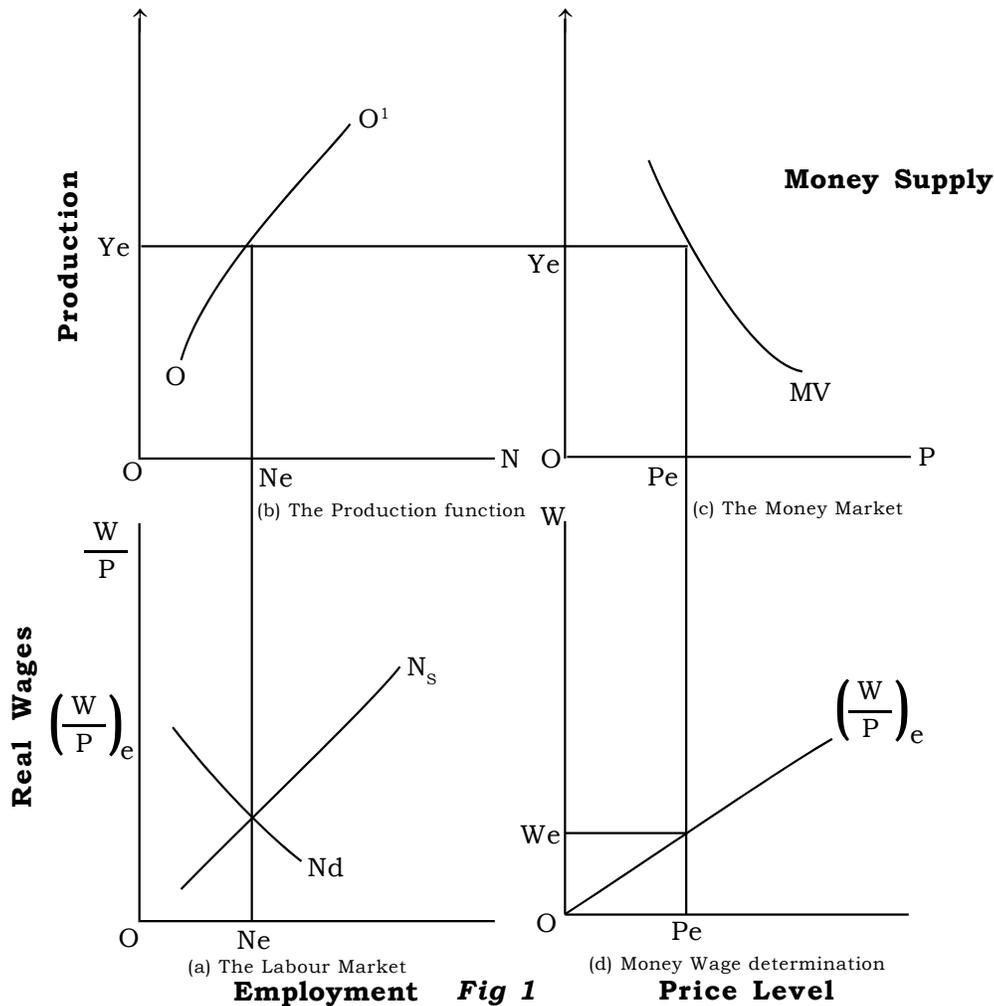
The classicals had a very clear notion about full employment. For them full employment was normal situation and departures from it were regarded as abnormal. Full employment was defined as a situation when there was no involuntary unemployment. If workers prefer to be voluntarily unemployed, it was not a problem to be tackled by the economy. The classicals accepted the prevalence of frictional and structural unemployment, a short-run phenomenon for the classicals.

Keynes also agreed with the classicals that frictional, structural and voluntary unemployment can co-exist with full employment, but he challenged the basic assumption of the classicals that there is always full employment. For Keynes, full employment was a rare phenomenon and hence the purpose of a macroeconomic model was to reach this stage.

The classical theory whose broad outline is described in the lesson is specifically that theory which existed before Keynes' 'General Theory. This theory through its ingredients has been reformulated or recast by some economists in recent times, for example, the quantity theory of money which is an important part of classical theory has been reformulated by M. Friedman and others. The classical model depends upon two basic functions on the basis of which the equilibrium levels of output and employment are determined. These functions are :

- (1) The economy's production function from which is determined the demand curve for labour.
- (2) and the supply curve of labour.

To study the equilibrium level of output and employment, we need four basic and derived functions as given in the diagram shown on the succeeding page.



In part (a) of diagram the labour market is shown with the help of demand and supply curve of labour. In part (b) is shown the aggregate production function. These two parts reproduce the real side of the market. The money market is shown in part (c), where  $M$  is determined by the monetary authorities,  $V$  is assumed to be constant and  $Y_e$  is given by part (d) of the diagram. Under these conditions, the quantity theory of money determines the price level. In the money market, part (c) of the diagram, the  $MV$  curve is a rectangular hyperbola, meaning that with  $MV$  constant, money market equilibrium is possible with a high  $Y$  and low  $P$  or with a low  $Y$  and a high  $P$ . A moment's reflection will reveal that if  $Y$  were high, the output could only be sold at a low price level. Thus, in part (c) once  $Y$  is known from the aggregate production, the price level,  $P$ , is determined. Finally, in part (d) the money wages can be determined once the price level is given from part (c). The line  $W/P$  from the origin  $O$  measures constant real wage rate; the slope of the line is equal to  $W/P$ . A higher

real wage gives a new line from the origin to the left of the one shown and a lower real wage appear as a line to the right.

In the above figure, starting with part (a) and proceeding to (b), (c) and (d) it is possible to trace the working of the classical model. The results are given with the subscript (e) and the process is summarized below :

Diagram Part	Description	Determines	Given or Assumed
(a)	Labour Market	N and W/P	Labour Force- Population
(b)	Production Function	Y <sub>e</sub>	N from the labour market
(c)	Quantity Theory	P <sub>e</sub>	M from the monetary authority. V constant by assumption. Y from production function.
(d)	Money Wage	W <sub>e</sub>	P from money market. W/P from labour market.

Let us explain this process in terms of the mechanism of the classical system. The interaction of the forces of demand and supply in the labour market determines the level of employment (N) and the real wage rate (W/P). Since the level of employment (N) is determined with the help of production function, we can know the level of (Y). This determined level of income (Y) can tell us about the price level with the help of MV curve determined by the quantity theory and in last the price level can tell us about money wage. To increase the understanding of the classical model and its mechanics, it might be useful to examine the model in operation as it reacts to the changes in the variables. These are only two independent variables which change exogenously and vigorously and there are changes in money supply and the production function.

**Self-Check Exercise-I**

Q. State briefly the classical theory of employment

Ans. ....

.....

**1.4.4 Change in Money Supply**

Consider first a change in the supply of money. Suppose the supply of money increases. How will the system react? The first change occurs in the money market as shown in diagram 2(c). For an increase in M, the MV curve shifts upward to the right, meaning thereby that the new money supply will support a higher level of money

income. But no response from the real side and with already at the full employment level, the price level rises. Output being fixed, the increase in spending merely drives up price level. As prices rise there is repercussion in the labour market since the price rise reduces the real wages. The fall in real wage is shown in figure (2) and indicated by  $(W/p)_1$ . It is clear that at this lower real wage rate, the demand for labour exceeds the supply of labour as firms are in a position to use more labour.

As the firms increase their demand for labour they have to increase the money wages due to competition in the labour market. They continue to increase the money wage until the shortage is eliminated. This occurs at the old equilibrium real wage  $(W/P)$ .

**The Classical Model with a change in the money supply**

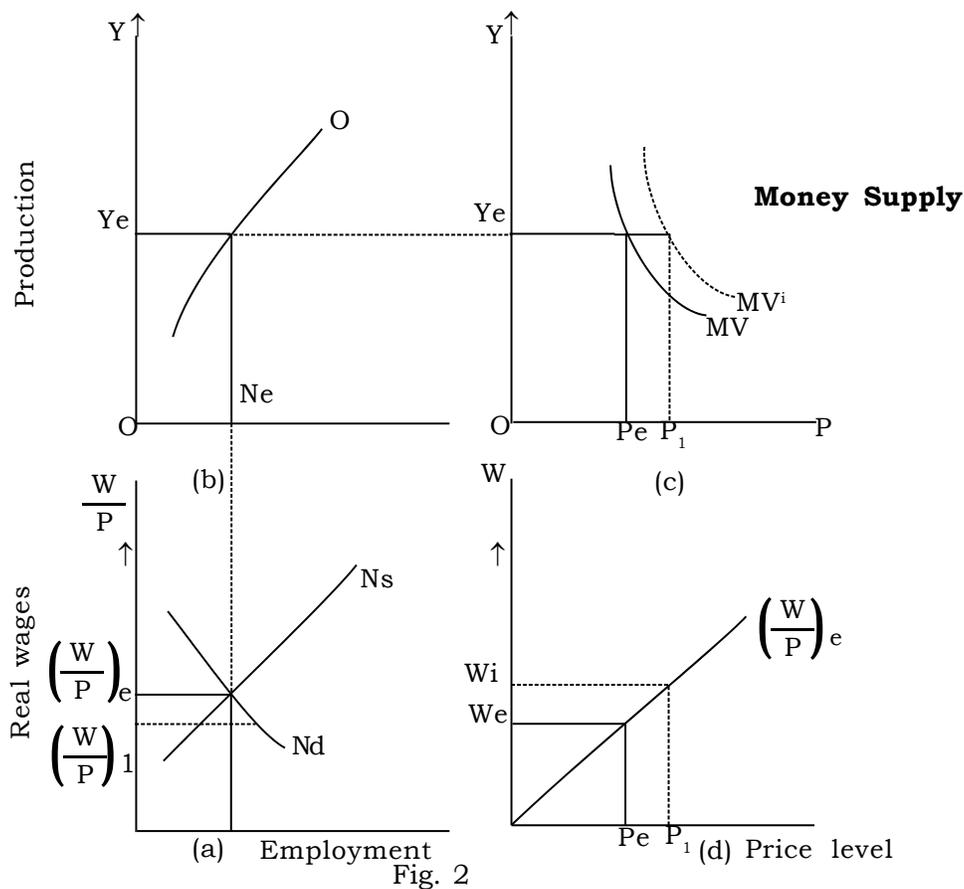


Fig. 2

It follows that an increase in  $M$  does not affect the real side of the economy but it affects only the money side. The increase in  $M$  results in an equal increase in  $W$  and  $P$  to keep the real wages constant. All that the change in  $M$  brought about was a proportional change in the price level is exactly what the quantity theory had said.

**Self-Check Exercise-I**

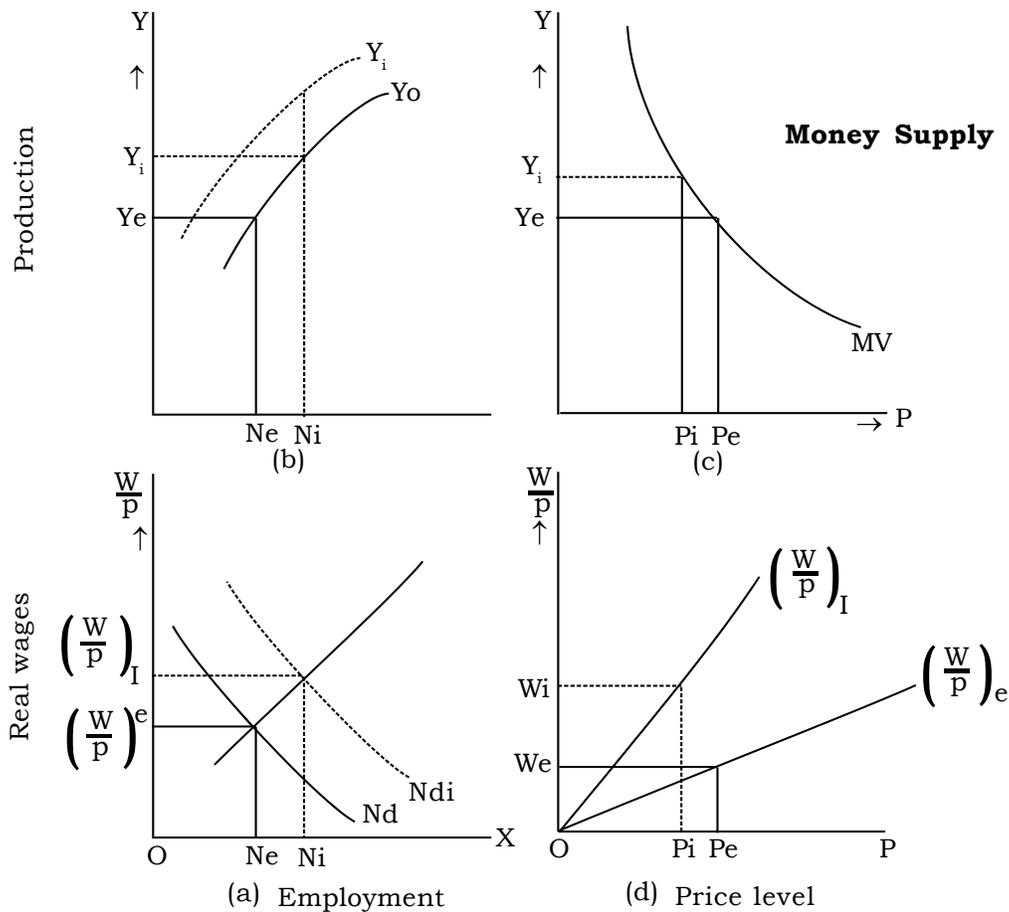
Q. Write a note on classical Model with change in Money Supply.

Ans. ....  
 ....

**1.4.5 Change in Production Function**

There can be two types of changes in the production function. The change can be in a parallel or a non-parallel way. The non-parallel change in production function changes both the average and marginal products of labour. This type of shift in the production function changes the productivity of the labour. But if the production function changes in a parallel way, only the average product of labour is changed. The marginal physical product of the labour does not change with such a change in the production function.

**The Classical Model with change in Production Function**



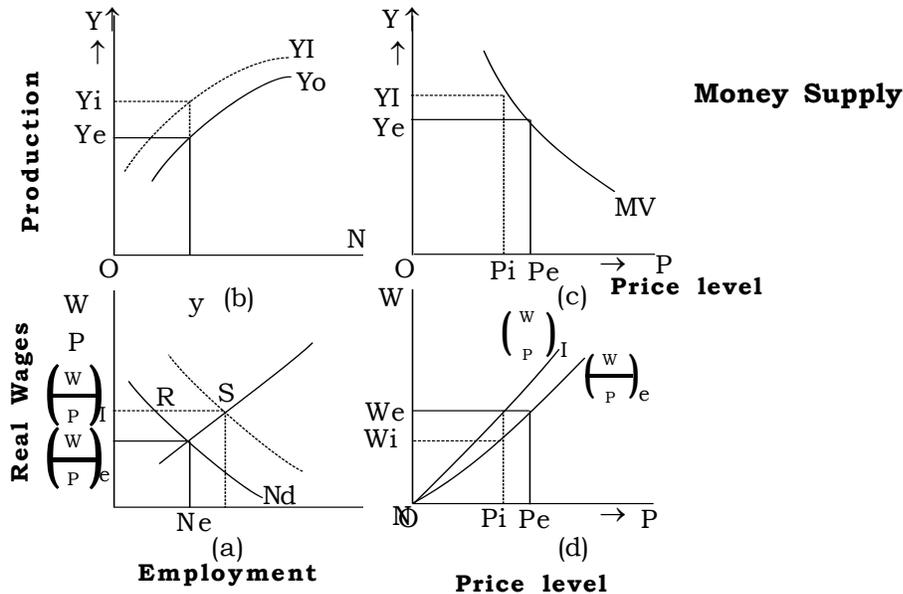
**Fig.3**

Let us consider first a change in production in a non-parallel way. The shift in a diagram 3(b) is of this kind. The shift in the production function makes labour more productive and, thus, increases the demand for labour to  $Nd_1$ . We know that the demand curve of labour is drawn from the production function. When the production function changes there will be a new demand curve for labour. Firms demand more labour now that is more productive because at the old price more profit can be made as output expands.

The firms soon find, however, that with the supply of labour fixed, they must pay higher real wage  $W/P_1$  in order to include the additional labour required ( $N_1 - N_e$ ) to work. As a result of employment of more labour, output expands as shown in part (b). This output increase both because more labour is employed and because labour has become more productive now. With the new higher level of output  $Y_1$ , the price level must fall to  $P_1$ . This is because nothing else has changed in the money market and with a constant  $M$  and  $V$ , the additional output can only be sold at a lower price level. The given money supply can only support a certain money income so that as  $Y$  increases,  $P$  must fall. In figure 3(d), it is clear that real wage must rise in order to draw the additional labour as shown in part (a).

From part (c) of the diagram, it is clear that the price level falls. When price level falls, the real wage rate must increase. The interesting thing is that money wage rate in part (d) also increases. Since money wage rate is increasing and the price level is falling, automatically the real wage are increasing. This is a possibility even in the case when the money wage is

**Parallel Shift in the Production Function**



**Fig.4**

constant.

Some interesting results follow if the production function shifts upward in a parallel way. This kind of technological change alter the average product of labour keeping its marginal product constant. The parallel shift in the production does not shift the demand curve of labour. Figure 4(b) shows the parallel shift in the production function from  $Y_0$  to  $Y_1$  and output shifts from  $Y_e$  to  $Y_1$ . As output increases, with the money variables constant, the price level to the output  $Y_1$  must fall. In part (c), the price level falls to  $P_1$ . Since the price level falls, the real wage increases say to  $(W/P)_1$ . The rising real wages, if, maintained would lead to unemployment equal to the distance RS in part (a).

According to the classicals, there is a competition among the unemployed also and this competition would drive the money wage  $W_1$  down restoring the old real wage and eliminating the unemployment. But as per this interpretation of the classicals, the labour cannot remain contented for a long period with constant or decreasing money wages. Although, in the above analysis, the real wages are increasing with falling price level, but labour is guided more by money illusion. But then, if money wages are rigid, they cannot be reduced, and the result will be unemployment in the classical system. But then the classicals have an assumption of perfect competition and so far as competition is perfect, wage rates cannot be rigid. If we make assumption of an imperfect labour market where wages are rigid downward, there is no self-correcting mechanism that can restore full employment. Without competition money wages do not fall when there is unemployment. Therefore, the conditions remain-unemployment in the labour market and consequently a reduced output at increased prices. We can conclude that in a classical system without competition, a rigid money wage leads to unemployment and that unemployment is essentially voluntary.

#### **1.4.6 Savings and Investment**

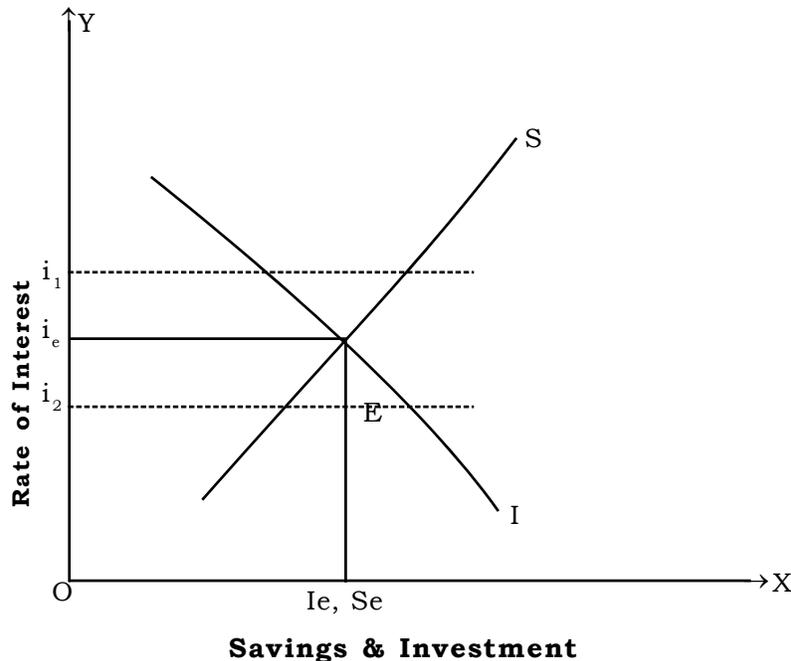
The classical model discussed above has covered the determination of income, output and employment. It has also considered the role of money supply and money change in the production function. But this model is over simplified. We have considered only the aggregate demand; but we have not taken aggregate demand to be composite of demand for consumption goods and capital goods, meaning thereby that the process of saving and investment has not been studied. In the last lesson, we studied three main principles of classical economics, viz. Say's Law of Markets, Quantity Theory of Money and Rate of Interest. The first two principles have been fully considered and treated in the classical model explained above. The basic conclusions reached above are based upon the belief that there could never be a lack of aggregate demand and, therefore, unemployment.

But we must remember that the whole of the income is not spent on

consumption. That part of income is not spent on consumption is saved. The model given above does not allow for savings. It is not possible that saving results in insufficiency of aggregate demand and, thus, upset comfortable conclusions. The classical economists had another instrument to ensure that there would be no lack of demand and this was the flexible rate of interest.

The classicals treated savings as dependent function of rate of interest. The higher the rate of interest, the higher is the saving. Of extreme importance is the idea that any saving that occurs is done in such a way that the funds become available to someone else to spend. There is no hoarding of funds. This follows from the Say's Law of Market. No one is foolish enough to hold idle balances over and above those needed for transaction purpose. To make people forego present consumption, there must be some compensation paid. Some of the theories of interest get rather mystical, but the major point is clear—any saving that occurs is made available for someone else to spend. The rate of interest is some kind of reward.

In the classical system, the investment is also dependent upon the rate of interest. They are inversely related to each other. These two functions, savings and investment, ensure some equilibrium rate of interest that makes saving equal to investment. Thus, rate of interest clears the market to ensure that all saving is invested and that an insufficiency of aggregate demand never develops. Diagram 5 given below depicts the saving and investment segment of



**Fig.5**

the classical model.

These functions are drawn on the classical assumptions that both S and I are interest elastic. Furthermore, the intersection of the schedule always occurs in the positive quadrant; that is, the rate of interest is always positive and no matter how low, would equate saving and investment. The capital market was also assumed to be competitive and supposed to work like any other market. For instance, at  $i_1$  saving is more than investment. The competition among savers would drive the interest rate down. The surplus saving is eliminated with no threat to aggregate demand. At  $i_2$  investment is more than saving and the shortage of funds would cause investors to bid up the rate of interest and market would ration the available funds.

To sum up the conclusions of the classical model : there is always a tendency towards full employment as perfectly competitive markets work through flexible wages, prices, and rates of interest to ensure that aggregate demand is always sufficient to purchase the full employment output. Rigidities in the system alter the result, but not the fundamental ideas about the working of economic system. For some, the classical model retains much of its explanatory power.

#### **1.4.7 Classical Model-A Critical Appreciation**

The Great Depression of the thirties gave the severe blow to the classical model. There are very few people, who still maintain that there is tendency of automatic adjustment due to perfect flexibility in the variable that determine the level of output and employment. The basic assumption of the classical model that there is always full employment has also been shattered due to persistent unemployment in all types of economies of the world.

After the Great Depression, people started doubting the classical prescription. In 1936, Keynes came out with an alternative theory of employment, challenging the basic assumptions of the classicals and their policy implications. Keynes himself was a classical economist and was a pupil of Marshall. Even after depression, he maintained that logically the classical system was perfect but since it is based upon certain wrong assumptions, it cannot be adopted. Keynes criticised the classical model on the following grounds :-

#### **1. Full Employment**

Keynes gave a rude shock to the classicals by challenging their fundamental assumption of full employment. According to Keynes, full employment was only a rare phenomenon and this is for what an economy strives. Booms and depressions occur very frequently and the aggregate demand normally falls short of the required level. In fact, unemployment is a common feature of free market capitalist economics. The classicals assumed

that there is no wastage of resources; they are fully employed, the only problem before an economy is of allocation of these resources. But Keynes did not agree to this proposition. He maintained that wastage of resources was a common feature of a free enterprise economy and hence there is no question of assuming full employment always. Keynes gave us a new concept of "less than full employment equilibrium". He asserted that there can be equilibrium in the economy even at less than full employment level. He called this situation as that of 'under-employment equilibrium'.

## **2. Money Illusion**

In the classical system, as we have seen above, a great emphasis is placed on flexibility of wage rates. We were able to reduce real wages by reducing money wages. According to Keynes, workers suffer from money illusion. They are very sensitive to reduction in money wages. As Keynes himself has said "Whilst workers will usually resist a reduction of money wages, it is not their practice to withdraw their labour whenever there is a rise in the price of wage good". This implies that if there is an increase in the price level, but the money wages remain constant people will ignore it. They will offer the same amount of labour for employment as before. Thus, Keynes rejected the classical theory of employment which, in his view, asserted that (1) wage bargain determines the wage rate and (2) the real wage rate, thus, determined will fix the amount of employment.

## **3. Role of Money**

Keynes was basically a monetary economist and he tried to link the theory of employment and money with the theory of income. He rejected the classical theory labelling it as a partial analysis of only value and distribution. Money in the keynesian system is a link between present and future, he took strong exception to the veil attitude of the classicals and denied that money is an illusion. The store of value function of money was placed at the top position by Keynes. People try to store value in the form of money as this is the most convenient form of storing wealth.

## **4. Say's Law**

Say's Law is also one of the fundamental postulates of the classicals which was attacked by Keynes. The assertion that 'supply creates its own demand, can be held valid only if there is no shortage in aggregate demand. But all income is not automatically spent some part of it is saved. According to Keynes, this part, which is not consumed is directly responsible for creating unemployment. Keynes also did not agree to the Pigovian formulation of Say's law that wage cuts can reduce unemployment. Wage reduction was no remedy to reduce or abolish unemployment as this will also reduce the effective demand which is the primary cause of unemployment.

## 5. Rate of Interest

The classical model assumes that the rate of interest brings about automatic adjustment in saving and investment. This is possible if saving and investments are a function of rate of interest. Keynes challenged this functional relationship between rate of interest and saving and investment. According to him, the functional equality between saving and investment is brought about by the changes in income. He asserted that (i) investment was not so sensitive to changes in the rate of interest. It depends more on the marginal efficiency of capital and (ii) saving depends upon the level of income and people save not to earn interest, but for some other motives like transactions, precaution and speculation.

### State Intervention

In the classical scheme of the working of the economy everything is automatic and does not need any interference from any outside agency. Since supply creates its own demand and aggregate demand never falls short of the supply, there is no need of any interference. But this is not the fact. Aggregate demand normally falls short of the required level. Some part of income is withdrawn from the consumption stream. To fill this gap in the consumption stream, there is a strong need for the government to interfere and maintain the flow of aggregate demand. Moreover, to achieve the level of full employment or to create more employment opportunities, heavy investment through deficit financing is necessary. He, therefore, favoured government intervention and viewed government spending, taxation and borrowing as the most important weapons against unemployment.

#### Self-Check Exercise-I

Q. Critically review the classical theory of employment.

Ans. ....  
 ....

### 1.4.8 Conclusion

Classical model, although criticised very severely and rejected practically, has its own place in the theory of economic thought. Keynes, the greatest critic of the system also has his roots in the classical and neo-classical system. In an article which appeared after his death, Keynes paid tributes to the classical and warned the young Keynesians saying, "I find myself moved not for the first time to remind contemporary economists that the classical teaching embodies some permanent truths of great significance." His gratitude to the classical is further strengthened when he borrowed some of the assumptions like free market system and law of diminishing return from the classical. We, thus, reach the conclusion that as far as the logical content of Keynes' theory goes, no revolution has taken place. General Theory, no doubt, marks a milestone, but not break in the development of economic theory.

#### 4.9 Technical Terms:

1. Money Supply: entire stock of currency and other liquid instruments circulating in an economy as of a particular time.
2. Production Function: the technical relationship between quantities of physical inputs and quantities of output of goods.

**KEYNESIAN THEORY OF EMPLOYMENT**

- 1.5.1 Introduction
- 1.5.2 Aggregate Demand and supply Functions
- 1.5.3 Consumption Function
- 1.5.4 Concept of Multiplier.
- 1.5.5 The Marginal Efficiency of Capital.
- 1.5.6 Liquidity Preference.
- 1.5.7 Technical Terms

**1.5.1 Introduction**

The principle of effective demand is the starting point of Keynesian Theory of Employment. Unemployment results from a deficiency of aggregate demand and, therefore, increase in aggregate demand shall increase total employment. Effective demand manifests itself in the spending of income. As employment increases, income increases. But with the increase in real income, consumption increases by less than income. Thus, to have sufficient demand to sustain an increase in employment there must be an increase in real investment equal to the gap between income and the consumption demand out of the income. As such the employment cannot increase unless investment rises. This is the core of the principle of effective demand.<sup>1</sup>

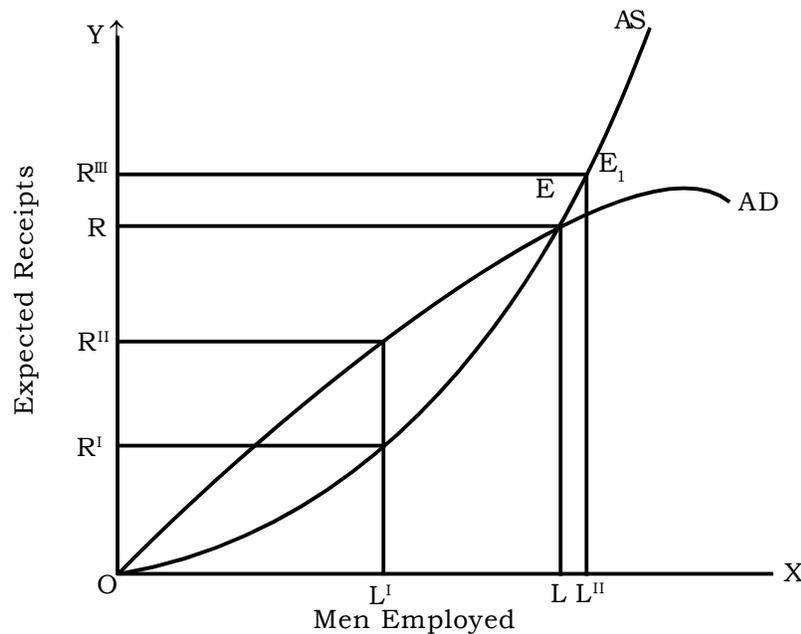
**1.5.2 Aggregate Demand and Supply Functions :** The aggregate demand and aggregate supply functions determine the level of employment. The aggregate demand for the output of any given amount of employment is the total amount of money or proceeds which is expected from the sale of the output produced when that level of labour is employed.<sup>2</sup> The aggregate demand function or curve as Keynes calls it is a schedule of the proceeds expected from the sale of the output resulting from varying amounts of employment. The aggregate demand price increases as the amount of employment increases and decreases as the amount of employment decreases. At any given level of employment of labour, aggregate supply price is the total amount of money which all the entrepreneurs as a whole expect to cover their costs when they employ a particular number of men. On the other hand, the aggregate demand price of any level of employment is the amount of money

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- 1. Dillard Dudley : *The Economics of J.M. Keynes*, p.29.
  - 2. Since the output of the entire economic system cannot be measured in any simple physical unit like a bushel or ton, Keynes uses the amount of labour employed as the measure of output as a whole.

which all the entrepreneurs in the economy taken together really do expect to receive by selling the output produced by a given number of men. It represents the expected receipts when a given volume of employment is offered to workers.

One can, therefore construct aggregate demand and supply curves (or schedules) showing aggregate demand supply prices at all possible levels of employment.

Aggregate Supply Curve (AS) shows for each possible volume of receipts by entrepreneurs from the sale of output that how many men would be just worth employing. For example, if entrepreneurs expected to receive Rupees 'OR' it would just pay them to employ 'OL' men. The curve AD is the aggregate demand curve and shows how much money entrepreneurs really do expect to receive when they employ various number of men.



**Fig. 1, Aggregate Demand and Aggregate Supply**

In fig.1, the aggregate supply curve rises slowly to begin with implying that employment would increase fairly rapidly at first, as amounts received from selling the output of industry rose above zero. In other words, costs of production would not initially rise very sharply. If the amounts received by entrepreneurs continued to rise, employment would rise progressively less sharply until ultimately all those who wanted jobs were employed. In Fig. I, there are "OL" men wanting jobs and once entrepreneurs' receipts had risen to rupees OR, it would be worth employing all of them. But no increase in the receipts of entrepreneurs (expenditure of the community) beyond rupees

"OR" would increase employment further. The elasticity of labour has fallen to zero, once national expenditure (income) reaches  $R^{iii}$ . On the other hand, the shape of the aggregate demand curve implies that expected proceeds from offering employment rise quite steeply as employment reaches high levels. At low levels of income the savings are likely to be low.

The level of employment in a community will be fixed by the intersection of the aggregate demand curve with the aggregate supply curve. Only if the amount of proceeds which entrepreneurs expect to receive from providing any given number of jobs is just equal to the amount which they must receive, if the employment of those men is to be worthwhile can the economy as a whole be in equilibrium. In Fig. I, this will happen when employment is OL and total receipts of rupees OR are expected by entrepreneurs. This is the only possible equilibrium position with curves AD and  $AS_n$  assuming that there is perfect competition.

There is an important corollary to this fact. Although with given aggregate demand and supply curves there will normally only be one position of equilibrium, this need not be at the level of full employment.

**1.5.3 Consumption Function :** The simple Keynesian model can be set up either in the  $C+I$  form or the  $S=I$  form. The consumption expenditure of the community is mainly determined by the level of disposable income of the community. The schedule that relates consumption to disposable income is called the "intended consumption."

In the short run, output real income cannot increase without an increase in employment, and as such it is useful to translate the functional relation of consumer demand to employment into a functional relation of consumption expenditures in real terms to real income. The function  $D_1=X(N)$  may be translated into  $C=C(Y)$  where C is consumption in real terms by means of an index of (wage units). Accordingly, he writes the consumption function as  $C_w=X(Y_w)$  in which the subscript W indicates that C and Y are stated in terms of wage units.

While explaining this function, Keynes advanced the hypothesis that consumption depends primarily upon real income. Income is the sole determinant of consumption. Other things being equal, the consumption function shows what changes can be expected in consumption from the given changes in income.

He pointed out the fundamental law that as a rule and on the average, as income increases, consumption will increase, but not by as much as the increase in income (see figure ahead). With respect to the slope of the consumption function, he specified one essential characteristic, namely the

marginal propensity to consume  $\frac{\Delta C}{\Delta Y}$  must be less than unity.

**1.5.4 Multiplier :** The key to the clear explanation of multiplier is the MPC. The multiplier may be large or small depending upon the size of MPC. Investment multiplier of Keynes is the coefficient relating an increment of investment to an increment of income. If  $\Delta Y$  is change in income and  $\Delta I$  is change in investment while  $K$  is the multiplier then  $K\Delta I = \Delta Y$ .

When the MPC is zero, the multiplier is 1 and when it is unity, the multiplier is infinity so that any initial increment of investment if maintained continuously will drive the economy on to inflation. Somewhere in between is the more probable case. If the MPC is  $2/3$  (i.e. if the MPS is  $1/3$ ), the multiplier is 3. The multiplier is the reciprocal of MPS.

$$K = \frac{1}{1 - \frac{\Delta C}{\Delta Y}} \quad K = \frac{1^*}{\frac{\Delta S}{\Delta Y}}$$

The flatter the consumption function curve, the lower the multiplier, the steeper the curve the higher the multiplier,  $\Delta Y = \Delta I + \Delta C$ . If  $\Delta C$  is Zero, then  $\Delta Y = \Delta I$ , that is, the multiplier is 1.

The nearer  $\frac{\Delta C}{\Delta Y}$  approaches unity, the larger the multiplier.<sup>1</sup>

The multiplier is determined by the MPC and this can be conveniently shown by means of diagrams. If the curve lies on the  $45^\circ$  line, the MPC is unity. Keynes argued that if  $\Delta Y > \Delta C$ , this means that the MPC can in normal circumstances be assumed to be less than unity.

The total rise in employment will be restricted. Keynes explains the

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\* Keynes has clarified his multiplier as against Kahn's employment multiplier. The latter is coefficient relating an increment of primary employment (e.g., on public works) to the resulting increments of total employment primary and secondary combined. Thus, if primary employment is  $N_2$ , total employment  $N$  and  $K'$  the multiplier, then  $KN_2 = N$ . Keynes pointed out the two multiplier,  $K'$  and  $K$  are not identical.

$$\Delta Y = K\Delta I \quad \text{or} \quad K = \frac{\Delta Y}{\Delta I}$$

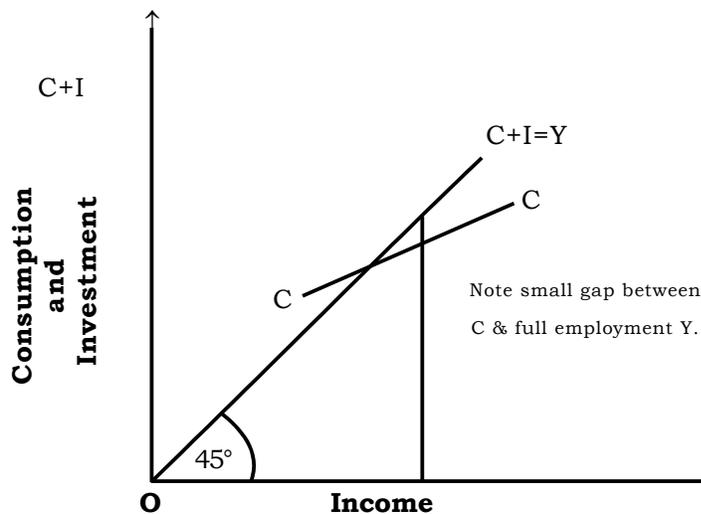
$$\text{Substituting } \Delta Y - \Delta C \text{ for } \Delta I, \text{ we get } K = \frac{\Delta Y}{\Delta Y - \Delta C}$$

$$\text{Dividing through by } \Delta Y, \text{ we get } K = \frac{1}{1 - \frac{\Delta C}{\Delta Y}}$$

increase in the primary employment only. "In the event of community maintaining the consumption unchanged inspite of the increase in employment and hence in real income", the case of Zero MPC. "If on the other hand they seek to consume the whole of any increment of income". MPC being unity then demand will continue to rise until full employment is reached and after "prices will rise without limit."

Thus, the secondary effect of increase in investment will vary with the MPC. If the MPC is close to unity, small variations in investment may cause sharp changes in income and employment. If the MPC is not much above zero, very large variations of investment will be needed to produce substantial variations.

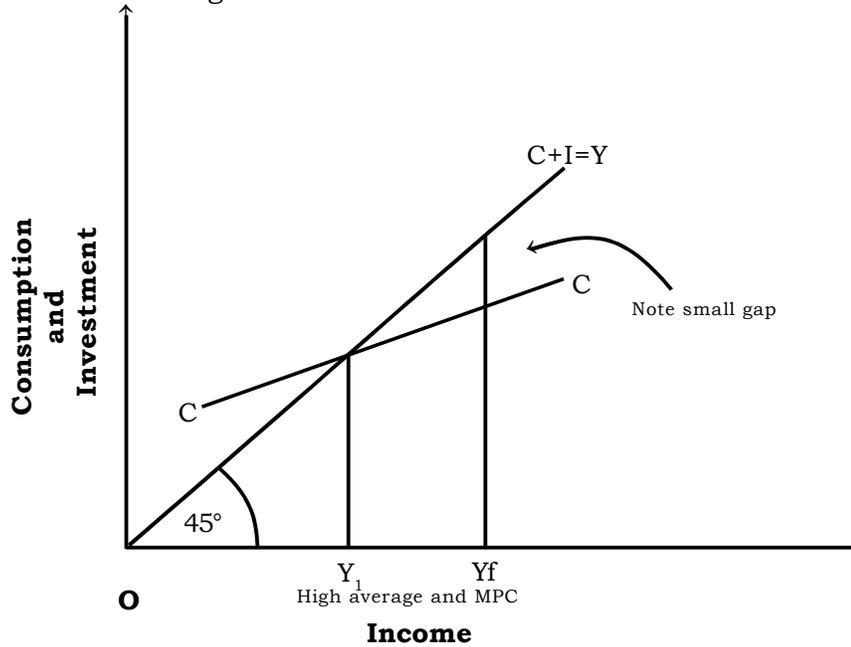
Let us know the distinction between (1) the slope of the curve and (2) its position i.e., at what level it lies. The slope might be flat, in which case the MPC would be low at the same time there might be a very narrow spread between C & Y at full employment income levels i.e., the average propensity to consume, might be high. In this case, a given increase in investment (starting from a condition of unemployment) would raise income relatively little. This is true because the multiplier would be small under these assumptions. But a small increase in investment may also push the economy to full employment. This might be true because the gap between C & Y may be small even at full employment levels (see Fig. 2 ) :



**Fig. 2, High Average and Low MPC**

Such an economy could never fall, very far below full employment. Variations in employment might take place, but they may not be explained primarily by the multiplier, rather, they might be due to investment variations-investment unaided by any significant multiplying effects.

The alternative situation when there is high MPC and also a high APC is represented in Fig.3 below :



**Fig. 3, High Average and MPC**

In this case the variation could be very great i.e., from  $Y_1$  to  $Y_f$  even though the gap between  $C$  and  $Y$  is small at full employment levels. The multiplier being very high, income would vary sharply if investment fluctuated even a little. At zero investment, income (contrary to situation in earlier figure) would be very low. Still only a small amount of investment would produce full employment because the multiplier would be very large. Keynes suggests that the multiplier may be large in poor countries while at the same time the average propensity to consume is high in such communities. This is the situation exhibited in Fig.3. Highly developed countries, on the other hand may have relatively low average propensity to consume. Such a situation allows large variations in employment. The variations would have a tendency to be wider if a low average propensity (at full employment) were combined with a fairly high MPC. Such a situation is within limits possible, since the slope of the  $C$  curve could be fairly steep even though the position of the curve is such that the gap between consumption and income at full employment is wide at full employment income levels.

**Self-Check Exercise-I**

Q. Explain the concept of Multiplier and its relationship with MPC.

Ans. ....  
 ....

### 1.5.5 The Marginal Efficiency of Capital<sup>1</sup>

According to Keynes, the inducement to invest will be strong if the value of an additional capital good exceeds its cost (supply price or replacement cost). The value of an additional unit of a capital goods depends, on the one hand, on the series of prospective annual returns which one may expect from the capital goods over its life time and on the other hand on the rate of interest at which these expected annual returns are discounted.

The value of a unit of capital good can be obtained by capitalising the series of prospective annual returns. Thus If  $R_1+R_2+R_3+R_n$  is the series of prospective annual returns of "prospective yield" of the investment, and if "i" stands for the market rate of interest, while V stands for the value of the capital good in question then

$$C_r = \frac{R_1}{(I+i)} + \frac{R_2}{(I+i)^2} + \frac{R_3}{(I+i)^3} + \dots + \frac{R_n}{(I+i)^n}$$

So long as the value of capital good (determined by the R's exceeds the Supply Price or Replacement Cost, which we may call  $C_r$ , of capital good it will be profitable to continue investment.

The inducement to invest can equally will be stated in terms of the spread between the MEC which, may be denoted by 'r' and the market rate of the interest denoted by "i". The MEC (i.e.r.) can be calculated as follows :

$R_1+R_2+R_3+\dots+R_n$  being the series of prospective annual returns or prospective yield of the investment and  $C_r$  the Replacement Cost, let r stand for the rate of discount (replacement cost) of the capital good. Thus

$$C_r = \frac{R_1}{(I+i)} + \frac{R_2}{(I+r)^2} + \frac{R_3}{(I+r)^3} + \dots + \frac{R_n}{(I+r)^n}$$

The r is the rate of discount which will equate the present value of the prospective annual returns to the cost of the capital good, in other words, r is the marginal efficiency of capital or the rate of return over the cost which one can expect to earn on a capital asset costing.  $C_r$  and yielding a series if returns represented by  $R_1, R_2, R_3, \dots$  and  $R_n$ . As  $C_r$  rises while the prospective yield i.e. the series of R's falls, the rate of discount (that is r) required to equate the present value of the series of returns to replacement cost will decline.

The large the volume of investment within a given period of time, the lower will be the prospective annual returns i.e. R's and the higher will be the replacement cost. Accordingly, the larger the volume of investment, the lower will

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1. See Hansen : *A Guide to Keynes*, pp. 117-120.

be the rate of return over cost namely  $r$ .

The schedule relating  $i$  and  $r$  is investment demand schedule. Investment will be pushed to point on the investment demand schedule where the MEC in general is equal to the market rate of interest. Thus intersection of the curve (the MEC schedule, and the  $i$  curve (the interest rate schedule) will determine the volume of investment within a given period of time.

Keynes thus stressed the role of expectations with respect to the investment demand schedule. He says that it is mainly through the investment demand schedule that "the expectations of the future influence the present".<sup>1</sup>

### 1.5.6 Liquidity Preference

Liquidity preference analysis is based on the assumption that we cannot assume a definite and calculated future. We desire to hold because we believe that such hoards are insurance against future risk and uncertainties.

People can be induced to give up a little of their cash if the reward is great enough. The rate of interest, says Keynes, is the premium which has to be offered to induce people to hold their wealth in some form other than "hoarded money".

Keynes suggests three motives for hoarding money : (1) the transaction motive, (2) the precautionary motive, and (3) the speculative motive. The first represents money in active circulation and the last two represents money held as inactive balances. But while we can group the precautionary and speculative cash holdings together since both involve inactive balances they cannot be classified together, if we consider the factors determining the holdings.

The transaction motive refers to the need for cash for the current transaction of personal and business exchanges. The precautionary motive refers to the desire to have some cash for future unforeseen. The amount of cash which people desire to have some cash for future unforeseen. The amount of cash which people desire to hold in either of these two forms is to a limited degree affected by the cost of money i.e. the interest rate.

The speculative motive, however, relates to the desire to hold one's resources in liquid form in order to take advantage of market movement. It is the speculative motive which primarily involves, the propensity to hoard. The object in view is to secure profit from knowing better than "the market" what the future may bring fourth. Different individuals will estimate the prospects differently. Any one whose opinion differs from the "predominant opinion as we expressed in market quotations may have a good reason for keeping liquid resources in order to profit if he is right."<sup>2</sup> Thus investment counsellors; often advise their clients to hold say 50% of their resources in cash in order to

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1. See Hansen : A.H. : A Guide to Keynes p.126-131.

2. Keynes' General Theory, p. 169.

take advantage later of a possible change in market movements. The object may be to avoid "a risk of a loss incurred in purchasing a long-term debit and subsequently turning it into cash, as compared with holding cash."<sup>3</sup> Thus the speculative motive for holding cash is to keep one's resources in liquid form so as to take advantage of a turn in the market and to avoid a possible loss from holding securities in a falling market.

Now the amount in cash which people will want to hold for each of these three purposes will vary more or less with the "Cost" of holding cash, namely, the rate of interest which one foregoes by holding resources in cash rather in earning assets. Economy will be practiced in the use of cash for personal or business transactions or for precautionary purposes if the cost is extremely high. But if the rate of interest is moderate, one will be prepared to sacrifice the interest in place of keeping liquid money. At high rates of interest, even the transactions and precautionary demand of money will be to a degree, become interest-elastic. At moderate or low rate of interest, the demand is likely, however, to be completely interest inelastic with respect to the precautionary motive. Moreover, the need for cash is greatly reduced by the existence of organized security market where one readily dispose of bonds for needed cash. Thus the amount of cash which people will wish to hold to meet both transaction and precautionary requirements, let us call this  $L_1$  is not likely to be affected very much by the rate of interest unless this is very high. The first liquidity preference function (the transactions demand function) Keynes wrote as  $M_1=f(y)$ , the second liquidity preference function as  $M_2= f(r)$ , and the total liquidity preference as  $M= l(y)$ <sup>2</sup>.

Now while the amount of cash which people desire to hold for transaction (and precautionary) purposes is mainly a function of the volume of personal and business transactions i.e. the trade volume, the amount of the money desired for speculative (Let us call this  $L$ )<sup>3</sup> is amount primarily a function of the rate of interest. The higher the rate of interest the higher amount which one must forego to hold for speculative purposes. The " $L$ " function "is a continuous curve relating to changes in the ratio of interest."<sup>4</sup> The " $L$ " function is to a high degree, interest elastic.

Uncertainty about future changes in the rate of interest is the "sole intelligible explanation of speculative motive for liquidity which leads to holding inactive balances. The " $L$ " function depends primarily upon the relation between the current rate of interest and the "State of expectations". " $L$ " schedule is declining function of the rate of interest. Individuals who find that the current rate is above the safe (future) rate (i.e. who believe the

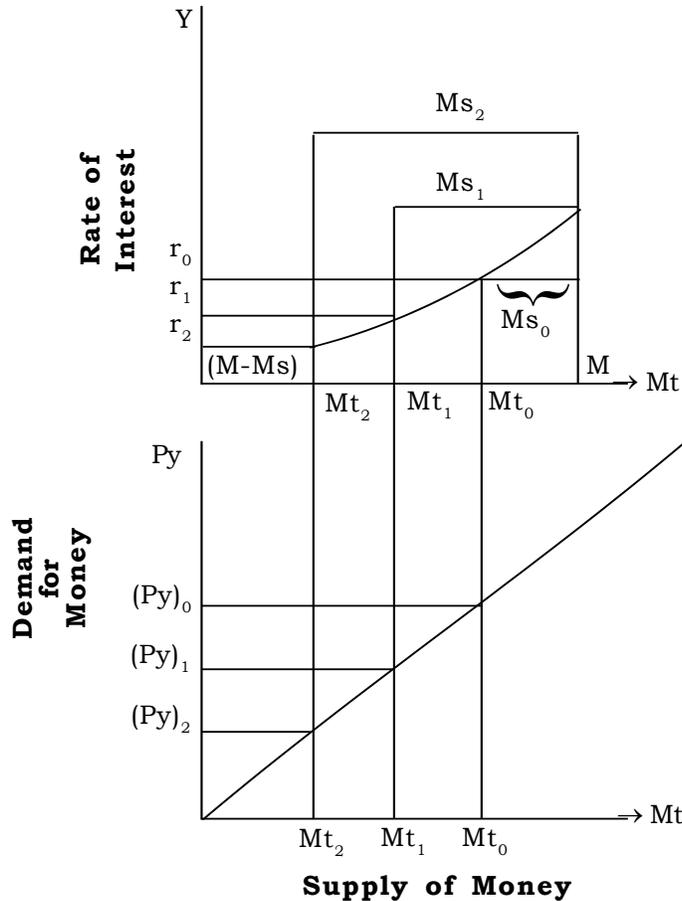
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2. 'L' refers transactions and precautionary demand function and " $L$ " refers to speculative demand function.

3. Keynes : General Theory, p. 197.

bond market is too low) will not wish to hold much cash but instead will wish to hold their resources in securities.

These individuals, however, who think that the rate is too low (i.e. below what they regard as the sole or probable future rate) would like to hold cash or will atleast wish to hold some amount of their resources in cash. The market strikes a balance between these opposing opinions.



**Money Supply and Money demand and Rate of Interest**

**Fig. 4,**

Thus the future rate of interest influences the actual rate of interest.

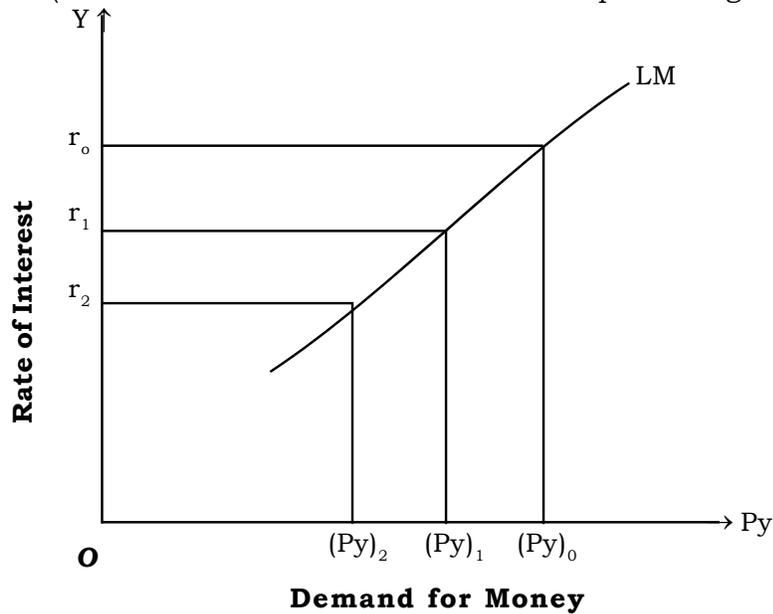
The macro economic relationship is the relationship between the rate of interest and other factors involved and supply and the demand for money. We have the equation.

$$M = IPy + L(r)$$

Where M is the total supply of money. IPy the transaction demands and L(r) the speculative demand.

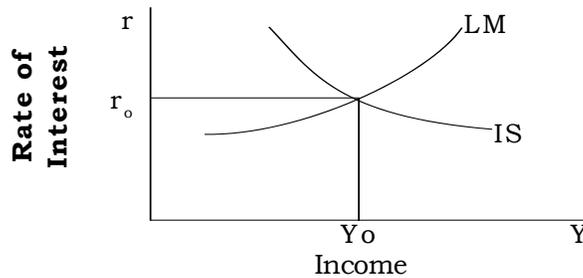
If prices and money income are given, the above equation tells us that there are certain combinations of  $y$  and  $r$  that equate the supply and the demand for money. Figure 4 is divided into two parts. The upper one indicates the rate of interest - say  $r_0$  and attempts to find the corresponding speculative demand for money  $Mt_0$  (given the prevailing interest rate and expectations of wealth holders). Subtracting  $Ms_0$  from the total supply of money  $M$ , leaves an amount  $Mt_0$  to satisfy the transaction demand. The lower portion of the diagram shows the level of  $Py$ -and since  $P$  is given therefore, what level of  $y$ -is necessary to yield. Just this transaction demand (in the case  $Py_0$ ). Conversely, we can in the lower diagram assume some level of  $y$ -say  $Py_1$  which given  $P$ , produce a transaction demand  $Mt_1$ . This demand, transferred to the upper diagram shows how high the interest rate must be in case  $r^1$  to reduce speculative holding to a level which makes total demand just equal to the supply demand.

The information from these two parts can be combined into a single diagram. Figure below shows directly the possible combination of  $r$  and  $Py$  given some particular supply of money. We call this LM following Hansen's Usage. This line connects each interest rate (read from the vertical axis of the top half of the previous figure) with the corresponding level of money income (read for the vertical axis of the lower half of previous figure).



**Fig 5**

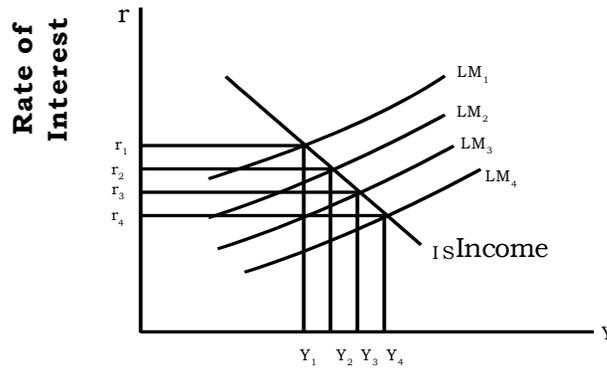
The supply and demand for money thus gives us a relationship between  $Py$  and  $r$ , which on the assumption of a given  $P$ , is also a relationship between  $Py$  and  $r_0$  combination. LM is a curve, which shows the various combination of  $Y$  and  $r$  that are consistent with an equality between  $S$  and  $I$  (Given the  $S$  and  $I$  function). The LM curve shows the same given quantity of money and price level, the various possible combinations of  $y$  and  $r$ , that make public just willing to hold the stock of money that exists. Clearly at  $r_0y_0$  both equilibrium



**Fig. 6 Rate of Interest with IS-LM Curve**

conditions are satisfied that savings equals investment and the supply equals the demand for money. Any point on line IS satisfies the first of these, any point on line LM, the second, but only their intersection satisfies both conditions.

An increase or decrease in the quantity of money would give rise to changes both in  $y$  and  $r$  as shown in Figure below :



**Fig. 7, IS-LM Curve of rate of Interest**

As the supply of money successively increases, the LM curve shifts from  $LM_1$  to  $LM_2$  to  $LM_3$  to  $LM_4$ . Further equal increases in  $M$  provide successively smaller reductions in  $r$  and increases in  $y$ . Similarly, we can consider the effect of upward downward shifts in the saving or investment function.

**1.5.7 Technical Terms:**

1. Aggregate Demand: Demand for the output of any given amount of employment is the total amount of money which is expected from the sale of the output produced when that level of labour is employed.
2. Multiplier-effect: increase in final income arising from any new injection of spending.
3. Marginal Efficiency of capital: net rate of return that is expected from the purchase of additional capital.
4. Liquidity preference: the preference of investors for holding liquid assets rather than securities or long-term interest-bearing investments.

**Self-Check Exercise-I**

Q. State the motives suggested by Keynes for hoarding money

Ans. ....  
 ....

**CONSUMPTION FUNCTION**

- 1.6.1 Introduction
- 1.6.2 Keynesian Consumption function
- 1.6.3 Pigou Effect
- 1.6.4 Consumption function-post Keynesian
- 1.6.5 Importance of Consumption function
- 1.6.6 Technical Terms

**1.6.1 Introduction**

The basic proposition of Keynesian model of income, output and employment is that the equilibrium level of income, output and employment depends upon the level of aggregate demand in the economy. Unemployment results when aggregate demand is not sufficient and through the manipulations in aggregate demand, we can reach the level of full employment. The basic question which arises at this moment is, what determines the aggregate demand or the aggregate amount of goods and services purchased by consumers in any time period? The classicals always argued that the level of consumption depends upon the rate of interest meaning thereby that rate of interest and savings are related to each other. In other words, for them (classicals), saving depends upon the deliberate decisions of the income earners and consumption was only a derived variable. Besides giving importance to rate of interest, they also considered the role of price expectations and current price level.

**1.6.2 Consumption Function—Keynesian**

Keynes in his 'General Theory' refused this argument and held the view that consumption was primarily related to the level of the income, and very distinctly related to other factors including rate of interest. Keynes explained these phenomena in the fundamental law called Psychological Law of Consumption. To quote Keynes himself "The fundamental Psychological law, upon which we are entitled to depend with great confidence, both from our a prior knowledge of human nature and from the detailed facts of experience, is that men are disposed, as a rule, and on the average to increase their consumption as their income increases, statement we may begin by posting that consumption expenditures vary directly with disposable income and that consumers spend a part but not all of the increases in their income. Thus, if only a part of income is consumed, naturally a part is saved also. This law is a statement of a tendency about which there can be little doubt. To break up the law in small and important propositions, we can incur that these propositions are implied :

1. When the aggregate income increases, aggregate consumption expenditure also increases, but by a somewhat smaller amount.

2. The increase in income will be divided into consumption and savings (assuming consumption and savings to be the only recognised channels of income).

3. An increase in income, as a rule and on the average, leads to increase in consumption and savings.

The three propositions given above are related to each other and flow from the first proposition automatically. Logically, the law tells a fundamental truth; income has to be spent and increased income shall increase the spending also. What the law stresses and what has assumed greater importance is the tendency of people to fill to spend on consumption items the full amount of an increase in income. The following table illustrates the working of all the three propositions simultaneously.

**Table I**

(In crores of rupees)

Period	Income (Y)	Increase in Income( $\Delta Y$ )	Consumption (C)	Increase in Consumption( $\Delta C$ )
(1)	(2)	(3)	(4)	(5)
1	200	-	140	-
2	240	40	160	20
3	280	40	180	20
4	320	40	200	20
5	360	40	210	10
6	400	40	220	10
7	440	40	225	5
8	480	40	230	5

Looking at columns 3 and 5, it becomes clear that consumption is not keeping pace with income. Every increase in income is not followed by a proportionate increase in consumption rather consumption trails behind income.

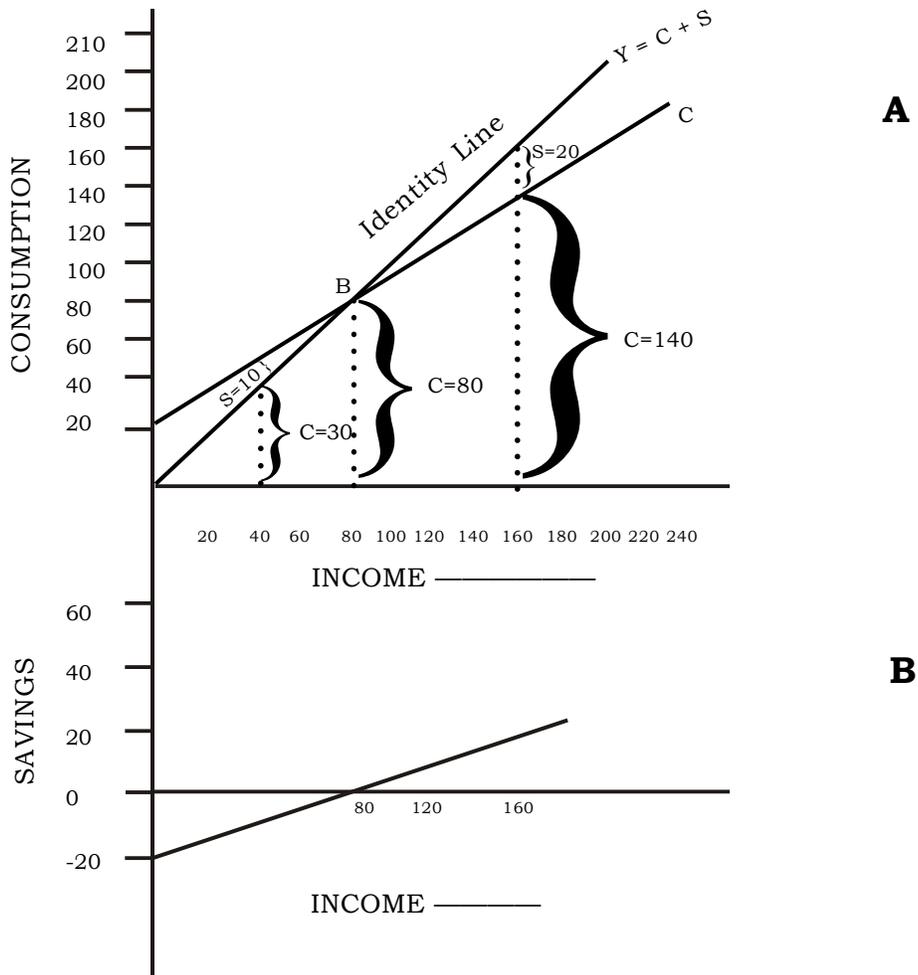
#### **1.6.2.1 Theoretical Consumption Function :**

The relationship between consumption and income that emerges from the above propositions and table given is referred to as theoretical consumption function. As a tool of theory, consumption function is somewhat similar to an ordinary market-demand curve. Just as the theoretical demand curve usually implies that the quantity of a commodity that will be purchased varies inversely with its price, all other things being unchanged, so the theoretical consumption function implies that aggregate consumption varies directly but not proportionally with consumer income, all other things being unchanged. This

theoretical consumption function is not derived from any actual statistical data, but it is only an attempt to describe in general terms a typical functional relationship between two variables.

Consumption function is also expressed as propensity to consume. The distinction between the two is not very important. Propensity to consume is the name given to the behaviour or tendency of the consumers to allocate amounts on consumption out of their incomes. This is done and studied through the schedules as the one given above. The same schedule, when expressed in terms of a functional relationship or in the form of a function (a geometric curve line) is called consumption function.

The line labeled C in part A of figure I given next shows one of the many



**Fig. 1, Income, Consumption and Savings**

possible theoretical consumption functions. The other line marked the identity line: is a 45° guideline; and point on this line is equidistant from the X and Y axes.

Since any portion of disposable income that is not consumed, must be saved, then, given the consumption function, the guideline and the hypothetical amount laid off on the axes, we can know how people allocate between consumption and saving. Taking these points in part B of the figure, we can draw a saving function S also.

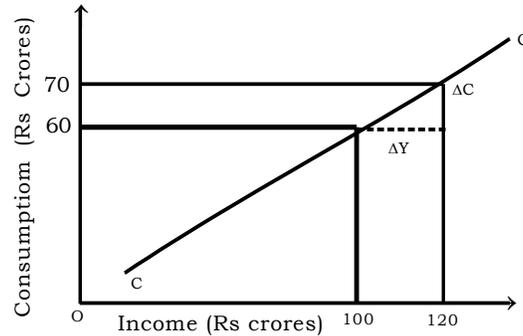
The specific consumption function drawn in figure I is based on the assumption that there is some level of income at which planned consumption is equal to income (B). This is referred to as break even level of income. The consumption function cuts the guideline (identity line) at this point B and the saving function cuts the X axis representing income at the point (B) suggesting that there is no saving at this level. Above the break even level the consumption function lies below the identity line and the vertical distance between the two equals the amount of saving. At any level of income below 80, people spend more than their income. In this situation, the consumption function lies above the identity line and the saving function below the X axis suggesting that people finance extra-consumption by past savings.

### **1.6.2.2 Average and Marginal Propensities to Consume :**

Average propensity to consume and marginal propensity to consume are important analytically. These two features of propensity to consume and their magnitudes guide us in formulating various policy measures. The approximations done on the basis of knowledge of these two concepts tell us different things. The average propensity to consume tells us what proportion of the total income is spent for consumer goods so that the rest is to be directed towards capital goods. The marginal propensity to consume tells us how an increase in income will be divided between consumption and saving. Moreover, average propensity to consume refers to a particular point (level of income) but marginal propensity to consume pertains to a stipulated or experienced change in income and consumption over time (level of income).

Average propensity to consume (APC) is the ratio of absolute consumption to absolute income and is expressed as  $C/Y$ . It shows the proportion of consumption to income at a particular level of income. For example, in the figure given below, when the income is 100 crores and consumption expenditure is 60 crores, APC is  $60/100$  or 6 or 60%.

The marginal propensity to consume (MPC) represents the ratio of a small change in consumption as a result of a small change in income or  $MPC = \Delta C / \Delta Y$ . (The symbol  $\Delta$ (delta) stands for small or marginal change in income and consumption). Keynes believed that change in consumption  $\Delta C$ , is always less than the change in income,  $\Delta Y$ , so that  $\Delta C / \Delta Y$  is always less



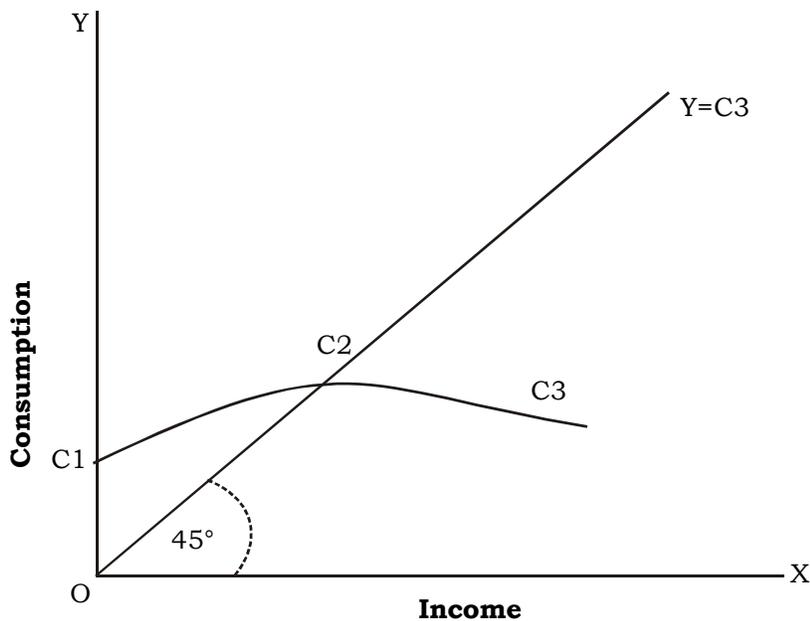
**Fig.2**

than one. (Refer to the first proposition of psychological law of consumption).

In the diagram given above, when income changes from level 100 to level 200 the consumption changes from level 60 to level 70, so that  $\Delta C=10$  and  $\Delta Y=20$ . Hence MPC is  $\Delta C/\Delta Y$  i.e.  $10/20=0.5$ .

**Is C-Function always Linear?**

The C function in figure 1 is linear in shape. If the C function is linear (a st. line), it merely reflects that the MPC would be the same at all points (.75). On the basis of theoretical grounds enunciated by Keynes, we find that



**Fig.3, Income and Consumption**

as the income increases, consumption should go on increasing at a decreasing rate, so that MPC goes on falling at higher and higher levels of income. If this assumption of falling MPC is accepted, the shape of the C-function should be curvical rather than a st. line, as shown in the figure given earlier.

In this figure, as the consumer moves from point  $C_2$  his MPC starts falling so that ultimately at point  $C_2$  it should become zero. After point  $C_3$ , the C function will become a flat st. line parallel to the X-axis.

The debate on the possible shape of C function does not refute the theory. The basic presumption that change in consumption is less than the change in income is held valid in both the situations. It is more a matter of experience and empirical verification of MPC that what shape the C function actually attains. MPC calculated for U.S.A. from time to time has been almost constant (0.6 to 0.8).

### **1.6.3.3 Factors Influencing Consumption Function :**

The psychological law of consumption works properly only on certain assumptions. The ideal situation for its working is normally not found in practice, and to make it theoretically functional, we have to assume certain things. Since it is psychological law and is concerned with behaviour of the individuals; the constancy of the psychological make-up of the consumer is very important and necessary condition for its smooth working. The psychological bent of mind sometimes compels the consumer to take decisions which are not in accordance with the law. Some such psychological factors are price expectations; price level, population growth, distribution of income, fashion, tastes and habits etc.

Even the short run circumstances should remain normal. Sometimes due to abnormal and special circumstances like war, unexpected and sudden rise in prices and hyper-inflation the consumption expenditure is increased abnormally.

This law works properly in the conditions of consumer sovereignty. At times, due to shortages, the government puts some restrictions on the consumption expenditure. Even the allocation of income between consumption and saving is directed by the government in some situations.

These assumptions themselves put restrictions on the working of the psychological law. To make the consumption function relevant and operational we have to drop these assumptions and consider their effect on the working of the psychological law. The same factors, if studied in reality, become the factors which influence the consumption function.

The factors can be divided into two parts; the subjective or psychological factors and the objective factors. The empirical available,

certainly suggests that disposable income is the most important factor affecting consumption; but still there are some other short as well as long period factors which cannot be ignored.

**Subjective Factors :**

Basically the distribution of income between consumption and saving is a psychological phenomenon. There are certain motives attached to saving as well as consumption. People consume to get utility but they save future consumption, since future consumption entails certain sacrifices, it has to be backed by some psychological motives like precaution for the future, welfare of the family & old age security etc. Keynes himself recognised people's preference for future consumption or savings. One would like to have a sizable bank balance to be able to walk with head high in the society to leave a fortune for his family and to meet some unexpected and unforeseen contingencies. Keynes also held this view that motive for saving are not the only motive which affect consumption also. People always go on comparing the attractions of present and future consumption and this comparison depends largely on "those psychological characteristics of human nature, and those social practices and institutions which, though not unalterable, are unlikely to undergo a material change over a short period of time except in abnormal or revolutionary circumstances". (Keynes) : General Theory p.91

**Objective Factors :**

Besides disposable income of consumer, which is the most important factor affecting the shape and position of C function, there are certain objective factors, also, which play their role. Some of these factors are related to the income level itself. Distribution of income among various sections of society affects the level of C function. The rich are more interested in savings whereas poor people have no option but to consume. In a society where income is distributed in favour of the rich, the overall propensity shall be low.

Besides, the expectations of the people regarding the future events also effect propensity to consume. People may rush to consume the things; if a shortage is expected in the future. Unexpected gains and losses also affect consumption. It is believed that rich people increase their consumption well above the normal level as a result of windful gains. Capital gains also give a boost to consumption.

The consumption is also affected by the government measures. It is the overall policy of the government regarding consumption and saving which gives a direction to the consumers. These measures may not be adopted directly but indirectly. The government's fiscal policy regarding taxation, public debt and allied measures affect the level of consumption and saving.

Besides these factors, there are certain other factors which have been assigned a great importance in determining the level of consumption. Rather,

some of the factors have been suggested as an alternative to income factors. Theories have been built to substantiate these factors like the permanent income stock of money and wealth and stocks of human wealth. Economists like Milton Friedman, Duesenberry, Ando and Modigliani etc. have given different theories regarding consumption, which will be discussed in the next part of this lesson.

### **Self-Check Exercise-I**

Q.1 Define psychological law of consumption.

Ans. ....  
 .....

Q. What are the factors influencing keynesian consumption function?

Ans. ....  
 .....

#### **1.6.3 Pigou Effect:**

Before discussing those theories it is very essential to know the factor of wage-cuts and Pigou effect.

Classical economists laid stress on the stimulating effect of wage cuts on the propensity to consume. According to them wage cuts brings a fall in the price level due to which propensity to consume shall be boosted. But this principle may be held valid in the case of an individual and in the case of a single commodity, Reduction in price of commodity may lead to more demand for this commodity, but it is not theoretically sound to say that this will affect the overall demand & consumption in the economy. Actually the effects of wage cuts are found to be unfavourable to the overall propensity to consume. Wage cuts result into an unequal distribution of income, which may lower the propensity to consume.

Prof. A.C. Pigou related consumption to real income and real stock of money. Monetary changes in wages according to him are of no relevance. People are concerned more about maintaining a real balance of resources rather than a money balance. Pigou argued that wage-cuts, no doubt, will raise propensity to consume works through the real balance of resources. According to him, a wage-cut will result into low price level which means people will feel their liquid asset to be up valued. Since they want to maintain a real balance they shall find a surplus in their real balances, which they would like to spend. This effect is called Pigou effect. It seems possible, but this effect as such cannot be accepted since the very role of liquid assets in determining consumption is subject to criticism.

#### **1.6.4 Consumption Function-Post Keynesian**

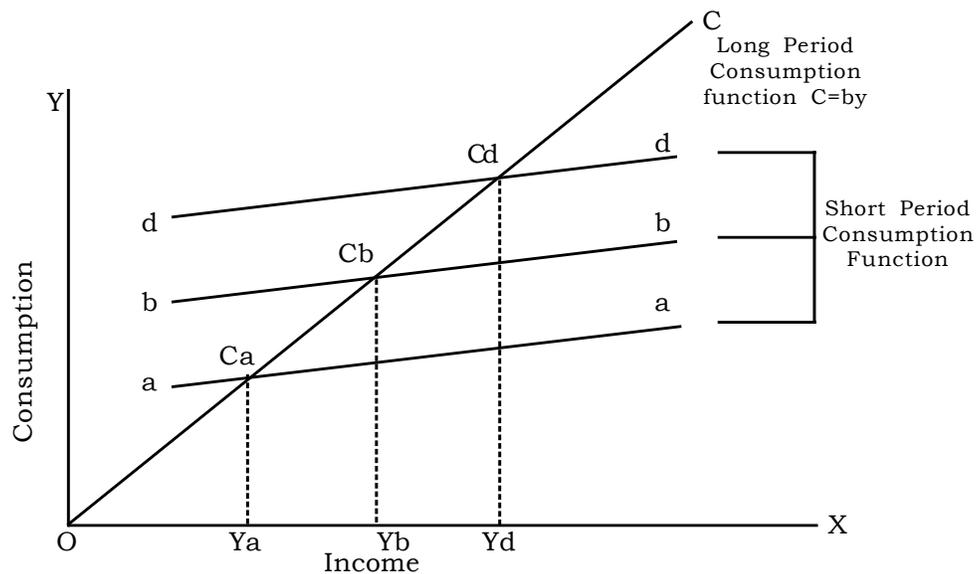
Consumption income relationship enunciated by Keynes has also not

been held the way for all times, because it did not solve some of the problem in consumption income relationship. Empirical research has been unable to verify all the statements given by Keynes. Some of the debates like C-function being short run or long run proportional or non-proportional relationship between consumption and income are still alive. Efforts have been made by various economists to solve all these controversies. These refined hypothesis can be grouped into three categories, which are explained below. These theories are the absolute income, relative income and permanent income theories. Besides, some of the latest hypothesis are the life cycle hypothesis, normal income hypothesis, rate of growth hypothesis and the cyclical and secular functions.

All these hypothesis have the basic characteristics of a theory. All have been tested empirically with the help of time series and cross sectional data. Each one of the hypothesis postulates a relationship between consumption and income, but the concepts used by these economists are different, especially the concept of income :

### 1. The Absolute Income Hypothesis :

The absolute income hypothesis is developed basically on the Keynesian Principle of consumption. Keynes had suggested that people decide about their consumption level on the basis of their absolute level of income. This hypothesis of Keynes although not discarded has stimulated much empirical research. The basic tenet of the absolute income hypothesis which was studied in detail was the relationship between consumption level and the absolute income level. As far as the relationship between consumption and income is



**Fig.4, Income and Consumption at different time periods**

concerned there is little doubt about it. But the nature of this relationship has caused big controversies. People challenged two basic features of the Keynesian absolute income hypothesis. Firstly, they did not believe that this function is a short run function. Secondly, the non-proportionality of changes in consumption as a result of changes in income was challenged.

According to absolute income theory, APC ( $C/Y$ ) goes on declining as income increases. As such, the relationship between consumption and income has to be non-proportional functions shown by aa. This C-function reveals a diminishing values of APC ( $C/Y$ ). Changes in factors other than income may take the C-function from aa to bb and dd. The absolute income theorists argue that these factors cause the short-run and non-proportional C-function to shift upward in a manner that creates an illusion of proportionality. Brown has explained that the relationship between income and consumption is non-proportional and rests upon habit persistence among consumers. According to him the full reaction to change in income is revalued only gradually and not immediately. He felt that the past practices of consumption (habits) are persistence in nature and take time to change. These factors shift the consumption function from aa to bb and dd.

The non-proportional C-function was negated by Simon Kuznet's study of national income and consumption expenditure for the American economy during the period 1869-1929 which showed that the ratio of consumption to national income ( $C/Y$ ) had remained constant over the period. Even Goldsmith's study of income and savings had received a constancy of  $C/Y$  (APC).

But all these studies have revealed one more thing that while the consumption income relation has been constant over a long period, it shows a decreasing tendency in the short period. In short, the empirical findings have shown a proportional relationship between consumption and income in the long-run and non-proportional relation in the short-run. In the above figure aa, bb and dd are the short run linear and non-proportional consumption functions showing that  $C/Y$  decreases as income increases. The long run proportional consumption function OC shows that  $C/Y$  remains constant over long period.

#### **1.6.4.2. Relative Income Hypothesis :**

The real problem in reaching any conclusion regarding proportionality or otherwise of C-function lies in the fact that income and consumption do not occur at the same time. People take some time to consume or save their incomes. Time-lags are involved in the process of earning and spending. That was the primary reason why short run C-function was found to be non

proportional and long-run C-function as proportional.

An answer to this inconsistency was provided by relative income hypothesis, which was mainly, expounded by James S. Duesenberry. According to his hypothesis level of consumption and saving depends not on their absolute position in the income scale. Spending and saving is related with a family income vis-a-vis the income of similar families.

Duesenberry also explained that current consumption of the family is not primarily sensitive to current income but it also depends upon a family's income over a period of time. The basic proposition that APC is declining holds good here also, but APC is linked not only with current level of income, but relative income also. More specifically, this theory argues that level of consumption is determined by the household's level of income (current) relative to the highest level of income previously attained also. Symbolically,

$$C = aY + b \left( \frac{Y_h}{Y} \right) Y$$

Where C=current level of consumption

Y=current level of income.

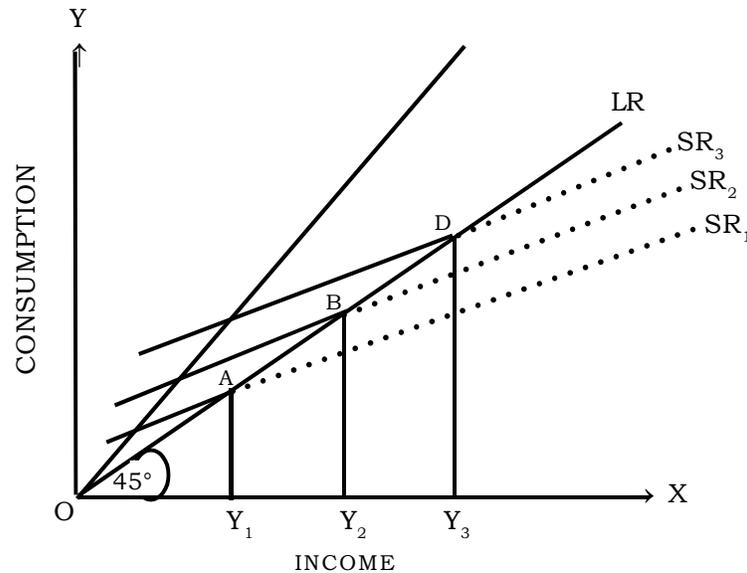
Y<sub>h</sub>=highest level of income attained in the past.

a and b = numerical constants.

From the above equation, we find that when a household experiences a temporary increase in current income above its previous peak level. It increases its consumption by the amount which is less than proportional to the increase in current income. Consequently, when current income rises relative to peak income, the APC declines and the increase in consumption is not proportional to the increase in total income. Thus, changes in current consumption are not proportional to changes in current income only when current income changes relative to previous peak income. Changes in consumption can be proportional to changes in income, only when current and previous peak income changes simultaneously.

Following the relative income theory, we reach the conclusion that income consumption relationship in the short-run is non-proportional, as in the case of absolute income theory whereas in the long-run it shows the signs of proportionality. Duesenberry has tried to explain the reason for non-proportionality of relationship in the short run in terms of business cycle fluctuations. The cyclical ups and downs in the level of income produce the non-proportional consumption income relationship found in the short-run.

To illustrate Dusenberry's theory in terms of figure below, let us

**Fig. 5**

suppose that a recession starts when the economy is at income  $Y^1$  which is the highest peak of income experienced so far. Due to recession the income starts decreasing, but the consumer as a whole can not reconcile with this fact. They try to maintain their consumption level as before. But since their incomes are falling, they cannot do so. The compromising situation is that they reduce the consumption by the minimum amount, so that they reduce it keeping in view the previous level of income. Thus consumption falls about not proportionally with the fall in income. The economy moves along  $SR_1$ . Then as recovery starts and income level starts reaching the previous peak, consumption also rises, but this time, the increase in consumption is less than proportional because people were already spending more on consumption than their income.

As the level of income rises further, consumption does not follow  $Sr_1$  to the right rather it shifts to LR line. Since income is now rising to levels not achieved previously, consumers no longer feel the increased urge to save that they felt during the period of recovery. As income grows to ever higher peaks, consumption increases proportionally (along LR). During this movement people might achieve a higher peak level income at  $Y_2$ . Now if recession starts at this level, people will move down  $SR_2$  and in case of recovery up along  $SR_2$ , till they again reach level B, from where they will start moving again along LR. The same will happen at  $Y_2$  peak level.

This theory of relative income establishes an important link between the theory of consumption and business cycles. This is the reason why cross

sectional results are different than the time-series results. It also suggests indirectly that not only consumption is a function of income, but income, is also a function of consumption, as a people want to maintain their level of income to consume as before.

Still this theory has certain limitations. As the absolute income theory, this theory has not explained the occurrence of increase in consumption and income are proportional in the long-run, no matter how much is the increase in income. It seems unreasonable advance in the theory of consumption behaviour have been able to settle the difficulties.

#### **1.6.4.3. The Permanent Income Hypothesis**

This theory also maintains the fundamental relationship between permanent consumption and permanent income. This theory is based on the famous study entitled. "A Theory of the Consumption Function", done by Milton Friedman. Friedman distinguishes between the measured, observed and permanent concept of income and consumption. Friedman has argued the basic reason of finding a non-proportional relationship between consumption and income, the use of 'measured' concepts of consumption and income. According to him people consume on the basis of their permanent income and not current or relative income as "the amount a consumer unit could consume while maintaining its wealth intact." In the same way, permanent consumption has been defined as "the value of the services that it is planned to consume during the period in question".

The permanent income hypothesis states that the ratio of permanent consumption to permanent income is constant regardless of the level of permanent income. According to Friedman, the explanation to short-run-non-proportionally despite long-run proportionality lies in the fact that short-run measured income and measured consumption are composed of the permanent and transitory components. The permanent income hypothesis can be explained by the following equation :

$$Y_m = Y_p + Y_t$$

$$C_m = C_p + C_t$$

When  $m, p$  and  $t$  represent measured, permanent and transitory components. Further, the Consumption function according to this hypothesis is expected as

$$C_p = K (i, w, u) Y_p$$

When  $K$  is the constant showing proportionality which depends upon interest ( $i$ ), the ratio of one-human wealth to total wealth ( $w$ ) and taste, number and ages of family members etc ( $u$ ). This equation shows that the long-run APC expressed as a ratio of permanent consumption ( $C_p$ ) and permanent income ( $Y_p$ ); i.e.

$C_p/Y_p = K = \text{Constant}$ .

To prove his thesis, Friedman did a lot of labour and collected data from time-series since 1987. Still, this hypothesis has certain limitations.

There is a lot of literature, critical of Friedman's Hypothesis. Critics have argued that it is not proper to assume that a consumer will plan his consumption for a long period. In reality, consumers change their behaviour very frequently. Another assumption that the permanent and transitory consumptions and incomes are not correlated is also subject to criticism. According to this assumption, house-holds remain unresponsive to any transitory change in their incomes. Critics have challenged the assertion of Friedman. Empirical and psychological behaviour of consumption patterns shows that even a pure transitory and unexpected change in income affects the consumptions. Submitting evidence to this behaviour. Houthakker has stated that "lucky winner (at the race) does not go to the savings bank but to the tavern and the victim of thief does cut his coat according to his cloth."

But despite these points of criticism, the permanent income hypothesis has claimed a place of pride for itself. It has reshaped and redirected much of research on consumption function. These days, it is usual to discuss consumption, without referring to the hypothesis given by M. Friedman.

The theories of C-functions described so far have one common feature that they derive their strength from cross-sectional and short period individual consumption behaviour. To know the consumption income relationship, we can adopt two methods. In the first method, we study the behaviour of family units and then generalise the conclusions. This is also called Micro approach to C-function. In the second method, we use aggregative time series regarding consumption and income and find out the results. This may be called a macro

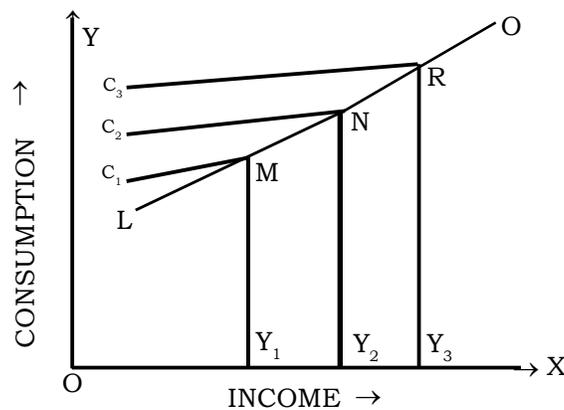


Fig. 6

approach to C-function. Cross sectional analysis normally refers to short-period, whereas time series data can be used for long period. The cyclical consumption function studies the relationship between consumption and income in the short period.

In the short period, we have learnt that the consumers do not spend the entire increase in income and MPC is less than one. The short period C-function is fairly stable i.e. there are no shifts in the C-function. In the long run, the shape, position and the slope of C-function also changes. In the long-run, consumers may adopt a new consumption function due to long run change in population growth, technological and structural changes.

Empirical research has shown that in the short period there are lagged adjustments. There is not enough of time for consumption to adjust itself to changed level of income. As regards the long run to consumption changes more or less proportionally as there is enough time for the consumption to adjust to new level of income. Thus we may sum up by saying that the short-period or cyclical consumption is non-proportional and the long-period or secular consumption function is proportional.

In the diagram, given above the short run and long run consumption functions are shown. At income OY, consumption equals  $Y_1M$ : when income falls consumption moves along consumption function  $MC_1$  when income rises again consumption rises along the straight line  $C_1M$  and then straight line  $C_2$

**1.6.5 Importance of Consumption Function :**

Consumption function is called as an epoch making contribution by Keynes. The Importance of consumption function can be judged from the fact that all macro economic theories, somehow or the other, make use of this concept. Basically it was due to the psychological law of consumption that some important questions were solved. The problem of unemployment, utilised capacity, secular stagnation, over production, trade cycles etc. were solved by this psychological law. The process of income generation also depends upon the levels of consumption function. Since consumption lags behind income, there is always a gap in income and consumption, which has to be bridged either by channelising the savings or making fresh investment.

Here comes the role of state intervention. This has invalidated the thesis that there is automatic adjustment in the economy under laissez faire.

**1.6.6 Technical Terms :**

1. Pigou Function: represents a functional relationship between total consumption and disposable income.
2. Pigou Effect: Stimulation of output and employment caused by increasing consumption due to a use in real balance of wealth.

**Self-Check Exercise-I**

Q. State the relative income hypothesis briefly?

Ans. ....  
 .....  
 .....

**INVESTMENT BEHAVIOUR**

- 1.7.1 Introduction
- 1.7.2 Meaning
- 1.7.3 Types of Investment
- 1.7.4 Marginal Efficiency of Capital (MEC)
- 1.7.5 Prospective Yield
- 1.7.6 MEC and Rate of Interest.
- 1.7.7 Technical Terms

**1.7.1 Introduction**

The level of income, output and employment in an economy depends upon effective demand which, in turn depends upon expenditure on consumption goods and investment goods ( $Y=C+I$ ). Consumption depends upon the propensity to consume which we have learnt, is more or less stable in the short period and is less than unity. Greater reliance, therefore has to be placed on the other constituent (investment) or income. Out of the two components (consumption and investment) of income, consumption being stable, fluctuations in effective demand (income) are to be traced through fluctuations in investment. Investment thus, comes to play strategic role in determining the level of income, output and employment at a time. According to A Murad, "Investment is an essential requirement for full employment and the key property in a capitalist economy." This is so widely and generally recognised by all economics schools and sets that it may be regarded "as a crucial variable of modern macro-economics" Not only net investment but an increasing rate of net investment is necessary to assure continued full employment.

In order to maintain an equilibrium level of income ( $Y=C+I$ ), consumption expenditure and investment expenditure must equal the total income ( $Y$ ) but according to psychological Law of Consumption given by Keynes, as income increases, consumption also increases but less than the increment in income. This means that a part of the increment in income is not spent or is saved. These savings must be invested to bridge the gap between an increase in income and the result would be an unintended increase in the stock of goods (inventories) which in turn would lead to depression and mass unemployment. Hence, investment rules the roost.

**1.7.2 Meaning**

In Keynesian economics real investment means i.e. investment on the building of new machines, new factory buildings, roads, bridges and other forms of product, capital stock of community, including increase in

inventories. It does not include the purchase of old or existing stock, shares and securities which constitute merely an exchange of money from one person to another. Such investment is merely financial investment and does not effect the level of employment in an economy. An investment is termed real investment only when it leads to an increase in the demand for human and physical resources resulting in an increase in their employment. It implies an increment of capital equipment. According to Stonier and Hague, "By investment we do not mean the purchase of existing paper and the like." "Investment means making an addition to the stock of goods in existence", says, Mrs. Joan Robinson. But propensity to invest is a different term. Propensity to invest is the ratio between aggregate investment and aggregate income it may take the form of average propensity to invest (API) or the marginal propensity to invest (MPI). Average propensity to invest is shown

by  $\frac{I}{Y}$  is the ratio of investment to income.

The marginal propensity to investment denotes the proportionate change in investment as a result of change in income. It is shown by  $\frac{\Delta I}{\Delta Y}$ . Suppose, the total income of a country is 40 crores and total investment is Rs. 10 crores then the API is  $\frac{10}{40} = \frac{1}{4} = 0.25$ . Again if income changes ( $\Delta Y$ ) by Rs. 20 crores and as a

result investment changes by Rs. 10 crores then  $MPI = \frac{10}{20} = \frac{1}{2} = 0.5$ .

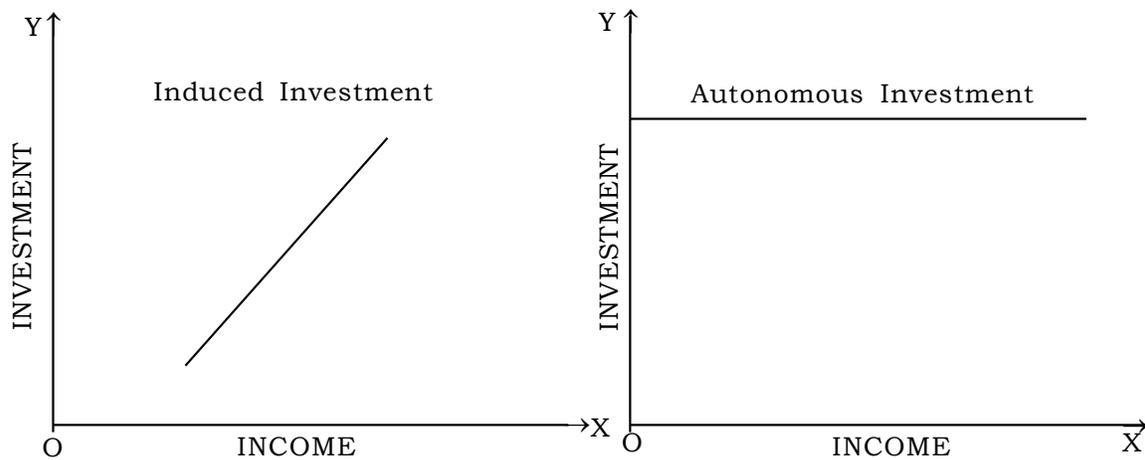
### 1.7.3 Types of Investment :

Investment may be private investment or public investment. Induced investment is that investment which changes with a change in income that is why it is income elastic. In a free enterprise capitalist economy, investments are induced by profit motive. Such investment is very responsive to change in income i.e., induced investment increases as income increases.

According to Hicks, investment is of two types, induced as described above and autonomous which is independent of variations in output. Explaining autonomous investment, Hicks remarks, "Public investment as the investment which occurs indirect response to inventions and much of the long range investment (as Mr. Harrod calls it) which is only expected to pay for itself over a long period, all of these can be regarded as autonomous investments". Autonomous investment is not sensitive to change income. In other words, it is independent of income changes and is not guided or induced by profit motive. Autonomous investments are made primarily by

the Government and are not based on considerations of profit. Autonomous investments are a peculiar feature of a war or a planned economy, for example, expenditure on arms and equipment to strengthen the defence of India may be called autonomous investment as it is incurred irrespective of the level of income or profits.

According to W.C. Peterson, "The autonomous investment is generally associated with such factors as the introduction of new techniques or product, the development of new resources or the growth of population or labour force." The curve of autonomous investment is represented by a straight line running from left to right and to horizontal (income) axis. The distinction between induced and autonomous investment is shown in the diagram below :



Private investment (induced investment) depends on the marginal efficiency of capital and the rate of interest. The marginal efficiency of capital in turn, depends upon future expectations which fluctuate violently. Hence, private investment becomes highly capricious and is very low, when in fact, it should be very high. Prospective entrepreneurs keep on comparing the marginal efficiency of capital with the rate of interest and decide to invest only when the former is higher than the latter. There will be no investment if the rate of interest is higher than the MEC (in other words, if profit expectations are not very bright); that is the reason why investments fall to low levels during depression period. The inducement to invest is determined in Keynes analysis by the businessman's estimate to the profitability of investment, in relation to the rate of interest of loans for investment. Given the rate of interest, the higher the MEC, the greater will be the volume of investment. On the other hand, given the MEC, the lower the rate of interest, the higher the magnitude of investment. Classical economists regarded investment as dependent on the rate of interest; this to them, was an important lever by which investment in the system was regulated. That is why

they relied too heavily on the rate of interest to control fluctuations. They always held that by manipulating the rate of interest, stability in the economic system could be attained.

Apart from these basic factors which go to determine investment it depends upon a number of other factors. According to Robert Eisner and R.R. Stroz, Econometric studies have indicated that capacity (and its rate of utilisation), demand, cash flow, and expected profits are the most important determinants of investment. Investments are influenced by the degree of present and future competitions, wage rates, taxations, fiscal and monetary policies, aggregate demand, cash flows, innovations, changes in the techniques of production, maintenance and operating costs, existing stock of capital goods, expectations, rate of population growth, territorial expansion, degree of liquidity in the economy, government policies, etc.

#### **Self-Check Exercise-I**

Q. Differentiate between Autonomus investment and induced investment.

Ans. ....  
.....

#### **1.7.4 Marginal Efficiency of Capital (MEC)**

Marginal efficiency of capital refers to the anticipated rate of profitability of a new capital asset. It is the expected rate of return over cost from the employment of an additional unit of capital asset. Marginal efficiency of capital depends upon the expected rate of return of a capital asset over its life time called prospective yields by Keynes, and the supply price of the capital asset. According to Stonier and Hague, "The marginal efficiency of a particular type of capital asset shows what an entrepreneur expects to earn from one more asset of the kind compared with what he was to pay to buy." it must be remembered that businessmen while invest in a new capital asset will always weight the expected rate of return (profitability) over the life time of the capital asset (say a machine, against its supply price (cost) also called the "replacement cost". If the former is greater than the latter, the businessmen will invest, otherwise not. Prof. Kurihara defines MEC as the ratio between the prospective yield of additional capital goods and their supply price. It is, thus a technique of relating the yield to the price of capital.

#### **1.7.5 Prospective Yield**

Prospective yield refers to total net return (net of all costs such as maintenance expenses, depreciation, raw material except interest charges, expected from the asset over its life time. If we divide the total expected life of the new capital asset into a series of periods, say years, we may refer to annual returns as a series of annuities represented by  $Q^1, Q^2, Q^3, \dots, Q^n$ , we have to add the net return for all these years to arrive at the prospective yield. It is however, very difficult to estimate correctly the expected return from a capital asset over its life time (because, it is difficult to estimate correctly the life of the capital asset.) At

best, we can guess, intelligently perhaps, but only guess an estimate of what an investment will earn in five, ten or twenty years hence. It is based largely on guess work, on animal spirits, on adapting estimate to the average estimate, which in turn is based on uninformed guesses. Moreover, the expected return each year is not the same (except in a static society) in this changing world, the returns from the capital asset are likely to vary from year to year. Besides, Keynes considers the supply price, which means the cost of the asset (not of the existing asset but of the new asset) also called the replacement cost. The supply price of a capital asset is the cost of producing a new asset of that kind and not the supply price of an existing asset. Thus MEC is the ratio of these two elements (prospective yield and the supply price). In other words, marginal efficiency of capital refers to the rate of discount at which the prospective yield of an asset is discounted so as to make it just equal to the supply price of the asset. Keynes says, "More precisely, I define the marginal efficiency of capital as being equal to that rate of discount which would make the present value of the series of annuities given by return expected from the capital and during its life just equal to its supply price." In the words of Norman F. Keiser, "MEC is that rate of discount which makes the present value of the returns expected from a capital asset equal to the asset's supply price." An example will make it clear.

Suppose an investor feels that a given investment in new capital asset (say a machine will cost him Rs. 10,000. Suppose the machine, (unit of capital asset) is expected to yield over its life a new return (net of all costs like maintenance, depreciation, raw material except, interest charges) of Rs. 500/ per annum. To find out the MEC of the new capital asset we would simply calculate the ratio (expressed as per cent of the expected annual net return Rs. 500) to the original cost (supply price Rs. 10,000). Here Rs. 500 (prospective yield) divided by Rs. 10,000 (supply price) results in a value of

$$5\% \left( \frac{500}{10000} \times 100 = 5\% \right)$$

The MEC is 5% i.e. the expected annual net return on the investment of Rs. 10,000 is 5%. It may, however, be noted that in a dynamic economy, it is not so easy to find out the rate of expected return. Thus,

Supply Price = Discounted prospective yield

The formula for its calculation is :

$$Cr. = \frac{Q^1}{1+r} + \frac{Q^2}{(1+r)^2} + \frac{Q^3}{(1+r)^3} + \dots + \frac{Q^n}{(1+r)^n}$$

where Cr stands for supply price (replacement cost) of the new capital asset,  $Q^1, Q^2, Q^3, Q^n$  denote expected annual rate of return each year from the capital asset (also called series of the prospective annual yields), stands for the rates of discount which will make the present value of the series of annual

returns just equal to the supply price of the capital asset. This denotes us the rate of discount of the marginal efficiency of capital. To take a concrete illustration, let us suppose that the prospective annual yields from the use of the new capital asset whose life is 3 years only are as follows :

Ist Year	2nd Year	3rd Year
Rs. 1,050	Rs. 3,528	Rs. 9,261

Suppose that current supply price or the replacement cost of the capital asset is Rs. 12,200. Now 5% must be that unique rate of discount which will equate the sum of the discounted values of the prospective annual yields to the current supply price of the capital asset.

$$\begin{aligned}
 \text{Rs. } 12,200 &= \frac{1050}{(1.05)} + \frac{3258}{(1.05)^2} + \frac{9261}{(1.05)^3} \\
 &= 1000 + 3528 + 8000 \\
 &= 12200
 \end{aligned}$$

The unique rate of discount (5%) is called the marginal efficiency of capital (MEC) is expressed as  $M = \frac{Y}{C}$  where M is the MEC, Y the prospective yield per unit time C the Supply Price.

Suppose a capital goods costing Rs. 10,000 gives an expected annual return per year Rs. 1,000 then the MEC (M) =  $\frac{Y}{C} = \frac{1000}{10000} \times 100 = 10\%$

The marginal efficiency of a particular type of capital asset is the highest rate or return over cost expected from an additional or marginal unit of the type of asset. The marginal efficiency of capital in general is "the highest rate of return over cost expected from producing an additional or marginal efficiency of capital assets." In other words, the marginal efficiency of capital in general is "the highest rate of return over cost expected from producing an additional or marginal unit of the most profitable of all types of capital assets". In other words, the marginal efficiency of capital in general is the marginal efficiency of that particular asset, of which the economy finds it most worth while to produce another or additional unit.

**Self-Check Exercise-II**

Q. Define the following terms

- a) MEC
- b) Prospective yield

Ans. ....  
 ....

### 1.6.6 MEC and the Rate of Interest

MEC and the rate of interest are the two important factors which affect the volume of investment and these two must be determined before hand independently of each other. MEC is the result of supply price and the prospective yield of the capital asset. Rate of interest is the price paid for the loanable funds and is determined like any other price, by the demand for and supply of loanable funds. A potential investor will go on weighing the MEC on new investment which are continued to be made, till the MEC and the rate of interest equalised. Once the MEC becomes equated to the rate of interest equilibrium investment is determined. Thereafter, if investment has to be increased, either the rate of interest equalised. Once the MEC becomes equated to the rate of interest equilibrium investment is determined. Thereafter, if investment has to be increased, either the rate of interest should fall or MEC should increase. In this connection D. Dillard remarks: "When it is recalled that employment cannot increase without an increase in investment, the propensity to consume being unchanged, the importance of the relationship of the marginal efficiency to the rate of interest for the problem of unemployment will be appreciated as being of the most fundamental significance.

It is true that both MEC and the rate of interest are important determinants of investment. But Keynes contribution relates chiefly to the former, in as much as a result of his analysis. We now place less emphasis than before on the rate of interest as a means of increasing the volume of investment. The rate of interest is very important in the effective implication of Fiscal Policy (specially debt management) but as a means of affecting private investment it could be of importance (as a determinant of income and employment), if the marginal efficiency schedule were highly elastic. Keynes, in the General Theory attributed fluctuations to the changes in expectations and shifts in the MEC and not to the rate of interest. He says, "We have been accustomed in explaining the 'crisis' to lay stress on the rising tendency of the rate of interest under the increased demand for money both for trade and speculative purposes. At times, this factor may certainly play an aggravating and, occasionally perhaps, an initiating part. But I suggest that a more typical and often the predominate explanation of the crisis is not primarily a rise in the rate of interest, but a sudden collapse in the marginal efficiency of Capital." However, he continued to stress in the General Theory the relation of the MEC and rate of interest as determinants of the amount of investment and hence of employment. The following table depicts clearly the relationship of MEC and the rate of interest in the determination of the inducement to invest.

Supply Price	Annual Return/MEC	Rate of interest	Effect of Investment
Rs. 5,000	Rs. 1,000 4%	4%	Neutral
Rs. 20,000	Rs. 1,000 5%	4%	Favourable
Rs. 25,000	Rs. 1,000 4%	5%	Adverse

In this table, it is assumed that the new capital asset in question gives a constant return of Rs.1,000 annually. The MEC and the rate of interest are given separately in separate columns, having been determined independently of each other. When MEC (4%) is equal to rate of interest (4%) the effect on investment is neutral; when it is more the effect is favourable and when MEC is less than the rate of interest, the effect on induced investments is unfavourable.

The position and shape of the MEC or investment demand schedule plays a deciding role in determining the volume of investment because it shows the extent to which the amount of investment changes as a result of changes in the rate of interest. If the demand (MEC) schedule is relatively elastic, a little fall in the rate of interest will lead to considerable increase in investment. On the other hand, if the investment demand schedule (MEC) is relatively inelastic there will be little increase in investment, though the fall in the rate of interest may be considerable.

### **Short Run Factors affecting MEC and Investment**

There are a large number of long-run and short-run factors influence the marginal efficiency of capital. Amongst the short-run influences, the following are important :

**1. Nature of Demand, Prices and Costs :** If the costs are expected to rise and prices are likely to fall and the demand for a particular product is prone to decline in future, average businessmen's expectations regarding the rate of return from any given investment will also decline, affecting the investment adversely. On the other hand investment will get a fillip, if the entrepreneur expects a fall in cost, rise in prices, increase in demand or a combination of these.

**2. Propensity to Consume :** Favourable short-run shifts in the propensity to consume also cause favourable shifts in investment because the demand for capital goods is (at least partly) derived from the demand for consumer goods.

**3. Change in Liquid Assets :** When an entrepreneur has a large volume of liquid assets and of different types, he is likely to take advantage of the investment opportunity that comes his way, But when the assets are not liquid or there is the fear of temporary liquidity (shortage of working capital) it often goes to inhibit the new investment.

**4. Change in Income :** Sudden changes in income caused by windfall profits or losses, tax concessions or levies also influence the marginal efficiency of capital and hence investment. It will be stimulated by a rise in income and damped by fall in income.

**5. Current State of Expectations :** Rates of return on current

investments influence business expectations. Entrepreneurs often invest on the assumption that the current state of affairs will continue indefinitely. It is not possible to base expectations and hence investment of future course of events which are uncertain. Thus, current expectations play an important part in influencing investment.

**6. Waves of Optimism and Pessimism :** Considerable importance is given to waves of optimism and pessimism in influencing the MEC and hence investment. During period of optimism, rates of profit on future investment are unduly overestimated, while during periods of pessimism, they are badly underestimated.

**7. Taxation :** MEC is affected by the rates of taxation. Heavy doses of direct and indirect taxation is bound to affect MEC favourably, thereby imparting investment and consumption as appears to be the case in India at present.

**8. Existing Stock of Capital :** If the stock of capital in existence is high, then the MEC of additional capital equipment is bound to be low.

**9. Returns :** If the returns from the existing capital are favourable and of high magnitude then MEC is bound to be favourable and high otherwise, it will be low.

### **Long Run Factors Influencing MEC and Investment**

Following are the important factors which influence the marginal efficiency of capital and investment in the long run :

**1. Population :** The rate of growth of population favourably affects investment, because the basic needs of fast growing population require a greater amount of a capital investment in fields like municipal and public utility services, residential buildings and consumer goods industries specially those producing necessities of life.

**2. Development of New Territories :** The growth and development of new territories lead to heavy investment activities of all types. There will be need to provide for additional transport facilities and commercial buildings. The development of new areas and township in India like Nangal (Punjab), Okhla (U.P.), Durgapur (W. Bengal) and Traumbay (Maharashtra) has necessitated huge development expenditure and investment.

**3. Techniques of Production :** Improvements in the techniques of production, stimulate investment. Any invention or change in the technique of production, specially when it is of labour-saving type, lowers the cost of production and calls for huge investment activity. The manufacture of steel, cars, rubber, glass, textiles, electrical goods etc. has resulted in great technological progress and the expansion of market resulting in increased investment.

**4. Supply of Capital Equipment :** The influence of population growth, expansion of territories and markets and the changes in the

techniques of production depend upon the existing supply of capital equipment. If the existing plant and machinery are capable of being used to cope with increased demand as a result of the above mentioned factors to that extent new or induced investment will not result. However, if the existing plant and machinery are fully employed, then the favourable effects on investment will be low.

**5. Abnormal Conditions :** If the circumstances that prevail or are likely to prevail in future, assume, abnormal form, then MEC is bound to be low.

**6. Economic Policy :** MEC and investment in the long run are greatly affected by the economic policy of the government to be followed in the long run period. If the long-run policy of the government is to adopt socialism and carry on nationalisation then, the MEC may not be very high, affecting investment adversely.

### 7.7 Technical Terms:

1. Autonomous Investment level of investment that remain independent of the level of income and profit.
2. Induced Investment level of investment that is influenced by the shifts in the economy.
3. Prospective Yield- amount of annual income an investor expects to obtain from selling the output of the investment after deducting the running expenses for obtaining that output during its life time.

### Self-Check Exercise-I

Q. State the short run and long run factors affecting MEC & Investment.

Ans. ....  
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### Suggested Readings

1. Gardener Ackley : *Macro Economic Theory*
2. J. M. Keynes : *The General Theory of Employment, Interest and Money*
3. M. C. Vaish : *Macro Economic Theory*
4. D. Dillard : *Economics of J. M. Keynes*
5. A. H. Hansen : *A Guide to Keynes*
6. F. S. Brooman : *Macro Economics*
7. U. N. O. : *A System of National Accounts* : Series F. N. 2, Rev. 3, December 1968
8. H. C. Edey, A. T. Peacock and Ronald Cooper : *National Income and Social Accounting*
9. D. Croome and J. N. Robinson : *Understanding the Economy.*
10. Pen. J. : *Modern Economics*
11. Dernburg T. F. and D. M. Mc Dougall : *Macro Economics*
12. Mueller (Ed.) : *Readings in Macro Economics*
13. Gupta, R. D. : *Keynes & Post-Keynesian Economics*
14. Campagna : *Macro Economics Theory and Policy*
15. Shapiro, E. : *Macro Economic Analysis.*
16. Harris, S. E. : *The Economics*
17. Friedman, M. : *The Theory of Consumption Function.*
18. M. C. Vaish : *Macro Economic Theory*

19. C. P. Kindleberger : *International Economics*
20. Bo Sodersten : *International Economics*.

**Questions for Practice (L. No. 1.1 to 1.7)**

**Long-Answer Questions :**

1. Distinguish between "Micro Economics" and "Macro Economics". What is the importance of each? Do they really represent two different approaches to the study of Economics?
2. What is National Income? How does the concept of National Income as adopted by Keynes, differ from earlier concepts ?
3. A system of social accounts is very important to have a clear picture of the performance, working and operation of the economy and to know the how and why of its functioning, discuss?
4. Explain the complex forces which affect the value of money. How does the cash-balance approach of the value of money differ from the cash-transaction approach?
5. Explain the classical theory of employment?
6. "If we add the consumption function and the speculative demand for money to the classical model, we get the Keynesian model." Critically examine the statements.
7. Explain in brief various theories which have been developed after Keynesian Theory of Consumption.
8. Explain the process of income generation with the help of static and dynamic versions of multiplier.
9. Explain Foreign Trade Multiplier. Show the effects of changes in the levels of exports, imports, saving and investment, through export multipliers on levels of income.
10. Define M.E.C. and explain the factors on which it depends. How does it affect investment?

**Short answer type questions**

Write notes on :

1. (i) Economic model  
(ii) Variable  
(iii) Functional relationship
2. What do you understand by Liquidity Preference?
3. What do you mean by Balanced Budget Multiplier?
4. What is an Export Multiplier?
5. Write notes on :  
(i) Autonomous investment  
(ii) Induced investment.

**Type Setting by:**

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