



SHIVAJI UNIVERSITY, KOLHAPUR

CENTRE FOR DISTANCE EDUCATION

Macro Economics Analysis

**Economics : Group-C
Compulsory Paper-IV**

For

M. A. Part-II

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Shivaji University,
Kolhapur. (Maharashtra)
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Prescribed for **M. A. Part-II**

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Preface

It gives us a great pleasure in presenting this book on 'Macro Economics Analysis' as a Self Instructional Material (SIM) for M. A. Part-II Economics students of Centre for Distance Education, Shivaji University, Kolhapur with revised syllabus of Compulsory Paper IV.

This particular book contains 8 units which establishes the functional relationship between the large aggregates. The aggregate analysis has assumed such a great significance in recent times. Macro Economics now is not only a scientific method of analysis, but also a body of empirical economic knowledge. So that this book equips the students of distance mode at postgraduate level to understand the systematic facts and latest theoretical developments for empirical analysis.

This book has covered 8 different chapters i.e. Introduction to macro economics, Demand and supply of money, Theories of consumption, Theories of investment, National income, Neo-classical and Keynesian synthesis, Open economy and exchange rate, Theories of inflation and business cycles etc. which deals us the details in respect of macro economic analysis. All these units have been clearly discussed in this book. We believe that this book will be useful for the students and teachers of post-graduate classes of the subject economics.

We express our thanks to all unit writers of this book entitled 'Macro Economics'. We will also be thankful to Director, Centre for Distance Education, Shivaji University, Kolhapur for giving golden academic opportunity to us. We express our thanks to the administrative officer and personals of Shivaji University, Kolhapur. We also request to all the students and teachers to make the necessary suggestions for improving the standard of this book. Lastly we are thankful to Shivaji University Press for bringing out this valuable book in time for the benefits of all related students and teachers.

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M. A. Part-I Economics
Group - C - Compulsory Paper-IV
Macro Economics Analysis

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Each Unit begins with the section Objectives -

Objectives are directive and indicative of :

1. What has been presented in the Unit and
2. What is expected from you
3. What you are expected to know pertaining to the specific Unit once you have completed working on the Unit.

The self check exercises with possible answers will help you to understand the Unit in the right perspective. Go through the possible answer only after you write your answers. These exercises are not to be submitted to us for evaluation. They have been provided to you as Study Tools to help keep you in the right track as you study the Unit.

Unit – I

'Introduction to Macro Economics'

- 1.0 Objectives
- 1.1 Introduction.
- 1.2 Analysis of the unit.
 - 1.2.1 Meaning and Origin of Macro Economics
 - 1.2.2 Importance and Limitations of Macro Economics.
 - 1.2.3 Macro Economic Variables - Stock and flow.
 - 1.2.4 Macro Economic Equilibrium.
- 1.3 Summary
- 1.4 Objective Questions & Answers
- 1.5 Questions for Practice
- 1.6 Key words
- 1.7 Books for further Reading.

1.0 Objectives,

After studying this unit we will be able to-

- 1) Explain the meaning of Macro Economics.
- 2) Tell how macro economics originated.
- 3) Understand importance of Macro Economics.
- 4) Realise the limitations of macro Economics.
- 5) Explain Stock and flow types of Variables.
- 6) Understand Macro Economics Variables.

1.1 Introduction :

There are several approaches to economic analysis, micro economic & macro economic have come to be known as two important approaches to the economic analysis, recently only in the early thirties of the twentieth century. Between these, macro economic analysis method is prescribed for the syllabus of M.A. II (Economics). It includes the units such as - Introduction to macro Economics, demand & supply of money, theories of consumption, theories of investment, National Income & Accounting Neo classical & Keynesian synthesis, open Economy & Exchange Rate & Theories of inflation & Business cycles. The objective of this self Instruction Material (SIM) is that

student should study these units on the theoretical & practical level and understand the analysis of the entire economic. In Unit -I we are going to study meaning & Origin of macro Economies, Importance & limitations of macro Economies Macro Economic Variables in the forms of stock & flow and Macro Economic Equilibrium.

1.2 Analysis of the Unit

1.2.1- Meaning and origin of macro Economics

There are different methods of economic analysis. For e.g. deductive, inductive, scientific, traditional & modern method etc. for studying economic problems & to put forth economic theories are called as economic analysis method According to views of modern section there are two types economic analysis, Micro Economics & Macro Economics In modern age, these two methods of economic analysis have got more importance. From these Macro Economic Analysis method has got more importance than micro Economic Analysis method. These two analysis methods became popular in decade of 1930 in 20th century.

Meaning of Macro Economics :

The terms Macro Economics & micro Economics were first used by the economist Ragnar Frisch in 1933. The word 'Macro is derived from the Greek word 'Makros' the word 'macro' means large part; the word 'micro' means 'small' i.e. 'one million part 'or' the very smallest part; the science which independently studies the smallest parts of economic system and comes to conclusion of their behaviour, is called as 'micro Economics;

In this unit, we are going to study the meaning of macro Economics To know the meaning of macro Economics in better way, it is necessary to study the definitions of macro Economies.

Definitions of macro Economies : -

some economists have given definitions of macro Economics. We will see some of these definitions.

1) Prof Boulding - "Macro Economics as that part of economics which studies over all averages and aggregates of the system. Thus macro economics makes an attempt to explain and analyse the working of the economic system as a whole"

2) Prof. Hansen - "The branch of economics which studies the relationships of the larger group like total employment, total saving total capital, total investment of national income is called macro Economics"

3) Prof Ackley - "Macro Economics studies overall dimensions & transactions of economic life. This study is related to the entire factors, likewise the trees in the forest can not be studied independently"

Characteristics of macro Economics -

with the help of above mentioned definitions, we can mention the Characteristics of macro economics. As follows.

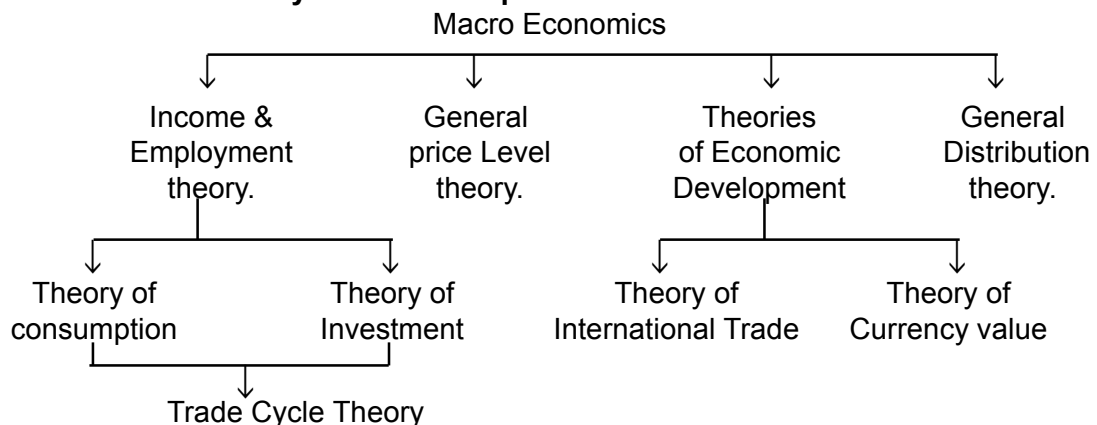
- 1) It studies the entire economic system as a whole.
- 2) macro Economics is also known as the theory of income & employment or income analysis.
- 3) Macro Economics studies aggregates or averages shewing the whole economy. i.e. total employment total consumption national income, general price level. etc.
- 4) In Macro Economics, the analysis is done through 'General Equilibrium'
- 5) The scope of macro Economics is conpretative.
- 6) Analysis explains with about average & aggregate numbers.
- 7) Macro Economic Analysis does not assume the assumptions i.e. full employment, perfect competence, etc.

Scope of Macro economics :

we can understand the scope of macro economics through its definitions. Through the scope of macro Economics we can get information of the nature of macro economics, its study related & relations with other sciences. It helps us to know the wearing of macro Economics in easy way. In the scope of macro Economics we are going to mention the economic theories included in macro Economics and the economists who have contributed in the development of the study of Macro Economics.

Macro Economics includes general employment theory, general price theory, trade cycle theories, economic growth & development theories, of Inter national trade, currency value theory, general theory of distribution, theories of consumption, theories of investment, etc. Macro Economics analyses the economic problems like poverty, unemployment, economic disequilibrium, inflation, deflation etc. many economists have put forth their views regarding these theories & problems. Among these the contribution of the economists like Karl, Marx, Walras, Wicksel, Fisher, Cassel, Robertson, Hayek, Hawtrey, Keynes etc. is very important. The scope of macro Economies can be explained with the help of the following layout.

Layout of the scope of macro Economics-



*** Origin and Development of macro Economics:-**

Ragnar Frisch first used the concept 'macro Economic in 1933. But before that Macro Economics Analysis, Method was used for economic analysis. For e.g. census, national income, agriculture land measurement. But in real sense, mercantilists economists used macro economic analysis method scientifically. This use was done in regard with economic problems. In 16th & 17th century, mercantilists economists made analysis by thinking total economic system macro economic analysis method was used in national wealth & economic transactions regarded with states. Sir Willam petty put forth scientific concept of national income by collecting statistics of different family's income. Because of this it is said that the seeds of macro Economics are in the school of mercantilisis.

It is found that in 18th century the physiocratics school used macro economic Analysis method while putting forth economic thoughts. Physiocrats economist put forward the concept of stable Economy in 1758. In it, macro Economic Analysis method was used. In 19th century, Mathusi, Sisvnondi & Karl did economic analysis regarding macro economic problems. before Keynes, the modern economists like Walras, Wicksell & Fischer developed macro economic analysis method. The economists like Marshall, Pigou Robertson, Hayek and Hawtrey developed a theory regarding money and general price level. It considered economic situation upto the first world war.

In 1936 Lord Keynes popularised his book named the general theory of Employment, interest & money. In this popular book he expressed his thoughts like national income, interest, employment, tradecycles etc. The book also includes analysis of changing economic situation in better way. It suggested remedies about recession and employment. Keynes expressed his views by macro economic method and these views became popular. Through this 'macro Economics' get recognition as an independent branch of Economics. Radical analysis was being done regarding income, production and employment, and it increased popularity and scope of macro Economics. So Keynes is given the credit of developing macro Economies many economic problems were being explained by using macro economic analysis method. Macro Economics was being figurally used in practice and theoretical nature.

From 1950 macro Dynamics was being used as impressive means of analysis for rapid economic development. The basic concept in macro Economic like stock variables, Flow variables, Ratio variables, functional relationship, Economics models etc. are being extensively used in theoretical and applied research. In the beginning, consumption, investment etc. With reference to closed economy, were being studied in macro Economics. But after 1970 extension of macro Economics is growing due to expansion of international trade, migration of capital in large extent, growing participation of developing countries in open market.

1.2.2, Importance and limitations of macro Economics.

Importance of macro Economics :

Macro economic analysis method is very useful in theoretical and applied

research of Economics. Macro Economics is very helpful to understand objective nature of economy Macro Economics has importance in different economic fields. This importance can be explained by following points.

1) Helpful in formulating economic policy :-

Government gets support of information to plan economic policy due to macro economic analysis. Plan economic implementation of economic policy is made for the purpose of improvement in total economic situation. For that, the aggregates units like national income total expenditure, total saving, total employment etc. are studied. Macro Economics helps to make available the extensive statistical information of whole Economy. Due to macro economics analysis, we get information of problems like poverty, unemployment, economic disequilibrium inflation etc. it helps to formulating economic policy to solve these problems.

2) Helps to understand the work of economy :-

The nature & work of modern economy is very complicated. Macro economics is useful to know the work and structure of this economy. In macro Economics, a universe or aggregates for e.g. national income, total employment, total production etc. are studied. Because of this, statistical information of Macro Economic variables gets available. The impact of these elements on Economy can be understood. From this one can get the total idea of nature of economy.

3) To solve economic problems :-

Due to macro economic analysis many common economic problems are known like poverty, unemployment, less productivity, economic disequilibrium, population explosion cosine etc. Alongwith this the causes of arousing these problems and its effects on different economic and social classes, are explained, The Government is helped to formulate certain proper polices to solve these problems for e.g. polices regarding population, currency, investment etc. It suggests remedies to grow impressive demand to eradicate unemployment the policy of family welfare & family planning is implemented to avoid adverse effects of excessive growing population.

4) Real Analysis :-

In micro economics analysis is done by taking many assumptions like perfect competition, full employment etc. but macro Economics does not make analysis by assuming certain situation. Macro Economics studies reality in economy, changing situation in economy, conclusions are made through it. These conclusions are more correct and useful. So analysis is real. Macro economics studies the dynamic economic system.

5) useful to obtain economic stability : -

Macro economics studies economic situation of a country - in objective way. That is why causes of creation of trade cycles are known. The nature of economic boom & recession can be understood. Proper economic policies can be planned to

suggest remedies on it Macro Economics is developed to solve economic problems created due to Great Depression. Trade cycles can be controlled through it Macro Economics helps to make changes as per necessity in policies regarding monetary & fiscal policies.

6) Useful for the development of micro Economics :-

Micro Economic variables get affected by the changes in macro economic variables. For e.g. total production, national income total employment etc. If there is change in these variables it affects Micro economic variables, such as personal Prnlulting, personal income, personal consumption etc. Because of this the development of macro economics is useful for the development of micro Economics. Macro Economics guides to put forth theories in micro Economics. For e.g. theory of demolishing marginal Utility, This theory explains the experience of all consumers of specific good.

7) Study of dynamic economy :-

Macro Economics studies newly arising problems in dynamic economy. It studies causes of problems created in objective way and not by assuming the situation. As it studies the entire economy, the necessary in for nation is made available for analysis. So with the help of macro Economics, the explanation of newly arising frequent problems in economy can be done. The problems like imbalance of balance of payment, insfability in exchange rate, unemployment, trade cycles etc. are being created. Macro Economics is useful to do remedies on it.

8) International comparison :-

Different type of information about macro economic variables in every country can be obtained due to macro economic analysis. This information is obtained frequently in new way. For e.g. National income, per capita income, total consumption, per capita consumption, total production total employment, total import- export etc. The conclusions about consumption tendency, structure of investment, nature of total demand in every country, can be done with the help of this information, international comparison of different countries, economic situation can be made. From this one gets the idea about the country whether it is more advanced or backward. One gets idea of our country's place in international economy. But this type of comparison is not possible in micro Economics as it studies independent units. One understand the ratio of international & regional economic disequilibrium.

9) Setting of economic theories :-

Macro Economics studies the relations in larger aggregates. It studies frequently changing situations in real way so new information is obtained frequently. Objective study of different problems is done. So it makes possible to set many new theories with the help of macro economic Development, Theory of general distribution, theory of currency value, etc. it helped to more development of Economics than other social sciences.

10) Economic development :-

one gets information of country's national income, total saving, total production, total investment etc. due to macro economic analysis. Along with this, the availability of resources like land, water, population, minerals, forests etc. is known. It helps to formulate economic planning for economic development. It helps to make plans and program to obtain economic goals and for implementation of plans for total employment welfare state, poverty eradication, balanced development etc. macro Economics is useful to make socialist pattern of society in country and also to make adequate and efficient use of resources.

Limitations of Macro Economics :-

Some of the important limitations of Macro Economics can be explained through the following points -

1) Fault in Generalisation :-

Macro Economics considers personal economic practices as economic behaviour in totality which is faulty. Sometimes, there can be confusion through generalisation of conclusions. For e.g. A depositor withdrew his deposit from the bank. It does not affect any bank or banking profession. If the conclusion is made that, if all depositor's withdraw their deposits from bank at the same time, it will not affect any banking profession. This will be a great fault. Conclusions of generalisation are misleading.

2) Problems in measurement :-

Macro Economics analysis different types of groups, which are different in nature all units in each group are not homogenous. These groups does not have any authenticated means of measurement. Value of many things is measured by money which does not remain stable. For e.g. Different goods & services with its value are added to measure national income. But the nature of these goods is very different and it creates problems in measuring national income.

3) Deficiency of homogeusness :-

Conclusions are made by assuming that all units in group are homogenous. But homogeneousness is not found in the units. For e.g. there is dissimilarity in weight, shape, quality, efficiency etc. relations of units in group can be contrasting. Influences of any situation are different on units in same group. Effects of inflation on poor are more adverse than rich.

4) Faults in Average :-

The conclusions in macro economic analysis are put forth in aggregation which can be faulty. For e.g. if national income grew by 5% in last 5 years it means, national income grew by average 5 to each year. But sometimes, the actual growth rate would be 20% or in certain year there is actual reduction or 0% growth rate in national income.

5) Limitations regarding policies :-

Government implements economic policies by studying macro economic aggregations. But these policies can not be useful to all the elements of particular field or can not affect in same way on all the elements, some elements get benefited of economic policy & some can be adversely affected. For e.g. Industrial policy is benefitted for large scale industries but adversely affects small scale industries.

6) Unreal Inference :-

After studying aggregate elements in economy, it is concluded that there is no change in some fields, so there is no necessity to change current economic policy, but it is wrong to do certain conclusion. For e.g. the price of industrial goods deducted by 25%. It did not change the general price level of the country. This type of conclusions are unreal as reduction in price of agricultural goods adversely affects economic condition of farmers. This can create economic instability in country.

7) Contradictory goals :-

Government implements economic policies to achieve different goals by using macro economic analysis. But these objectives are contrasting. So it can create confusion. For e.g. Achieving full employment, economic stability, rapid economic development etc. these objectives can not be achieved at the same time. It is difficult to have co- ordination in these objectives. While growing employment opportunities, the speed of inflation grows. It becomes difficult to maintain economic stability.

8) Incomplete analysis :-

In Macro Economics conclusions are put forth by thinking aggregates of variables in economy and economic problems of whole society are studied. But these conclusions and inferences can not analyse economic situation entirely. There can be some faults. This analysis does not take into account the characteristics of all the units. Macro economics does not consider personal problems, so analysis becomes one - sided. It becomes necessary to use micro Economic Analysis method to study all - round economic situation.

9) Insufficiency in statistical information :-

Different type of statistical information of various elements is collected and conclusions are made in macro Economics. Economic policies are implemented but all elements in group have different characteristics. Incomplete information of these elements can not be helpful to make correct conclusions for e.g. people do not give correct information of income, property, tax, etc. while measuring national income. There are logical & practical problems. Statistical analysis used various methods but proper method to get collective and aggregate information, is not still available.

1.2.3. Macro Economic Variables Stock & Flow :-

Macro economic variables, economic models, functional relationship, etc. are basic concepts of Macro Economics. These concepts help to know real nature of

Macro Economics. So it becomes important to study macro economic variables. We will study the meaning of 'variable'

Meaning of variable : we will study the meaning of 'variable' with the help of following definition of variable.

'Variable : " An element or factor which can change in number and volume in specific period of time, is called as variable"

This definition explains the characteristics of variable. These characteristics are as follows.

Characteristics of Variable :-

1) 'Variable' should be explained in reference to a specific 'point of time' or specific period of time: For e.g. on specific day, year etc.

2) The changes of value or size of variable should be expressed with the help of particular means or tool of measurement. For e.g. kilogram, liter, meter, etc.

Variable expressed in this way proves to be meaningful & useful. If it is not expressed in such a way it proves to be meaning less and useless. For e.g. Demand of foddering is 220 million tones. If the value of variable is expressed in this way nothing can be guessed. But if this is said in a way that on 31-3-2012 the stock of foodgrains was 220 million tones. It proves actual meaning of variable.

Each science has variable. Economics also has variables. For e.g. Demand supply, price, production interest rate etc. Economic analysis is possible due to these variables there are various types of variables. Now we will study of various types of micro Economic variables. In detail.

Classification of macro economic variables :-

In Economics, variables are classified by economic analysis method. When the value of variable is expressed independently in reference to a unit in a group, it is called 'micro Economic variable' for e.g. personal demand, individual consumption, individual income, production of the firm etc. these variables are useful in micro Economics.

"When the value of variable is expressed in reference to a group or aggregate, it is called " macro economic variable"

For e.g. National income , general price level, total supply of money ,total consumption, total employment etc. These variables are important in macro economics and used for macro economic analysis.

Prof. Various types of macro economic variables are as follows

A) Functional Relationship variables :-

These variables may be grouped in two ways :-

1) Dependent Variable :-

"A variable, the value of which depends upon the variation in another variable

is Known as dependent variable”

The value of specific variable changes due to changes in other variables. A dependent variable means a variable, the value of which varies in some unique way, with the variation in some other independent variable or variables. For e.g. demand goes on changing due to change in price. So ‘depends’ is a ‘Dependent variable’ and price is a ‘independent variable’ Demand depends upon price.

2) “A variable is independent, the value of which influence the value of other variable or variables”

For e.g. consumption varies with the variation in income. Here consumption is a dependent variable and income is a ‘Independent variable’

B) Ratio variables : -

The economic variables are also measured in term of ratio variable.

Variables which explain relationship or ratio between variables of two groups are called ‘Ratio variables’

e.g. The ratio of gross in national income and national consumption in a specific period time expresses the ratio variable.

c) Stock & flow variables :-

Macro Economic variables may be grouped as ‘stock variables’ and flow variables.

1) Stock variables :-

“The value of aggregate variables is explained for a specific point of time. Those variables are called ‘stock variables’ e.g. money supply in country on 31-3-2012 is Rs. 1,00,000 crores. Stock variables must explain with point of time & amount in this way national income, total employment total production etc. are explained as stock variables, stock variables prove to be useful to know total situation of economy at a specific point of time but they can not be helpful to evaluate the changes in economic situation.

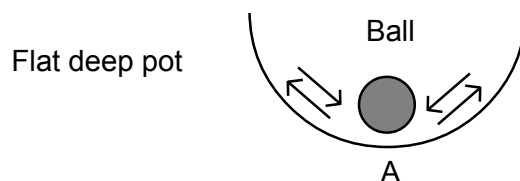
2) Flow variable :-

“the value of aggregates variable is explained for a specific period of time. Those variables are called ‘Flow variables’ For e.g. marginal propensity to consume, marginal propensity to saving, etc.

If there is not reference of value & period of time, meaning of flow variables can not be cleared. For e.g. National income increased by 50,000 crores. This variable does not have any meaning, as it’s value is not explained in any currency & period of time. If it is said like - national income increased by Rs- 50,000 crores in the year 2010 -11, it explains the meaning of variable poperly. Total production, total employment, national income total consumption, total caving etc. These variables can be explained in reference to a specific period of time, it explains the changes in value of variables in

For e.g. there is a ball in a flat deep Pot. If we shake the ball, it continues moving for some time and then it will remain stable. This is called 'stable Equilibrium'.

Figure - 1



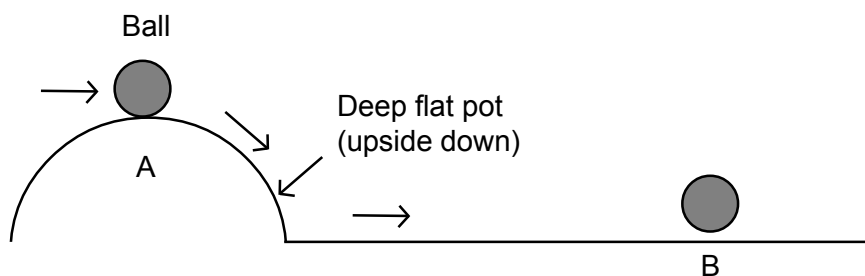
At specific price, demand supply are in a state of equilibrium. Specific price is stable price. If price increases, supply will increase and price will become less. It means, price will come at a particular price level. If price becomes less, supply will be lessened and again price will increase as before. In this way stable equilibrium can be achieved.

*** Unstable Equilibrium :** "When any disturbance in equilibrium situation brings in forces which move the system away from it, never to restored."

For e.g. Agricultural production constantly goes on growing due to frequent use of modern technique in cultivation. This equilibrium can be explained by following example & figure - 2.

If we turned flat deep pot upside down and put the ball in stable position. If we push the ball, it will go at the opposite side of the force and become stable on ground.

Figure - 2

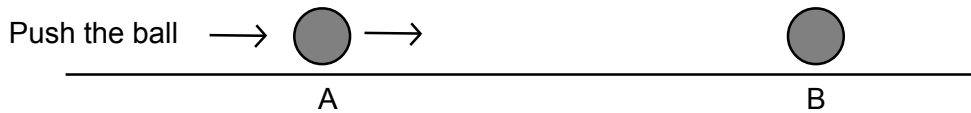


The ball is put stable at point 'A' which is stable equilibrium. The ball is pushed from left side, so it cam down from pot and stood still at right side at point B. It achieves unstable equilibrium.

*** Neutral Equilibrium :** "When an initial equilibrium position is disturbed, the forces of disturbance bring it to the new position of equilibrium where the system has come to rest."

In this equilibrium, changed the place of equilibrium but did not change the nature of equilibrium. This equilibrium can be explained by following example &

Figure - 3



In figure - 3, it is considered that the ball is on flat ground. The ball is stable in point 'A'. It is pushed from left side and becomes stable on ground at point 'B'. So the place of equilibrium is changed but its' nature does not change.

In this, three types of equilibrium, only the stable equilibrium which is of use to economists for analysing complex economic problems. The unstable & neutral equilibrium are used for academic interest only.

B) Short - term equilibrium & long - term Equilibrium : -

* **Short term Equilibrium** :- "A short - period equilibrium is one which maintain its position only at a given point of time and is disturbed beyond the point to time under consideration."

Short-term equilibrium in reference to a point of time. This equilibrium is more useful for micro economic analysis.

e.g.. At specific time national income is equal to total national consumption plus national saving. We can explain in perfect completion, in short-run in given condition, firm is in normal, profit, abnormal profit & loss condition.

* **Long-Term Equilibrium** : "Long-term equilibrium is explained in reference to period of time."

For e.g.. in perfect competition, all firms in industry are in a state of getting normal profit.

C) Partical Equilibrium & General Equilibrium :

* **Partial Equilibrium** : "A partial equilibrium is one which is based only on restricted range of the data. Ex. the price of single product, the prices of all products being fixed during analysis." Partial equilibrium studies the individual equilibrium i.e. firm, industry, consumer etc. Marshalling economics is mostly a study in partial equilibrium analysis. Partial equilibrium also known as micro economics. Partial equilibrium is concerned with two types of economic problems.

a) It studies only particular aspect of economic behavior of certain individual firm or industry. It may limit itself to the market for a single product where its price, the technique, amount of factors of production, are taken into consideration, while all other factors affecting it are assumed to be constant.

b) It studies only the first-order consequences of the economic events.

We explain, the partial equilibrium with the help of example. e.g.. consumer's

studies the functional relationship of economic variable variables at different points of time. This is useful for forecasting.

E) Unique Equilibrium & Multiple Equilibrium :-

*** Unique Equilibrium :-**

"A position of unique equilibrium arises if there is a single set of prices & quantities which fulfill the condition of equilibrium."

For e.g. Demand & supply of particular goods become equal at particular price. That time Unique Equilibrium is formed.

*** Multiple Equilibrium :-**

"A position of multiple equilibrium arise when several different sets of prices and quantities will meet the equilibrium conditions."

For e.g. Demand and supply equal at more than one prices then multiple equilibrium arises. Rapid changes in demand & supply curves because rapid changes in elasticity of demand & supply.

These types of equilibrium are not independent but they are co - related. These types are more or less used in macro Economics as per necessity.

1.4 Objective Questions :-

A) choose correct alternative & write the sentence again.

1) _____ used the concepts micro Economics & macro Economics first.

a) Ragner frisch b) Boulding c) Keynes d) Adam smith.

2) The science which studies the whole economy is called _____ Economics.

a) Partial b) Macro c) Specific d) Micro.

3) The elements which change in number and size in specific period of time are called _____.

a) Multiplier b) Acceleration c) Variables d) Model

4) The value of variable is explained at a specific point of time is called _____ variable.

a) Flow b) Stock c) Dependent d) Interdependent

5) The value of variable is explained at a specific specific period of time is called _____ variable.

a) Flow b) Stock c) Dependent d) Independent.

6) _____ first did the study of General Equilibrium.

a) Keynes b) Walras c) Adam Smith d) Ricardo.

7) The state of equilibrium at specific point of time is called _____ Equilibrium.

a) Short-term b) Unique c) Multiple d) Long-term

- 8) A state of equilibrium at a specific period of time is called _____ Equilibrium.
 a) Short-term b) Unique c) Multiple d) Long-term
- 9) Partial Equilibrium is equilibrium of _____ of total economy.
 a) one portion b) all elements c) more elements d) less elements
- 10) When the rate of specific economic element's change is stable, it is called _____ equilibrium.
 a) Static b) Dynamic c) Short-term d) Long-term

B) Answer the following questions in one sentence.

- 1) Name the two methods of economic analysis.
- 2) State the definition of Macro Economics'.
- 3) Who used. first the concept 'Macro Economics'.
- 4) Who has first study the General Equilibrium ?
- 5) Define 'Static Equilibrium.'
- 6) Give definition of 'Stable Equilibrium.'
- 7) Which economist's contribution is more important in the development of Macro Economics study ?
- 8) Give definition of 'Flow variable'.
- 9) Give definition of 'Stock variable'.
- 10) Name a theory which has importance in Macro Economics.

*** Answers of objective Questions.**

A) Choose correct alternative and write the sentence again.

- | | | |
|------------------------|-----------------------|----------------------|
| 1) - a - Ragner Frisch | 2) - B - Macro | 3) - C - Variable |
| 4) - d - Stock | 5) - a - Short - term | 6) - b - Walras |
| 7) - a- short-term | 8) - d - Long-term | 9) - a - One portion |
| 10) - b - Dynamic. | | |

B) Answer the following questions in one sentence.

- 1) Micro Economics and Macro Economics are two methods, of economic analysis.
- 2) Macro Economics is a branch of Economics studyng the relations of large group like total employment, total saving, total investment & national income.
- 3) Ragner Frisch first used the concept 'macro Economics.'
- 4) Prof walra first studied 'General Equilibrium'
- 5) "A static Equilibrium position is based upon the assumption on the absence of change in economic phenomena of which it is result"

6) "Any disturbance in the equilibrium situation is self - adjusting so that the old equilibrium position is restored is called 'stable Equilibrium'.

7) The economist Lord Keynes has an important contribution in the development of study of 'Macro Economics'.

8) The value of a variable is explained in terms of specific period of time, that variable is called 'Flow Variable'

9) The value of a variable is explained in terms of specific point of time. That variable is called 'stock variable'.

10) General Employment Theory is an important theory in macro economics.

1.3 Summary -

1) Macro Economics & micro Economics are two methods of Economic analysis.

2) Macro Economics means a branch of Economics which studies the relations of larger groups like total employment, total saving, total capital, national income etc.

3) Macro Economics studies total economy, all - round sides of economic life, main group and aggregate by general equilibrium method.

4) Macro Economics is called 'science of Income & Employment Theory' and 'science of Income Analysis'.

5) Macro economics includes general employment theory, Theories of Trade cycles, Theories of Internal Trade, Theories of currency value, General theory of Distribution, Theory of consummation, Theories of Investment. etc.

6) In micro Economics, the contribution of the economists Malthus, Sismondi, Karl Mark, Walras, Wicksell, Fischer, Cassel, Robertson, Hayek, Hawtray, Keynes, etc. is important.

7) Macro economic analysis was used in Economics from 16th century. In 16th & 17th century the sects like mercantilist, in 18th century physiocrats & classical economists used macro economic analysis method. In 19th century Karl Mark and Maltus, in 20th century Marshal and Keyes, used macro economic analysis method. Macro Economies got popularity as an independent branch of Economics due to economic views of Keynes.

8) Importance of Macro Economics - i) Helpful to formulating economic policies. ii) To understand the work of economy. iii) To solve economic problems iv) Real analysis v) Useful to achieve economic stability vi) Useful for development of micro Economics vii) Study of dynamic economy viii) International comparison. ix) Putting economic theories x) Economic development.

9) Limitations of macro Economics i) Faults in generalisation ii) Problems in measurement iii) Lack of homogeneousness iv) Faults in average v) Limitations regarding policies. vi) Unreal inference vii) Contradictory goods viii) Incomplete analysis ix) Insufficiency in statistical information.

Unit – II

'Demand and Supply of Money'

- 2.0 Objectives
- 2.1 Introduction.
- 2.2 Subject Discription
- 2.2.1 Keynesian approach to demand for money
- 2.2.2 Don Patinkin's approach towards demand for money
- 2.2.3 Milton Friedman's Approach to demand for money
- 2.2.4 Constituents of money Supply
- 2.2.5 RBI's measures of money supply
- 2.3 Summary
- 2.4 Key words
- 2.5 Objective questions and their answers. Answers to self learning question
- 2.6 Questions for self study
- 2.7 References for future study

1.0 Objectives,

After studying the second unit entitled "Demand and Supply of Money" the students will be able to :-

- 1) Understand Keynesian approach to demand for money
- 2) Study the Post Keynesian approach to demand for money with special reference to Patinkin and Milton Friedman.
- 3) Examine various approaches towards constituents of money supply
- 4) Study Reserve Bank of India's approach to measurement of money supply.

2.1 Introduction :

After studying the first unit which deals with introduction to macro economics, it becomes essential to study the demand for and supply of money. To know the reasons behind peoples desire to hold money is an important aspect of macro economics. The level of demand for money not only determines the rate of interest but also determines the prices and national income of the economy. Hence in the following part we will study the Keynesian, Patinkin and Milton Friedman's approach to demand for money.

Likewise, supply of money also plays an important role in the economy. It plays a crucial role in the determination of price level and interest rate. Money supply plays an influential role in the process of economic development and also in the achievement

iii) The Price level : During inflationary period transaction demand for money rises due to rising price level.

iv) Volume of employment : When volume of employment and output rise, the transactions demand for money would rise.

The transactions of demand for money is income - determined and is relatively stable because income does not change all of a sudden. Also, change in the rate of interest has no influence on transactions demand for money which is determined by the level of ecome. Thus, the transactions demand for money is interest inelastic.

However, the trend of a community's aggregate demand for money, under the transactions motive, depicts a high degree of correlation of proportionality of the size of money of national income. In symbolic terms, if L_t represents the transactions demand for money, the money demand function may be stated as !

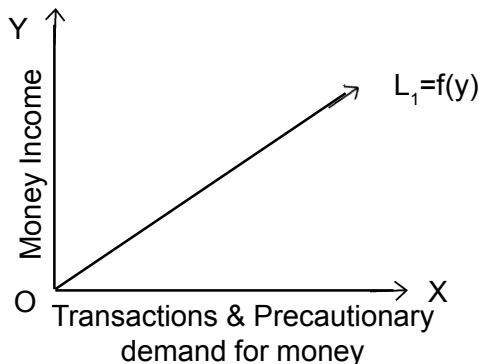
$$L_t = f(y),$$

Where, Y stands for the level of national level.

b) Precautionary Motive : Along with the amount needed for meeting normal and foreseen expenditures, individuals and business firms will keep additional amount of money with them to provide protection in the event of emergency. This is the precautionary motive for holding money.

It is necessary to be cautious about the future which is unlerthin. People suffer from all sorts of vague doubts and fluctuating status of confidence and courage. Uncertainty is the important element of the Keynesian precautionary motive.

Demand for precautionary motive; like the transaction motive, also depends on the level of income. The amount of money kept for this motive varies directly with income. Rich people will have a larger amount for this motive as against the poor who may not have enough balance for this purpose. Similarly business firm demand for money will depend on their turnover. Bigger the firm more will be the amount and smaller the firm less will be the amount. A firm's precautionary demand for money is influenced by political uncertainties. When political conditions are unstable, firms tend to become more cautious and hold a larger amount of cash. The transactions and precautionary demand for momey is a function of level of income as shown in the figure drawn below.

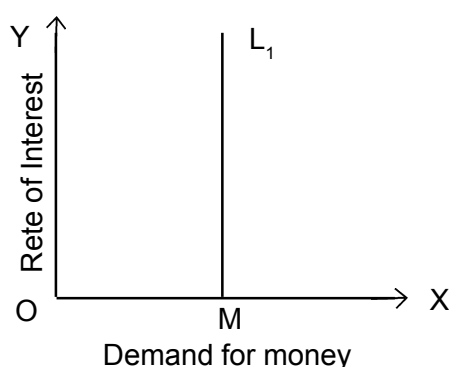


Where, L_1 = Transactions and Precautionary demand for money.

Y = level of income.

Both transaction and precautionary demand for money are based on the role of money as medium of payment and both are primarily influenced by the level of income. Keynes clubbed them together. Which is expressed as $L_1 = f(y)$.

The demand for motive for these motives is not influenced by rate of interest. Hence it is interest inelastic. It is shown by the vertical line ML_1 in the following figure. Demand for money held under transaction and precautionary motives is known as demand for "active cash balances".



C) The Speculative Motive :

The demand for money for speculative motive is related to the "Store of value" function of money. The speculative demand is also called 'asset demand for money.' Keynes defines the speculative motive as "the desire of earning profit by knowing better than the market what the future will bring forth."

All people speculate about the future level of prices of all types of assets and securities. They will like to hold those securities whose prices they anticipate to rise and they will hesitate to hold those securities whose prices they fear will decline. This is the speculative motive for holding money or securities.

Speculative demand for money is interest elastic. At a higher rate of interest less money is held for this motive and vice-versa. There are two important reasons for such inverse relationship. First, holding cash when rate of interest is high has a greater opportunity cost. Second, there is an inverse relationship between the interest rate and security prices.

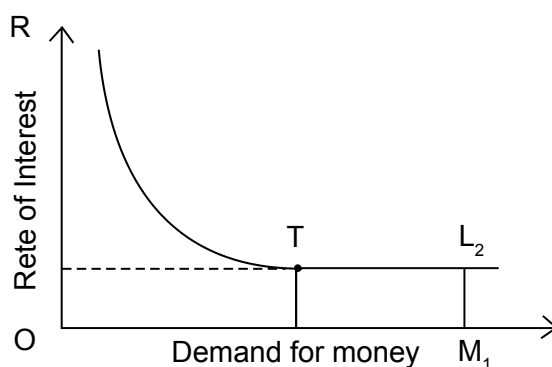
In addition to the above reasons, expectations regarding the market rate of interest and security prices also play an important role in determining the speculative demand for money. When the market rate of interest is low, it is expected that the interest rate will increase in the near future thus bringing down prices of the securities. Such expectations motivate people to hold more cash. Whereas at a very high rate of interest, there are no expectations of any further increase therefore, the security prices are at their lowest, attracting the investors to purchase them. These purchases decline

the rate of interest and thereby increase security prices.

Demand for money held under the speculative motive is referred to as the demand for "idle cash balances." Demand for speculative motive depends on the rate of interest.

Liquidity Trap : The inverse relationship between the rate of interest and speculative demand for money transforms into a different form of relationship at a very low rate of interest. Keynes stated that at a very low rate of interest the speculative demand for money becomes perfectly elastic. Keynes considered a 2 percent rate of interest as lowest rate, below which the market rate of interest would not decline. At such low rate of interest people prefer cash and not the securities.

The speculative demand for money, its inverse relationship with the rate of interest and the liquidity trap are shown in the following figure.



In the above diagram the L_2 curve is sloping down up to point T indicating inverse relationship between speculative demand for money and market rate of interest. At point T the L_2 curve becomes horizontal. The horizontal part of L_2 curve shows the liquidity trap which explains the perfectly elastic demand for money for speculative motive.

Total demand for money : The total demand for money arises out of three motives namely, transaction, precautionary and speculative. Demand for the first two motives is mainly income determined and interest inelastic. The speculative demand for money is interest elastic. The total demand is expressed as

$$Md = L_1(y) + L_2(r)$$

Where Md = Demand for money

$L_1(y)$ = demand for money for transaction and precautionary motive

$L_2(r)$ = Speculative demand.

In Keynesian terms total demand for money can be expressed as $Md = L(yr)$

2.2.2 Don Patinkin's approach towards demand for money :

Don Patinkin was born in Chicago on January 8, 1922 to Russian Jewish immigrants, and he died in Jerusalem on August 6, 1955. The intergration of the theories

of value and money was his main contribution developed in his book money, Interest and Prices.

The Real Balance approach was developed by Don Patinkin by criticising the cash balance approach of Cambridge economists. It was criticised on two grounds i.e., 1) homogeneity postulate, 2) dichotomisation of goods and money markets. He integrates these two approaches through the real balance effect. Homogeneity postulate means doubling of money prices will have no effect on the demand supply of goods. Mathematically, the demand and supply function for goods are homogeneous of degree zero in price. Dichotomisation means that the relative price level is determined by the demand and supply of goods, and the absolute price level is determined by demand and supply of money. Hence, the effect of price has no effect on the monetary sector and monetary prices in turn has no influence on the real sector of the economy. He criticised this, and integrated the money market with goods market, which depend on real balance.

Real balance means the real purchasing power of the cash holdings of the people. According to him, demand for a commodity depends on both the real balance and relative prices, hence when the price level rises it will reduce the real balances of the people and when it falls it will increase the real balances of the people when price level rises it creates a state of involuntary unemployment but it will not last continuously because as wages and prices fall the full employment level of output and income will be restored.

Don Patinkin also introduced the real balance effect in general equilibrium analysis. He states that the absolute prices play an important role not only in the money but also in the real sector. Once the real and monetary data of an economy with outside money are specified, the equilibrium values of relative prices, the rate of interest and the absolute price level are simultaneously determined by all the markets of the economy. It is generally impossible to isolate a subset of markets, which can determine the equilibrium values of a set of prices. He further pointed out that the real balance effect implies that people do not suffer from 'money illusion' they are interested only in the real value of their cash holdings. Hence, Patinkin's analysis is a real improvement on the traditional quantity theory and its value lies in the integration of commodity and money market through the real balance effect.

2.3 Milton Friedman's Approach to Demand for money :

In the post Keynesian period the quantity theory of money was explained in two different ways. One way or approach was put forward by Baumol, Tobin and some other economists. The second was promoted by Friedman's quantity theory of money.

Milton Friedman classified the holder of money into two groups namely.

- (i) Ultimate wealth holders
- (ii) Business enterprises.

The group of ultimate wealth holders plays a more significant role than the

b) $M_2 + M_1 + SD$

SD = Savings bank deposits with post offices. SD are more liquid than time deposits

c) $M_3 = M_1 + TD$

TD = Time deposits with all Commercial banks and Co-operative banks (Excluding inter banking deposits). M_3 is a broad money concept.

d) $M_4 = M_3 + TDP$

TDP = Total deposits with the post offices (excluding National Saving Certificates)

The RBI has taken a broad measure of money supply by bringing in total deposits from post offices, but Post Office deposits are less liquid than the deposits of Commercial banks. RBI's M_1 measure is conceptually the same as the traditional concept of money supply. For all policy decisions M_3 is a more relevant measure of money supply.

RBI's measure of money supply - 1998 : The working group of RBI since 1998 has redefined the parameters for measuring money supply. A change is introduced in M_2 and M_4 is totally abolished. Accordingly, now there are only three monetary aggregates that is - M_1 , M_2 and M_3 .

$$M_1 = C + DD + OD$$

$M_2 = M_1 +$ time liability portion of savings deposits with banks + CDs issued by bank + term deposit maturing within one year.

$M_3 = M_2 +$ Term deposits over one year maturity + call / term borrowings of banks.

RBI introduced a new concept of liquid resources on the line of broad money. They are as follows :

Liquidity Aggregate :

Liquidity aggregates consist of $L_1 + L_2 + L_3$ that is $L_A = L_1 + L_2 + L_3$

where $L_A =$ Liquidity Aggregates.

$L_1 =$ New M_3 + All deposits with Post offices savings banks (excluding NSCs)

$L_2 = L_1 +$ term deposits with term lending institutions + term borrowings of FIs + CDs issued by FIs

$L_3 = L_2 +$ public deposits of NBFCs.

The concept of L_A is wider than the revised money supply measure.

2.3 Summary :

In this unit we understood various concepts related to demand for and supply of money.

John M. Keynes in his approach to demand for money states motives of liquidity preference namely transaction, precautionary and speculative. Out of these the transaction and precautionary motive are interest inelastic, whereas the speculative motive is interest elastic.

In the post keynesian approach Don Patinkin's and Milton Friedmans views have been studied. The real balance approach developed by Don Patinkin integrates the theory of value and money. According to him, demand of a community depends on both the real balance and relative prices, hence when the price level rises it will reduce the real balances of the people and when it falls it will increase the real balances of the people.

In his approach Milton friedman classified the holders of money into two groups viz. i) Ultimate wealth holders and ii) Business enterprises. The group of ultimate wealth holders play a more significant role than the second group. Further, the demand for money by ultimate wealth holders depends upon total wealth, human and non-human forms of wealth, rate of return on money and other assets.

After discussing the concept of demand for money, the money supply concept has been discussed. Money supply refers to the amount or stock of money held by people in spendable form. The constituents of money are broadly classified into traditional measure and modern measure. The traditional measure is also called as narrow money and the modern measure is termed as broad money.

The RBI's measure of money supply consists of three monetary aggregates namely M1, M2 and M3. RBI also introduced a new concept of liquid resources on the lime of broad money that is $L_A = L_1 + L_2 + L_3$.

Hence in summary we can state Walker's definition of money "Money is what money does."

2.4 Key words :

1) Speculative motive : Money held with a motive to make or earn money, hence it is interest elastic.

2) Liquidity trap : It is the very low rate of interest where speculative demand for money becomes perfectly elastic.

3) Ultimate wealth holders : Households

4) Demand for money by business firms : Money is a liquid capital which can be easily be converted into any input - required for the business.

5) Supply of money : The total stock of domestic means of payment owned by the public in a country.

6) Narrow Money : It includes components of money supply which comprise only of those things which are readily accepted as a medium of exchange.

7) Broad Money : It includes all very close substitutes of money in the measure of money supply.

2.5 Objective Question :

a) Fill in the Blanks.

1) The motive of demand for money is income elastic.

- 2) There is an relationship between the rate of interest and speculative demand for money.
- 3) The real Balance approach was developed by
- 4) Milton Friedman classified the holder of money into groups.
- 5) Money is a item for business firms.

b) Answer in one sentence.

- 1) According to the liquidity preference theory there are how many motives for demand for money ?
- 2) In how many ways is the broad money divided ?
- 3) In which year did RBI redefine the parameter of measuring money supply?
- 4) What does liquidity aggregate consist of ?
- 5) Is transaction motive of demand for money interest elastic ?

c) Answer to Objective questions :

- | | | | |
|----|----------------|----------------|-----------------|
| a) | 1) Speculative | 2) Inverse | 3) Don Patinkin |
| | 4) Two | 5) Capital | |
| b) | 1) Three | 2) M2, M3 & M4 | 3) 1998 |
| | 4) L1, L2, L3 | 5) NO. | |

2.6 Questions for self study :

a) Answer the following questions.

- 1) Examine fully the liquidity preference theory.
- 2) Explain Milton Friedman's quantity theory of money.
- 3) State the Reserve Bank of India's approach to measurement of money supply.

b) Write short notes.

- 1) Liquidity trap
- 2) Don Patinkin's approach to demand for money
- 3) Narrow money
- 4) Broad Money

2.7 References for further Study.

- 1) Modern Economics - H. L. Ahuja, (2010) S. Chand & Company New Delhi
- 2) Modern Economic Theory - K. K. Dewett (2010)
- 3) Macro Economics - Mascarenhas, Johnson, Himalaya Publishing House, Mumbai
- 4) Indian Economy - Datta Sundaram (2009) S. Chand & Campamy New Delhi,



Unit – III

'Theories of Consumption'

3.0 Objectives

3.1 Introduction

3.2 Analysis of the unit.

1. Keynesian psychological law of Consumption.
2. Relative Income Hypothesis
3. Life Cycle Hypothesis
4. Permanent Income Hypothesis.

3.3 Summary

3.4 Glossary

3.5 Objective questions and their answers.

3.6 Questions for practice.

3.7 Books for further reading.

3.0 Objectives

After the study of this Unit No. 3, you will be able to know :

- * The meaning and nature of the concept consumption.
- * Keynes' psychological law of consumption function.
- * The detail information about relative income hypothesis
- * The concept of life-cycle hypothesis.
- * The meaning of permanent income hypothesis.

3.1 : Introduction

Macro Economics deals with the interrelationship between the various factors of an economy as a whole, Now-a-days it is necessary to study, the changes in 1) production, employment, demand and general price level at a national level. The concept of consumption is important in this all contents of macro - economics, we have considered the detail information about the demand and supply of money and their approaches in unit number 2. In this particular unit number 3, we will take up the

Table No. 3.1
Consumption function

(Rs. in Crores)

Income	Consumption	Savings (y-c)
0	40	-40
60	70	-10
80	80	0
120	100	20
150	115	35
175	130	45
200	140	60

Table No. 3.1 clears that as the income increases, the consumption increases but it increases less than increase in income. When income increases the savings also increase due to marginal propensity to consume is less than one. The table also shows that as income increases from crores 0 to 200 crores, Consumption increases from Rs. 40 Crores to Rs. 140 Crores and savings also increases from Rs. 20 Crores to Rs. 60 Crores. We can explain this concept of Keynesian psychological law of consumption function with the help of following figure No. 1.

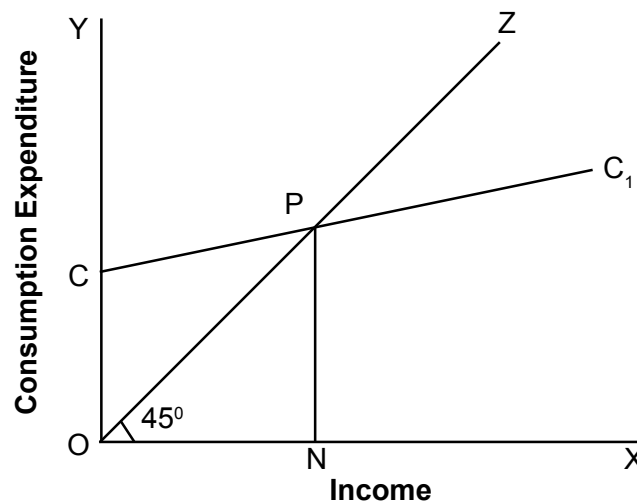
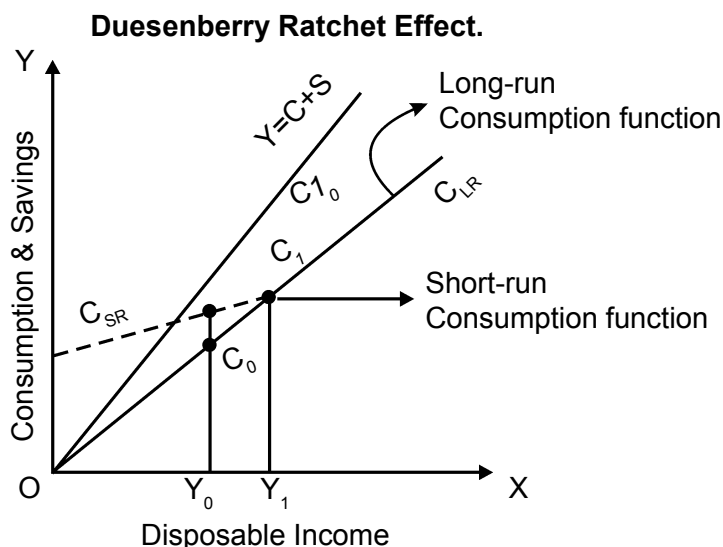


Figure No. 3.1 shows us the trend of increasing level of income and consumption expenditure. Here we observed that as per increase in income of a country, consumption expenditure increases but with low proportion indicates that since the 'P' point as per increase in income, consumption decreases and savings increases. Keynes says that this happens due to the psychology of a consumer.

difficult to reduce the consumption expenditure for poor people when their level of income falls. So they maintain their earlier level of consumption by reducing their savings and past amount of savings. Several studies tell us that the level of consumption does not fall as per decrease in income particularly in a recession period. We can explain this situation of ratchet effect with the help of following figure No. 3.2.

Figure No. 3.2



The figure No. 3.2 shows us the level of consumption expenditure and disposable income. We assume that there is steady growth of disposable income till it reaches Y_1 . The linear consumption function C_{LR} is the long-run consumption function which is shown in the figure Y_1 level of disposable income.

Now suppose with initial income level Y_1 , there is recession in the economy with the result that disposable income falls to the level Y_0 . Duesenberry says that consumption would not fall greatly to the level of Y_0 C_0 as the long-run consumption functional curve CLR. In their bid to maintain their consumption level previously reached, people would now save less and reduce their consumption level only lightly to Y_0 C_0 is on the short-run consumption function curve CSR. According to Duesenberry, when the economy recovers from recession and the disposable income increases, the economy will move along the short-run consumption level C_1 is reached at income level Y_1 .

Thus, relative income hypothesis denotes the relationship between disposable income and expenditure. The various critics have made comments on this hypothesis. According to these critics, the demonstration effect and ratchet effect do not change the level of income of a individual by all the times. This hypothesis does not considered the size of wealth and changes made in it which affect on the level of consumption expenditure. According to Tobin and Freedman, wealth is a basic cause of variation in saving. In short, this hypothesis has focused on the changes in income, habits of consumption, demonstration effect and ratchet effect toward the level of an individuals

In this way, life cycle hypothesis depends upon the various factors. According to Modigliani, people make their consumption plans for their entire lifetime and further they make their lifetime consumption plans on the basis of expectations of lifetime income.

*** Impact of age on consumption :** Modigliani says that the impact of permanent income of an individual to the marginal propensity to consume depends upon the age and size of family. The consumption pattern of an individual also depends on the life span of a person. Modigliani says that in a childhood or early period a person expends more than his income by borrowing from others, but in the middle age, income of a person increases beyond his consumption and finally at the age of 60 and above income level declines due to referencing age and consumption continues with the earlier rates. Thus, age factor is one of the important factors which determines the level of consumption of a person in his lifetime.

Modigliani also mentioned the size of family factor affects on consumption expenditure of a person in his life time. In the middle age of a family (30 to 60) size of members in a family increases, due to this, the total consumption expenditure also increases. Now we will see the impact of age and size of family on the consumption pattern of households with the help of figure No. 3.3

Figure No. 3.3

Life cycle hypothesis of consumption function (Impact of age & size of family)

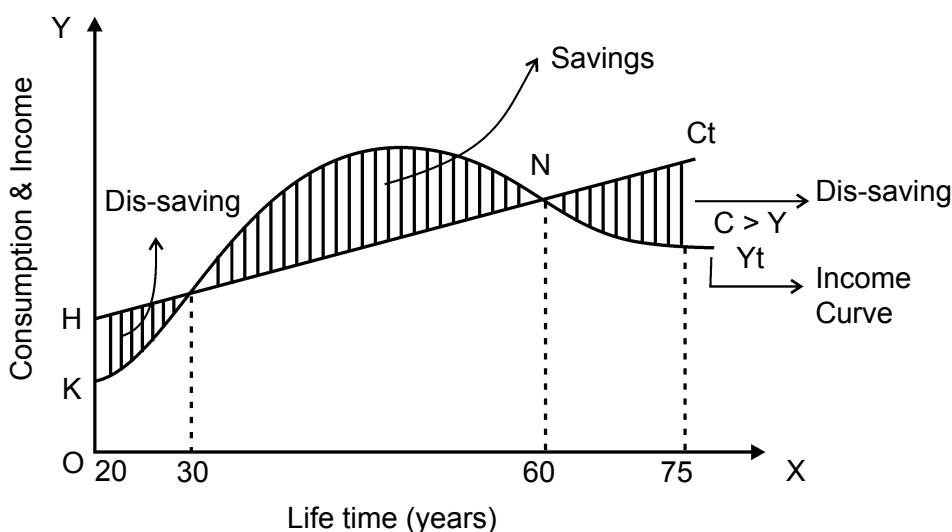


Figure No. 3.3 shows us the impact of age and size of family on the level of consumption of households here, the figure indicates that, upto the age of 30, person's income is less than his expenditure on consumption. Ct line clears the level of consumption where as Yt curve denotes the income level, We find that upto the age 30, a person's income (ok) is less than his consumption (OK). But after the age of 30 to 60, his income is greater than consumption. The shaded portion of figure (M to N)

indicates the savings of a person or household. In the middle age of households, the size of family members and income level both increases.

The figure shows us that after the age 60 to 75 lifetime, the consumption of a person again increases than his income level. Here, we observed that whichever amount a person saves in his middle age should be utilised for excess consumption in the retirement age of his life. It is further assumed in the life cycle hypothesis, that net savings in the lifetime of a person is zero.

*** Short-run and long-run consumption function :** Ando and Modigliani have expressed realistic findings based on fieldwork done by them in America. They have given an explanation of short and long-run consumption level of different age group people of low income. This function has been estimated taking time series data for the country U.S.A. The estimate tells us that, in America there was high level of consumption in low income group at their retirement age (after 60) on large scale. On the contrary, there was large number of middle age group youths in America whose average propensity to consume was relatively low. It is because of increase in income decreases the consumption in short-run period. But in long-run period, average propensity to consume was larger i.e. 0.72 as well as constant. These observation based findings have been shown in the figure No. 3.4

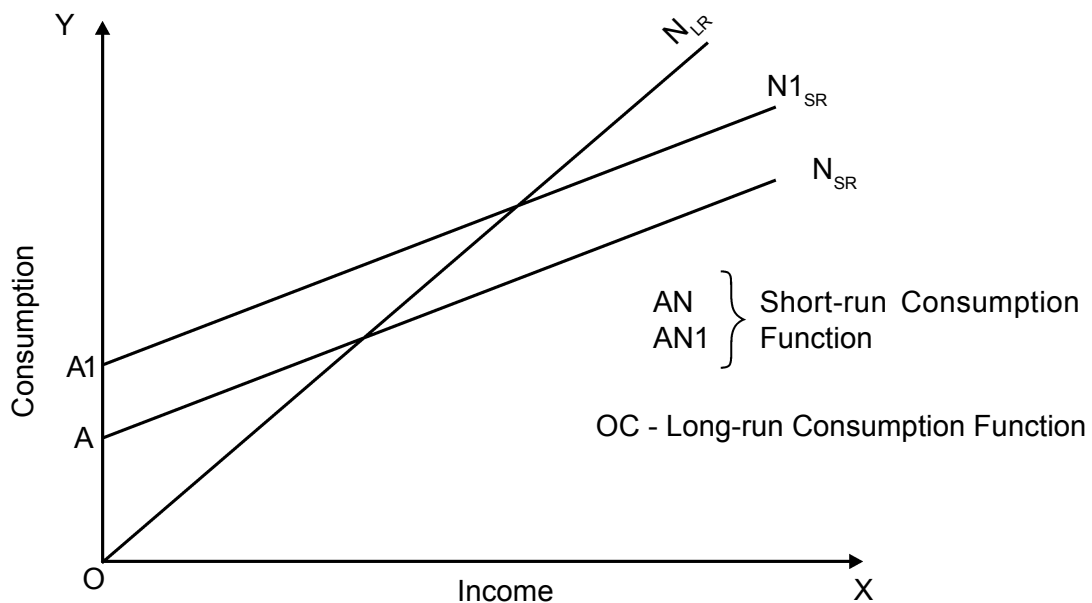


Figure No. 3.4 shows us the level of short and long-run consumption level. Ando and Modigliani observed in America that, there was 0.6 short run consumption level where as in long-run it was 0.72. The long run consumption level was stable and constant. This was happened due to the increasing trend of income and consumption

According to Friedman, consumption is proportional to permanent income. We can show this relationship between permanent income and permanent consumption with the help of following formula.

$$C^p = KY^p \quad \text{Where } C^p = \text{Permanent Consumption}$$

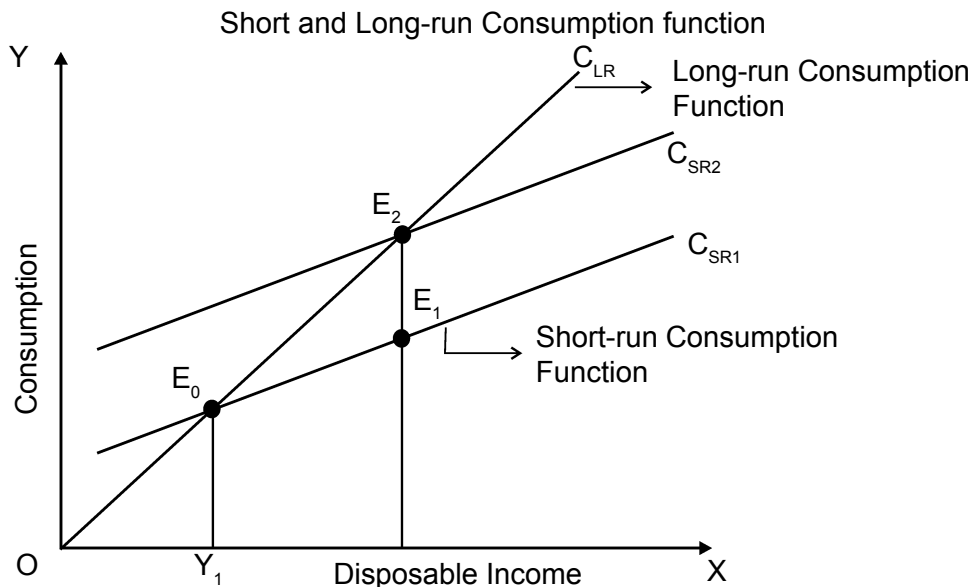
$$Y^p = \text{Permanent Income}$$

and K = proportion of permanent income that is consumed.

Here Friedman also mentioned that as per his classification of permanent and temporary income and consumption there are two types of commodities i.e. durable and perishable. Durable goods are connected with the stock of capital available to the consumer where perishable goods are the consumption goods. Perishable goods are consumed by the consumers frequently.

*** Short-term and Long-term Consumption function :** Milton Friedman has given short-run and long-run consumption function through the concepts of permanent and transitory income as well as consumption. He also says that the relationship between income and consumption in short-run, this relationship is proportionate. Now we will see the impact of income on consumption of a family in short and long run period with the help of Figure No. 3.5

Figure No. 3.5



Milton Friedman's permanent income hypothesis is shown in the figure No. 3.5 C_{SR1} and C_{SR2} are the short-run consumption function curves where as OC_{LR} is shown as a long-run consumption function curve. In short run period, the changes in consumption and income are not-proportional relationship. But in a long run duration, we observe the proportional relationship between consumption and income with a straight line passing through the origin where $APC = MPC$.

Modigliani and Ando have given this hypothesis in a essay entitled, The Life Cycle Hypothesis of Savings, Aggregate implications and Tests in 1963. According to this hypothesis, consumption in any period is not the function of current income, but it is of the life time expected income. According to Modigliani and Ando, consumption of an individual in a particular period depend on the following four factors.

a) Current Income, b) Savings of previous period, c) Expected Income, d) current age of individual.

Apart from above 4 factor, Modigliani mentioned the size of family factor which affects on consumption expenditure. Both these economists have explained short-run as well as long-run situation of consumption function in this particular hypothesis. So that this hypothesis is one of the practical oriented significance based hypothesis.

Fourth important subunit of this chapter is of permanent income hypothesis. This hypothesis is put forwarded by American Economist Milton Friedman in his famous book, entitled 'The theory of consumption Function in 1957. Permanent income hypothesis is similar to life cycle hypothesis. According to Milton Friedman, consumption of an individual is a function of long-term income of consumer. He has given the following 4 different concepts for the elaboration of permanent income hypothesis.

a) Permanent income, b) Temporary income, c) Permanent Consumption, d) Transitory consumption.

Friedman has given 2 formulas of this hypothesis.

I) $Y = Y_p + Y_t$ $Y =$ Income $Y_p =$ permanent income

$Y_t =$ temporary income.

II) $C = C_p + C_t = C -$ Consumption

$C_p =$ permanent consumption

$C_t =$ transitory consumption.

Friedman has also given a detail diagrammatic explanation about short-run and long-run consumption function. Paul A. Samuelson and William D. Nordhaus have shown the practical significance of this hypothesis through America's Changing nature of consumption during the period of 1964 to 1984.

3.4 Glossary :

A) Consumption function : The functional relationship between income and consumption.

B) Demonstration Effect : The tendency of poor people to enhance their consumption by attracting the consumption level of rich people.

C) Ratchet Effect : The tendency of people for maintaining standard of living by constant level of consumption in boom or depreciation condition.

D) Permanent Income : Income of a individual within the long-run period.

E) Permanent Consumption : Long-run period consumption of an individual.

F) Transitory income : Income of a person within the short-run period.

G) Temporary Consumption : Short run period consumption of an individual.

3.5 Objective questions and their answers :

A) Rewrite the following sentences by choosing correct alternative given below.

- 1) The formula of Keynesian consumption function concept is _____
A) $M = K_y$ B) $C = F(y)$ C) $MV = PT$ D) $X = F(YP)$
- 2) Keynes psychological law of consumption function becomes true in _____ Economy.
A) Democratic B) Free Capitalistic C) Socialistic D) Planned
- 3) Duesembarry has explained 'Relative Income Hypothesis' in _____
A) 1941 B) 1949 C) 1957 D) 1991
- 4) Life-Cycle Hypothesis was propounded by _____
A) Dr. Marshall B) Modigliani C) Fisher D) Keynes.
- 5) The concept of transitory consumption is given in _____ hypothesis.
A) Absolute income B) Permanent Income
C) Life-cycle D) Permanent Consumption

B) Answer in one sentence.

- 1) Explain Keynes's psychological law of consumption function.
- 2) Who propound Relative Income Hypothesis first ?
- 3) What do you mean by 'Life-cycle hypothesis' ?
- 4) What is the meaning of permanent consumption,
- 5) State two concepts used in permanent income pyopoiesis.

⊕ Answers of objective questions,

A) Rewrite the following sentences by choosing correct alternative given below,

- 1) The formula of Keyesian consumption functional is $c = f(Y)$
- 2) Keynes psychological law of consumption functional be comes true in free capitalistic economy.
- 3) Duesenberry has explained 'Relative Income hypothesis' in 1949'
- 4) Life - cycle hypothesis was propounded by Modigliani'
- 5) The concept of transitory consumption is given in permanent income hypothesis.

B) Answer in one sentence :

- 1) "Other thing being same, as income increases, the consumption increases but not by as much as increase in income."
- 2) Relative income hypothesis was propounded by Brandi and Roz friedman.
- 3) Consumption in any period is not the function of current income but of the whole life-time expected income.
- 4) The consumption of an individual of long-run period.
- 5) Permanent income and transitory consumption are the two factors of permanent income hypothesis.

3.6 Questions for practice :

A) Answer the following questions :

- 1) Explain Keynes psychological law of consumption function.
- 2) Critically examine the relative income hypothesis.
- 3) Explain the permanent income bypathesis.

B) Write short Notes :

- 1) Life Cycle hypothesis
- 2) Ratchet Effect
- 3) Demonstration effect
- 4) Importance of Keynes psychological law of consumption function.

3.7 Books for further readings :

- 1) Ahuja H. L. Modern Economics (2010) 15th Revised Edition. S. Chand & Company New Delhi. 110055
- 2) Dewett K. K. / Navalur M. H. (2010) Revised and Enlarged Edition, S. Chand and Company New Delhi 110055.
- 3) Seth M. L. (1990) Macro Economics Lakshmi Narain Agrawal Educational Publisher, Agra - 03.
- 4) Mithani D. M. 'Macro Economic Analysis' (2004) Himalaya Publishing House, Mumbai.
- 5) Macro Economic Analysis (2012) Shivaji University, Kolhapur, first Edition. Distance Education Centre.



Unit – IV

'Theories of Investment'

4.0 Objectives

4.1 Introduction

4.2 Analysis of the unit.

1. Classical view of Investment
2. Investment function
3. Investment Multiplier, Acceleration, Principle and super multiplier
4. New and new classical views of Investment.

4.3 Summary

* Objective questions and their answers.

4.4 Glossary

4.5 Questions for practice

4.6 Books for further reading

4.0 Objectives

After going through this particular unit No. 4, you will be able to know :

- * the meaning of Investment function.
- * the classical view of investment
- * the concepts of multiplier, actualization and super multiplier.
- * Now and new classical approach of the investment.

4.1 : Introduction

The study of investment is important for the determination of income and employment in macroeconomic analysis. We have considered the concept of consumption function and the theories of consumption in the unit No. 3. In this particular unit No. 4, we will see the concept of investment and investment function. We will also consider the concepts of multiplier and super multiplier in this unit. This unit also covers the concept of acceleration and new and new classical approach of investment. The concept of investment is important for overall development of an economy.

low, the investment increases and MEC also increases on the contrary, the high level of interest rates declines MEC as well as investment in a economy.

Apart from all above mentioned factors, government policy, business optimism and pessimism, war and peaceful atmosphere, infrastructure development are the important factors affects MEC in an economy. According to classical economist, rate of interest is the important factor who establishes the equilibrium between savings and investment, when rate of Interest, the size of savings also increases and the investment decreases. On the contrary, when the rate of interest decreases the savings also decreases and investment increases due to the cheap money policy. Here classical economist says that the equilibrium between savings and investment determines the equilibrium of an economy. The basic principle, of self regulating behind this view of investment is through the following figure No. 4.1

Figure No. 4.1

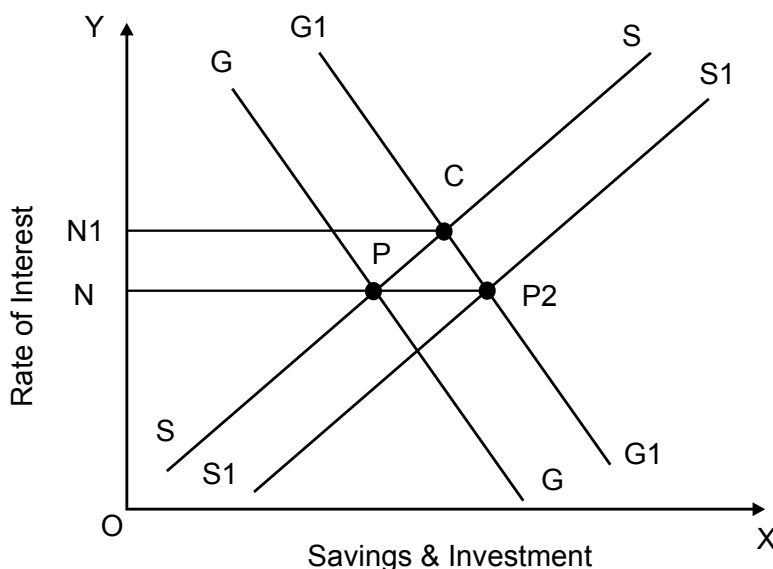


Figure No. 4.1 clears the self adjustment between savings and investment thoroughly the rate of interest. In this figure, 'p' point denotes the initial level of equilibrium between savings and investment. When investment increases from the point 'p' to p1 level through the investment curve GG to G1G1 rate of interest will be increased from ON to ON 1. This increasing trend of rate of interest leads to the increasing level of savings which is shown with the curve SS to S1S1 According to classical economist the equilibrium of savings and investment will be established automatically. So that no excess production or shortage of production situation will be arised in a economy.

*** Comment on Classical view of Investment :**

Lord J. M. Keynes has attacked on the classical view of investment in the following manner.

the risk accepted by the entrepreneur should be given expected economic benefit for which he has invested the amount. Prof. Kurihara defines marginal efficiency of capital as an expected income of capital and supply price of capital. According to Keynes, the Marginal efficiency of capital rely on two factors i.e. prospective yield from the capital asset and supply price of capital. The supply price of capital is the excess cost made by producer for purchasing new capital assets. Sometimes this supply price of capital is known as the replacement cost of new machines. In this way, marginal efficiency of capital is determined by the two factors expected return from capital and rate of interest. The relationship between investment, MEC and rate of interest is shown in the Table No. 4.1,

Table No. 4.1

Determination of MEC and investment.

Investment (Rs. Crores)	MEC (%)	Rate of Interest (%)
5	10	10
10	8	09
15	6	06
20	4	04
25	2	03

Table No. 4.1 reveals the relationship between investment, MEC and rate of interest. When the amount of investment increases from Rs. 5 Crores to 10 Crores, the marginal efficiency of capital declines from 10% to 8% and the rate of interest also declines from 10% to 9%. It happens due to the two reasons. One is the larger investments on capital assets leads to minimize the marginal efficiency of it, secondly the price of such type of capital assets increases as per increase in demand. We can explain this situation with the help of following figure No. 4.2

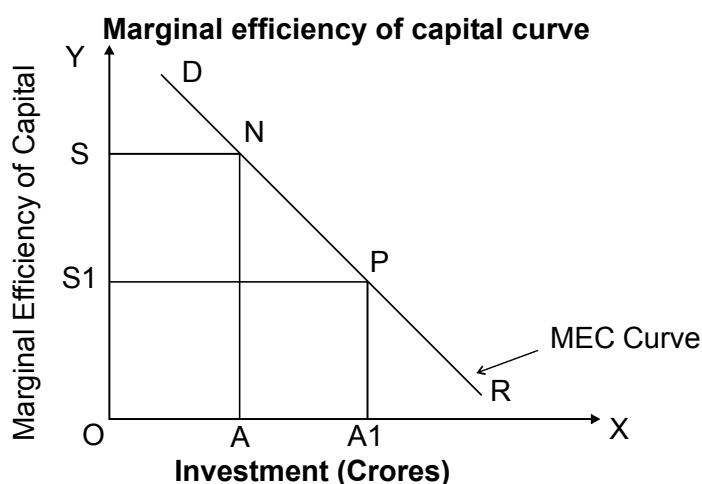


Figure No. 4.2

Figure No. 4.2 shows us the relationship between MEC and investment on OX axis, investment is shown in the Rs. in crores whereas on OY axis, marginal efficiency of capital is shown the marginal efficiency of capital (MEC) curve. This curve shows us, as the investment increases, MEC declines and vice-versa. So that the slope of MEC is slowdown from left to right.

*** Factors influencing marginal efficiency of capital :**

We can classify the factors affecting MEC in two categories, first type is of short-run period and second is of long-run period factors influencing marginal efficiency of capital in a private enterprise economy. Now we will consider these factors in detail.

A) Short-run factors : The various factors affecting MEC on short-run period are as follows.

I) Expected demand for the production : Expected demand for commodity produced in a economy is one of the important influencing factor of MEC. If the expected demand for products is to be high level in future, the marginal efficiency of capital will be high. On the contrary, if the demand for such type of products is to be less in future, the MEC and volume of investment will be less.

II) Costs and prices : The future nature of costs and prices will also one of the important influencing factor of MEC. If the expected costs of commodity are to be declined, the size of investment increases as well as MEC also increases. On the contrary, when the expected prices of commodities sold by the entrepreneurs are to be increased, the marginal efficiency of capital and investment also increases.

III) Propensity to consume : In a short-run period, if there will be a possibility of increasing trend of propensity to consume, the MEC and level of investment increases and vice-versa position of it.

IV) Change in income : MEC and the level of investment is directly related to the expected level of income, sudden changes in income occurs due to the windfall gains of an economy. An increase into the level of income in a short-run period stimulates the MEC and investment while a decline in the income of consumer decreases the level of MEC and investment.

V) Business environment : MEC and the level of investment depends on business environment of an economy. The entrepreneurs face the challenges of trade cycles. If the environment of the economy is favorable to a boom stage, the MEC and investment increases and vice-versa.

IV) Wages and rate of interest : MEC and investment depends on wage rates as well as interest rates of the banks. If the wages and interest rates of financial institutions are on high level or to be high level, the production cost of commodity increases and MEC as well as investment level decreases. On the contrary, if the wage rates and interest rates are at lower level, the MEC and investment increases.

B) Long-run factors of MEC :

The various long-run period influencing factors of MEC are as follows -

I) Rate of growth of population : This is one of the important influencing factors of MEC. When the grossularite of population of a country increases, MEC of private enterprises also increases due to the expansion in demand for the various commodities. On the contrary, the declining rate of population decreases the marginal efficiency of capital.

II) Development of new areas : When the backward regions are developed by the government through heavy investment in roads, transport communication, electricity, agriculture, housing etc. the marginal efficiency of capital increases.

III) Technological progress : Technological progress in agriculture and industrial sector always leads to rise in marginal efficiency of capital, New techunology or invention in the production increases marginal efficiency of capital,

iv) Existing capacity of capital equipment -

If the existing capacity of capital equipment or machinery is not being felly used, the excess demand for products should be fulfilled with these machlinery. In this situation MEC will be less, On the contrary, in case of full used of existing capacity, the increasing level of demand for products will be met by installing new capital equipment in a industry which leads to increase in MEC.

v) Rate of current investment - MEC depends on the current investment, In a industry, If such type of rate of investment is already high, then there is no scope for further increase in investment, So that in this particular position MEC will not crease in, But if the current rate of investment is low, there will be new entrepreneurs willingness for, increasing investment in different units in a industry which leads to MEC in a economy,

Thus above mentioned factors affect MEC. Apart from all above factors, Government policy, trade cycles etc. factors also determines the nature and size of MEC,

4.2.3 The Multiplier -

The multiplier is an important concept used in macro- economics. This concept was developed, by R.F. Khan in1931 in his article, Relation of home investment to unemployment, The concept of multiplier developed by Khan is known as employment multiplier. Keynesian multiplier concept is based on marginal propensity to consume (MPC)

According to Keynes, multiplier is the ratio of final change in income to the initial change in investment, the concept of multiplier is explained in the following formula,

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

$\Delta Y = \text{change in income}$
 $\Delta I = \text{change in investment,}$

The multiplier is determined by the propensity to consume, the relationship between the MPC and the investment multiplier is shown by the following arthmatic formula,

$$K = \frac{1}{1 - MPC}$$

For example, if MPC is 3/4 the multiplier will be

$$K = \frac{1}{1 - 3/4} = \frac{1}{0.25} = 4$$

Assumptions of Multiplier -

The Keynesian Concept of investment multiplier is based on the following assumptions:-

- 1) The mpc is constant.
- 2) The concept of multiplier is applicable to the economy based on industry.
- 3) The economy fully increase closed,
- 4) There should be net increase in investment,
- 5) There is unemployment in a economy.
- 6) There should not be changes in monetary and fiscal policy during the working of multiplier process,
- 7) Induced investment is made in an economy.
- 8) There is an existence of excess capacity in the consumer goods industry in economy.
- 9) No time lags between successive expenditure on consumption in the process of multiplier.
- 10) Resources required for the production process are available in a economy.

* **Working of Multiplier** - Explains the cumulative effect of a change in investment on income via consumption expenditure, It is the mechanism through income and investment expansion, talcel plau Now we will see the functioning of multiplier with the help of following assumed example, Let us suppose that MEC is 4/5 i.e. 75% The initial investment is Rs 1000 crores, The process of income generation from the original (initial) investment is shown in the Table No 4.2.

Table No 4.2
Working Of Multiplier

MPC= 4/5

Period of Multiplier	Initial Investment △ (Rs)	Increase in Income △Y (Rs)	Increase in Consumption (Rs)
0	1000	800	800
1	--	800	640
2	--	640	512
3	--	512	410
4	--	410	328
5	--	328	262.4
--	--	--	--
--	Total Rs. 1000/-	Rs. 5000/-	Rs. 4000/-

Table No 4,2 shows us the process of working of multiplier in a economy, in the various stages. The initial (originally) investment is assumed of Rs. 1000/- The MPC is $\frac{4}{5}$ so that in the phase or stage, increase in consumption expenditure and induced income is of Rs. 800/- The second stage, we observe that induced income and consumption expenditure becomes Rs 640/- and Rs 512 /- respectively. In this way the working of multiplier process is going on upto the level induced income and expenditure on consumption becomes O, Thus. with the help of original investment of Rs.1000/- the economy can grow induced income and consumption of Rs 5000/- and Rs. 4000/- respectively, It denotes that multiplier becomes 5, the process of multiplier is the cyclical effect of induced income and consumption. The concept of investment Multiplier is shown with the help of following figure No. 4.3

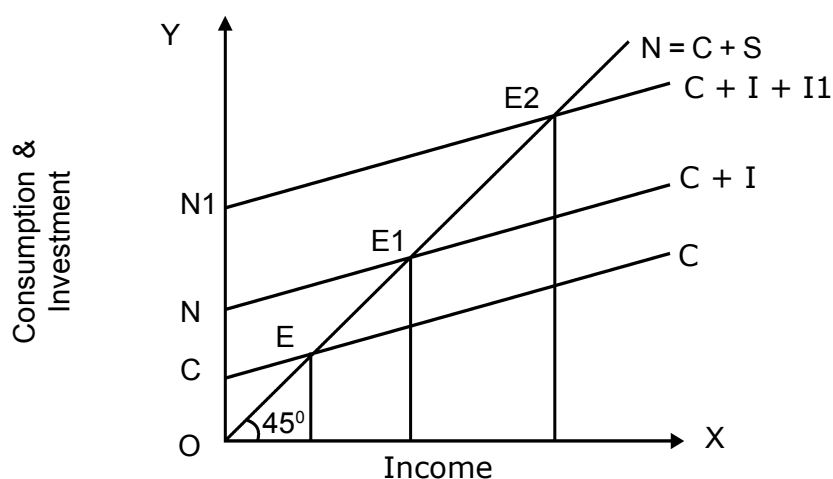


Figure No. 4.3 shows us the working of multiplier in a $\frac{4}{5}$ MPC ratio. Ox axis shows the change in income and OY axis consumption and investment is shown. ON line shows the zero savings condition. E, E1 and E3 are the three equilibrium points which shows us the changes in income and investment level of an economy. The equilibrium point E2 denotes the zero savings situation. Thus, the process of working of multiplier depends on MPC.

* **Limitations or Leakages of Multiplier** : The concept of multiplier seems to be very attractive theoretically, but in practice, the functioning of multiplier arises some limitations or leakages. These limitations of multiplier are as follows :

a) MPC will not remain constant - Keynes assumes that MPC is constant in the process of multiplier, but according to the critics, it should not remain constant by all the time. When MPC will decrease or increase, the working of multiplier automatically changed,

b) Regular investment - The value of multiplier depends on regular investment level. Otherwise the process of continuous increase in income and consumption expenditure will stop.

*** Assumptions of Acceleration** - The principle of acceleration is based on the following assumptions.

- a) Capital output ratio is constant.
- b) Resources are available for production process.
- c) There is no excess capacity in existing industries.
- d) The supply of capital and credit money is elastic.
- e) Investment leads to increase in the production immediately.

*** Working of Acceleration** : The working of Acceleration is explained by assumed example given in the Table No. 4

Table No. 4
Working of Acceleration

* Rs. in Crores

Period	Output Capital	Desired Investment	Replacement Investment	Net Interest	Gross Investment
1	100	200	20	0	20
2	100	200	20	0	20
3	110	220	20	20	40
4	120	240	20	20	40
5	150	300	20	60	80
6	170	340	20	40	60
7	170	340	20	0	20
8	160	320	20	20	0

Table No. 4. clears the working of acceleration principle within the assumed capital output ratio 2. Table also shows us the changes as per desired capital and gross investment in a economy, gross out put in a economy is depending on the replacement investment and net investment. When the economy is moving downwards, the gross investment can fall upto zero which is shown in 2 and 7 that period stage. Thus, the functioning of acceleration principle in a economy is the effect of change in income on consumption and investment.

*** Limitations of the Accelerator** : The principle of acceleration is based on rigid assumptions so that this principle has the following limitations.

a) A constant capital output ratio is not passible : According to critic the assumption of constant capital output ratio is not possible in modern dynamic world. The factors of investment, production technique businessman's expectations, prices and wage rates etc. may affect the capital output ratio. Hence, the capital output ratio does not remain constant due to the phases of business cycle.

b) The assumption of no excess capacity is not true : Acceleration principle assumes that there is not excess capacity in a economy in respect of consumer goods industry. But if excess capacity is available, then an increase in demand for such commodities will be met with the existing capacity, and the accelerator will not in working condition thereon.

c) Fluctuation in permanent demand : This principle assumes the permanent demand for consumer goods. But if the rise in demand for consumer goods is temporary nature, it will not lead to any increase in capital stock.

e) Absence of time lag : The principle of acceleration assumes that increasing demand for output immediately leads to induced investment, But there may be a time lag for this process of new investment to be generated.

f) The problem of finance : This principle assumes that the finance will be generated easily for induced investment. But according to the critics, if the finance will not available for investment, the working of acceleration stops.

Apart from above all limitations the acceleration principle makes the process of income propagation more realistic.

*** The concept of super multiplier :** The concepts of multiplier and acceleration are most important to study the changes in national income of a economy. These two concepts have a mutual relations, so we have to consider the combine effect of working of multiplier and the acceleration principle, prof., Hansen calls the combine effect of multiplier and acceleration leverage effecor super - multiplier.

The concept of multiplier represents the relationship between the change in investment to the change in income, the principle of acceleration denotes the change in consumption to the change in investment. Prof. Hand, Samulson, Hicks and Kurihyara have also made attempts to integrate these two parallel concepts of macro economics. Hicks has combined the multiplier and the accelerator mathematically and has given the name as a super multiplier. We can explain the concept of super multiplier with the help of following equation.

$KS = K+a$ Whereas $KS =$ Super multiplier
 $K =$ multiplier, $a =$ accelerator

Now we can explain this concept with the help of following example with a schedule. Combination of multiplier and the acceleration or working of super multiplier.

*(Rs. in crores)

Period	Initial Investment	Induced Consumption C+ as	Induced Investment A+2	Aggregate Increase in National Income
1	100 Crores	-	-	100 Crores
2	100 Crores	50 Cr	100 (50x2)	250 Crores
3	100 Crores	125 Cr	150 (75x2)	375 Crores
4	100 Crores	187.5 Cr	125 (62.5x2)	412.5 Crores
5	100 Crores	106.25	37.5 (18.75x2)	343.75
'N' times	100 Crores	500 Cr	1000 Cr	1000 Crores

The above schedule clears the changes in initial investment, induced consumption level, induced investment and aggregate increase in national income, The schedule also represents the process of income generation with the help of both The principles i.e. multiplier and accelerator, within the 5 year duration, Here we observe that the initial investment and aggregate crease in national income with the functioning of multiplier and accelerator. Thus the study of super- multiplier or accelerator- multiplier combination effect on economy, The concept of super - multiplier furnishes an adequate explanation of the cyclical process of multiplier and the accelerator.

*** Conclusions** - The important critics have been made on the concept of super multiplier are as follows -

a) It is highly impossible to calculate the effect of working of multiplier and the accelerator on national income increase,

b) The concept of super - multiplier is based on the assumption of constant MPC, but in practice MPC does not remain constant. Multiplier and acceration doesn't remain constantly all the time.

c) According to critics, the change in multiplier and accelerator on investment and national income we don't calculate.

Apart from all above mentioned critics, the multiplier-acceleration combination or super-multiplier is useful for knowing scientific explanation of trade cycle. This concept gives guidelines to the Government in respect of economic stability and full employment level and expenditure policy. According to Prof. Kurihara, the concept of super-multiplier is useful for the explanation of trade-cycle.

4.2.4 Neo and New classical views of Investment :

There are 3 different types of views of investment in macro economic analysis. Classical neo and new classical views have been developed in 20th and 21st century. J. B. Say and other classical economists have explained classical view of investment which is based on unrealistic assumptions. So that since 1929, Keynesian view of investment has become more realistic on the background of the great depreciation period. Keynes attacked on classical view of investment due to unrealistic assumptions.

*** Keynesian view towards investment :**

Keynes view of investment is known as neo-classical view of investment. Keynes says that savings and investment are the two different important components of economic growth. They are interdependent but not equal by all the times. In this context Keynes has used the following two terms.

a) Equality in accounting : Keynes has explained the concept of equity in accounting of savings and investment in his book entitled, "The General Theory of Employment, Interest and Money" in 1936. He says that the savings and investment equilibrium is necessary for economic development. But for such type of equity, there should be equilibrium between actual saving and actual investment. Keynes says that savings always depend on the level of income and tendency of savings. He also

mentioned that there are so many factors determining the size of savings i.e. level of consumption, rate of interest, nature of inflation, Government policy etc. Keynes says that current income should be greater than the current consumption for the equilibrium of savings and investment. It is possible in most of the developed countries, but it is impossible in developing countries due to the obstacles arise in the level of income savings and investment.

b) The functional equity between savings and investment : According to Keynes, the equilibrium between savings and investment establishes due to the change in income level of the country. We find the process of changes in income, savings and investment continuously upto the equity between saving and investment. After all we observe that the investment declines though the income and savings increase. We can show this situation with the help of following figure No. 4.4

Figure No. 4.4

The process of equilibrium 'between savings and Investment'

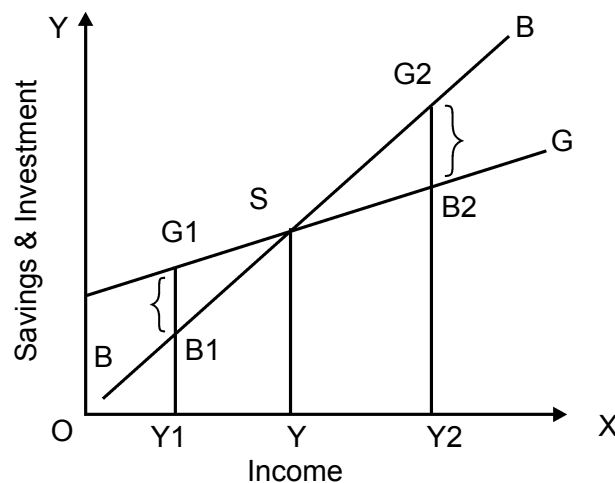


Figure No. 4.4 clears the equity between savings and investment through income level of a economy. In this diagram, OX axis shows the level of income and OY clears the saving and investment ratio. BB is the savings curve and GG is shown as the investment curve. When Income of a economy is OY1, investment is greater than savings by B1 G1. At the income level OY, savings and investment are equal. But when the income level of a economy reaches up to OY2, savings is greater than investment by B2 G2, we also find the backward linkage of multiplier in this particular situation.

Thus the explanation of equity between savings and investment is established through the level of income of a economy. Prof. Kurihara has explained the importance of equity of savings and investment view given by Keynes is based on demand and supply analysis of Dr. Marshall. The view about the investment explained by Keynes has been criticised by the critics. According to critics, it is highly impossible to explain

determined by the Government to increase investment, income and savings ratio. Same view has been explained by Robertson, Dr. Lutz, Ovin, Aric Lindal and Myrdall in the recent years. Thus new classical approach of investment has been developed since 1960 which is practical oriented and comprehensive to stimulate the economies in 20th & 21st century.

⊕ **Objective Questions :**

A) Rewrite the following sentences by choosing correct alternatives given below.

- 1) The formula of Keynesian consumption function is ,
 a) $M=KY$ b) $C=f(Y)$ c) $MV=PT$ d) $A=f(X)$
- 2) According to Keynes investment means
 a) money supply b) demand for money
 c) real investment d) interest in terms of money
- 3) Marginal efficiency of capital is mainly rely on ,
 a) rate of interest b) supply of commodity
 c) Government policy d) level of income
- 4) Multiplier is the function of ,
 a) income b) expenditure c) employment d) inflation
- 5) The principle of acceleration was propounded by ,
 a) Dr. Marshall b) Prof. J. M. Clerk
 c) Keynes d) Adm Smith
- 6) has explained the law of market.
 a) J. B. Say b) Pigou c) Robertson d) Marshal

B) Answer in one sentence :

- 1) What do you mean by induced investment ?
- 2) State two determinants of MEC ?
- 3) Give definition of multiplier.
- 4) State two limitations of accelerator.
- 5) What the formula of super multiplier?

⊕ **Answers of the objective question.**

A) Rewrite the following sentences by choosing correct alternatives.

- 1) The formula of Keynesian consumption function is $C = f(Y)$
- 2) According to Keynes, investment means real investment.
- 3) Marginal efficiency of capital mainly rely on rate of interest.
- 4) Multiplier is the function of income.
- 5) The principle of acceleration is prepared by Prof. J. M. Clerk.
- 6) J. B. Say has explained the law of market.

B) Answer in one sentence :

- 1) Induced investment means the investment made by only profit motive.
- 2) Business environment and Government policy are the two determinants of MEC.
- 3) The ratio of final change in income to the initial change in investment is called multiplier.
- 4) Availability of resources and the problem of finance are the two limitations of accelerator.
- 5) $KS = K = a$ is the formula of supermultiplier.

4.3. Summary :

The concept of investment is important for the determination of income, employment and overall development of a economy. In this particular unit No. 4, we will consider the four contents related to investment function.

A) Classical view of investment : The classical view of investment is developed by J. B. Say, Adam Smith and other classical economists. This view of investment is based on free and self regulating economy. J. B. Say's law of market is based on the classical view of investment. According to J. B. Say every supply creates its own demand. So that there will no over production or shortage of commodities in a capitalistic economy. Keynes has made the various comments on the classical view of investment due to its limitations.

B) Investment function : Second important sub-unit of this chapter is of investment function. The investment function is the inducement to invest. There are 2 types of investment i.e. autonomous and induced. Autonomous investment is made by the Government to provide basic infrastructure. The induced investment is always linked with the profit motive. Marginal efficiency of capital and rate of interest are the two main factors of investment function. Prof. Kurihara defines the concept of marginal efficiency of capital as an expected income of capital and supply price of capital. There are various short-run and long-run period factors affecting MEC.

C) The third important aspect of this unit is the concepts of multiplier, acceleration and super-multiplier. The concept of multiplier has been developed by Keynes. Multiplier is the ratio of final change in income to the initial change in investment. The multiplier is determined by the concept of propensity to consume. The process of multiplier is useful for generating income, employment and consumption, Acceleration principle is explained by J. M. Clerk. Acceleration is the co-efficient of the ratio between induced investment and initial change in expenditure. This principle shows us the effect of change in income on investment. The concepts of multiplier and acceleration are based on certain assumptions. So they have various limitations. Super multiplier is the combination of the functioning of multiplier and acceleration. Prof. Hansen calls the combination effect of multiplier and activation

4.6 Books for further reading.

- 1) Jhingan M. L. Macro Economics 2004. Vrinda Publication privated Ltd. New Delhi.
- 2) Seth M. L. Monetary Economics (2006) Lakshmi Narayan Agrawal Publication Agrawal publication agra (U.P.)
- 3) Dweef K.K. 'macro Economic' 207 S.Chand & Company, New Delhi.
- 4) Mithari D. M. 'Money, Banking and international trade, (2004) Himalaya Publishing House, New Delhi.
- 5) Deshmukh Ram, 'Modern Macro Economics' (2010) (Marathi Book) Vidya Prakashan Nagpur.



National Income and Accounting

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5.0: Objectives:

After the studying the National Income and Accounting, unit, you will be able to understand.

1. The circular flow of National Income.
2. The different concepts of National Income
3. The various methods of measurement of National Income i.e. Production, Income, Expenditure and Social Accounting

5.1: Introduction:

In the Unit No.4, we have studied the different laws of investment. In present unit we will study the different concepts of National Income and methods of measurement of national income. National income is an important variable for the study of macro economics. The production and distribution of goods and services between the different categories of society, is the basic problem of every economy. In this regard all branches of the economics are studying the different contents of

production and income. National income and Per capita income are the very important variables for the measurement of the rate of development of economy. Basically, after the Great depression the different economists are presented their approaches regarding the total production, total supply, gross national income etc. New concepts of national income have also originated from new views of economists. So new methods of measurement of national income also introduced. The different sectors are going to develop in the economy. So the circular flow of national income has been changed. So, in respect of these changes we will study the national income in this unit.

5.2 : Presentation of Subjed Matter:

We will study the circular flow of national income i.e. Two, Three, Four and Five sector economy. With this we will study the different concepts of national income and methods of measurement of national income in this unit,

5.2.1: Circular flow of National Income:

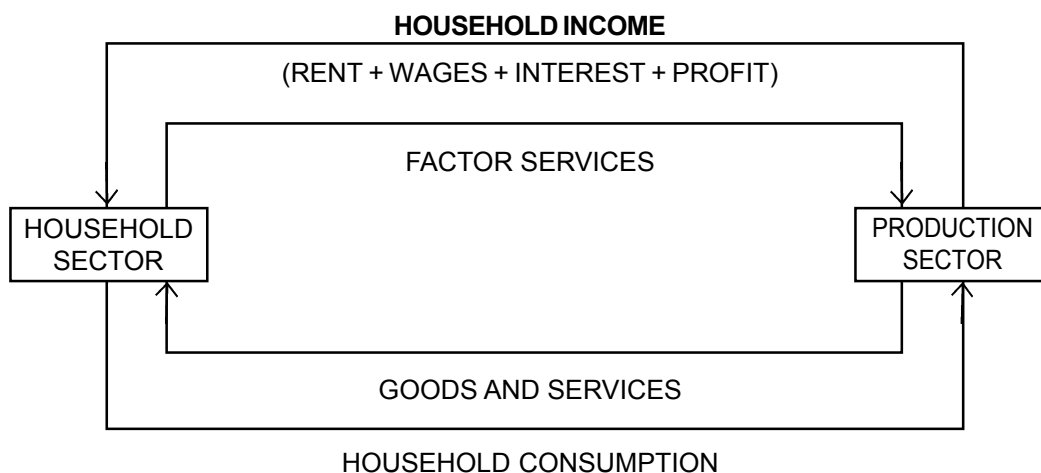
National income is the very important concept regarding the study of macro economics. The main objective of economic activity is the production and equal distribution of goods and services. So the different branches of economics are connected to the production and income. It is possible to inter-regional and international comparison of economic condition with the help of national income. Upto the 1930, the total production, total income, total supply and total employment was not considered for the economic analysis. But, after the Great depression some economist has taken into consideration the above factors.

Every economy has using the money for exchange the goods and services. There are number of transactions of purchasing and selling. One household's expenditure is another's income. This kind of exchange happened at the beginning of development of an economy. But, in the modern age, firms are doing the business of collection of production. Production sector is producing the goods and services which are demanded by the household sector. Household sector is not producing the goods and services. Household sector is provided the factors of production to the production sector. Production sector pays the price of factors of production in the form of rent, wages, interest and profit. We can explain the circular flow of income between production sector and household sector.

A) Circular Flow of National Income in Two Sector Economy:

Household sector and Production sector are the two important sectors in the circular flow of national income in two sector economy. Household sector provides the land, labour, capital and entrepreneur to the production sector and the rewards of factors of production provides by the production sector in the form of rent, wages, interest and profit. The Figure No. 1 shows the circular flow of national income in two sector economy.

Figure No - 1



In the figure No. 1 at the left side household sector and the right side production sector is shown. Household sector is the group of primary consumers. Household sector is consuming the various goods and services for fulfill their needs. But, at the same time household sector provides the land, labour, capital and entrepreneur for production of goods and services to the production sector.

At another side shows the production sector selling the goods and services to the household sector. Here the direct relationship between consumer and producer's has been shown. But, in real market in between the producer and consumer's wholesale traders, retail traders are the middlemen's. The circular flow of national income is generated due to dual relationship between production sector and household sector. In short, household sector and production sector are interdependent to each other. In national income accounts we are concerned with money flow. In the above model, following assumptions are made :

- a) Household Sector consumes the entire amount it receives as factor payments. In other words, household sector does not save at all.
- b) Production Sector also does not save at all. Whatever is received from sale of produced goods and services is given as factor payments to Household Sector.
- c) There is no Government.
- d) The economy is a closed economy. It means nothing is exported to or imported from other countries.

From above model following are the main conclusions.

- a) The summation of net income of Household and Production sector means national income.

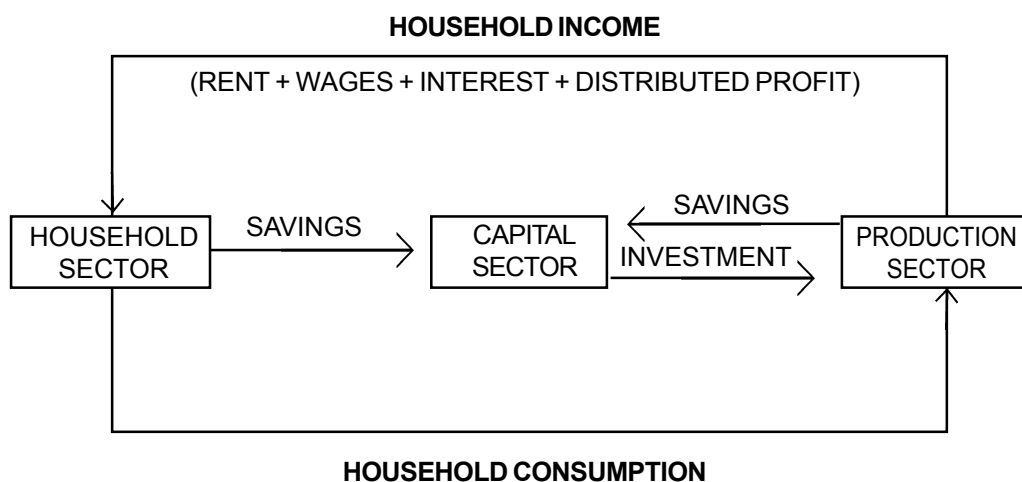
- b) Total expenditure of individuals and production sector for production is national income.
- c) The total market price of final goods and services within a country in a specific period is national income.

Because of these assumptions, the model discussed above is not realistic. So we will try to discuss the circular flow of national income with the help of three sector economy.

B) Circular Flow of National Income in Three Sector Economy:

In the two sector economy, it is assumed that Household sector and Production sector do not save at all. Household sector consumes as much as it receives from production sector as factory payments. Similarly, Production sector pays as factor payments whatever it receives from household sector as payments for goods and services. In actual practice, it is not so. Households save more part of their income for many reasons like precautionary reasons, transactionary reasons etc. Similarly, firms in Production sector also save some part of their receipts for many reasons like expansion of their business transactionary purposes, speculatively purposes etc. The savings of Production Sector is undistributed profit and depreciation fund. Household income in this model will, therefore, be equal to sum of rent, wages, interest and distributed profits. The savings of household and production sector are collected by Capital Sector in the economy. All the financial institutions, commercial banks and insurance companies taken together constitute Capital Sector of the economy. From capital sector these savings flow to Production Sector as loans for investment. All these transactions can be shown with the help of Circular flow as shown in the following Figure. No. 2

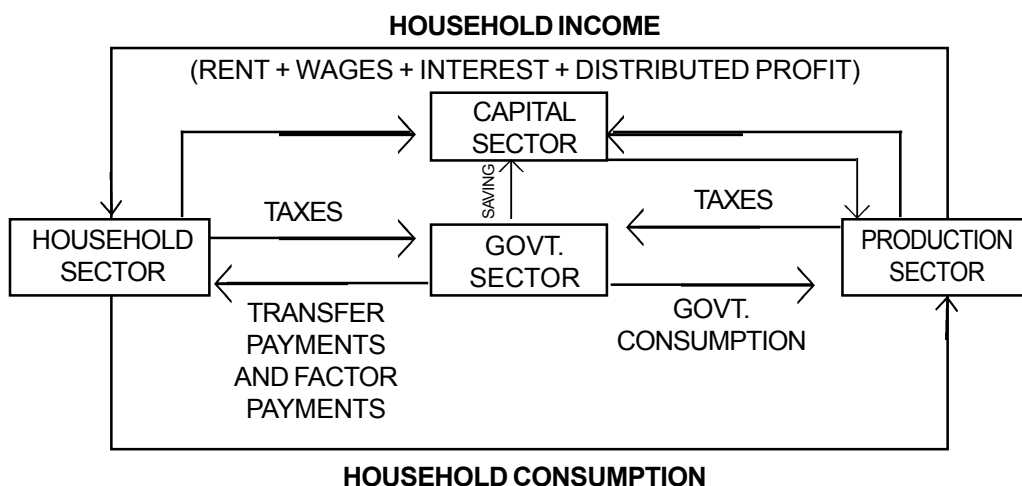
Figure No. 2



C) Circular flow of National Income in Four Sector Economy:

The circular of national income in the Two Sector and Three Sector economy having a serious limitation, i.e. Government sector has not considered. Because classical economists thought was no government interference in the economy. But, in the changing nature of the economy Government is concerned with the all economic activities in the economy. So in the Four Sector economy Government sector has included. All the economic activities are affected on the circular flow of national income. This includes the tax levied on the public by the government and income spent on public welfare activities by the government. Government sector pays to Household sector some amount as transfer payments like old age pensions. Rest of the income is saved by Government and is mobilized by Capital sector. The working of economy in a Four Sector model can be shown with the help of circular flow as shown in the Figure. No. 3

Figure No. 3



Government taxes and expenditure classified as under

1. Government taxes: Government levied different kinds of taxes i.e. Direct and Indirect taxes. A direct tax includes, Corporation tax, Income tax, Sales tax etc. Excise duty, Service tax, Tariff ect., are the indirect taxes. Due to levied direct taxes on the household sector some income of household sector exit from circular flow of national income, and the flow of income from household sector to production sector is reduced. If Government spent some receipts collected from the household and production sector for the purchase of goods and services produced by the production sector, it will again come to the circular flow of national income. If the Government saved received receipts for precautionary purpose, this money will be again exit for the circular flow of national income.

2. Government Expenditure: Government collecting the receipts from the different sources i.e. tax revenue and non tax revenue. Revenue collected by the government spent on the different economic and social activities. We can explain the government expenditure on the various activities as follow:

a) Expenditure on Public Sector Undertaking: Government has its own enterprises, for these enterprises government purchases some services from the Household sector and gives the rewards for it. Government is also selling the goods and services to the household sector and getting the income. Government spending on different types of factories, nationalized banks, post and telegraph offices, insurance etc. and this expenditure automatically comes in to the circular flow of national income.

b) Expenditure on Grants and Subsidies : Government has some transfer expenditure on pension, social security schemes and some social welfare schemes. This is unproductive expenditure of government and not expected to refund. Transfer expenditure is not considered in the national income.

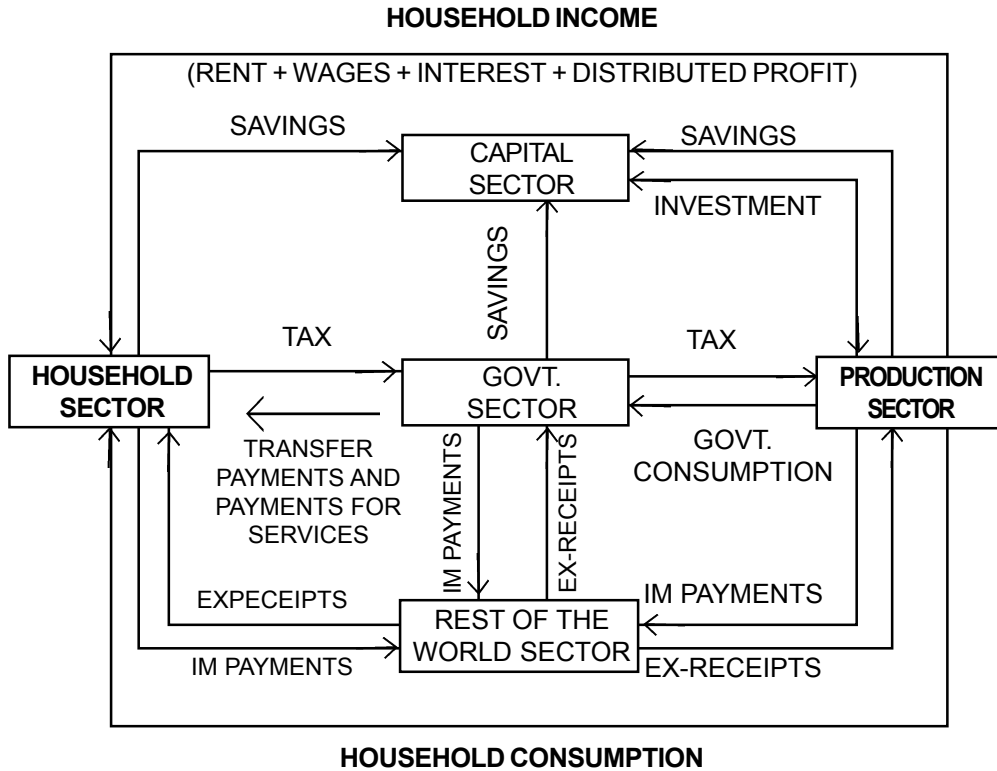
c) Expenditure on Infrastructure and social services: Government is providing the basic infrastructure and services to the society. This requires the huge investment and expenditure. Road transport, Rail transport, Water and Air transport, Communication, Education, Health, Defense, Administration, Justice having the highest share in the public expenditure.

Four sector economies include mainly Household sector, Production sector, Capital sector and Government sector.

d) Five Sector Economy :

Now a day all the economies are open economies. By open economies we mean economies participating in international trade of goods and services. Therefore to make our model more realistic, we should include in our model the Rest of the World sector. Production sector of the economy imports goods and services from Rest of the World sector and makes payments for these imports. Production sector also exports goods and services from its total production to Rest of the World sector. In returns for these exports Production sector receives money from Rest of the World sector. Household sector receives money from Rest of the World sector for providing services abroad and as transfer payments like gifts, donations etc. Household sector also makes payments to Rest of the World sector for getting goods and services from abroad and as transfer payment. Government sector receives money from Test of the World sector for export for export of goods and services and as transfer payments. If total exports are more than total imports, that is, balance of payment position is in surplus, it implies that some foreign investment is made. On the other hand if total exports are less than total imports, that is, balance of payment position is in deficit, it implies some foreign disinvestment is made. Working of a five sector economy can be shown with the help of circular flow as in Figure: No. 4

Figure No- 4



5.2.2: Concepts of National Income:

Each and every country in the world desires to achieve rapid and all-round economic development. The intension may be to offer superior standard of living to the people or to emerge out as a developed country in the world. National income is an indicator or parameter of measuring economic development of the country. The economic performance of the whole economy is measured by national income data. National income is the money value of all the final goods and services produced by a country during a period of one year. National consists of a collection of different types of goods and services of different types. Since these goods are measured in different physical units it is not possible to add them together. Thus we cannot state national income is so many millions of meters of cloth, so many million liters of milk etc. Therefore, there is no way except to reduce them a common measure. This common measure is money.

Definitions :

1. Fisher: "The National income consists of solely services as received by ultimate consumers, whether from their material or from their human environments. Thus, a Piano, or an overcoat made for me this year is not a part of this year's income,

but an addition to the capital. Only the services rendered to me during this year by these things are income.”

2. Marshall: “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 investment must be added in, this is the true net annual income or revenue of country or national dividend.”

3. Pigou: National income is that part of the objective income of the community including of course derived from abroad which can be measured in money.”

4. Myron H. Ross: “Income is a flow of goods and services over a period of time.”

Concepts of National Income :

1. Gross National Product (GNP): This is the basic concept in national income accounting. It measures the total output or aggregate supply of goods and services. Gross national product is defined as ‘The total market value of all final goods and services produced in a year. It has already been seen that whatever is produced within the domestic territory of a country in a year is its gross domestic product. It, however, includes, the contribution made by non-resident producers by way of wages, rent, interest and profits. The non-residents work in the domestic territory of some other country and earn factor incomes. In other words, it is factor income earned from abroad by the residents of India by rendering factor services abroad. Gross national product is defined as the sum of the gross domestic product and net factor income from abroad. Thus in order to estimate the gross national product of India we have to add net factor income from abroad i.e., income earned by Indian residents abroad minus income earned by non-residents in India to form the gross domestic product of India.

We should add the total of the market value of the final goods and services produced in a nation. This method of measuring Gross National Product at Market Prices is called Product Method.

Product Method

G.N.P. at market prices = Market value of consumer goods and services ©
+ Market value of Govt. produced goods and services (G)
+ Gross Domestic private investment (I)
+ Exports including factor services (X)
- Imports including factor services (M)

G.N.P. at market price = C + G + I + (X-M)

G.N.P. at factor cost = There is different between ‘Factor cost’ and ‘Market price’, Factor cost includes that expenditure which in incurred on the production of goods

and services. Profits are also included in these costs. In market prices we include not only factor cost but also indirect taxes which are imposed on goods. Suppose the factor cost of any goods is Rs. 50 per unit. Government imposes Rs. 5 per units an indirect tax, e.g. Excise duty. The market price of goods will be $50 + 5 = 55$ per unit. If government gives subsidy Rs. 2 per unit, then the market price of the goods will be $50 + 5 - 2 = \text{Rs. } 53$ per unit.

G.N.P. at factor cost means total of factor cost value of all the final goods and services produced in a nation in one year.

G.N.P. at factor cost = G.N.P. at Market prices – Net indirect taxes (i.e., Indirect Tax – Subsidy)

2. Gross Domestic Product (G.D.P.) :

There is a difference between Domestic product and National product. The production which occurs within the domestic territory of nation is called Domestic product. Production by all the residents of a nation, whether it is within the domestic territory of a nation or outside the domestic territory, is called National product.

Gross Domestic Product at Market prices means total of market value of all the final goods and services produced within the domestic territory of a nation in one year.

According to Samuelson and Nordhaus, “Gross Domestic Product is the name we give to the total dollar value of the final goods and services produced within a nation during a given year.”

In other words, as the most comprehensive measure of nations total output of goods and services, GDP is the total sum of rupee value of consumption, gross investment, government purchases of goods and services and net exports produced within a nation during a given year.

Formula: G.D.P. at Market Prices = G.N.P. at Market Prices - Net Factor Income from Abroad.

Or

$$\text{G.D.P. at Market Prices} = C + I + G + (X - M)$$

Where, C= Consumption / Consumer goods, I= Investment / Capital goods, G = Government produced goods / Purchases, X = Export Value, M = Import Value.

Gross Domestic Product at Factor Cost refers to the total cost in terms of factor prices or incomes incurred to produce the total production of goods and services by a country during the period of one year. It is the total income earned by the people in the form of factor prices like wages and salaries, rents, interest, dividends, undistributed corporate profits, mixed incomes, direct taxes.

$$\text{Formula G.D.P. at factor cost} = \text{G.D.P. at Market Price} + (S - T)$$

Where, S = Subsidies, T = Indirect Taxes

In other words, G.D.P. at factor cost means total of factor cost values of all the final goods and services produced within the domestic territory of a nation in one year.

Formula: G.D.P. at factor cost = G.D.P. at Market Prices – Net Indirect Tax

3 Net National Product (NNP) :

Net National Production at Market Prices means total of market value of net final goods and services produced in a nation in one year. NNP refers to the value of the net output of the economy during the year. It is obtained by deducting the value of depreciation or replacement allowance of the capital assets, from GNP. The word net refers to the exclusion of that part of the total output, which representing depreciation. The concept of net production is more important than that of gross production because it shows the true availability of output for the economy.

Formula: NNP at Market Prices = GNP at Market Prices- Depreciation of Capital

Net National Product at Factor Cost is the net output evaluated at factor prices. It is the NNP calculated by adding up remunerations of factors of production. It includes income earned by factors of production through participation in the production process such as wages and salaries, rents, interests, profits, etc. IT is called National Income. It can be expressed symbolically as :

NNP at factor cost = NNP at Market Prices – Net Indirect Tax

Or

NNP at Factor Cost – GNP at Factor Cost – Depreciation

4. Personal Income (P I) : The sum of all income actually received by all individuals or households during a year is known as Personal Income. However, it is to be noted that national income, that is total income earned and personal income, that is income actually received are generally different. This happens because social security contributions, corporate income taxes and undivided corporate profits are earned incomes, but which are not actually received. Similarly, there are certain incomes, which are actually received but are not earned. For example, transfer payments like pension, unemployment allowance, relief payments and interest received on public debt. We, therefore, define personal income as,

Personal Income = National Income – Social Security Contribution – Corporate Income Tax – Undistributed Corporate Profits + Transfer Payment.

5. Per Capita Income (PCI): National Income does not paint real picture of standard of living of the individuals or people, hence, Per Capita Income is considered as the real measures or method or indicator of economic development of the country. The average income of the people in a particular year is called Per Capita Income. It is the per head income of a person or an individual in the country. When we divide national income by the population of the country in that particular year then we get PCI. The term PCI is expressed symbolically as :

$$\text{Per Capita Income} = \frac{\text{National Income}}{\text{Population}}$$

6. Disposable Income (DI): Personal Disposable Income means the part of Personal income which can be spent by residents of a nation. The whole personal income accruing to individual is not available to spend. A part of the personal income has to be paid by individuals to the Government by way of direct taxes. That part of personal income, which is left behind after payment of direct taxes is called Disposable Income.

Symbolotically,

$$\text{Disposable Income} = \text{Personal Income} - \text{Direct Taxes}$$

Personal Disposable Income may be used for consumption or saving

$$\text{Personal Disposal Income} = \text{Personal Consumption Expenditure} + \text{Personal Saving}$$

5.2.3: National Income Accounting :

Now a day the measurement of national income has assumed great significance in all the economics with the measurement of national income. We can know rate of growth of the economy, the fluctuations in the economy and we can evaluate the economic policy also. Production and sale of goods and services and the generation of income which accompanies these activities are processes that go on continuously. Production gives rise to income; income gives rise to demand for goods and services; and demand in turn gives rises to expenditure; again expenditure leads to further production. The circular flow of production, income and expenditure represents three related phases, namely production, distribution and disposition. These three phases enable us to look at national income in three ways –as a flow of goods and services, as a flow of incomes or as a flow of expenditure on goods and services. To measure it at each phase, we require different data and methods. If we want ot measure it at the phase of production, we have to find out the sum of net values added by all the producing enterprises of the country. If we want to measure it at the phase of income distributed, we have to find out the total income generated in the production of goods and services. Finally, if we want to measure it at the phase of disposition, we have to know the sum of expenditures of the three spending units in the economy, namely, government, consumer households, and producing enterprises.

Corresponding to the three phases, there are three methods of measuring national income. They are: 1. Product Method (Final Goods Method and Value Added Method), 2. Income Method, 3. Expenditure Method.

1. Product Method: A) Final Goods Method : In an economy the production units produce different kinds of final goods and services e.g. sugar cloth, oil, medicine machine, wheat, rice, milk, doctor's services, teacher's services etc. The value of the final goods and services produced in a country in a year is known as gross national

product. But the problem involved in that the measurement of different goods produced in the economy are different e.g. cloth produced is expressed in meters, milk in liters, oil in liters, wheat in quintals or tonnes, etc. So it is difficult to know the sum total of these goods. To overcome this problem the money prices of these goods and services are taken. Then, the money values of all the final goods and services produced are added and this sum is called Gross National Product at Market Prices.

Illustration :

Goods	Production	Market Price	Total Value
Cloth	5000 meter	Rs. 10 meter	Rs. 50000
Sugar	200 quintal	RS. 1000 quintal	Rs.2,00,000
Wheat	10 tonne	Rs. 10000 tonne	Rs. 1,00,000
Milk	500 liter	Rs. 20 liter	Rs. 10,000
Silver	100 k.g.	Rs. 1000 k.g.	Rs. 1,00,000
Tractor	05	Rs. 3,00,000	Rs. 15,00,000
		National Income =	Rs. 19,60,000

B) Value Added Method: According to final goods approach, only the money value of final or finished goods and their output should be considered by neglecting the output of intermediate goods and raw materials, which facilitates to avoid double counting. For example, while measuring output of textile industry only the total output of cloth should be taken into account.

In this method the value added by each enterprise in the production goods and services is measured. This method involves the following steps:

- a) Identifying the producing enterprise and classifying them into industrial sectors according to their activities.
- b) Estimating net value added by each producing enterprise as well as each industrial sector and adding up the net value added by all the sectors.

All the producing enterprises are broadly classified into three main sectors namely: 1) Primary sector which includes agriculture and allied activities, 2) Secondary sector which includes manufacturing units and 3) Tertiary sector which include services like banking, insurance, transport and communication, trade and professions. These sectors are further divided into sub-sectors and each sub-sector is further divided into commodity group or service-group. For calculating the net product of the industrial sector we need to know about gross output of the sector, the raw materials and intermediate goods and services used by the sector and the amount of depreciation. For an individual unit, we subtract from the value of its gross output, the value of raw material and intermediate goods and services used by it and, from this, we subtract the amount of depreciation to get net product or value added by each unit. Adding value

added by all the units in one sub-sector, we get value added by the sub-sector. Again adding value added or net products of all the sub-sectors of a sector we get value-added or net product of that sector. For the economy as a whole, we add net products contributed by each sector to get Net Domestic Product. If the information regarding the final output and intermediate goods is available in terms of market prices we can easily convert it in terms of factor costs by subtracting net indirect taxes to it. If we add or subtract net income from abroad we get Net National Product at factor cost which is nothing but National Income.

The symbolic expression of this method of measuring national income is:

$$Y = (P - D) + (S - T) + [(X - M) + (R - P)]$$

Where, Y = National Income, P = Domestic production of all productive sectors, D = Depreciation allowance, S = Subsidies, T = Indirect Taxes, X = Exports, M = Imports, R = Receipts from abroad, P = Payments made abroad.

Precautions: Following precautions should be taken while measuring national income of a country through value added method.

1. Imputed rent values of self-occupied houses should be included in the value of output. Though these payments are not made to others, their values can be easily estimated from prevailing values in the market.
2. To avoid double counting only the value of output of final or finished goods should be considered.
3. Value of services of housewives is not included because it is not easy to find out correctly the value of their services.
4. Products self consumption by the producers should be estimated by guesswork.
5. Value of intermediate goods must not be counted while measuring value added because this will amount to double counting.
6. While evaluating the output, changes in the price levels must be taken into account.

2. Income Method: Different factors of production pool their services for carrying out production activities. These factors of production, in return, are paid for their services in the form of factor incomes. The labour gets wages, land gets rent, capital gets interest and entrepreneur gets profits. In other words, whatever is produced by a producing unit is distributed among the factors of production for their services and aggregate of factor incomes of all the factors of production of all the producing units from the subject matter of calculation of national income by income method. This method of estimating national income has the great advantage of indicating the distribution of national income among the different income groups such as landlords, owner of capital, workers, entrepreneurs. Measurement of national income through income method involves the given below steps:

not be added again. If the profit is added after the tax payment, then however, profit tax should be added separately in national income.

3. Expenditure Method:

In explaining the concept of G.N.P. we considered different expenditures which add up the gross national product. Accordingly, we can say that national income can be measured by adding all final expenditures made for purchases of goods and services in a year. It should be noted here that incomes from productive activity are received only because people spend money on goods and services produced by the income receivers. For simple understanding of the expenditure method of estimating national income, we can divide expenditure into four groups.

a) Personal consumption expenditure – what private individuals spend on consumer goods and services.

b) Gross domestic private investment – what private business spend on replacement, renewals and new investment.

c) Net foreign investment expenditure – what the foreign countries spend on the goods and services of the national economy over and above what this economy spends on the output of the foreign countries, i.e. export minus imports.

d) Government purchases – what the government spends on the purchases of goods and services.

From this we deduct depreciation allowances, and then we get Net National Product at market prices. From this, if we deduct indirect taxes and add subsidies, we get National Product at factor cost.

⊗ **Precautions:** While estimating National income through expenditure method, the following precautions should be taken.

1. The expenditure made on second-hand goods should not be included because this does not contribute to the current year production of goods and services.

2. Expenditure on purchase of old shares and bonds from other people and from business enterprises should not be included while estimating G.N.P. through expenditure method. This is because bonds and shares are more financial claims and do not represent expenditure on currently produced goods and services.

3. Expenditure on transfer payments by government such as unemployment benefits, old age pension should also not be included because no goods or productive services are produced in exchange by the recipients of these payments.

4. Expenditure on intermediate goods such as fertilizers and seeds by the farmers and wool, cotton and yarn by manufacturers of garments should also be excluded. This is because we have to avoid double counting. Therefore, for estimating G.N.P. we have to include only expenditure of final goods and services.

We have explained above the three alternative methods of estimating national income. The best way to arrive at national income will be to employ all these three

The measurement of national income through social income accounting method following factors should be taking into consideration.

- a) Accounting of Production
- b) Accounting of Capital
- c) Accounting of Household sector
- d) Accounting of Government sector
- e) Accounting of Rest of World sector

All above mentioned factors are interdependent. This interdependence or income and expenditure have taken into consideration in the circular flow of national income. There are three methods of social accounting of national income measurement. These are as follows:

- A) Double Entry Account System
- B) Equation Account System
- C) Flow of Funds System

A) Double Entry Account System: In this method the income from various sectors is shown on the receipts side and expenditure is shown on the liabilities side. Left side shows the expenditure and right side shows the income. From the production sector we can understand the income generated from the various sectors and the expenditure on the various sector. As per this information we can get the national income data. Following schedules are shown the accounts of house hold sector, production sector, government sector, capital sector, saving-investment sector and rest of the world sector.

1) Household Sector:

(Figures in Crore)

Sr. No	Expenditure	Amount	Sr. No	Receipts	Amount
1	Purchase of consumable goods and services from production sector	1015	1	Sale of factors of production to production sector	1050
2	Indirect tax and other liabilities which are payable to government	80	2	Receipts from government (transfer payment and interest)	65
3	Saving Gross National Income	1115			1115

2. Production sector:

(Figures in Crores)

Sr. No	Expenditure	Amount	Sr. No	Receipts	Amount
1	Purchase of factors of production from the citizens of the country	1240	1	Goods and services sold to household sector	1120
2	Direct tax	45	2	Goods and services sold to public sector	110
3	Savings	32	3		
4	Indirect tax	55	4	Gross investment	95
5	Depreciation	25	5	Net import	72
	Gross National Income	1397			1397

3. Public Sector

(Figures in Crores)

Sr. No	Expenditure	Amount	Sr. No	Receipts	Amount
1	Goods and services purchased by the production sector	780	1	Income from the goods and services sold to the household sector	598
2	Transfer earnings	37	2	Income from production sector (Direct and Indirect tax and other)	211
3	Interest	13			
	Total National Income	809			809

4. Capital Sector:

(Figures in Crores)

Sr. No	Expenditure	Amount	Sr. No	Receipts	Amount
1	Gross Investment	109	1	Saving of Firm	45
2	Depreciation	19	2	Saving of household Sector	132
3	Foreign Investment	56	3	Depreciation	35
4	Deficit	-28			
	Gross National Income	184			184

5. Rest of World Sector

(Figures in Crores)

Sr. No	Expenditure	Amount	Sr. No	Receipts	Amount
1	Net import of goods and services	77	1	Net foreign investment	77
2	Gross National Income	77	2		77

3. Equation Account Method: In this method different kinds of signs are used for the national income accounting instead of figures. Double accounting method used the figures and Equation method using the various signs for national income accounting; this is only difference between both methods. With the help of following example we can explain the Equation method.

Sr. No	Expenditure	Sign	Sr. No	Receipts	Sign
1	Purchase of factors of production by the citizens of the country	A	1	Goods and Services sold to Household Sector	Y
2	Direct Tax	B	2	Goods and Services sold to Public Sector	R
3	Savings	C	3	Gross Investment	L
4	Indirect Tax	D	4	Net Import	V
5	Depreciation	E			
Gross National Income = A+B+C+D			Y+R+L+V		

As per the above example Gross National Income = A+B+C+D+E+Y+R+L+V

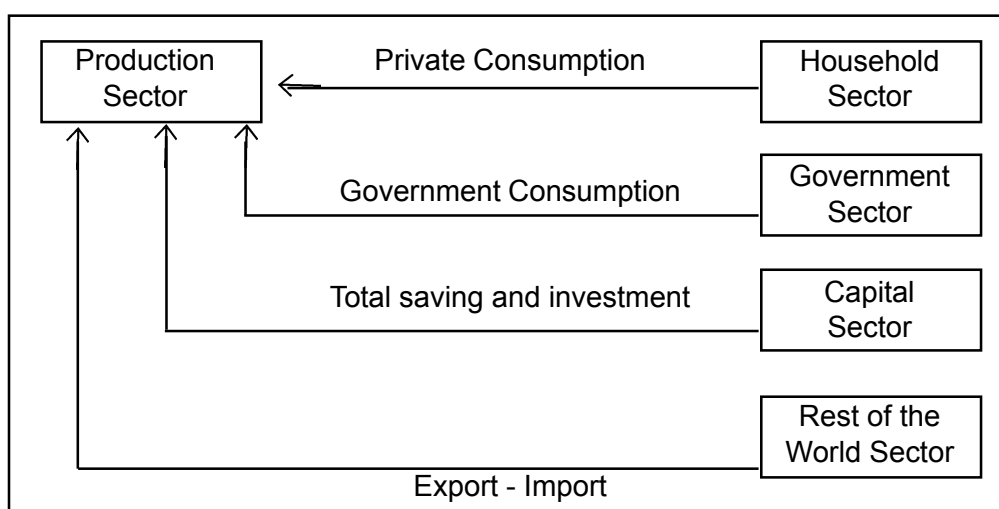
3. Flow of Funds System: This method creates the relationship between flow of money and sectoral structure in the economy. Production sector is the central point in this method. This shows the flow of income comes from the different factors of the economy and how it spends from the production sector. Accounting of National income can determine by the flow of money in this method. With the following table we can explain the national income accounting.

Flow of Funds System and National Income Accounting

Rent, Wages, Interest and Undistributed profit	Production Sector	Household Sector (Private Consumption)
Direct Tax		Public Sector (Public Consumers)
Depreciation and undistributed profit		Capital Sector (Domestic Capital Formation)
Net Indirect Tax		Rest of World Sector (Import & Export sector)

Above table clears the relationship between production sector and other sectors income and expenditure flow. Private consumption is the receipt side of production sector and private consumption is the expenditure side of the household sector. In other words the expenditure side of other sectors is the income side of the production sector. With the help of following diagram we can explain the interdependence of income and expenditure of different sectors.

Figure No 5:



The flow of income from the different sectors of economy to production sector has shown with the help of arrows. In the free economy there are multiple transactions of the various countries. With the assumption above, the diagram of flow of funds has been prepared with consideration of income of production sector, consumption, capital formation, and import-export.

3. NNP
4. PCI
5. Social Accounting
6. Product method of national income accounting

5.7: References for further reading

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Unit – VI

Neo Classical and Keynesian Synthesis

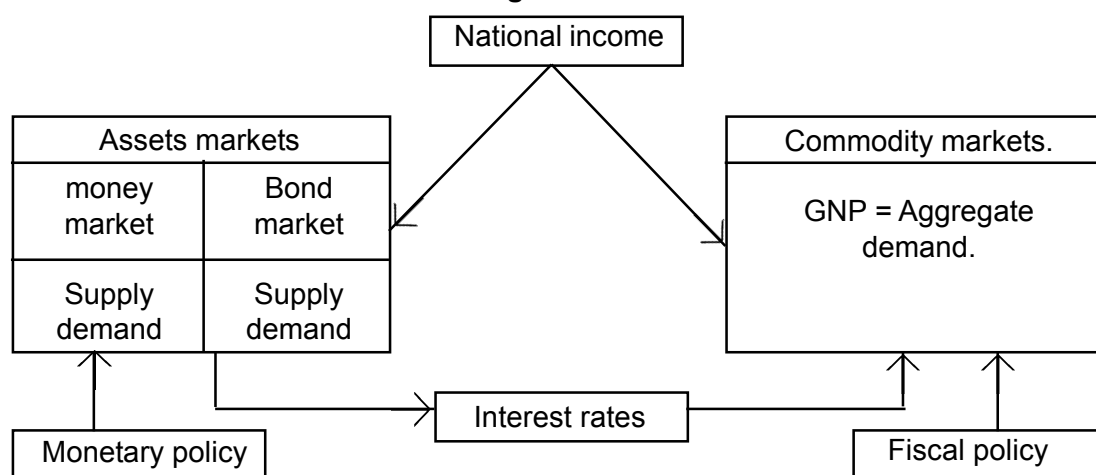
- 6.0 Introduction
- 6.1 Objectives
- 6.2 Subject analysis
 - 6.2.1 IS-LM Model
 - 6.2.2 Extension of IS-LM model with government sector and Labour market
 - 6.2.3 Relative effectiveness of monetary and fiscal policies with the help of IS-LM model.
 - 6.2.4 The new classical critiques on Micro foundations.
The new classical approach, policy implications of new classical approach-
Empirical evidence.
- 6.3 Summary
- 6.4 Terms to remember (Glossary)
- 6.5 Check your progress
- 6.6 Answers to check your progress
- 6.7 Questions for practice.
- 6.8 References for further study.

6.0 Introduction :

In the preceding unit we have discussed the National Income and its auditing. Circular flow of National Income and its relationships in two-sector, four-sector & five sector Interrelations. In this unit we are explaining the role of the interest rate and money in the Keynesian system and construction of IS-LM model to show how equilibrium rate of interest and level of income are jointly determined. When the price level is assumed to remain constant. The IS-LM model is used to find the value of the interest rate and level of income that simultaneously equilibrate both in commodity market and money market. Similarly, both fiscal and monetary policy instruments affects the level of income. We are examining the relative effectiveness of the two types of policies. The difference in the value of the government expenditure multiplier in the two models. That is the simple Keynesian model and the IS-LM model has been accepted as an important policy implication. The shifts and slopes of IS-LM curves are also explained in this concern. We are also discussing new classical critique on micro foundations and the new classical approach, The objectives of the study are as under.

Structure of the model : The IS-LM model emphasises the interaction between the goods and asset markets. The Keynesian model looks at income determination by arguing that income affects spending which, in turn, determines output (GNP) and income (GNI). J. R. Hicks and A. H. Hansen have added the effects of interest rates on spending vis-a-vis income and the independence of asset markets on income. Higher income raises money demand and also interest rates. Higher interest rates lower spending and also income. Spending, interest rates and income are determined jointly by equilibrium in the goods and assets markets as shown in fig 6.1

Figure - 6.1



Basis of IS-LM curve Model.

The IS-LM curve is used to find out the values of the interest rate and level of income. This simultaneously equilibrates both commodity market and money market.

We have identified the combinations of income and interest rate that equilibrate the commodity market, neglecting the money market. Then we identified the combinations of income and rate of interest that equilibrate the money market. These two sets of equilibria bring out the equilibria in both markets. At this stage we assumed that there is no change in policy variables such as money supply, government expenditure and taxes, we also took other autonomous influences on income and interest rates as fixed in the short run. We have seen that these policy variables and other exogenous influences determine the shapes and slopes of the two curves i.e. IS and LM, which are indicators of commodity (product) market equilibrium, and money market equilibrium respectively.

Product (Goods) Market equilibrium : IS curve

Derivation of IS curve

Equilibrium in the goods market requires $Y=C+I$ and $S=I$ i.e. all the factors that cause the consumption function and saving function to shift and all the factors that

cause the Investment function to shift influence the determination of this equilibrium. Other factors may be introduced once the basic model is developed, we assume here that investment is a function of the interest rate alone and that consumption and saving is a function of income alone. Following three equations are to cover the goods market equilibrium under C+ I

consumption function : $C = C(Y)$

Investment function : $I = I(r)$

Equilibrium condition : $Y = C(Y) + I(r)$

Similarly under I, S Approach we derive the follow the three equilibrium general to lover the goods market equilibrium.

Saving function : $s = s(y)$

Investment function : $I = I(r)$

Equilibrium condition : $s(Y) = I(r)$

we to develop the capture which follows either or both the approaches, but the attention is limited to that based of I, s approach. From the IS schedule we can new determine the IS cure. The IS schedule represents the functional relationships between rate of interest and investment function. income - saving function and interest rate - income functions.

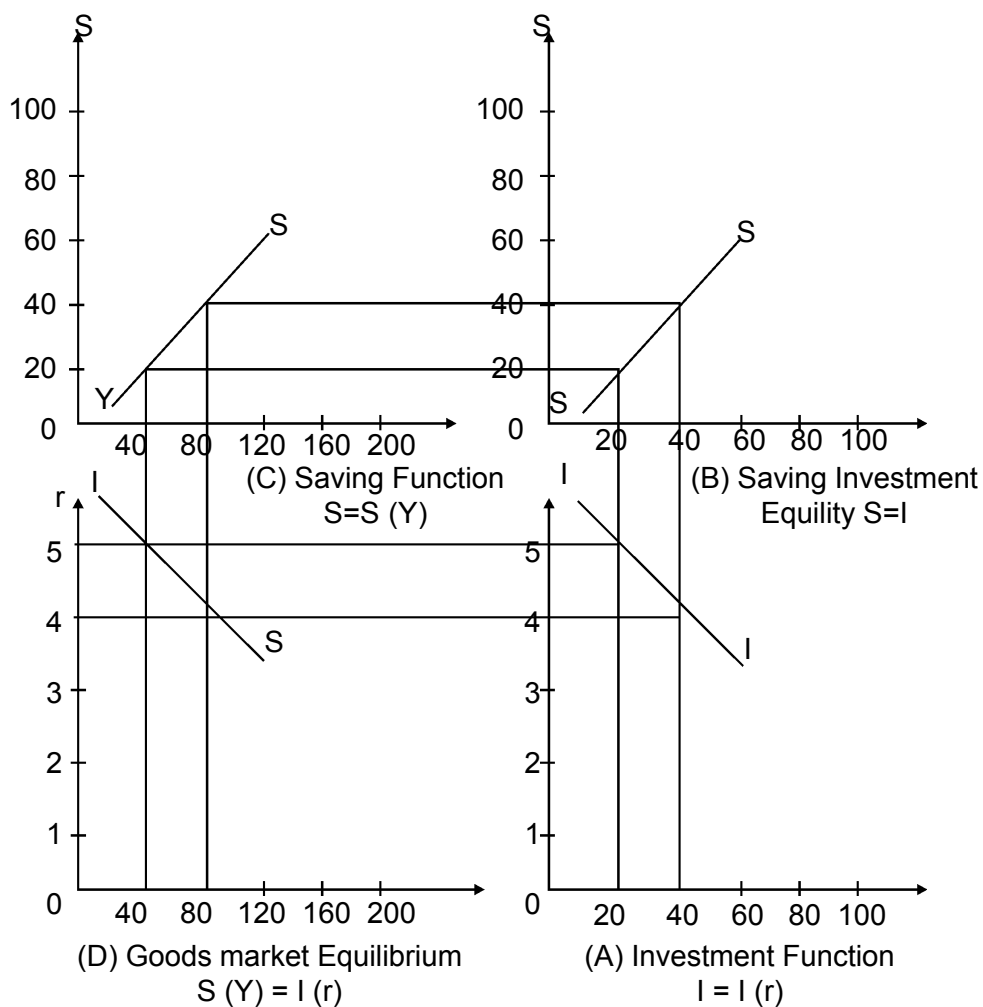
Table . 6.1
IS Schedule

(Rs. in crores)

Interest rate-Investment function		Income-saving function		Interest rate-Income function	
Interest rate (%)	Investment	Income	saving	Interest rate (%)	Income level
5	20	40	20	5	40
4	40	80	40	4	80
3	60	120	60	3	120
2	80	160	80	2	160
1	100	200	100	1	200

Three functional relationships are shown in the IS schedule. First one is the relationship between interest rate and investment which is inversely proportionate. Means the negative relationship. Secondly the relationship between income and saving which is proportionate means the positive relationship. Thirdly the interest rate income function is inversely proportionate. When interest rate decreases the income level increases.

Based on the set of equations and IS schedule, we have drawn the IS curve in figure No 6.2



Part (A) in fig 6.2 gives us the investment spending schedule, showing that investment spending varies inversely with the interest rate. The straight line in part (B) is drawn at 45° angle from the origin. The planned investment is measured along the horizontal axis of part (B), the planned saving is also measured along the vertical axis of part (B), i.e., they are the same. Therefore all points along the 45° line in part (B) indicate equality of saving and investment. Part (c) brings out saving function which shows that saving varies directly with income.

The IS curve in part D is derived from the other parts of the figure. For example, assuming an interest rate of 5 percent in part (A) indicating that investment is Rs. 20 crores during the period, assumed satisfy the equal to investment. i.e. between saving and investment must also be equal to investment i.e. which is shown on the vertical axis.

In part (c) saving will be Rs. 20 crores only at the income level of Rs. 40 crores finally, bringing together Y of Rs 40 crores from part (c) and R of 5 percent from part (A) yields one combination of Y and r at which $s = I$ (and $Y = C + I$) is observed, If we assume the lower Interest rate of 4 percent, part (A) indicates that investment will be Rs- 40 crores, which yields an income. level of Rs. 80 crores in part (C), Therefore, Y of Rs. 80 crores and r of 4 percent is another combination of y and r at which $S = IS$ obtained. Other combinations could be we obtain IS found in the same way. Connecting all such combination curve in part (D) lastly.

There is no longer a single level of income at which $S = I$, but a different level for each different interest rate. The higher the interest rate, the lower will be the level of income at which $S = I$ is viewed in one way, this follows from the fact that a high means of low I. Lower I, through multiplier effects means a lower y. Viewed in another way it follows from the fact that, a low Y means low S. Because equilibrium requires $S = I$ lows means low I. Low I is the result of a high r. Although the IS function indicates that equilibrium in the goods market will be found at a lower level of income for a higher interest rate, it alone does not reveal combination of y and r will be found in any specific time period. All combinations on the IS function are equally possible combinations of y and r in the goods market.

Money Market equilibrium : The LM Curve

Derivation of LM curve

Equilibrium in money market require an equality between the supply of and the demand for money. The Keynesian theory of the demand for money makes the transactions demand (here combined with the precautionary demand) a direct function of the income level alone, or $m_t = K(y)$. It makes the speculative demand an inverse function of the interest rate alone, or $m_{sp} = h(r)$, total demand for money is $m_s = m_z + m_{sp} = K(Y) + h(r)$, The supply of money, m_s is determined outside the model - it is exogenous. This may be written as $m_s = m_a'$ in which m_a is simply the amount of money that exists, an amount determined by the monetary authorities (The monetary authorities determine only the nominal stock of money, M_s but with P (price level) assumed to be stable, determination of M_s also determines m_s) This gives us three equations to cover the money market :

$$\text{Demand for money : } m_d = K(Y) + h(r)$$

$$\text{supply of money : } m_s = m_a$$

$$\text{Equilibrium condition : } m_d = m_s.$$

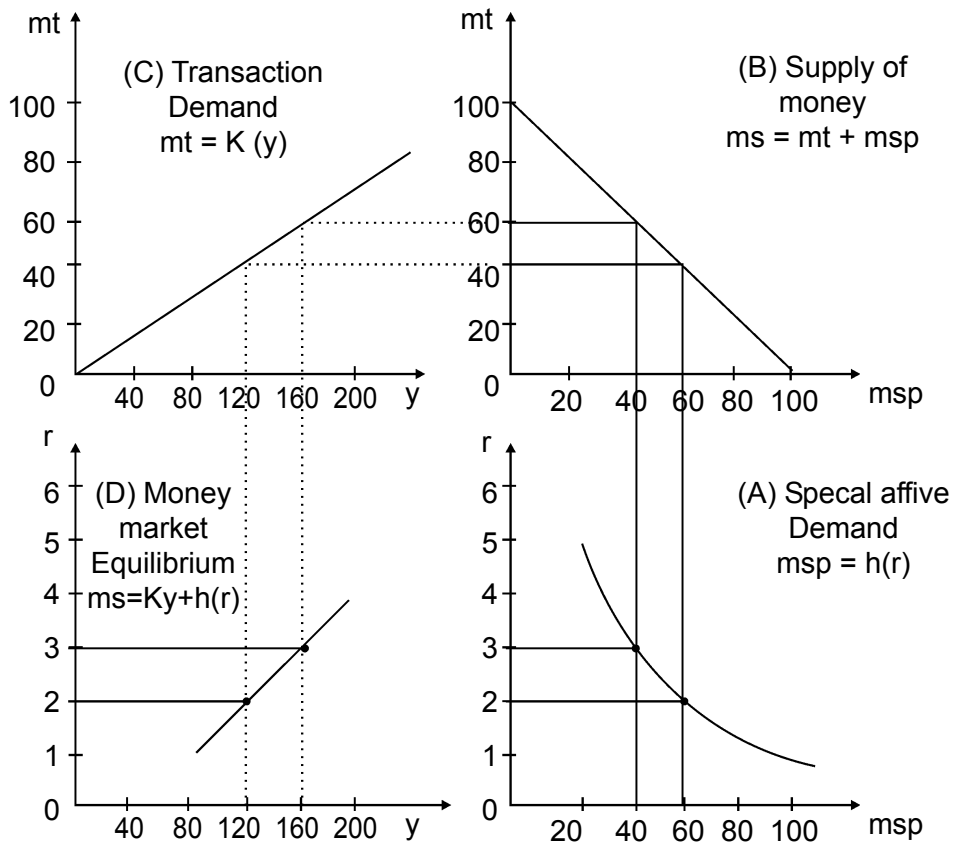
The functional relationships between (1) interest rate and money supply., (2) interest rate and demand for money (transaction demand, precautionary demand and speculative demand), and (3) interest rate and income is shown in LM schedule -

Table 6.2 -LM Schedule.

(Rs. in Crores)

Money support Function		Demand for money				LM Schedule	
Interest Rate (%)	Money supply (Rs-m crores)	Interest rate (%)	Speculative demand for money	Income	Pronations & precautionary demand for money	Interest rate (%) (Rs. Crores)	Income
1	2	3	4	5	6	7	8
2	100	2	100	40	0	2	40
3	100	3	80	80	20	3	80
4	100	4	60	120	40	4	120
5	100	5	40	160	60	5	160
6	100	6	20	200	80	6	200

Based on the figures in LM schedule and the set & equations, we can now derive the LM curve as shown in figure No. 6.3



part A shows the speculative demand for money as a function of r . part B is drawn to show a total money supply of Rs 100 crores. All of which must be held in either transactions or speculative balances. The points along the line indicate all the possible ways in which the given money supply may be divided between m_t and m_s part c shows the amount of money required for transactions purposes at each level of income on the assumption that $k = \frac{1}{2}$. The LM curve of part D is derived from the other parts as follows.

Assume in part A an interest rate of 4 percent, at which the public will want to hold Rs. 40 crores in speculative balances. In part B, subtracting the Rs 40 crores of speculative balances from a total money supply of Rs 100 crores leaves Rs 60 crores of transactions balances, an amount consistent with an income level of Rs 160 crores as shown in part c. finally, in part D, bringing together y of Rs 160 from part c and 4 percent from part A yields an equilibrium at y and at which $m_d = m_s$ or at the point where there is equilibrium in the money market. If we assume the lower interest rate of 3 percent, part A indicates that speculative balances of Rs. 40 and part C transaction balances Rs 40 and part c indicates the income level of Rs 120 crores as that consistent with transactions balances of Rs 40. This yields another combination of y and the Rs 120 crores and 3 percent at which $m_d = m_s$. Other such combinations can be derived in the same way. In part D, the function labeled LM results when these combinations are connected.

The characteristics of the LM function slopes upward to the right, with a given stock of money, money market equilibrium is found at combinations of high interest rates and high income levels or low interest rates and low income levels. Viewed in one way, this follows from the fact that a high level of income calls for relatively large transactions balances, with a given money supply, when can be drawn out of speculative balances only by pushing up the interest rate, viewed in another way, it follows from the fact that at a high interest rate speculative balances will be low, this releases more of the money supply for transaction balance. This money will be held in such balances only at a correspondingly high level of income. Although the LM function indicates why equilibrium in money market occur at a higher interest rate for a higher level of income ? It alone cannot reveal what particular combination of Y and r will be found in any given time period. All combinations of LM functions are equally possible equilibrium combinations in the money market.

General equilibrium in the complete IS - LM model.

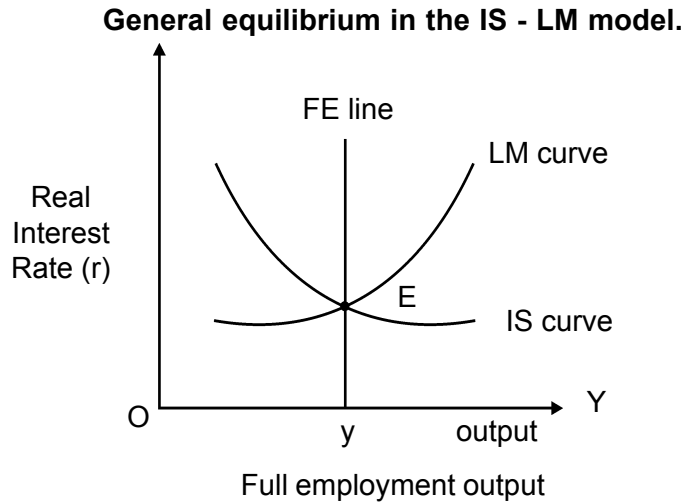
The labor market, the goods market and the asset market put together and examined the equilibrium of the economy as a whole is the final step of IS - LM model. A situation in which all markets in an economy are simultaneously in equilibrium is called a general equilibrium. Figure 6.4 shows the complete IS-LM model, illustrating how the general equilibrium of the economy is which shows :

Determined :

- The full - employment, or FE line, along which the labour market is in equilibrium .

- The IS curve, along which the goods market is in equilibrium, and .
- The LM curve, along which the asset market is in equilibrium,

Fig 6.4

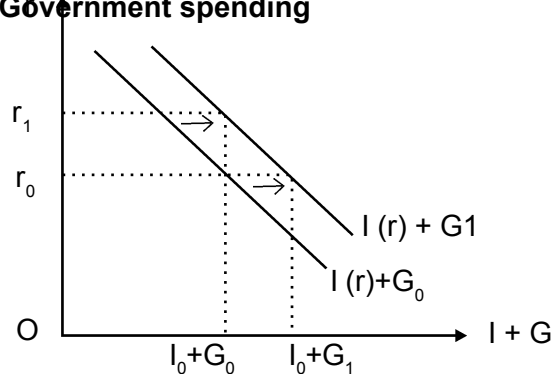


The economy is in general equilibrium when quantities supplied equal quantities demanded in every market. The general equilibrium point E lies on the IS curve, the LM curve and the FE line. Thus at E, the goods market, the asset market and the labour market are simultaneously in equilibrium.

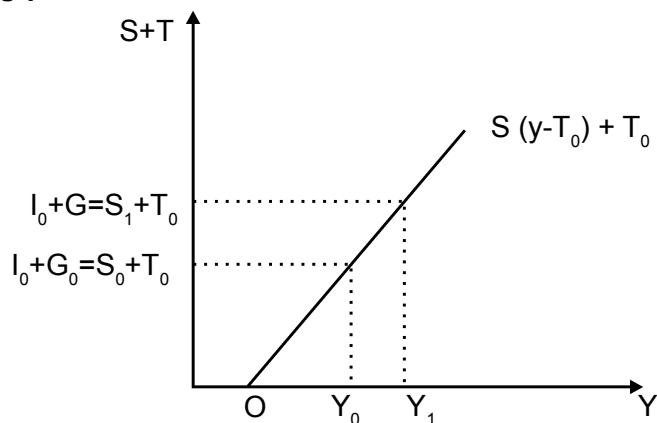
6.2.2 Extension of IS-LM model with Government sector and Labour Market : Factors that shift the IS curve

To analyse the causes and effects of shift of the IS curve we have to incorporate government expenditure and taxes in our analysis. The IS curve will shift if any or all of the components of autonomous expenditures T , (Tax revenue) I , (Investment expenditure of firms) and G (Government spending) Change Fig. 6.5 shows the shift of IS curve. Fig. 6.5 Rightward shift of the IS curve with an increase in government spending.

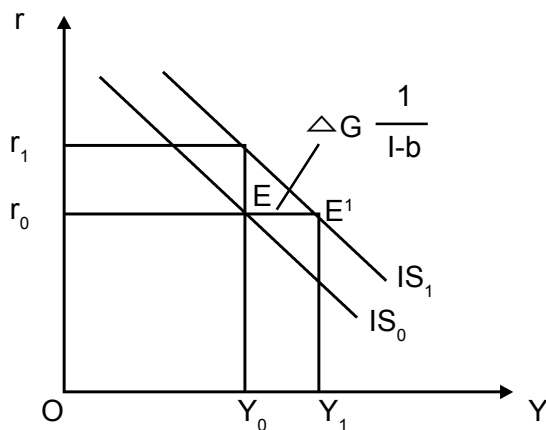
a) Investment plus Government spending



b) Saving plus Taxes



c) IS curve



If Government spending increases to G , in Fig. 6.5 (a) the combined investment plus Government spending curve shifts out to the right from $I_0 + G_0$ to $I_0 + G$. At a fixed interest rate or investment will remain unchanged. In order to maintain equilibrium with fixed level of taxes, saving has to rise from S_0 to S_1 , which requires income to rise from Y_0 to Y_1 in part (b). At interest rate or the equilibrium point in the product market shifts from E to E' . Thus an increase in G shifts the IS curve to the right from IS_0 to IS_1 , in part (c).

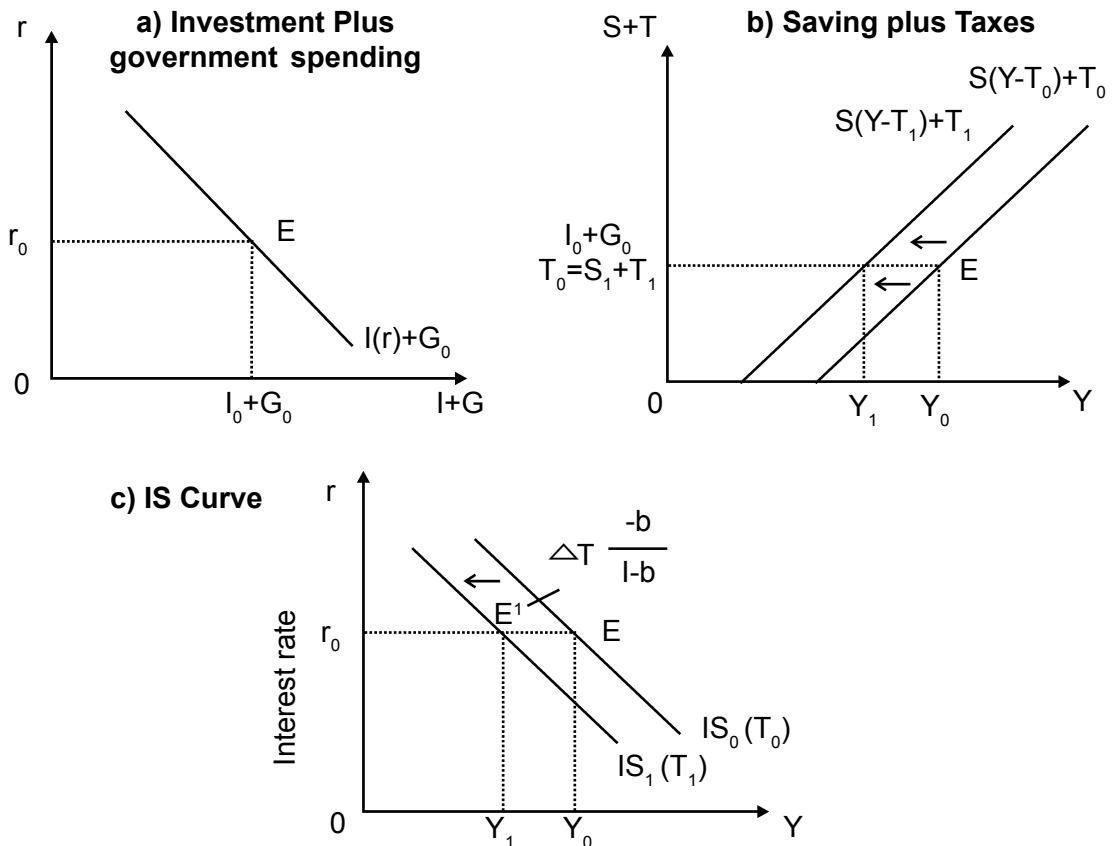
The IS curve shifts by horizontal distance E to E' when G increases by ΔG . The horizontal shift of the IS (e.g. distance EE') is that amount of the increase in income is required to generate new saving equal to increase in government spending. Since the increased saving is MPS times of ΔY , the required increase in Δy (the horizontal shift of the IS curve) will be $\Delta G = \Delta S (1-b) \Delta Y$. So the amount of such shift of the IS curve per unit increase in a is $[1/(1-b)]$, the autonomous expenditure multiplier. In terms of Fig. 6.5. $EE' + \Delta Y + Y_1 - Y_0 = \Delta G / (1-b)$; r and therefore I remaining

constant. Here the multiplier effect is present due to induced increase in consumption caused by rising government spending, with investment remaining fixed.

An increase in MEC caused by a favorable shift in expectations about the future profitability of investment projects increases investment demand corresponding to each interest rate. As a result the $I(r)$ curve shifts to the right and hence the combined $I+G$ curve to the right in Fig. 6.7 (a). This rightward shift of the $I(r)$ curve, by the amount of the autonomous increase in investment, has exactly the same effect on the IS curve as an equal increase in G as shown in Fig. 6.6 (c). Each type of change can increase in I or G shifts the $I + G$ curve and this shift, in turn, shifts the IS curve to the right the autonomous, expenditure multiplier $[1/(1+b)]$ times the increase in G or increase in I .

Taxes are leakages from the circular flow of income, an increase in taxes shifts the $S + T$ schedule to the left in part (b) of the fig. 6.6. At the same interest rate of which fixes I_0 and thus I_0+G_0 saving and therefore, income must fall to maintain the equilibrium condition in the commodity market. $I+G = S+T$. After the tax increase, income falls from Y_0 (Point E) to Y_1 (Point E') in order to ensure product market equilibrium at the original interest rate of in fig. 6.6

Fig. 6.6 Leftward shift of the IS curve with an increase in taxes.

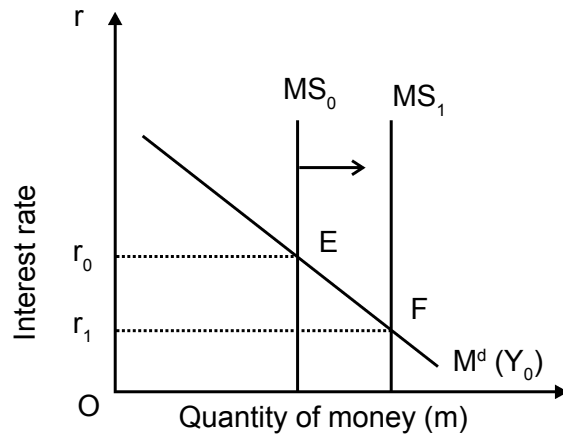


Factors shifting the LM curve.

Two factors shift the LM curve any change in the money supply and another change in the demand for money (liquidity of preference). If central bank policy changes the effect of money supply change.

Fig. 6.7 Shows the effect of money supply on the LM curve.

a) Money market equilibrium



b) The LM Curve

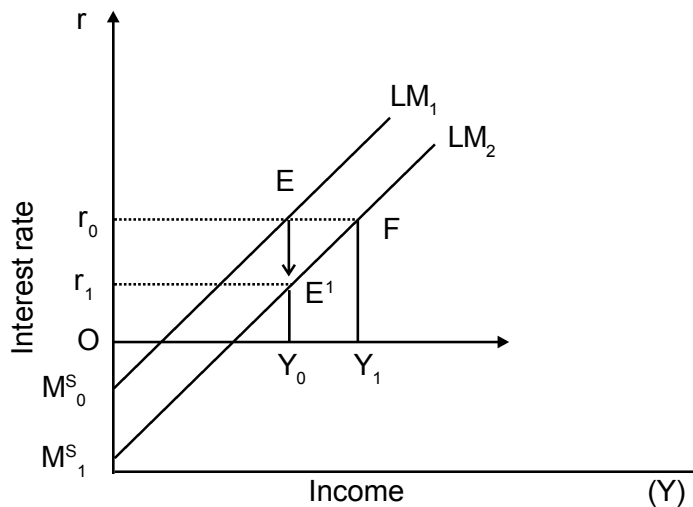


Fig. 6.7 Rightward shift of the LM curve due to an increase in the Quantity of money.

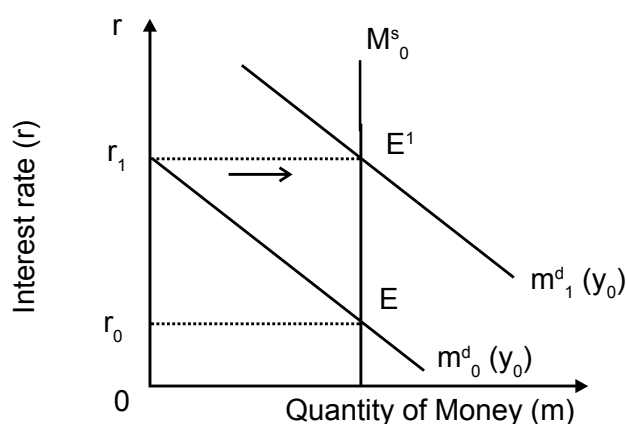
Part a of the Fig. 6.7 the money market is in equilibrium at point E. If money supply increases from M^S_0 to M^S_1 the rate of interest falls from r_0 to r_1 (at a given level of income Y_0) as the money market reaches new equilibrium at point F. As a result the LM curve shifts to the right, indicating lower interest rates at all levels of income - In the money supply shifts LM curve downward and to the right. The converse is also true. A fall in money supply will shift the LM curve upward and to the left.

Fig. 6.8 shows the leftward shift of the LM curve and to increase in the demand for money.

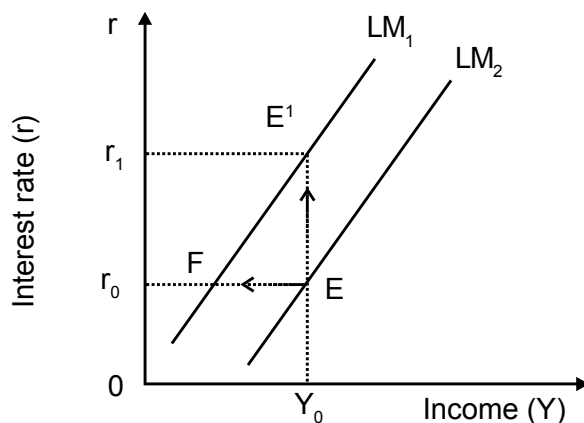
If the demand for money increases or decreases the LM curve shifts to the left or right. Suppose due to any reason e.g. people's loss of confidence in bonds the demand for money increases at the same level of income and the same rate of interest. As a result, the demand curve for money shifts upward and to the right from $M^d_0(Y_0)$ to $M^d_1(Y_0)$ in Fig. 6.8

Fig. 6.8 Leftward shift of the LM curve due to increase in demand for money.

a) The money market



b) The LM curve



As a result, the equilibrium rate of interest rises for the same level of income (Y_0) in part (a). Consequently the LM curve shifts upward and to the left from LM_0 to LM_1 in part (b).

Equilibrium in the Labor market.

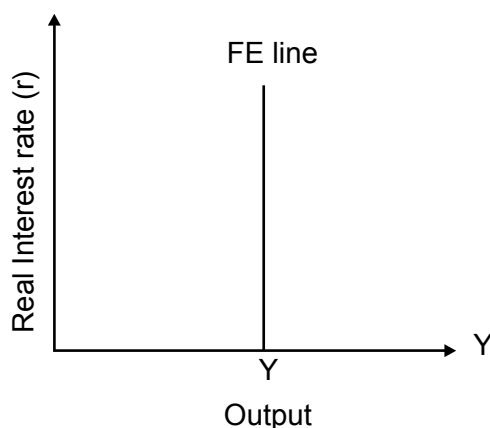
Equilibrium in the labor market determines wages and employment; in turn, the level of employment, together with the quantities of other inputs (such as capital) and the level of productivity, determines how much output the economy produces. The basic model of the labor market rests on the assumption that the quantities of labor supplied and demanded are equal so that all labor resources are fully utilized.

Equilibrium in the labor market requires that the aggregate quantities of labor demanded equal the aggregate quantity of labor supplied.

The full employment level of employment N , is the equilibrium level of employment reached after wages and prices have fully adjusted, so that the quantity of labor supplied equals the quantity of labor demanded. Full-employment output, y is the amount of output produced when employment is at its full-employment level for the current level of the capital stock and the production function.

Equilibrium in the labor market is represented by the full-employment line, or FE in Fig - 6.9. In the fig 6.9 the real interest rate on the vertical axis and output on the horizontal axis. The FE line is vertical at $y = y$ because, when the labor market is in equilibrium, output equals its full-employment level, regardless of the interest rate.

Figure No. 6.9



The full-employment level of output is determined by the full employment level of employment and the current levels of capital and productivity. Any change that affects the full-employment level of output, y will cause the FE line to shift. Recall that full-employment output, y increases and thus the FE line shifts to the right when the labor supply increases (which raises equilibrium employment N) when the capital stock increases, or when there is a beneficial supply shock. Similarly, a decrease in the labor supply shock, lowers full-employment output, y and shifts the FE line to the left.

Factors that shift the full - employment (FE) line.

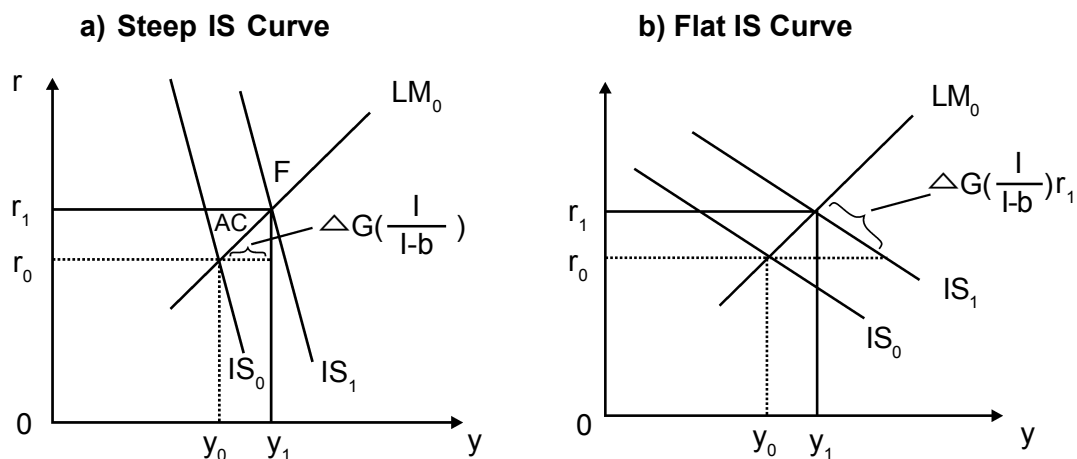
A(n)	Shifts the	Reason.
Beneficial supply shock	FE line Right	1) More output can be produce. For the same amount of capital and labour 2) It the MPN rises, labour demand increases and raises employment full employment output increases for both reasons-
Increase in labour supply	Right	Equilibrium employment rises, raising full employment output.
Increase in the capital stock	Right	More output can be produced with the same amount of labour In addition, in creased capital may in crease the MPN, which in creases labour demand and equilibrium employment.

6.2.3. Relative Effectiveness of monetary and fiscal policies with the Help of IS-LM model.

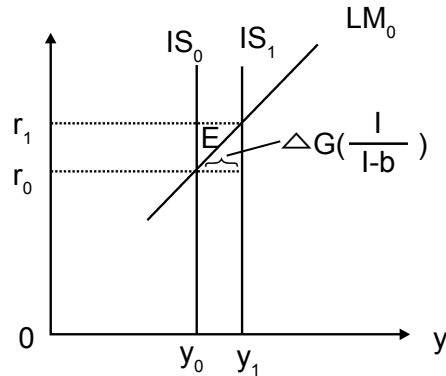
The instruments of the fiscal and monetary policy affects the level of income we may now examine the relative effectiveness of the two types of policies. Effectiveness means the magnitude of the effect on the equilibrium income y of a given change in the policy variable such as government expenditure (G), taro (T) or money supply (M), It may be noted at the outset that the effectiveness of each type of policy- depends on the slope of Is and Lm curves, which in turn depends on certain behavioral parameters of the $Is - Lm$ curve model.

Figure No. 6.10

The slope of the Is curve and the effectiveness of fiscal policy-



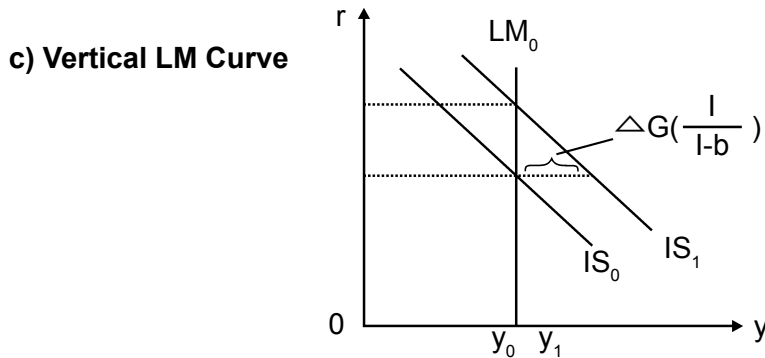
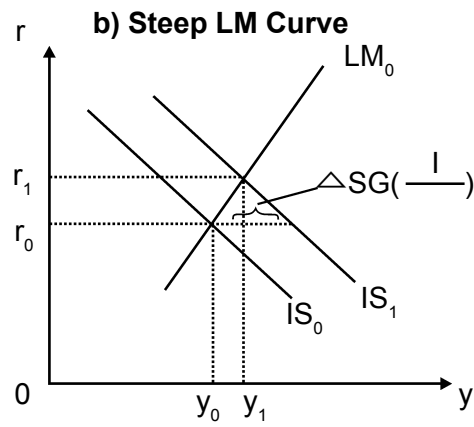
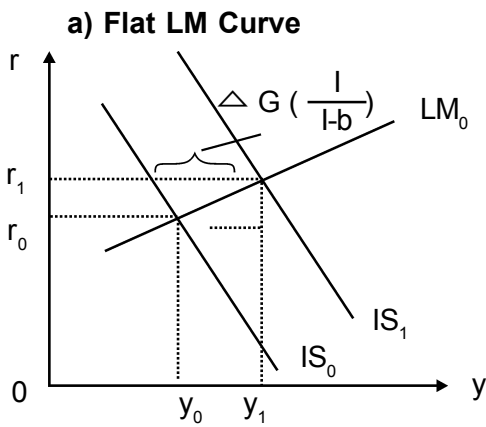
c) Vertical IS Curve



In each part of figure No.6.10 an increase in G shifts the IS curve to the right from IS_0 to IS_1 . In part (a), where the IS curve is steep, this expansionary fiscal policy action (in the form of an increase in G or a cut in T or both) results in a relative large increase in y . The same fiscal policy action is much less effective (y is much smaller) in part (b) where IS curve is relatively flat, Fiscal policy is further most effective in part (c), where the IS curve is vertical.

The slope of the Lm curve and the effectiveness fiscal policy.

Figure No. 6.11



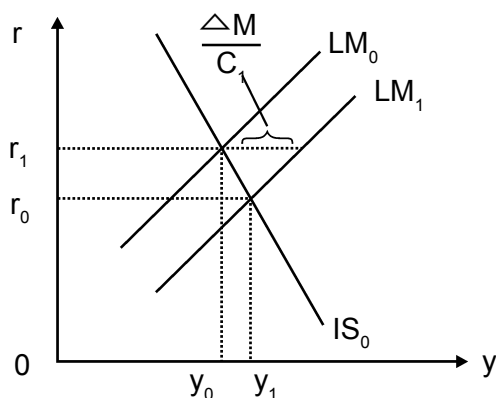
In each part of Fig No. 6.11 an increase in G shifts the IS curve to the right from IS to SI , fiscal policy is most effective in part (a) where LM curve is relatively flat; less effective in part (b) where Lm curve is steeper; and completely ineffective in part (c) where the LM curve is vorticella .

The slope of the IS - curve and the effectiveness of monetary policy.

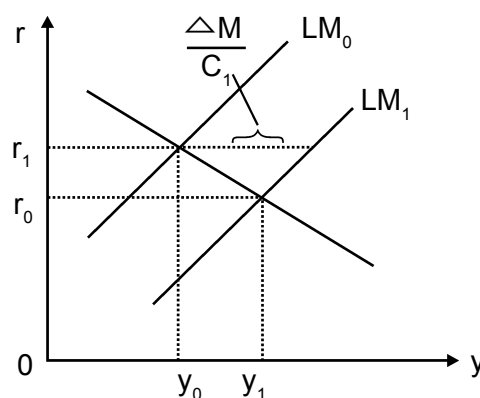
An increase in the money supply shifts the LM curve to the right from LM to LM , the Figure No. 6.12 This expansionary monetary policy has only a small effect on y in part (a) where the IS curve is steep. It has a much stronger effect on y in part (b) where the IS curve is relatively that. IN part (c) where the IS curve the IS curve is vertical, the income in money supply has neutral effect on equilibrium income.

Figure No - 6.12

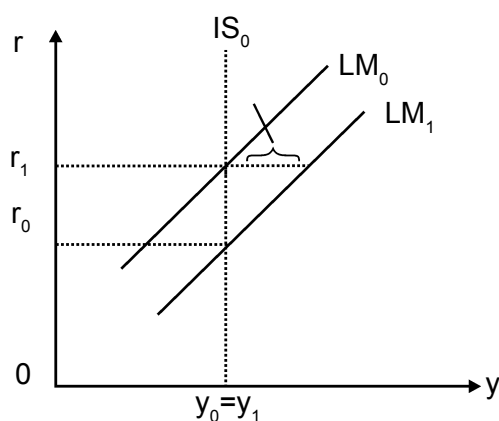
(a) Steep IS curve



(b) Flat IS curve



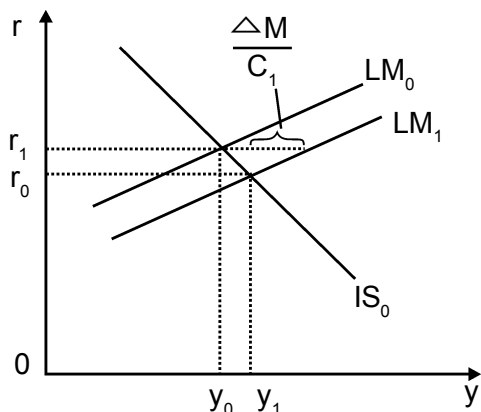
(c) Vertical IS curve



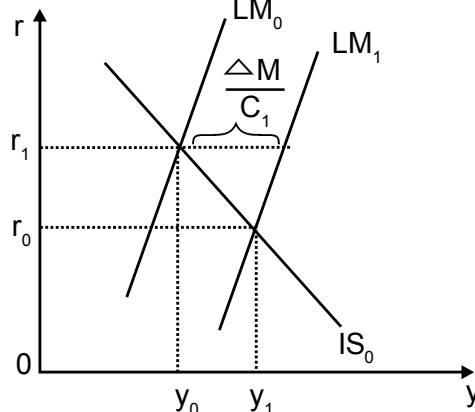
The slope of the LM curve and effectiveness of monetary policy

Figure No. 6.13

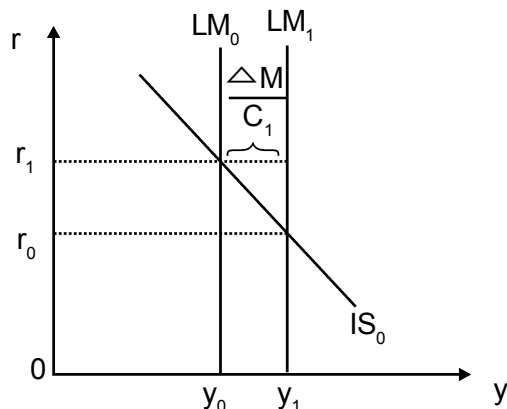
(a) Flat LM curve



(b) Steep LM Curve



(c) Vertical LM curve



In each part of fig No 6.13 an increase in money supply shifts the LM curve to the right from LM_0 to LM_1 . Monetary policy is least effective in part (a) where the LM curve is relatively flat, more effective in part (b) where the LM curve is steeper, and most effective in part (c) where the LM curve is vertical.

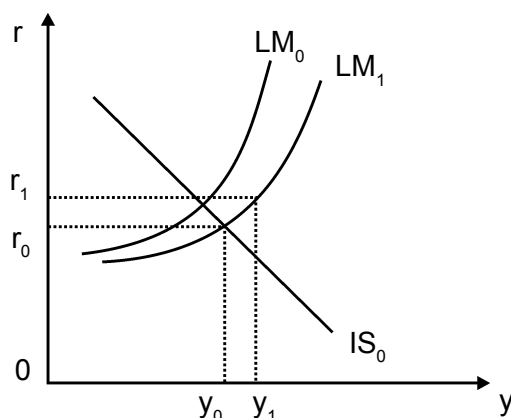
The slopes of the IS and LM curves and relative effectiveness of monetary and fiscal policies.

Monetary policy		
Steep	IS curve Ineffective	LM Curve Effective
Flat	effective	Ineffective
Fiscal policy		
Steep	IS curve Effective	LM curve Ineffective
Flat	Ineffective	Effective

Complete Ineffectiveness of monetary policy in a liquidity trap situation.

At the low levels of the interest rate that would prevail in the liquidity trap conditions, Keynesian would expect the economy to be on the nearly horizontal large of the LM curve as shown in fig - No 6.14 Monetary policy would lose its effectiveness in this situation completely because monetary expansion can no longer reduce rate of interest (of) and stimulate investment (I)

Figure No. 6.14



The cyclical position of the economy of and the relative effectiveness of fiscal policy and monetary policy instruments.

The effectiveness of demand - management policies such as monetary policy and fiscal policy depends on the stage of the economy.

(A) Fiscal policy -

The size of fiscal policy (FP) multiplier or the effectiveness of fiscal policy depends on whether FP change is initiated at a low or high level of output relative to full employment output. This point is illustrated in Fig No - 6. It shows differing effects on y of a given IS shift, depending on where on the LM curve the policy actions start.

The IS and LM elasticities and monetary - Fiscal Policies.

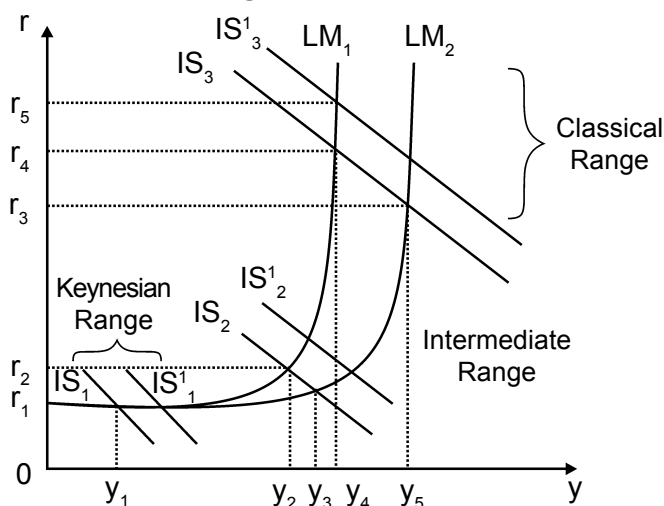
We have intentionally avoided specific reference to the elasticities of the IS and LM functions so that we might concentrate on the general characteristics of the present stable - price model and the general conclusions it suggests. When we allow for the elasticities of these functions, we will find that same of these conclusions must be qualified and that same must even be abandoned in the extreme cases of perfectly elastic or inelastic fun actions, for example, an expansionary fiscal policy may rise only the interest rate and leave the income level unchanged; conversely, it may raise only the income level and leave the interest rate unchanged. An expansionary monetary policy may lower only the interest rate and leave the income leave unchanged of it may change neither the interest rate nor the level of income, the reverse is possible for contraction policies.

Elasticity of the IS and functions

With a fixed money supply, the LM function as derived in figure A slope upward to the right. However, at one extreme the function may become perfectly elastic, and at the other extreme it may become perfectly inelastic, with a range of varying elasticities in between. In general, the higher the interest rate, the less elastic the corresponding point on the LM function. These three ranges are delineated in part A of the figure. In which the perfectly elastic section is the “Keynesian range” the perfectly inelastic section is the “classical range” and the section between is the “intermediate range”.

Why such shapes shapes accoucheur with perfect elasticity at one extreme and perfect inelasticity at the other? A+a very low interest rate, the speculative demand for money may become perfectly elastic due to a consensus by wealth - holders, accordingly stand ready to extreme securities for cash at existing security prices, which prices, which produces the liquidity trap on the speculative demand function. Here, on the LM function, it produces what is known as the Keynesian range. At the other extreme, very high interest Rate, the speculative demand for money may become zero and perfectly inelastic at interest rates above this it wealth - holders believe the interest rate will rise no higher and that security prices will fall no lower. At this or any higher rate, wealth - holders accordingly prefer to hold only securities and no idia cash. This perfectly inelastic section of the speculative demand function is known as the classical range on the LM function,

Figure No. 6.15



Monetary policy is the exercise of the central bank's control over the money supply as an instalment for achieving the objectives of general economic policy. Fiscal policy IS the exercise of the government's control over public spending and tax. Collections for the same purpose. We will now continue ourselves income The IS - LM framework provides a basis for comparing the effect of the two types of policy the income level and the interest rate for comparing the conditions under which each type

of policy will be effective or ineffective in producing the desired change in income. For this purpose, the discussion is conveniently divided into three parts, each corresponding to a range of the LM function. As shown in figure - 6.15

The Keynesian Range :

Consider first the y_1 of equilibrium in the Keynesian range. An increase in the money supply shifts the LM curve to the right from LM₁ to LM₂. This means that for each possible level of income $M_1 = M_2$, only at a lower interest rate; the rate must fall by the amount necessary to make the public willing to hold larger idle cash balances. But this is not true in the liquidity trap. Here the interest rate is already at an irreducible minimum for the time being. As the monetary authority purchases securities, security holders are willing to exchange them for cash at the existing prices. Therefore, expansion of the money supply cannot cause the interest rate to fall below the rate given by the trap. The public holds more in speculative balances and less in securities. Increases in the money supply would shift the LM curve to the right, but the lower end of the curve would remain anchored in the same liquidity trap. If the economy is in trap, monetary policy is powerless to raise the income level. It cannot reduce the interest rate any further to produce a movement down the IS curve to a higher equilibrium income level. The belief that the economy is in the trap during the early thirties because government cannot raise the income level through monetary policy, it can only try to do so through fiscal policy. If a rise in income cannot be achieved by producing a shift in the IS curve from IS₁ to IS₂, fiscal measures such as increased government spending or reduced taxes could shift the IS curve.

To the extent that monetary policy operates by raising investment spending through a reduction in the cost of money, the impasse of monetary policy for an economy caught in the trap means that the elasticity or inelasticity of the IS function is no longer relevant.

The liquidity trap is an extreme case that could occur only during a deep depression. A prosperous economy and a liquidity trap do not go hand in hand, because the pure Keynesian range is the range of the liquidity trap, one can now appreciate with Hicksian appearance of Keynes' book, that the General Theory of Employment is the Economics of Depression".

Classical Range :

When we examine the $Y_4; r_4$ equilibrium defined by the interaction of IS and LM, in Fig. A. Some increase in the money supply will shift the LM₁ curve to LM₂. In contrast to the result in the Keynesian range, the result is now an increase in the income level from Y_4 to Y_5 and a fall in the interest rate from r_4 to r_3 . In the classical range, the interest rate is so high that speculative balances are zero; money is held for transactions purposes only. Under these circumstances, if the monetary authority enters the market to purchase securities, security holders can be induced to exchange securities for cash only at higher prices. As security prices are bid up and the interest rate is pushed down, investment is stimulated (in classical theory, saving is discouraged), because

nobody chooses to hold idle cash, Expansion of the money supply will produce a new equilibrium only by reducing the interest rate by whatever amount is necessary to increase the income level. Sufficiently to absorb the full increase in the money supply in transactions balances.

In contrast to the Keynesian range, in which monetary policy is completely ineffective, in the classical range it appears to be completely effective. No part of any increase in the money supply disappears into idle cash balances. The increase in the money supply leads to increased spending that raises the income level to the point at which the total increase in the money supply is absorbed into transactions balances. Because all income changes are real changes in the present model, the increase in the money supply that shifts LM1 to LM2 causes an increase from Y_4 to Y_5 in output as well as in income.

In contrast to the Keynesian range, in which fiscal policy alone can be effective, fiscal policy in the classical range is completely ineffective. An upward shift in the IS function from IS_3 to IS_4 in Fig A, can raise only the interest rate, from r_3 to r_4 . The income level stays unchanged at Y_4 . Given the increase in spending that lies behind the upward shift in the IS function, the interest rate will rise sufficiently to crowd out enough spending to leave aggregate spending unchanged. Therefore, if the rise in spending resulted from increased government spending, the rise in the interest rate would crowd out an amount of private spending equal to the rise in government spending. The level of income is as high as the given money supply can support. In the classical range, an increase in income is therefore impossible without an increase in the money supply, and monetary policy becomes an all-powerful method of controlling the income level.

Intermediate Range :

The equilibrium of Y_2, R_2 , as defined by the intersection of IS_2 and LM, in Fig - A, we see that some increase in the money supply will shift the LM function to LM2. In the Keynesian range, this increase in the money supply left both y and r unchanged, because total increase was absorbed in speculative balances at the existing interest rate. In the classical range, this increase in the money supply raises Y by the amount necessary to absorb the full increase in transactions balances. This worked itself out through the interest rate reduction that raised spending by the amount needed to produce the required rise in income. In the intermediate range, however, increase in the money supply is partially absorbed in both speculative and transactions balances. The level of income rises by an amount less than that which would require the full increase in the money supply for transactions purposes.

In the intermediate range, monetary policy has some degree of effectiveness but not the complete effectiveness it has in the classical range. In general, the closer equilibrium is to the classical range, the more effective monetary policy becomes; the closer the intersection is to the Keynesian range, the less effective it becomes.

Within this range, fiscal policy is also effective to some extent, fiscal measures that shift the IS function from IS_1 to IS_2 . It will raise the level of income and the interest rate to the new equilibrium defined by the intersection of IS_2 and LM. If the shift in the IS function stems from a deficit-financed increase in government spending, the interest rate must rise, we are assuming a fixed money supply - described by LM, so the increased government spending is being financed by borrowing from the public. The sale of additional securities by the government depresses security prices, raises the interest rate, and chokes off some amount of private spending. The rise in the interest rate following any given increase in government spending will be greater or smaller depending on how high in the intermediate range. Although fiscal policy is somewhat effective anywhere in the intermediate range. In general it will be more effective the closer of equilibrium to the Keynesian range and less effective the closer equilibrium to the classical range.

Although both monetary and fiscal policies have varying degrees of effectiveness in the intermediate range. The relative effectiveness of each depends in large part on the elasticity of the IS function. Monetary policy can do very little to raise the level of income, even in the intermediate range. Fiscal policy alone is effective in such a situation furthermore, an expansionary fiscal policy need not be concerned with adverse monetary effects in this case. A shift in an inelastic function will raise the interest rate, but this higher rate will have little feedback on spending Keynes maintained that the investment schedule (as well as the saving schedule) is interest inelastic. If this is the case, the IS schedule must also be inelastic, and fiscal policy, which is completely effective in the Keynesian range, must be almost as effective in the intermediate range. If the IS schedule is indeed interest inelastic, then the Keynesian range becomes ineffective. The complete LM curve is more applicable at the lower end than at the upper end, but with some applicability throughout.

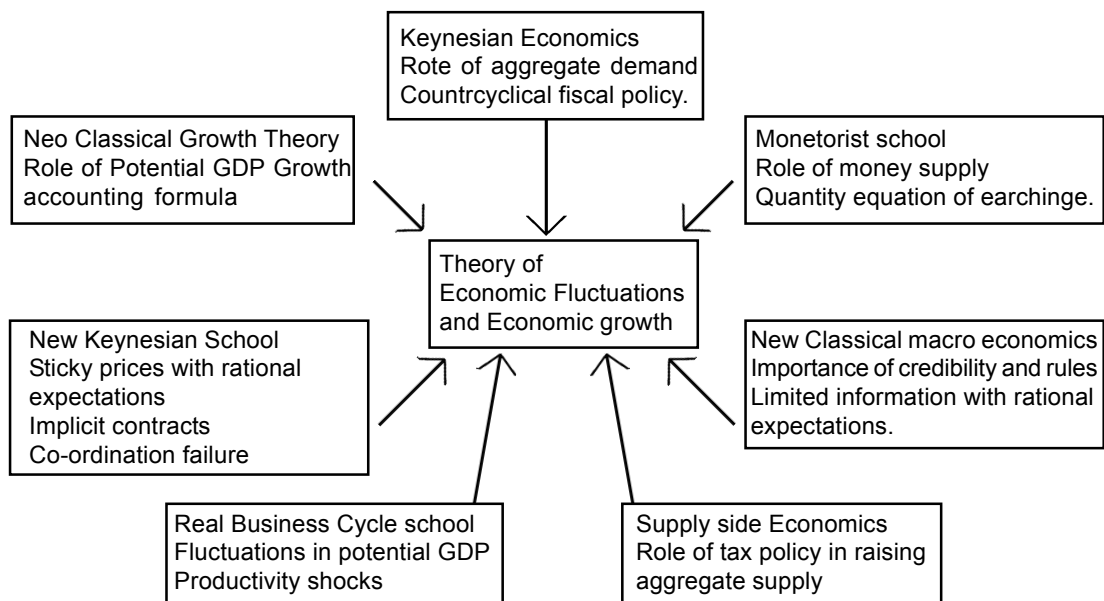
6.2.4 The New Classical critiques on Micro foundations, The New classical Approach; Policy Implications of New Classical Approach - Empirical Evidence.

Keynesian and Monetarist remedies failed to cure inflation and unemployment problems in money developed countries during 1970. Some economists, known as 'rationalists' who have been thought about the effectiveness of monetary and fiscal policies in equilibrating the economy. The 'rationalists' ought to answer the question what makes monetary and fiscal policies ineffective? Answer they responded is that people are well informed about the economy by the government. So the people are capable of predicting future course of economy accurately. They can therefore, anticipate well in advance the government's fiscal and monetary moves to resolve any economic dis-equilibrium and can guess their effects on their economic interests, their earnings, consumption and investment expenditure, etc. Therefore they make necessary adjustments in their economic plans even before the anticipated policy.

Different schools of thought have influenced the development of macro economics, Keynesian economics, monetarist school, and new classical growth theories were developed between 1930 and 1960, Modern Schools like new classical macro economics new Keynesian school, real business cycle school and supply side

economics represent more recent developments. There has been heated debate and contrarily among the different groups (see follow chart) which traces evolution of macro economics since 1936.

Figure No. 6.16
The family Tree Macro Economics



New Classical Macro economics : The Radicalism.

Keynesian and monetarist economics failed to cure inflation and unemployment problems which was a grave problem during in 1970. This raised doubts in the minds of economists, could radiologists. The doubts were entered grand effectiveness of monetary and fiscal policies in managing the economy. The radiologists answer to the question, what makes monetary and fiscal policies in managing the economy. The radiologists answer tot he question; What makes monetary and fiscal policies ineffective? Is summarized below.

People are as well informed about the economy by the government, action people are capable of predicting future course of action accurately. They can there fore, anticipate well in advance the government's fiscal and monetary moves to resolve any economic problem and can guess their effects on their economic interests, their earnings, consumption and investment expenditure, and so on. Therefore, they make necessary adjustment in their plans even before an anticipated policy. This prepares proper plinth of effectiveness of monetary and fiscal policies in the economy.

Keynes did recognize the importance of consumers' and producers' expectations in his General theory of employment but he treated expectations, separately and did not combine it with his income and employment theory. Until early 1980, not much attention was paid to the importance of peoples expectations in

The new classical macro economics is built on 1) the theory of rational expectations developed by John F. Muth and 2) Some radical assumptions made by the new classical-macro economists.

The concept of rational expectations was developed by a micro economist J. F. Muth in his paper 'Rational Expectation and the Theory of price Movements'. Econometric, July 1961. He has used a micro economic assumption, that people behave rationally to build his theory of rational expectations. A rational behavioral means acting in one's own self interest.

The theory of rational expectations lies in the foundation of the new classical macro economics. The rational expectations are those expectations which are formed by an effusive use of all available relevant information including past and present data, and anticipated events the radiologists, approach to the formation of rational expectations has two important teachers; i) if does not involve systematic errors, and ii) it is forward looking Rational expectation, forever, does not mean error free expectations. It means that economic agents use the available information intelligently and efficiently, and the predictions do not involve a systematic error.

The new classical macro economic formulations are based on two assumptions: 1) Price and wages are fireball. This is a classical assumption. 2) Economic agents - producers, consumers and labour - possess all the information they need to from their expectations and use them intelligently. This is a 'radical' assumption.

Main postulates of the New classical Macro economics :

The radiologists derive the following propositions from the theory of rational expectations and their assumptions, which form the basis of their policy formulations for macro economic management.

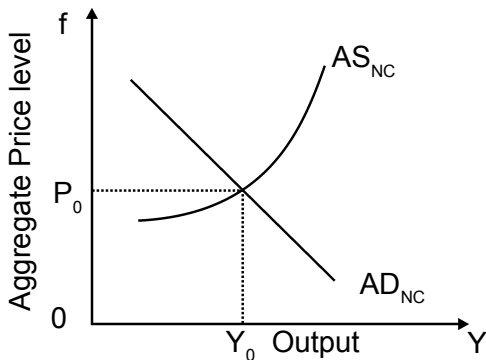
A) Monetary and Fiscal Policies do not effect employment and output : The radiologists reject the basic Keynesian and monetarist postulate that a systematic fiscal or monetary change influences the aggregate demand, therefore, real variables- output and employment. The radiculitis argue that the real variables (output and employment) are insensitive to the change in aggregate demand. Therefore, fiscal or monetary policies do not affect output and complement.

The radiculitis proposition that fiscal and monetary policies do not matter is illustrated in Fig. A and B in the juxtaposing of the Keynesion and monetarist view. Fig. 6.17 presents the equilibrium output and employment in the new classical system and Fig. B illustrates the new classical argument. In fact fig. A provide the basis for further analysis of new classical model. Part a of fig A presents the new classical aggregate demand (AC_{NC}) and aggregate supply curve (AS_{NC}). The general equilibrium is shown at output Y_0 and price level P_0 . In part (b) the curve labeled ND (P_0) represents the new classical labour demand curve at given price level (P_0) and curve labeled S_N (NC) represents the new classical labour supply curve. The labour market is in equilibrium at employment level N_0 .

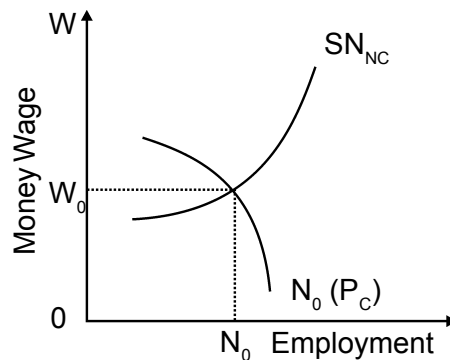
Let us first look at the Keynesian and monetarist view on the employment effect of change in money stock in the radical model, suppose that. The initial new classical aggregate demand and supply curves are given as AD_{NCO} and AS_{NCO} , respectively, in part (a) of fig. 6.18. The equilibrium point E_0 gives equilibrium.

Fig. 6.17 : The output and employment in the new classical model

a) Aggregate demand and supply curves.



b) Labour market demand and supply curves

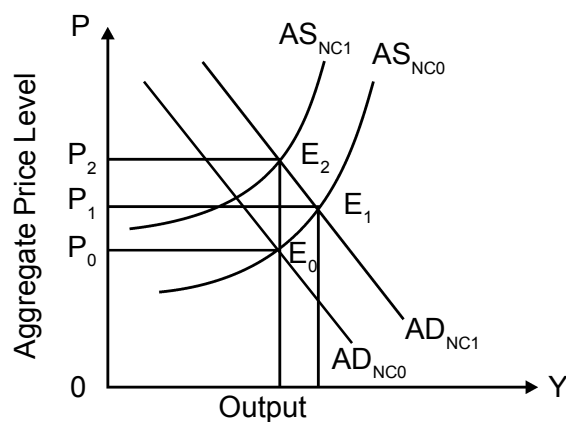


Level of output at Y_0 and price level at P_0 . At point E_0 actual output and employment are the same as rational expectations. Let us now examine the effect of a fully anticipated change in money supply on the level of output and employment. Suppose that money supply so increases that the aggregate demand curve AD_{NCO} shifts to AD_{NC1} . Since aggregate supply curve (AS_{NCO}) remains unaffected in the short run, the Keynesian and monetarist models, the equilibrium point will shift to E_1 ; output will increase to Y_1 ; and prices will rise to P_1 . With the rise in prices, demand for labour

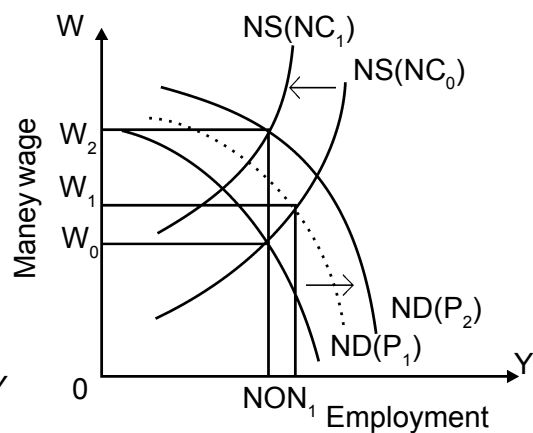
Figure No. 6.18

The effect of change in money stock on output and employment.

a) Aggregate demand and supply curves.



b) The effect of change in money stock on output and employment.



Increases and labour demand curve. $MD(P_0)$. Shifts to N_0 . (P_1) Since in the Keynesian and monetarist model, labour supply curve remains unaffected in the short run, employment will increase to N_1 . Thus according to the Keynesians and monetarists, an expansionary policy affects the aggregate demand and, thereby increases output and employment in the short run.

The radiologists reject the Keynesian and Monetarist proposition. They argue that output and employment are insensitive to the change in aggregate demand in short run. They question the basis of the Keynesian and Monetarist assumption that labour supply curve remains fixed in the short run. They argue that, the rational expectations, the rise in money stock is well dissipatedly vis-a-vis, rise in money wage is well anticipated simulator hence, fall in real wages is also well anticipated with the anticipated fall in real wages, labour supply will decrease and the labour supply curve will shift leftward. This shift in the labour supply curve makes the difference between Keynesian-Monetarist and new classical Scintillations.

As shown in part (b) of Fig. 6.18 with rational expectations, the expected increase in money supply makes the labour supply curve shift to the left from $NS_{(NCO)}$ to $NS_{(NC1)}$. With this shift in labour supply curve, the aggregate supply curve AS_{NC_0} shifts leftward to AS_{NC_1} . This increases the rational expected real wage derrises. As a result labour demand curve shifts to $(ND(P_2))$. with this shift in labour demand curve labour market reaches an equilibrium at wage W_2 and employment at the initial level of N_0 . In the final analysis, Monetary Eropansion result in ware rise from W_0 to W_2 bt employment remains us affected at N_0 .

What happens in the product market with employment level remaining saturated at N_0 , other things renuarinig the same, output remains unaffected. As shown in part (a) of Fig. 6 to 18, monetary expansion shifts the aggregate demand AD_{NC0} to AD_{NC1} , and leftward shift of labour supply curve from $NS_{(NCO)}$ to $NS_{(NC1)}$ shifts the aggregate supply curve from AS_{NC0} to AS_{NC1} . These shifts settle the product market equilibrium at E_2 which gives equilibrium output at its initial level Y_0 , though prices rise to P_2 . In conclusion, the monetary expansion does not influence output and employment levels it results only in inflation. This analysis indicates the new classical view that, in the short run, monetary (or fiscal) expansionary policy does not influence the real output and employment. They only push way and prices up.

B) Unemployment is not voluntary :

In the Keynesian view, a major part of unemployment during recession is involuntary. On the contrary, new classical economists believe that there is nothing like involuntary unemployment because the market for labour is always cleared. The radicals insist that the phrase involuntary 'unemployment' be discarded in all serious thinking about the actual options unemployed people are faced with. In their view, unemployment, if any, especially of non tractional nature, is mostly voluntary. In new classical view, it people are unemployed, they are unemployed not because they are not getting jobs but because they are looking for better jobs. In their words, "Measured

unemployment (more exactly, its non-frictional complements) is viewed as consisting to persons who regard the wage rate at which they could be currently employed as temporarily low and who therefore choose to wait or search for improved conditions rather than invest in moving or occupational change."

C) There is no trade-off between inflation and unemployment :

The relationship between inflation and employment has been one of the widely contested issues in macroeconomics. One of the most prominent views on this issue is represented by the Phillips curve, constructed by A. W. Phillips on the U.K. economy. The Phillips curve states that, there is a stable, inverse relationship between the inflation rate and the unemployment rate. This relationship between inflation and unemployment implies that, policy makers can find a trade off between inflation and unemployment, this proposition supports the Keynesian position.

Lucas and Sargent made it central to their attack on Keynesian economics. They argue that there is no trade off between the rate of inflation and the unemployment rate. They produced a new classical Phillips curve which is vertical. The vertical Phillips curve is based on the classical reassurance that, in the long run, the economy is always at full employment level. In the new classical view, therefore, there is no trade off between inflation and unemployment rates.

Policy Implications :

The new classical macroeconomic propositions yield two radical policy implications, because they are in sharp contrast with the Keynesian and monetarist policy prescriptions.

1) A Policy change must come as a surprise to people :

Under the rational expectations hypothesis, systematic fiscal and monetary changes can be anticipated by the people well in advance, especially if prices and wages are flexible. Therefore, households, firms and labour adjust their demand and supply plans well in advance to the expected situation and hence policy changes become ineffective. This is called policy ineffectiveness theorem. The theorem reads. "With rational expectations and flexible prices and wages, anticipated government policy cannot affect real output and employment.

2) Discretionary (freedom to decide) changes in policy must be avoided :

The new classical macroeconomics argue that discretionary policy changes are predictable and the private sector can forecast the future economic scene better than the policy makers. Therefore, private sector buyers and sellers adjust their purchase and sale plans so as to ward off the expected adverse effects of the discretionary policy. In the new classical view, discretionary policies not only level the output and unemployment unaffected but also cause market distortions.

Concluding Remarks :

The advent of new classical macro economics has tended to upset the apple cart of the Keynesians and to a great extent, that of monetarists. However, new classical

macroeconomics was not favorably received by mainstream macroeconomics. The debate continues mainly between the neo-Keynesians and new classical macroeconomics, the support for new classical macroeconomics is increasing, perhaps, because of neatness of the new classical model. However the Keynesians hold the ground firmly. As slow has remarked, it is "Much too early to tear up the IS-LM chapters in the text books of your possibly misspent youth."

6.3 Summary :

The IS-LM model is used to find the values of the interest rate and level of income that simultaneously equilibrate both the commodity market and the money market. Both the fiscal and monetary policy instruments can effect the level of income. We examined the relative effectiveness of the two types of policies. To analyse the causes and effects of shift of the IS curve we have to incorporate government expenditure and taxes in our analysis. Different schools of thought have influenced the development of macro economics. Keynesian economics, monetarist school, and new classical growth theories developed in 1930, and 1960, based on the prevailing circular flow. New classical macro economics, new Keynesian school, real business cycle school and supply side economics represents more recent development. There is a heated debate and controversy among these groups.

6.4 Terms to remember (Glossary) :

- 1) IS-LM = Investment (I) Saving (s) Liquidity demand for money (L) Money supply (M)
- 2) $S(Y) = I(r)$ = Goods market equilibrium
- 3) $M_s = M_d$ = Money market equilibrium
- 4) $S = S(Y)$ = saving function.
- 5) $I = I(r)$ = Investment function.
- 6) M_d = Demand for money
- 7) M_s = Supply of money
- 8) r = Rate of interest
- 9) M_{sp} = speculative demand for money
- 10) M_t = transaction demand for money
- 11) FE line = Full employment line
- 12) Y = output
- 13) Y = full employment output
- 14) T = Tax revenue
- 15) G = Government spending.
- 16) F_p = Fiscal Policy

- 17) AD_{NC} = New classical Aggregate demand
- 18) AS_{NC} = New classical Aggregate supply curve.
- 19) ND = New classical labour demand
- 20) $SN_{(NC)}$ = New classical Labour supply
- 21) P_o = Given price level.
- 22) N = full employment level of employment

6.5 Objective type questions.

A) Choose the correct alternatives given below.

- 1) The IS-LM model was developed by the Nobel Laureate...
 - a) Paul Samuelson
 - b) Amartya Sen
 - c) John Hicks
 - d) ...
- 2) The IS-LM model emphasises the interaction between
 - a) goods and Asset market
 - b) goods and labour market
 - c) Asset and hawala market
 - d) Labour and financial market
- 3) Equilibrium in goods market requires
 - a) Liquidity demand for money = money supply
 - b) Demand = supply
 - c) Investment = saving
 - d) Income = expenditure
- 4) Equilibrium in Asset market requires
 - a) Investment = saving
 - b) supply of labour = Demand for labour.
 - c) Liquidity demand for money = money supply
 - d) Input = output
- 5) Saving is the function of
 - a) Expenditure
 - b) Income
 - c) Rate of interest
 - d) Money supply
- 6) Investment is the function of
 - a) Rate of interest
 - b) demand for money
 - c) money supply
 - d) capital.
- 7) Transaction and precautionary demand for money are the direct functions of
 - a) Expenditure
 - b) money supply
 - c) Income
 - d) rate of interest
- 8) speculative demand for money is the function of
 - a) Money supply
 - b) Rate of interest
 - c) Income
 - d) Expenditure
- 9) At a high interest rate speculative balances will be
 - a) High
 - b) Low
 - c) Moderate
 - d) very high
- 10) A situation in which all markets in an economy are simultaneously in equilibrium is called a equilibrium.
 - a) Partial
 - b) general
 - c) none of these
- 11) An increase in government spending shifts the IS curve to the

- a) right b) Left c) none of these
- 12) If the central bank policy changes, it effects the changes in
- a) Labour supply b) money supply c) demand for money
- d) non of these
- 13) Regional expectations model (new classical economics) / developed by Noble Laureate economist
- a) Robert Lucas b) Tinbergen c) Kuznets d) Lewis
- 14) is primarily radicals attack on the Keynesian macroeconomics.
- a) New classical macroeconomics b) Classical macroeconomics
- c) modern macroeconomics d) Austrian school macroeconomics
- 15) The concept of rational expectations was developed by a macroeconomics
- a) J.F Muth b) Hayek c) Fridman d) Malthus

⊗ **Answer to check your progress :**

- 1) John Hicks 2) goods and asset market 3) Investment = saving
- 4) Liquidity demand for money = money supply 5) Income
- 6) Rate of interest 7) Income 8) rate of interest 9) Low
- 10) general 11) right 12) money supply 13) Robert Lucas
- 14) New classical macroeconomics 15) J. F. Muth.

6.6 Questions for practice :

- 1) Critically examine the complete IS-LM model.
- 2) Diagrammatically explain the factors, that shift the IS Curve
- 3) Explain the factors that shift the LM curve
- 4) Give a note on equilibrium in the labour market.
- 5) How slope of the IS curve affects the fiscal policy.
- 6) How slope of the LM curve and affects the fiscal policy.
- 7) Explain the slope of Is curve and its effectiveness of monetary policy.
- 8) Explain the slope of the LM curve and the effectiveness of monetary policy.
- 9) How IS and LM classicistic affects the monetary and fiscal policies.
- 10) Write notes on
 - 1) the Keynesian Range 2) The classical Range 3) The Intermediate Range
- 11) State the new classical critiques on micro foundations.
- 12) Give main pustules of the new classical macroeconomics.
- 13) Write a note on policy implications of new classical approach.

Unit – VII

Open Economy and Exchange Rate

7.0 Objectives

7.1 Introduction

7.2 Presentation of Subject Matter.

1. Meaning and Types of Exchange Rate.
2. Mundell-Fleming Model of open Economy.
3. Asset Markets, Expectations and Exchange Rates.
4. Monetary Approach to Balance of Payment.

* Objective type Questions.

* Answers of objective questions.

7.3 Summary

7.4 Key Words

7.5 Objective Question

7.6 Answer of Objective Question

7.7 Questions for Practice

7.8 Books for further reading

7.0 Objectives

After going through this Unit No. 7 . You will be able to know,

1. The structure of an open economy
2. The explain the meaning of Exchange Rate
3. The types of Exchange Rate
4. The Mundell-Fleming Model explanation in detail.
5. The Monetary Approach to Balance of payment.

7.1 : Introduction

In the previous unit No. 6, we discussed the IS-LM model and Extension of IS-LM model with Government Sector and Labour market Relative effectiveness of Monetary and fiscal policies with the help of IS-LM model. In this unit, we will studied the meaning and type of Exchange Rate, Mundell-Fleming model of open economy.

Assets markets, Expectations and Exchange Rates. Monetary approach to Balance of payments.

Since 1980, there is tremendous change in the Global economy. All the Countries Expected the Globalization. In that sense an international trade has increase on large size. The exchange rate will play a very important role in international trade. It is helpful to increase this trade. The rate of Exchange refers to the rate at which a Country's Currency exchanges for those of other Currencies. In other word, it is the expression of value of a currency in terms of other currencies.

Hicks and Hansen developed the IS-LM model. This model is extended Keynesian model. In this model the term IS is the shorthand expression of the equality of Investment and saving which represents the product market equilibrium. It is also known as 'real sector' equilibrium. On the other hand the term LM is the shorthand expression of the equality of money demand (L) and money supply (M) and represents the money market equilibrium. Mundell-Fleming developed this model and they induced the international trade in the context of an open economy. In this model IS, LM & BP technique. Where the LM curve represents monetary policy, IS curve represents fiscal policy and BP curve explains balance of payment equilibrium.

The monetary approach to the balance of payments is an explanation of the overall balance of payments. It explains changes in balance of payments in terms of the demand for money and supply of money.

7.2 : Presentation of subject Matter.

The explanation of this particular Chapter is as under.

7.2.1 : Meaning and Types of Exchange Rate.

The concept of exchange rate is very importance in the international trade. Exchange rate is the rate at which one currency is exchanged for another. It is the price of one currency in terms of another Currency. It is customary to define the exchange rate as the price of one unit of the foreign currency in terms of domestic currency. The exchange rate between the Rupee and the Dollar refers to the number of Rupee required to purchase a pound. Thus, the exchange rate between the Rupee and the Dollar from the Indian viewpoint are expressed as Rs. 48 = \$ 1. The American would express it as the number of Dollar required to get one Rupee and the above exchange rate would be shown as Rs. 1 = \$ 0.0208

The exchange rate of Rs. 48= \$ 1 or Rs.1= \$ 0.0208 will be maintained in the world foreign exchange market by arbitrage. Arbitrage refers to the purchase of foreign currency in a market where its price is low and to sell it in some other market where its price is high. The effect of arbitrage is to remove differences in the foreign exchange rate of currencies so that there is a single exchange rate in the world foreign exchange market. If the exchange rate is Rs. 48 in the American exchange market and Rs. 49 in the Indian exchange market. Foreign exchange Speculator, known as arbitrageurs, will buy dollar in New York and sell them in India. In this time, make a profit Rs.1 on each dollar. So the price of dollar in terms of Rupees rise in the New York market and

falls in the Indian market. Ultimately, it will equal in both the markets arbitrage come to an end.

If the exchange rate between the Rupee and dollar rises to Rs. 50=\$ 1 through time. The Rupees is said to depreciate with respect to the dollar because in that time more Rupees needed to buy one dollar. When the rate of exchange between the Rupee and the dollar falls to Rs. 45=\$ 1 the value of rupees is said appreciate because less Rupees are required to purchase one dollar. Thus a depreciation of the Rupees against the dollar is the same thing as the appreciation of the dollar against the rupees and vice versa.

*** Definitions of exchange rate :**

- 1. Clare & Crump :-** "Rate of Exchange is only a price of one currency quoted in terms of another currency."
- 2. H. Kartrak :-** " The rate at which the currency of a country exchange for that of another country is called exchange rate between the two countries ."

"The rate at which one currency buys or exchanges for another currency is known as the rate of exchange." In short, exchange rate is the price of foreign money.

8 Types of Exchange Rate :

The transaction in the exchange market is carried out at what are termed exchange rates. Exchange rate is the price of foreign money. It may be defined as the price paid in the home currency for a unit of foreign currency. In minor sense rate of exchange is the price of one national currency in terms of another nation's currency. It can be quoted in the two ways firstly, one unit of foreign money to so many units of the domestic currency or secondly, a certain number of units of foreign currency to one unit of domestic currency.

E.g. 1 U.S. dollar = 48 Indian Rupees or Rs. 1= \$0.0208. There are the two types of exchange rates.

- a) Spot Rate and Forward Rate of Exchange.
- b) Fixed exchange rate and flexible exchange rate.

A) Spot Exchange rate and Forward exchange rate :

The exchange rate change from day to day and from hour to hour looking at this uncertainty of foreign exchange transactions may be different types it is spot rate and forward rate.

The spot rate of exchange refers to that rate of exchange at which the delivery of foreign exchanges are made to the buyer by the seller at the spot. The spot rate transactions require immediate delivery, or exchange of currencies on the spot. In practice the settlement takes place within two days in most market.

The forward rate of exchange is that rate of exchange at which the seller contracts to deliver to the buyer foreign exchange at some future date at a rate settled

in the present A forward exchange markets function is side by side with a spot exchange market. The transactions of forward exchange market are known as forward exchange transactions which simply involve purchase or sale of a foreign currency for delivery at sometime in the future. The rate at which these transactions are consummated, therefore called forward rates. Forward exchange rate is determined at the time of sale but the payment is not made until the exchange is delivered by the seller. Forward rates are usually quoted on the basis of a discount or premium over or under the spot rate of exchange. Thus, forward rate may express as a percentage deviation from the spot rates. E.g. suppose an Indian people buys goods from the America worth \$200, payable in 3months. The 'spot Rate' is Rs. 48.50 paisa = \$1. In order to avoid exchange risk, he may enter into a forward contract in the forward exchange market to buy \$200 three months' forward at a rate agreed on now the forward rate. If the rate agreed on is 50 paisa at a discount then the buyer shall have been to pay at the rate of Rs. 48 = \$ 1. If the rate is fixed at 50 paisa at premium then he shall have to pay at the rate of Rs. 49=\$ 1. In this way in the forward rate system, a buyer avoids risk in the sense that whatever may be the fluctuations in exchange rate in the future; he knows now what he will have to pay for \$200. Thus, forward exchange rates enable exports and imports of goods to know the prices of their goods which they are about to export or import.

Thus forward exchange rates are not independent of spot rates of exchange and they are inter-related indirectly through interest rates prevailing in the two countries. That means usually the forward rate is determined by the relative rates of interest in the countries concerned. If the rates of interest are the lower abroad relative to the rate of interest at home, the forward rate will be at a premium compared with the spot rate by amount equal to the difference in the rates of interest plus commission. This is because the dealer borrows at home at or rate higher than the rate at which he investment the foreign fund abroad he makes out a deficit that goes to his client in competitive market, plus his own charges-commission conversely, if the rate of interest abroad is higher, then the forward rate may be quoted at discount by an amount equal to the difference in the rate of interest, less dealer's commission.

B) Fixed and Flexible Exchange Rate :

After the First World War, the various countries of the world had adopted the system of inconvertible paper currency standard. In this currency these can be two types of exchange rates - Fixed and Flexible exchange rates.

Under the stance monetary system of the IMF, Fixed or stable exchange rates called pegged exchange rates on par values. In fact the IMF was established in March 1947 with the objective of stabilizing the rate of exchange with proper safeguards for adjustments whenever is necessary. A fixed exchange rate system agrees to keep their currencies at a fixed, pegged rate and to change their value within a small range of variations, when economic situation forces them to do so. On the other hand, free or flexible exchange rates are left uninterrupted by the monetary authorities to be determined by the forces of demand and supply in foreign exchange market. Thus, flexible exchange rates are determined by the condition of the demand and supply of

foreign exchange and are perfectly free to fluctuate according to the changes in the demand or supply forces, if there are no restrictions on buying and selling in the foreign exchange market. The free or floating rate is allowed to seek its own level, as no par of exchange is fixed.

⊗ **Fixed Exchange Rate system :**

In the fixed exchange rate system, a country officially fixes a specific exchange rate of its currency and in terms of a given foreign currency and maintain the same over a period of time.

⊗ **Merits or advantages of fixed exchanges Rates :**

The various merits of fixed exchange rates are as follows :

1. Based on common currency : The fixed exchange rate between different countries is based on the case for a common currency within a country. A country having a common currency with a fixed value facilitates trade increases production and leads to faster growth of economy. The most benefitted fixed exchange rates encourage international trade by making price goods involved in trade such a situation will bring about disturbances in the balance of payments.

5. Useful to small countries : a system of fixed exchange rate is essential for small countries. Johnson Favours fixed exchange rates in the 'banana republics' where foreign trade plays a dominant role. Flexible exchange rates in them lead to inflation and depreciation when the exchange rate falls.

6. Smooth flow of International trade :

International trade will flow more quickly and more easily when there is confidence all round that the existing rate will continue in future.

7. Disciplinary : Another important advantage of fixed exchange rate system is that it serves as an 'Anchor and imposes a discipline on Monetary authorities to follow responsible financial policies with countries. Inflation will cause balance of payments deficits and reserve loss. Hence, authorities will have to take counter-measures to stop inflation. Fixed exchange rate should therefore impose 'Discipline' on government and stop them from pursuing inflationary policies which are out of tune with the rest of world.

8. Promote growth of internal Money and Capital Markets : It is another big advantage of the fixed exchange rate system. Since flexible exchange rates cause uncertainties about the future exchange rate, individuals, companies and institutions are reluctant to lend to and borrow from internal money and capital markets.

9. Automatic equilibrium in the balance of payment : Fixed exchange rates system creates Automatic equilibrium in the balance of payments. The fluctuating exchange rate may cause instability and thereby bring about disequilibrium in the balance of payment. Such instability may be avoided under stable exchange rates in

7. Problem of International Liquidity : When the country expands its trade, than a country must have adequate international liquidity to maintain a fixed exchange rate. The country must have sufficient reserves of foreign currencies to avoid balance of payment disequilibrium. In the view of the above demerits and problem the fixed exchange rate has been given up despite its various advantages explained before.

☞ **Flexible Exchange Rates :**

The system of flexible exchange rate was advocate by a number of economists. Flexible, floating or fluctuating exchange rate are determined by market forces. There is no intervention by the monetary authority. The rate of exchange is allowed to fluctuate in terms of change in demand for and supply of foreign exchange. Under a regime of freely fluctuating exchange rate, if there is an excess supply of currency, the value of the currency in foreign exchange market will fall. It will lead to depreciation of the exchange rate. Consequently, equilibrium will be restored in the exchange market. On the other hand, shortage of a currency will lead to appreciation of exchange rate thereby leading to restoration of equilibrium in the exchange market.

☞ **Case with the Flexible Exchange Rates :**

The following advantages or merits are claimed for flexible exchange rate system.

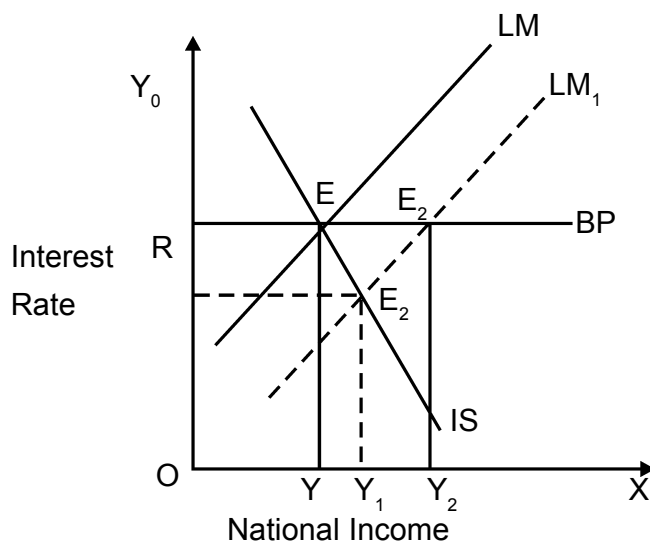
1. Simple operation : The most important advantage of flexible exchange rates is simple operation. The exchange rate moves automatically and freely to equate supply and demand, thereby clearing the foreign exchange market It does not allow a deficit or surplus to build up and eliminates the problem of scarcity or surplus of any one currency. It also avoids the need to induce changes in prices and incomes to maintain or restore equilibrium in the balance of payment.

2. Promotes growth of multilateral trade : The advocates of flexible exchange rate system are rapid growth of multilateral world's , trade, because it maintains the exchange rates at their natural level through continuous market adjustments. Thus there is no danger over valuation or under valuation of domestic currency.

3. Smooth and automatic adjustment of the balance of payments : A system of flexible exchange rates brings about smooth and automatic adjustment in the balance of payments. For instance, when there is a deficit, it will turn to lower the exchange rate and corresponding change in the balance volume of exports and imports will restore equilibrium in the balance of payments. But the fixed exchange rate requires changes in costs, prices, incomes, etc. to correct disequilibrium in the balance of payments.

4. Autonomy of Economy policies : The system of flexible exchange rate autonomy of the economic policies is preserved. Modern governments are committed to maintain full employment and promote stability with growth. They are not required to sacrifice these objectives of full employment and economic growth in order to remove balance of payments disequilibrium under a regime of flexible exchange rates.

Figure No. 1

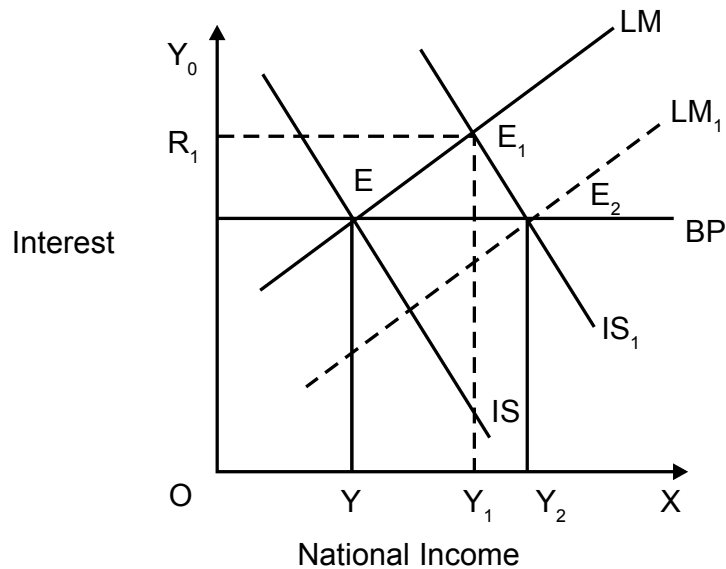


In this figure BP curve is drawn horizontally. 'E' is the initial equilibrium point. This point IS-LM-BP curves intersects each other. At point 'E' Bop is zero but the economy is not in full employment equilibrium. This point determines 'OY' the national income level and 'OR' the interest rate. The BP curve is drawn horizontally because even the small change in the interest rate will lead to an infinitely large capital flow. If the domestic interest rate is above OR, capital flows into the country and if the domestic interest rate is below OR, capital flows out of the country

Suppose, the economy wants to attain the full employment income level OY_2 . The monetary authority starts an expansionary monetary policy by increasing the money supply. The LM curve shifts to LM_1 . The curve LM_1 and IS intersects at E_1 , so that the interest rate falls to OR_i . It in turn, leads to an outflow of capital. Since the price of foreign exchange is fixed, the monetary authority will finance the outflow of capital by selling foreign exchange. The sales of foreign exchange will decrease the money supply. This causes the LM_1 curve shifts upward to the left to its original position of the LM curve. Thus the monetary policy is totally ineffective under fixed exchange rates and perfect capital mobility is maintaining internal balance.

On the other hand, an expansionary fiscal policy has the effect of raising the income level by perfect capital mobility. This is shown in the the figure No. 2.

Figure No. 2



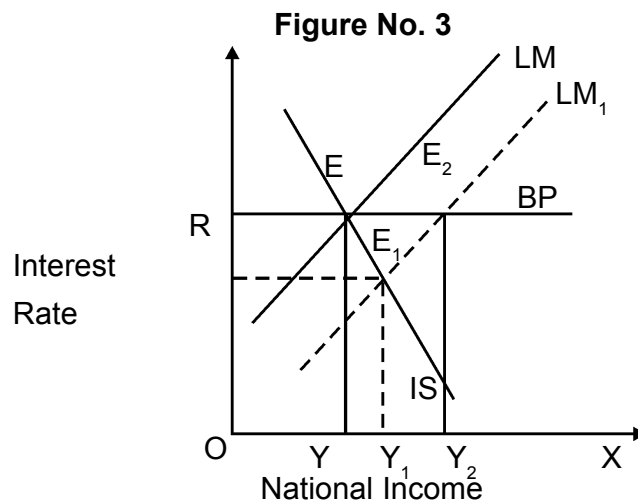
Suppose the Government expenditure is increased to achieve full employment level of income OY_2 . This shifts the IS curve to the right to IS_1 . The new curve IS_1 intersects the LM curve at E_1 . This causes the interest rate to rise to OR_1 and the income level to fall to OY_1 . The rise in interest rate leads to large inflows of capital from abroad. This increases the money supply with the rise in foreign reserves, therefore shifting the LM curve to the right to LM_1 . Now this LM_1 curve intersects the IS_1 curve at point E_2 . This point E_2 full employment income level OY_2 is reached. Thus fiscal policy by increasing money supply raises aggregate demand, income and employment.

Thus, In the case of perfect capital mobility and fixed exchange rates, fiscal policy is effective in maintaining internal balance and monetary policy is ineffective. So far as the external balance is concerned, it is maintained itself because of perfect capital mobility.

B) Floating Exchange Rates With Perfect Capital Mobility:-

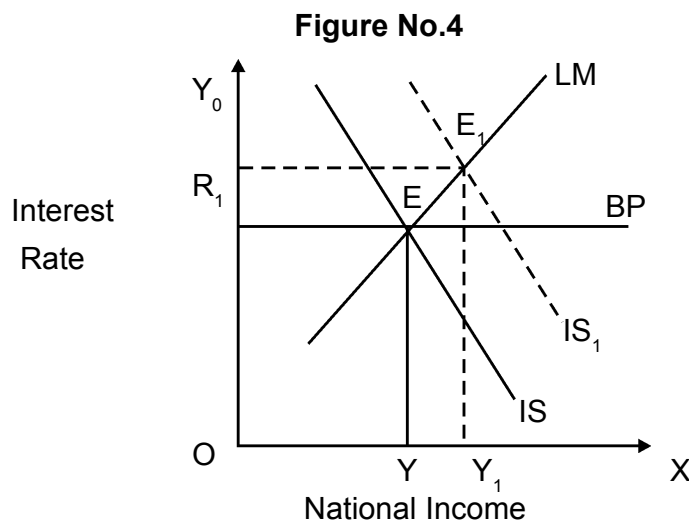
Consider the effects of monetary and fiscal policies with perfect capital mobility under floating exchange rates. The monetary authority starts an expansionary monetary policy. This has the effect of lowering the interest rate, increasing capital and thereby bringing deficit in the balance of payments.

How this deficit is removed is shown in the figure. No. 3.



In this figure 'E' is the initial equilibrium point. When the expansionary monetary policy used by monetary authority the LM curve shifts to the right LM₁ curve, given the IS curve. The LM₁ curve intersects the IS curve at E₁ which lower the interest rate to OR_1 and raise income to OY_1 . These lead to capital outflow and consequent deficit in the balance of payment and depreciation of the exchange rate. Depreciation increases the demand for domestic goods in the foreign country. Thus the economy upward along the LM₁ curve till it reaches point E₂ when income rises to OY_2 and the interest rate rises to the old level OR . Equilibrium in the balance of payments is restored at point E₂ where the increase in imports through rise in income is offset by surplus in trade balance due to depreciation.

Suppose the Government adopted an expansionary fiscal policy which shifts the IS curve to IS₁, given the LM curve is shown in the Figure. No. 4.



In this figure IS curve and LM curve intersects in point E_i which has economy into equilibrium. With OR_1 interest rate and OY_1 income level. Since point E_i is above the BP line, there is surplus in the balance of payment. This surplus leads to the appreciation of the exchange rate which, in turn, reduces the demand for domestic output. This process of appreciation will continue so long as the domestic interest rate is above the world rate and capital inflows continue. Appreciation will continue to reduce the demand for goods and offset the expansionary effect of fiscal policy till the IS_i curve shifts back to the IS curve and the equilibrium is re-established at E where the interest rate and income are back to their original levels of OR and OY . In that way the equilibrium in the balance of payment is being maintained at E_i by financing the trade deficit through capital inflows with expansionary fiscal policy. The fiscal policy has no effect on income and employment under perfect capital mobility. Thus under floating exchange rate with perfect capital mobility monetary policy is effective in maintaining internal and external balance and fiscal policy is ineffective.

The above analysis under fixed and floating exchange rates considers monetary and fiscal policy in isolation. As a result, monetary and fiscal policies are expanded simultaneously in such a manner that the LM and IS curve shifts to the right to LM_i and IS_i so that they intersect at point E_2 , thereby increasing income to OY_2 level, but keeping the interest rate intact at OR .

C) Fixed Exchange Rates With Relative Capital Mobility :

Consider the effect of monetary and fiscal policies with relative capital mobility under fixed exchange rates. This is shown in the Figure : No. 5.

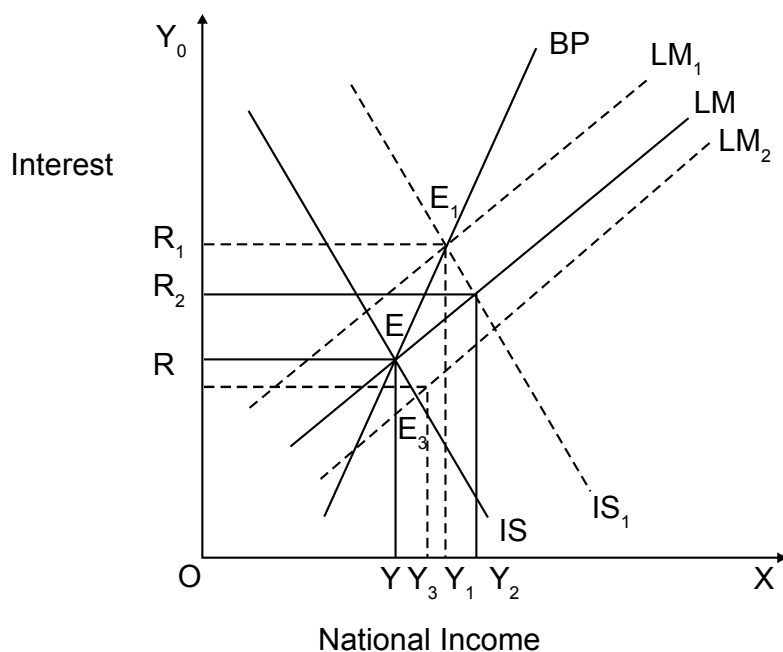
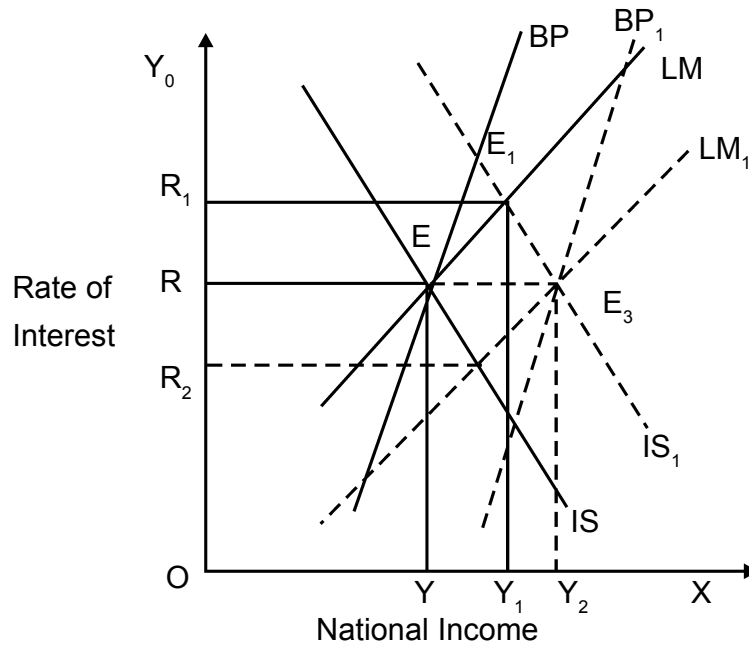


Figure No - 6



In Figure No. 6, 'E' is the initial equilibrium point. This point shows the curve BP=IS=LM curves and OR interest rate and OY income level. Suppose the monetary authority follows an expansionary monetary policy which shift the LM curve to the right to LM₁ and intersect the IS curve at E₂. This leads to short-run Bop deficit because point E₂ is below and to the right of the BP curve. With the fall in interest rate to OR₂. There is capital outflow. This leads to increase in the demand for foreign currency and the country's exchange rate depreciate. This increases exports and decrease imports. This causes the IS curve to shift to the right IS₁. Bop is improves so that the curve BP shifts to the right to BP₁. The new equilibrium is established at L₃.

In this point the curve IS₁=LM₁=BP₁ curves and both external balance and internal balance are attained at a higher OY₂ income level than OY. Thus monetary policy is effective under the flexible exchange rates.

Suppose, an expansionary fiscal policy is adopted, there is the balance of payment deficit under flexible exchange rates. Starting from the equilibrium point E. with an increase in government expenditure or cut in taxes, the IS curve will shift to the right to IS_i which cuts the LM curve at E₁. This raises the interest rate to OR₁. There is capital inflow which causes currency appreciation. This, in turn, raises imports and reduces exports and leads to depreciation of the currency and

interest rate or expectations of depreciation of the foreign currency would, cause capital outflows from the foreign country. On the other hand, increase in domestic interest rate and expectations of appreciation of domestic currency would encourage capital inflows in the domestic economy.

7.2.4 : Monetary Approach to Balance of Payment :

Monetary approach regards balance of payments is a monetary phenomenon. Advocates of Monetary approach argue that disequilibrium in the balance of payments affects the supply of money and demand for money. According to them, disequilibrium in the balance of payments is reflection of monetary disequilibrium and therefore it can corrected by monetary measures. In an open economy decrease or increase in foreign exchange reserves for the basis of expansion in money supply.

When balance of payments is thrown into disequilibrium, adjustments take place to restore equilibrium in the balance of payments. The classical economists believed in automatic mechanism of adjustment through which disequilibrium in balance of payments is self-correcting. They thought monetary contraction or monetary expansion will bring the balance of payments into equilibrium when there is deficit or surplus in it.

In the absorption approach to balance of payments is general equilibrium in nature and is based on the Keynesian national income relationship. So this approach also known as the Keynesian approach. It runs through the income effect of devaluation as against the price effect to the elasticity approach. The theory states that if a country has a deficit in its balance of payments, it means that people are 'absorbing' more than they produce. Domestic expenditure on consumption and investment is greater than national income. If they have a surplus in the balance of payments, they are absorbing surplus in the balance of payments, they are absorbing less. Expenditure on Consumption and investment is less than national income. Here the balance of payment is defined as the difference between national income and domestic expenditure. This analysis can be explained in the following form.

$$Y = C + I + G + X - M \dots\dots\dots (1)$$

where, Y = National income

C = Consumption

I = Domestic Investment

G = Government expenditure

X = Export

M = Import

The sum of

$$C+I+G = A = \text{Total absorption}$$

and $X - M = B = \text{Balance of payment}$ Thus Equation (1) becomes

$$Y = A + B$$

or $B = Y - A \dots\dots\dots (2)$

This equation state that the balance of payments on current account is the difference between national income (Y) and total absorption (A). BOP can be improved by either increasing domestic income or reducing the absorption. For this purpose, Sydney Alexander advocates devaluation. The devaluation increases exports and reduces imports, there by increasing the national income. The additional income so generated will further increase income via the multiplier effect. This will lead to an increase in domestic consumption. Thus the net effect of the increase in national income on the balance of payments is the difference between the total increase in income and the induced increase in absorption.

$\therefore \Delta B = \Delta Y - \Delta A \dots\dots\dots (3)$

Total absorption (AA) depends on the marginal propensity to absorb. When there is devaluation. This is expressed as a Devaluation also directly affects absorption through the change in income which we write as D Thus -

$\Delta A = a\Delta Y + \Delta D \dots\dots\dots (4)$

Substituting equation (4) in (3) we get.

$\Delta B = \Delta Y - a\Delta Y + \Delta D$

or

$\Delta B = (1-a) \Delta Y + \Delta D \dots\dots\dots (5)$

Thus, the above equation @ is explain the effects of devaluation on balance of payments.

7.3 Summary :

The concept of exchange rate is very importance in the international trade. Exchange rate is the rate at which one currency is exchanged for another. It is the price of one currency in terms of another currency. Basically, the two types of exchange rates. First is spot rate and forward rate and second Fixed exchange rate and Flexible exchange rate.

The spot rate of exchange refers to the rate at which foreign currency is made available on the spot. The forward rate is the rate at which a future contract for foreign currency is brought and sold the forward rate is quoted at a premium or discount over the spot rate.

In the fixed exchange rate system, a country officially fixes a specific exchange rate of its currency in terms of given foreign currency and maintains the same over a period of time. On the other hand under a flexible or floatation exchange rate system, exchange rate are freely determined by the interation of supply and demand an open market.

The monetary approach to the balance of payment is an explanation of the overall balance of payments. It explanation of the overall balance of payments. It explains changes in balance of payments in terms of demand for and supply of money.

- 3) What is Depreciation ?
- 4) Define the spot exchange rate.
- 5) What is Expectations ?
- 6) Define the concept of currency convertibility ?
- 7) Who developed keynesian open Economy model ?
- 8) What is the Devaluation ?
- 9) What is the forward exchange rate ?
- 10) What is the fixed exchange rate ?

7.6 Answer to the objective questions :

A) Choose the correct alternative given below :

- 1) a) Flexible :
- 2) c) Mundel - Fleming model
- 3) a) Increase the money supply.
- 4) c) Spot rate of exchange
- 5) c) a and b both -

B) Answer in one Sentence :

1. "The balance of payments is a systematic record of economic transactions of the residents of a country with the rest of the world during a given period of time."
2. "Rate of exchange is only a price of one currency quoted in terms of another currency."
3. Depreciation refers to the decline in the value of domestic currency in relation to that of foreign currency.
4. The spot rate of exchange refers to the rate at which foreign currency is made available on the spot.
5. "Expectation means forecasts made by an economic agent regarding the uncertain economic variables which are relevant to this decision."
6. 'Currency convertibility means currency of a country can be freely converted into foreign currency.'
7. Mundal - Fleming developed keynesian open Economic model.
8. "Devaluation means a deliberate reduction by the government in the value of its national currency in terms of gold, foreign Currencies".
9. The forward rate is the rate at which a future contract for foreign currency is brought and sold.

Inflation and Business Cycles in theoretical perspective with emphasis on measures to deal with them.

8.2.3 Inflation

Inflation is a major economic problem of the globe in general and developing economies in particular. It has number of consequences, which affects every section of population and employees badly. Therefore, it is inevitable to study the problem of inflation.

The meaning of the term Inflation can better understand with the help of following definitions.

1. Crowther

“Inflation is a state in which the value of money is falling, i. e. prices are rising.”

2. Hawtrey

“Inflation is the issue of too much currency.”

3. Kemmerer

“Inflation is too much currency in relation to the physical volume of business being done.”

4. Coulbourn

“Inflation is too much money chasing for few goods.”

☪ Types of Inflation

Inflation is classified into various types based on the different criteria.

1. Creeping, Walking, Running and Hyper Inflation
2. Open and Suppressed Inflation
3. Comprehensive and Sporadic Inflation
4. Full and Partial Inflation
5. Peacetime, Wartime and Post War Inflation.

8.2.3 Theories of Inflation

There are four theories of inflation primarily. They are known as approaches towards the analysis of inflation.

- A) Classical Theory
- B) Keynesian Theory
- C) Monetarist Theory
- D) Structuralist Theory

A) Classical Theory of Inflation

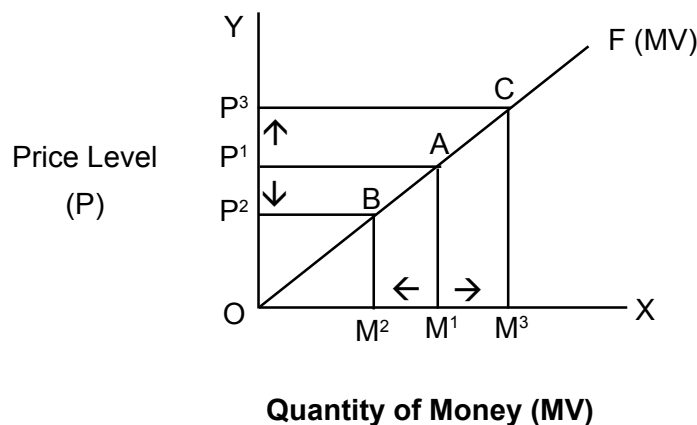
Theories of inflation explain why the problem of inflation emerges out in the economy. They analyse the causes responsible for the phenomenon of inflation classical

approach is the first theory of inflation propounded by the classical economists like Irving Fisher. This theory explains the problem of inflation in terms of money supply. It is known as the quantity theory of money.

The quantity theory of money is quite old theory. It was first propounded in 1588 by an Italian economist Dayanzatti. Later, the classical economist developed this Irving Fisher popularized this theory in his book, "The Purchasing Power of Money" published in 1911, and gave quantity approach to this theory. The economists like John Locke, David Hume also have contributed in the development of this theory.

According to classical theory, price level is determined by quantity or supply of money. Thus, this theory establishes the relationship between money supply and price level. This theory explains the factors that determine the general price level in a country. Quantity of money and price level are positively and proportionately related. There is direct and proportionate relationship between supply of money and price level. With the increase in money supply the price level also increases, and vice versa. In addition to that, increase in the price level is in the same proportion in which supply of money increases, and the value of money decreases.

The classical approach towards the inflation can be explained with the help of following figure.



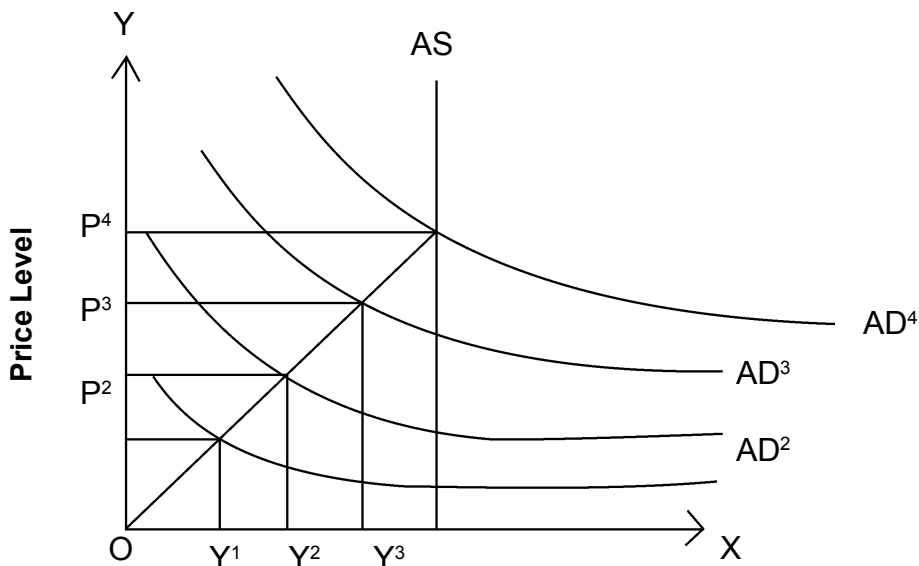
In the above figure, the level of price increases in the same proportion in which quantity of money increases. It falls with the decrease in money supply. The supply of money rose from M^1 to M^3 , as a result price level increased from P^1 to P^3 .

Irving Fisher explains the problem of inflation due to increase in money supply with the help of following equation.

$$MV + M^1V^1 = PT$$

or
$$P = \frac{MV + M^1V^1}{T}$$

The Keynesian theory of inflation can be explained with the help of diagram below.



Aggregate Demand and

In the above diagram, AD is Aggregate Demand Curve, and AS is Aggregate Supply Curve. With the increase in demand, price level increases from OP to OP^4 . The increase in price level is higher when economy reaches at full employment, output level OY^3 .

C) Monetarist Theory of Inflation

The monetarist like Milton Friedman has developed monetarist approach to the problem of inflation, and propounded monetarist theory of inflation. It is also the demand pull theory of inflation. But it is slightly different from that of J. M. Keynes. We get monetary explanation of the inflation in Milton Friedman's "The Role of Monetary Policy", in American Economic Review published in 1968.

Milton Friedman also explains inflation of excess demand for goods and services, but different from J. M. Keynes. J. M. Keynes explained inflation arises due to real sector forces. According to him, excess demand comes in existence as the result of autonomous increase in expenditure on investment or consumption. It is increase in aggregate expenditure or demand occurs independent of increase in the supply of money. But according to monetarists, inflation arises because of rise in prices on account of the increase in money supply in the economy.

According to Friedman, "Inflation is always and everywhere as monetary phenomenon, and can be produced only by a more rapid increase in the quantity of money than in output." When supply of money increases in the economy, then there emerges excess supply of money balances with the public over the demand for money.

Hence, people increase their expenditure on purchasing goods and services. The excess supply of money supply results in increase in aggregate demand for goods and services. If there is no increase in output, then extra money supply leads to excess demand for goods and services. This causes inflation or rise in prices.

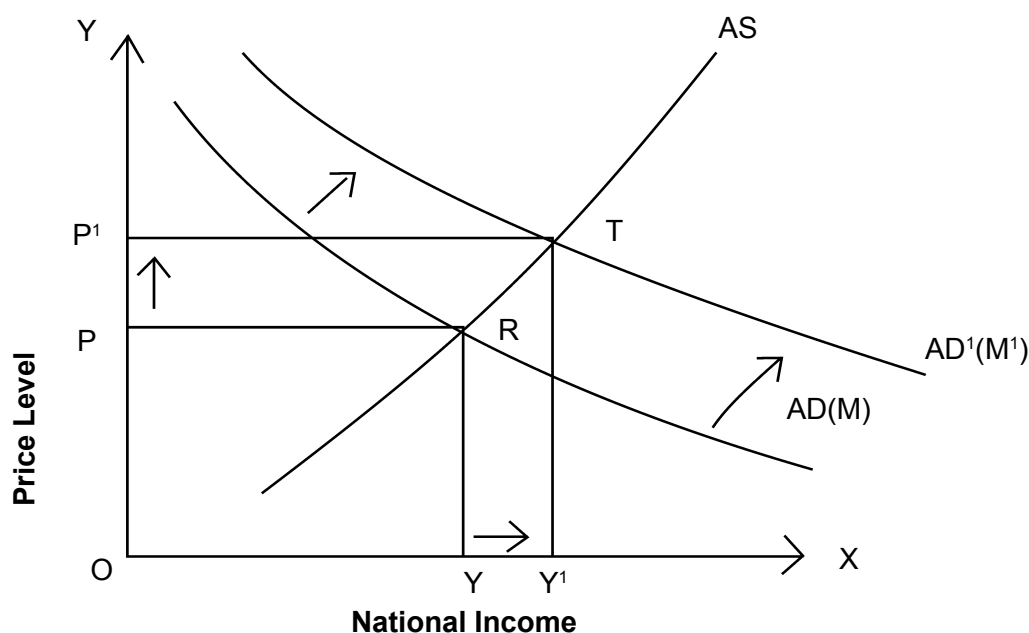
The monetarist theory of inflation can be explained with the help of following equation;

$$P = \frac{MV}{T} = \frac{M}{Y} \cdot \frac{1}{K}$$

$$\therefore \frac{\Delta P}{P} = \frac{\Delta M^s}{M^s} - \frac{\Delta Y}{Y}$$

From the above equation, rate of inflation ($\frac{\Delta P}{P}$) is determined by growth of money supply () and rate of growth of output ($\frac{\Delta Y}{Y}$), with velocity of circulation (V) or K remaining constant. Hence, Friedman and other monetarist claim, inflation is predominantly a monetary phenomenon, which implies changes in velocity and output are small.

The monetarist theory of inflation is represented with the help of figure below.



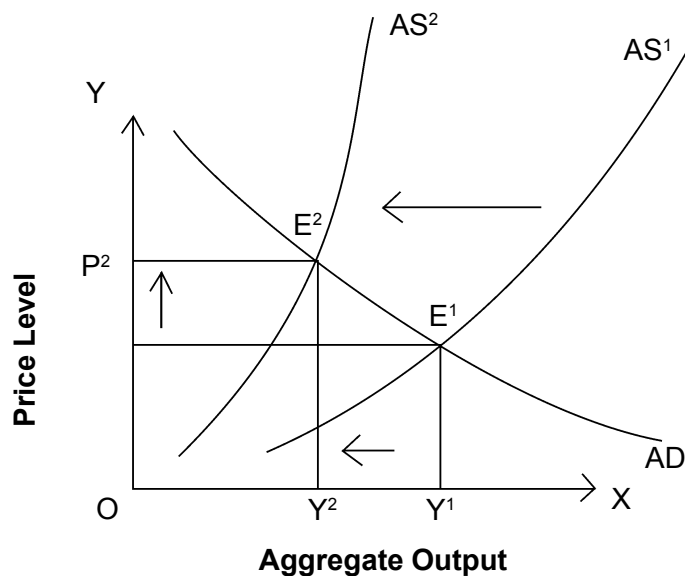
In the above figure, with the increase in supply of money the demand for goods and services increases. But to that extent supply of goods and services does not increase, as the result, price level rises and inflation arises.

Cost – Push Inflation

Before 1950s inflation was explained in terms of excess demand phenomenon in terms of quantity theory of money or Keynesian theory. The supply or cost explanation of inflation was given during 1950s. The cost-push inflation theory is referred to as the new inflation theory. Holzman, Martin Bronfenbrenner have observed analysis of inflation in the context of cost of production and supply. The idea is price level might rise on the cost or supply side, independent of any increase in aggregate demand.

Increase in cost of production can take place due to wage push, profit push and increase in prices of raw materials, especially energy inputs. In addition to the direct effect of increase in prices of raw materials, there are indirect effects of such supply shocks, which cause further rise in rate of inflation. An important feature of cost-push inflation is, this causes not only rise in price level, but brings about fall in aggregate output.

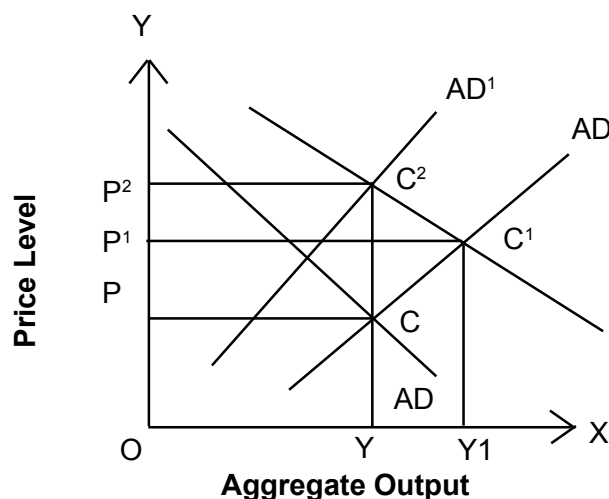
The theory of cost push inflation is presented in the diagram below.



In the above diagram with the increase in cost of production due to increase in wages, profits and prices of raw materials the aggregate supply falls from AS^1 to AS^2 , demand remaining the same (AD), hence price level rises from OP^1 to OP^2 . And rise in price level is higher than fall in output in the economy.

Many economists are of the opinion that inflation in the economy is caused by the interaction of the demand pull and cost push factors. The inflation may be started in the first instance either by cost push factors or by demand pull factors, both works

and interact to cause sustained inflation over time. The interaction between demand pull and cost push inflation is shown in the diagram below.



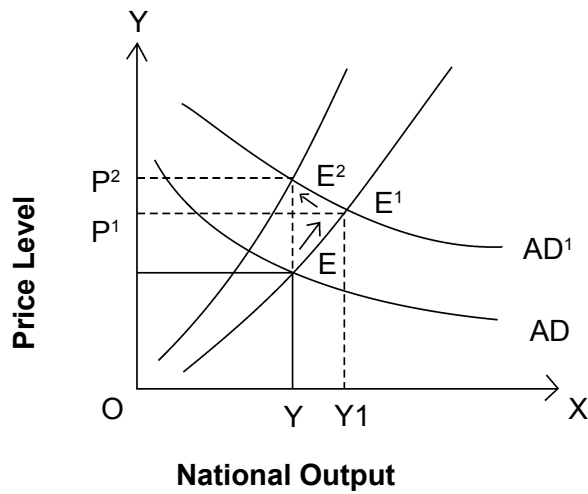
The above diagram shows initially demand pull inflation takes place. Later on cost push inflation arises in the economy. The interaction between them further intensifies the inflation.

D) Structuralist Theory of Inflation

The above mentioned theories of inflation cannot analyse the problem of inflation in developing countries, especially of Latin America. The well known economists Myrdal (1968), Streeten (1972) have propounded the structuralist theory of inflation, which analyses inflation in developing countries in terms of structural features of their economies. Recently Kirkpatrick and Nixon (1987) have generalized this theory for all developing countries.

According to the structuralists, it is incorrect to apply the highly aggregative demand supply model for explaining inflation in the developing countries. Because, there is a lack of balanced integrated structure in them where substitution possibilities between consumption and production and inter sectoral flows of resources between different sectors of the economy are not quite smooth and quick so that the inflation in them cannot be reasonably explained in term of aggregate demand and aggregate supply.

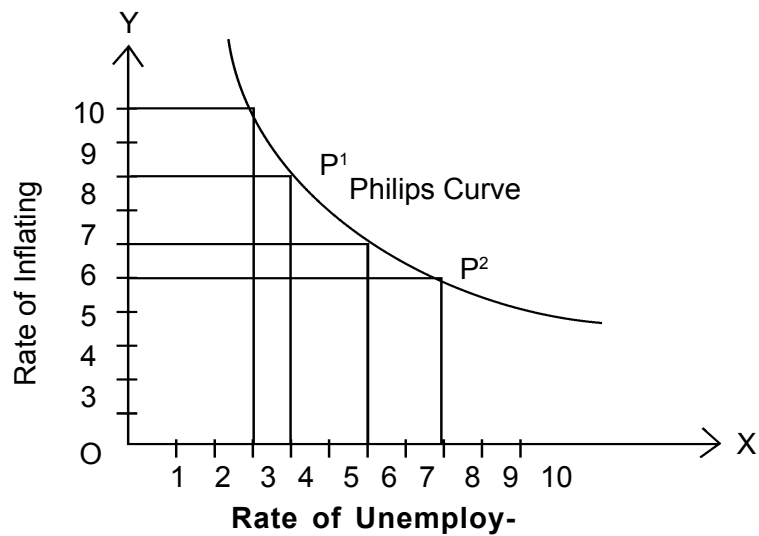
According to this theory, economies of the developing countries of Latin America and India are structurally underdeveloped as well as highly fragmented due to the existence of market imperfections and structural rigidities of various types. The result of these structural imbalances and rigidities is that whereas in some sectors of these developing countries, we find shortages of supply relative to demand, in others under utilisation of resources and excess capacity exists due to lack of demand. These

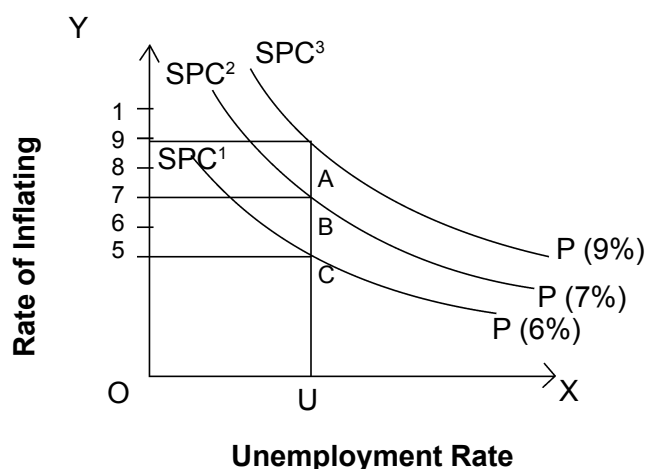


8.2 Phillips Curve Analysis

According to J. M. Keynes, the aggregate supply curve is of inverse L shape, that is, it is a horizontal straight line up to full employment level of output, beyond that it becomes vertical. Inflation arises in the economy only after full employment level of output is achieved. Thus, with L shaped aggregate supply curve there is no trade off or clash between inflation and unemployment.

But the empirical evidence did not prove correct the Keynesian macro model. A well-known British economist, A. W. Phillips in 1958 on the basis of data from U. K. for 100 years drawn a conclusion that, there is inverse relationship between rate of unemployment and rate of inflation. This indicates a trade off that, for reducing unemployment, price in the form of a higher rate of inflation has to be paid, and for reducing the rate of inflation, price in terms of a higher rate of unemployment has to be borne.





According to Rational Expectations Theory, there is no lag in the adjustment of nominal wages consequent to the rise in price level. Nominal wages are quickly adjusted to any expected changes in the price level so that there does not exist the type of Phillips curve that shows trade off between rates of inflation and unemployment. As a result of increase in aggregate demand, there is no reduction in unemployment rate. The rate of inflation resulting from increase in aggregate demand is fully and correctly anticipated by workers and business firms and get completely and quickly incorporated into the wage agreements resulting in higher prices of products.

☞ **Tobin's Modified Phillip's Curve**

The Friedman-Phelps-Lucas explanation of the empirical instability of the Phillips curve dramatically transformed macro economics. However, Tobin (1971 a, 1971 b) suggested approach to explaining the Phillips curve, which identified the issue of incorporation of inflation expectations rather the formation of inflation expectations. But Tobin never developed a deeper theoretical account of this alternative approach.

Expected inflation equals actual inflation in the long run. Therefore, the long run Phillips curve is negatively sloped, and there exists a permanent trade off between inflation and unemployment. The long run Phillips curve crosses each short run Phillips curve at point where actual inflation equals expected inflation (). One critical feature of long run negatively sloped Phillips curve is that expected inflation equals actual inflation at all times so that agents are always on the long run Phillips curve. However, the long run Phillips curve remains negatively sloped. This shows that formation of inflation expectations is not the critical question when it comes to the Phillips curve.

Analytically, the key feature of Tobin's neo-Keynesian Phillips curve is that, the coefficient of inflation expectations is less than unity. That means incorporation of inflation expectations into nominal wage setting is less than complete, and it is this rather than the formation of inflation expectations that is critical for the existence of a

4. Demonetisation of Currency

The demonetisation of currency results in supply of legal tender money, thereby bank money and total supply of money in the economy, as the result of which inflation intensity is controlled.

5. Issue of New Currency of Higher Denominations

The issuing of currency of higher denominations facilitates control of velocity of circulation of money, credit creation, bank money, total money which enables the control of inflation in the economy.

II) FISCAL POLICY MEASURES

These directly affect demand for the goods and services, and facilitate the control of inflation in the economy. They are :

1. Increase in Taxes

The increasing rates of existing taxes, and introducing new taxes curtails purchasing power of people and their demand for goods and services that control rising prices and inflation.

2. Cut Down in Public Expenditure

The cutting down in expenditure of the government reduces purchasing power of the people, and demand for goods and services, and thereby control of rising prices of goods and services and inflation also.

3. Increase in Savings

The obligatory increase in savings of the people by the government results in fall in demand for goods and services, which restricts rising prices and control of inflation.

4. Surplus Public Budget

The surplus public budget restricts injecting additional purchasing power in the economy and control both the rise in prices of goods and services as well inflationary situation in the economy.

5. Increasing Public Debt

The raising of increased public debt by the government cuts down purchasing power of the people and their demand for goods and services, which facilitates rising prices and inflation in the economy.

III) OTHER POLICY MEASURES

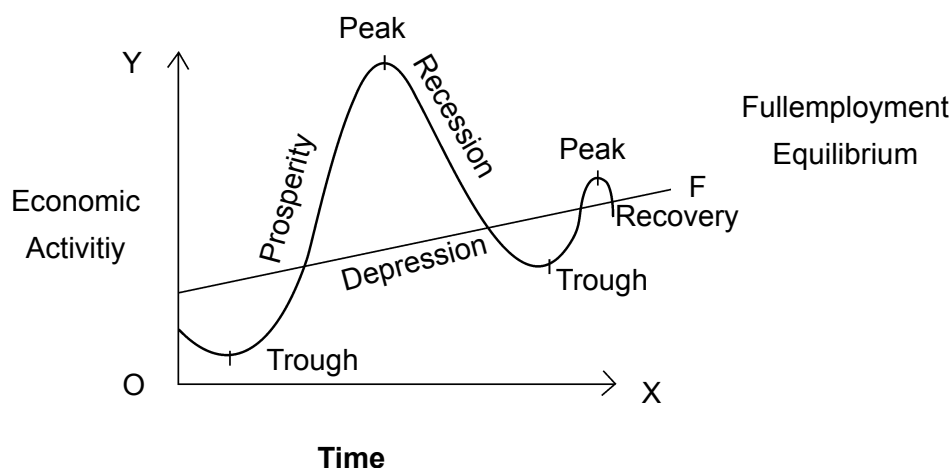
They are as follows :

1. Increase in Output

The increase in output of goods and services restricts their rising prices and restricts growing inflation.

2.9 Phases of Business Cycles

Borus and Mitchell in their book "Measuring Business Cycles" regard the peaks and the trough as the cyclical mark off points in a cycle. A business cycle is divided into four phases, prosperity, recession, depression, revival or recovery. Their diagrammatic presentation is as follows :



A) Prosperity

According to Haberler prosperity is a state of affairs in which the real income consumed, real income produced and level of employment are high or rising, and there are no idle resources or unemployed workers or very few of either. The salient features of prosperity are; a high level of output and trade, a high level of effective demand, a high level of employment and income, a high marginal efficiency of capital, a state of price inflation, a rising structure of interest rate, a large expansion of bank credit, overall business optimism, economy tends to be operating almost at a full capacity along its production possibility curve, profits high but falling, building construction much and very high in late states, wide spread speculation, a few business failures, high cost of production and very high in late stages, business inventories high and very high in later stages.

B) Recession

Where prosperity ends, recession begins. It is a turning point rather than a phase. It is relatively for a shorter period of time. Its noteworthy features are; sudden fall in employment, decreasing industrial output, wage rates falling but lag behind prices, rapid fall in prices, bank loans cut sharply, bank reserves suddenly rise, bank clearings suddenly fall, high discount rates, falling cost of production, profits disappear, sudden rise in business failures, little speculation, falling business inventories, building construction suddenly stop, feeling of hesitation.

investment affects income, which in turn affects investment demand, and in this process income and employment fluctuate in a cyclical manner.

Increase in income and output takes place by even larger amount, when accelerator is combined with the Keynesian multiplier when increase in autonomous investment (ΔI_a) takes place, consequently through multiplier effect income increases

, further increase in induced investment through accelerator (ΔI_d
 $= V \cdot Y$) aggregate demand and income increases by even in larger amount.

Fluctuations in investment are main cause of instability in a free private enterprise economy. This instability further increases due to the interaction of the multiplier and accelerator. The changes in any component of aggregate demand produce a multiplier effect whose magnitude depends upon the marginal propensity to consume. When consumption income and output increase under the influence of multiplier effect, they induce further changes in investment and the extent of this induced investment in capital goods industries depends on the capital – output ratio, that is the interaction between the multiplier and accelerator without any external shocks can give rise to the business cycles, whose pattern differs depending upon the magnitudes of the marginal propensity to consume and capital – output ratio.

The model of interaction between multiplier and accelerator can be mathematically presented as :

$$Y_t = C_t + I_t$$

$$C_t = C_a + C (Y_t - 1)$$

$$I_t = I_a + V (Y_t - 1 - Y_t - 2)$$

Where Y_t , C_t , I_t = income, Consumption and investment respectively for a period t .

C_a = autonomous consumption

I_a = autonomous investment

C = marginal propensity to consume

V = capital output ratio or accelerator

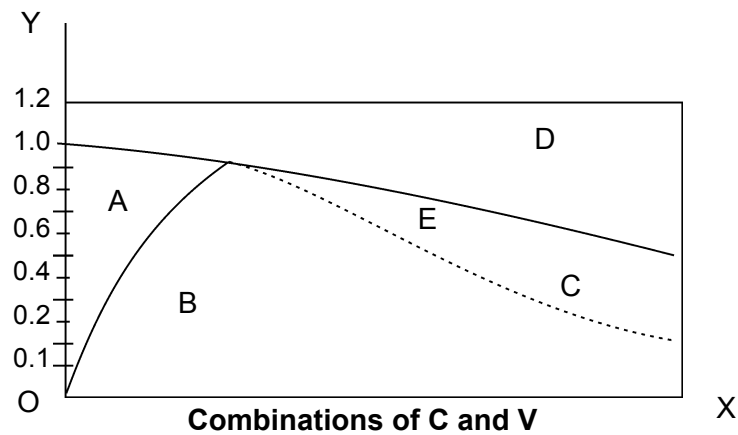
From the above we get income equation, which states how changes in income, are dependent on the values of marginal propensity to consume (C) and capital output ratio (V i. e. accelerator).

$$Y_t = C_a + C (Y_t - 1) + I_a + V (Y_t - 1 - Y_t - 2)$$

In static equilibrium, the level of income determined will be :

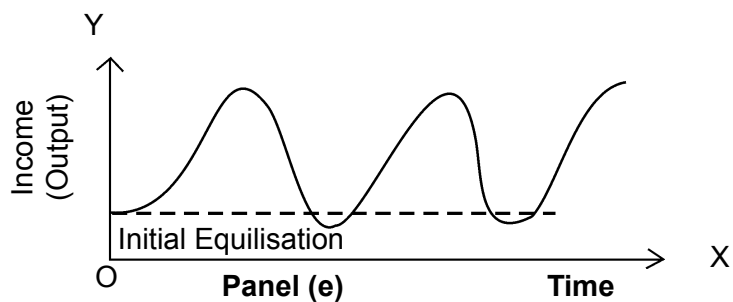
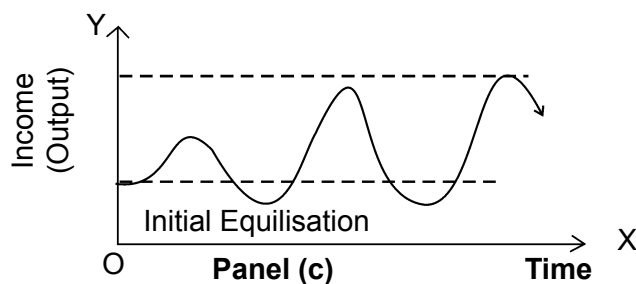
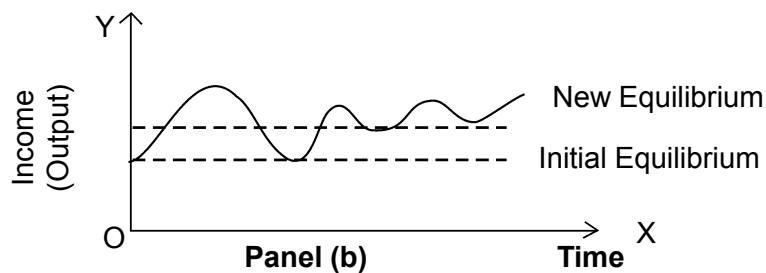
$$Y = C_a + cY + I$$

By taking different combinations of the values of marginal propensity to consume (C), and capital – output ratio (V), Samuelson has described different paths, which the economy will follow. They are shown in the diagram below.



In the above diagram, region A and B are alike, they after a disturbance caused by a change in autonomous investment or consumption finally bring about stable equilibrium in the system.

The values of C and V and the magnitudes of multiplier and accelerator of region C and D resemble each other but are such that they cause great instability in the system as both of these values cause successively greater divergence from the equilibrium level and the system tends to explode. The case of region E lies in between the two as the combinations of values of C and V in it are such that cause cyclical movements of income which neither move toward nor away from the equilibrium. All the above five causes do not give rise to cyclical fluctuations or business cycles. It is only combinations of C and V lying in regions B, C, E that produce business cycles. They are only shown below :



Critical Appraisal : This theory is criticised on the following grounds.

1. Samuelson's theory of business cycle is very difficult to understand.
2. This theory does not give a single or unique analysis of emergence of business cycles.
3. Due to its difficultness of understanding, it has less applicability.

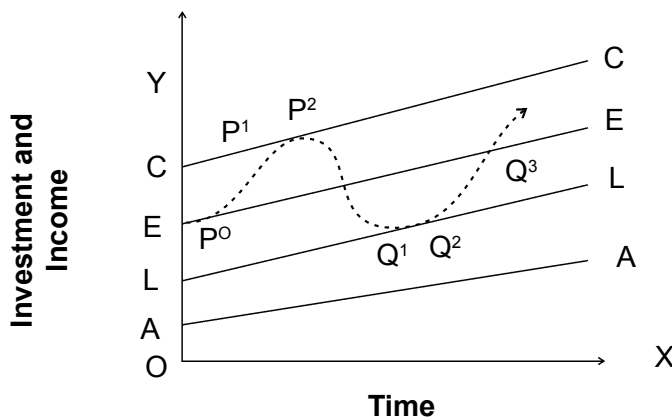
B) Hicks Theory of Business Cycles

J. R. Hicks in his "Contribution to the Theory of Trade Cycles" has propounded a complete theory of business cycles based on the interaction between the multiplier and accelerator by choosing certain values of marginal propensity to consume (C) and capital output ratio (V). To explain business cycles of real world, Hicks has incorporated the role of buffers in his analysis. He introduces output ceiling when all the given resources are fully employed and prevent income and output to go beyond

it, he visualises a floor or the lower limit below which income and output cannot go because some autonomous investment is always taking place.

According to Hicks, cyclical fluctuations in real output of goods and services take place above and below rising line of trends, or growth of income and output. This theory explains business cycles along with equilibrium rate of growth. The long run equilibrium growth of income is determined by the autonomous investment and the magnitudes of multiplier and accelerator. Hicks assumes that autonomous investment, depending on technological progress, innovations and population growth, grows at a constant rate. With further assumptions of stable multiplier and accelerator, equilibrium income will grow at the same rate as autonomous investment. Therefore, the failure of actual output to increase along the equilibrium growth path, sometimes to move above it, and sometimes to move below it determines the business cycles.

According to Hicks, the values of marginal propensity to consume and capital output ratio fall in either region C or D in figure below. In case of values of these parameters lie in the region C, they produce cyclical movements whose amplitude increases over time, and if they fall in region D they produce explosive upward movement of income or output without oscillations.



In the above figure, AA = Autonomous Investment, LL = Flour Line that sets lower limits below which income (output) cannot fall, EE = shows equilibrium growth path of national income determined by autonomous investment and effect of multiplier and accelerator, FF = Full employment ceiling, CC = Ceiling line.

When the economy reaches point P_0 along the path EE, there is an external shock outburst of investment due to certain innovation or jump in governmental investment. When the economy experiences an outburst of autonomous investment, it pushes the economy above the equilibrium growth path EE after point P_0 . The rise in autonomous investment due to external shock causes national income to increase at a greater rate than that shown by the slope of EE. This greater increase in national income will cause further increase in induced investment through acceleration effect.

capacity, but not necessarily equal to growth in demand. Adequate growth in demand is achieved through occasional bursts of innovational investment.

Structural coefficients of the economy such as propensity to consume or save and capital – output ratio are such as to give explosive oscillations. Investment once begun carries the free market economy to full employment and this upper limit rises rapidly with accumulation of capital, which allows the realization of the technological progress.

The expansion of the economy is constrained by the full employment ceiling. However, after remaining at the peak, certain forces push it downward again. Thus, in absence of lags, Goodwin’s model visualizes a two phase cycle, full employment and deep depression.

Model

Goodwin takes capital stock rather than income as the central explanatory variable. He rejects the proportionality of capital and output, and explains investment on the basis of comparison of desired capital stocks with the actual capital stock. He uses ‘flexible accelerator’ as the explanatory principle for investment. According to this principle, net investment will be undertaken as lag as desired capital stock is greater than the existing capital stock. The crucial equation of model of cyclical growth is that of factors which determine desired capital (K*) stock is;

$$K^* = VY + \beta(t)$$

where V = acceleration coefficient (capital - output ratio)

Y = output,

βt = parameter representing a change in technique or technology

According to equation, innovation or technological advance implies that more capital is desired with a given output and the accelerator (V) implies that more capital is desired with increased output. Thus, this equation described the principle of ‘Flexible Accelerator’.

The pressure to expand capital stock through investment is proportional to the difference between desired capital stock (K*) and the actual capital stock (K), subject to two non-linear constraints. The upper limit is set by maximum output of new capital goods obtainable with given capital stock and labour, and therefore corresponds to the full employment ceiling. The lower limit is set by the rate at which capital can be scrapped at zero gross investment. It follows that,

$$I =$$

where, λ = proportion of gap between desired capital stock (K*) and actual capital stock (K) since investment leads to the expansion in productive capacity, this equation represents the supply side of the model. Demand in this model is given by the Keynesian multiplier, and can be stated as;

$$Y = f(I)$$

The relation between income or output (Y) and investment (I) depends on the size of multiplier, which is governed by marginal propensity to consume or save. Propensity to save is rather small, which ensures higher value of multiplier in the downsizing of a business cycle.

The complete version of Goodwin's model;

$$I = \lambda [vY + \beta(t) - K]$$

From the above equation, capital stocks (K) depends on investment and technological change (i. e. innovations).

Explanations of Business Cycles

The above model is used by Goodwin to explain business cycles. The net investment in the model depends on the difference between the actual capital stock and the desired capital stock. If desired capital stock is greater than the actual capital stock ($K^* > K$), then this gap between the two determines investment or capital accumulation. If desired capital stock is less than the actual capital stock, then net investment will be negative. If desired capital stock is equal to the actual capital stock, then net investment will be zero.

$$\text{If } K^* > K, \text{ then } I^n = I - D$$

$$\text{If } K^* = K, \text{ then } I^n = 0$$

$$\text{If } K^* < K, \text{ then } I^n = -D$$

Suppose technological advancement (i. e. innovation) or βt is absent and the economy is presently in the upswing, and the desired capital stock exceeds capital stock, then net investment (I^n) will occur in each period over time until actual capital stock (K) becomes equal to the desired capital stock (K^*). During the period net investment of capital accumulation is taking place, it will bring about expansion in output, income and employment through interaction of multiplier and accelerator and the economy will move up till the upper limit. When the desired capital stock is reached investment will slacken. This will cause the economy to move downward through the interaction of multiplier and accelerator, which will cause rapid fall in output and employment. Thus, sharp booms are periodically accompanied by prolonged depression.

The above analysis ignores the two sources of economic growth, according to Goodwin, which play crucial role in determining the cyclical growth. They are 1) increase in size of labour force, and 2) increase in productivity of labour due to innovations or technological progress. As a result of the operation of these two forces, there is rise in full employment ceiling level. All growth in the full employment ceiling occurs during the boom. Innovation (i. e. technological advance) and consequently labour productivity will require additional investment, this results in prolonged boom period and short depression period.

E) Socialist Economy

The problem of business cycles is the part and parcel of the capitalist economy due to lack of cooperation and coordination in economic decision making. Hence, the socialist economy featured by the government decision making is useful in dealing with the business cycles.

8.3 Summary

The present unit is one of the important units in the syllabus of Macro Economics. It includes the problems of inflation and business cycles. This unit thoroughly studies various issues and aspects of both the inflation and business cycles. The major and noteworthy aspects of inflation which this unit discusses are; Meaning, Theories, Phillips Curve Analysis, Policies to Control Inflation. Besides these, under Business Cycles the issues covered by this unit include Meaning, Phases, Theories, Policies to control Business Cycles and so on.

8.4 Terms to Remember

1. Inflation : the issue of too much currency.
2. Phillips Curve : the curve which shows an inverse relationship between inflation and rate of unemployment.
3. Monetary Policy : policy of the central bank to control and regulate the supply of money and rate of interest.
4. Fiscal Policy : policy of the government about taxation, public expenditure, public debt, deficit financing.
5. Business Cycles : a fluctuation in aggregate economic activity.

8.5 Objective Questions

A) Choose correct answer from the alternatives given below.

1. _____ is a classical economist.
a) J. M. Keynes b) Irving Fisher c) Amartya Sen d) All the above
2. _____ has given the definition of inflation.
a) Crowther b) Hawtrey c) Coulbourn d) All the above
3. _____ has propounded Monetarist theory of inflation.
a) Irving Fisher b) J. M. Keynes c) Milton Friedman
d) None of the above
4. The structuralist theory of inflation is recognised in the name of _____.
a) Myrdal b) Streeten c) Both the 'a' and 'b' d) None of the above
5. Phillips curve describes the relationship between _____.
a) Inflation and Unemployment b) Growth and Poverty
c) Growth and Inequality d) All the above

Answers to the Objective Questions :

A) Choose Conectationive1-B, 2-D, 3-C, 4-E, 5-F

B) Answer in one sentence.

1. What is inflation?
2. What is meant by bank rate?
3. What do you mean by business cycles?
4. What is meant by fiscal policy?

8.6 Answers to the Objective Questions

A) Choose Correct alternatives given below

1 – b, 2 – d, 3 – c, 4 – c, 5 – a.

B) Answer in one sentence

1. Inflation is the issue of too much currency.
2. The rate of interest changed by the central bank on the loans extended to commercial banks.
3. The budget with public revenue excessive than the public expenditure.
4. A fluctuation in aggregate economic activity is a business cycle.
5. The policy of the government regarding taxation, public expenditure, public debt, deficit financing is fiscal policy.

8.7 (A) Write short notes :

- 1) Meaning of Inflation.
- 2) Keynesian theory of Inflation
- 3) Tobin's Modified Philip's Curve
- 4) Monetary measures to control trade cycles.

B) Broad Questions.

1. What is inflation? Describe its types, and suggest measures on the same.
2. Critically examine the classical theory of inflation.
3. Evaluate the Monetarist theory of inflation.
4. Examine the Keynesian theory of inflation.
5. Elucidate the structuralist theory of inflation.
6. Discuss the Phillips curve analysis of inflation.
7. What are business cycles? Describe their phases, and suggest measures on their control.

8. Examine the Samuelson's theory of business cycles.
9. Discuss the Hicks theory of business cycles.
10. Describe the Goodwin's model of business cycles.

8.8 References for further study

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