Directorate of Distance Education

UNIVERSITY OF JAMMU

JAMMU

STUDY MATERIAL

For

M.A. ECONOMICS
SEMESTER - I

SUBJECT : MACRO ECONOMICS **LESSON No. 1-18**
COURSE NO. : ECO-102 **UNIT I-IV**

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http:/www.distanceeducationju.in
Printed and Published on behalf of the Directorate of Distance Education, University of Jammu, Jammu by the Director, DDE, University of Jammu, Jammu

MACRO ECONOMICS

COURSE NO. : ECO-102

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Note : Prof. Jasbir Singh and Prof. Dhian Singh Bhau had contributed to Course No. 411 (Macroeconomics) of M.A. Economics Sem.- I for the Session 2014 onwards. Since most of the topics of new syllabus (Eco - 102) and those existing in Course No. 411, they have been lifted from there. However, Miss Priya Sharma has done the editing and proof reading & added few topics wherever required.

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Printed by : S. K. Printers - 2020 / 500

COMPULSORY PAPER

Semester-I **Title :- MACROECONOMICS**
Course No. : ECO-102 **Maximum Marks : 100**
Credits : 4 **(a) Semester Examination : 80**
(b) Sessional Assessment : 20

MACROECONOMICS

PREAMBLE:

Macroeconomics or aggregative economics analyses and establishes the functional relationship between the large economic aggregates. The aggregate analysis has assumed such a great significance in recent times that a prior understanding of Macroeconomic theoretical structure is considered essential for the proper comprehension of different issues and policies. Keeping in view this the course has been designed to cover such aspects of the Macroeconomics as National income and accounts, consumption function, Investment function, Business Cycles And Macro Economic Policy.

UNIT - I NATIONAL INCOME AND ACCOUNTS AND INTRODUCTION TO INCOME DETERMINATION

Circular - Flow of income in two, three and four - sector economy; different forms of national income accounting-social accounting, input-output accounting, flow of funds accounting and balance of payments accounting.

Neo-classical theory of distribution of National Income; Classical model of determination of equilibrium in goods market and money market.

UNIT - II NATIONAL INCOME DETERMINATION : THE IS-LM MODEL

Demand-side Equilibrium- Equilibrium Income and Interest Rate in the Product Market-derivation of the IS curve, Equilibrium Income and Interest Rate in the Money Market-Derivation of the LM curve, Equilibrium in the Product and Money Markets-the combined IS-LM model;

Fiscal Policy Effects on Demand, Monetary Policy Effects on Demand, Interaction of Fiscal and Monetary Policies, crowding out effect, crowding "in" effect.

UNIT- III: SECTORAL DEMAND FUNCTIONS: CONSUMPTION AND INVESTMENT

Background of the Consumption Function Theories: Empirical evidence, Cross sections, Cycles and Trends, The Keynesian Consumption function, Duesenberry's Relative Income Hypothesis, Friendman's, Permanent Income Hypothesis, Ando-Modigliani's Life-Cycle Hypothesis.Investment-Optimal Capital Stock and Rate of Interest, Marginal Efficiency of Capital, Marginal Efficiency of Investment, Investment in the IS-LM Model, Stability and the Slope of the IS Curve, Fiscal Policy and Investment.

UNIT - IV BUSINESS CYCLES AND MACRO ECONOMIC POLICY

Theories of Kaldor, Samuelson and Hicks, Goodwin's model; Control of business cycles - relative efficacy of monetary and fiscal policies. Role of monetary and fiscal policy in developing countries, prior - savings, inflation and growth - empirical evidence.

CONTENTS

1.1. CIRCULAR FLOW OF INCOME : TWO, THREE AND FOUR SECTORS ECONOMY

Chapter Highlights----

This chapter contains circular flow of Economic Activity---Two sectors model-Household and Business sectors---Three sectors models including Government Transactions---Four sectors open Economy Model including Foreign Trade Transactions. These sectors are inter-linked that they continue to receive payments from or make them to one another in such a way that the economic activity is sustained. There are flows and counter flows of money and goods exactly in the same way as water flows through a pipe or electricity through a circuit. The circular flows of money receipts, goods and services, taking place in the economic system can not only explain automatic functioning of the system but can also account for any expansion or contraction in the economic activity.

Chapter Outlines--------

1.1 a. Introduction

1.1 b. Objectives

1.1 c. Circular flow And Economic Activity

1.1 d. Two sector Model

1.1 e. Three sector Model

1.1 f. Four sector Model

1.1.a. Introduction

Until the publication of Keynes' The General Theory of Employment, Interest and Money' in 1936, little attempt was made to analyse the working of the economic system as a whole. Commenting upon the state of affairs Robert L. Heilbroner has aptly remarked, "It was, rather, a typical kind of myopia that affected all economists in those days. Hence, when the economic mechanism came to a grinding halt in the Great Depression, the result was not only an immense social tragedy but an absolutely numbering intellectual shock."

Since the Great Depression a significant change has occurred in the approach of the economists towards economic questions. They now enquire into the working of the economy as a whole. Rudiger Dornbusch and Stanlet Fischer state, the present day macroeconomics "is concerned with the behavior of the economy as a whole---with booms and recessions, the economy's total output of goods and services and the growth of output, the rates of inflation and unemployment, the balance of payments, and exchange rates."

Right till the 1930s, when the Great Depression struck the US and European economies forcing large number of business firms and financial institutions into bankruptcy the belief in the rational working of the market went unchallenged. The Great Depression exposed the weakness of the classical economic theory to grapple with the economic realities of the world. At this juncture, John Maynard Keynes in his magnum opus 'The General Theory of Employment, Interest and Money' provided an alternative theory of the determination of employment and output which explained why the operation of market forces did not ensure that aggregate demand would automatically be that which was necessary for full employment. The appearance of Keynes' book was hailed as 'Keynesian revolution' and" with the ferment begun by ideas in Keynes' book, economists' relative neglect of macroeconomic theory ended." On account of this reason, most of the economists agree that the genesis of macroeconomics is to be found in Keynes' work.

1.1.b. Objectives

Today, macroeconomics is a well developed branch of Economics. It addresses itself to the following two central problems of the economy:

(i) How are national income and employment levels determined at a particular point of time and why do the economies pass through the phases of boom and depression during a specific period of time?

(ii) What are the laws of economic development?

Managers of modern corporate enterprises know that these issues are very much relevant to their growth and prosperity.

In an attempt to understand the basics of macroeconomics let us discuss the circular flow of income in an economy.

1.1.c Circular Flow And Economic Activity

It means continual circular movement of money and goods in the economy. The concept of the circular flow of income is a simplification which attempts to illustrate the flow of money and goods from households to business enterprise and back to household. We know that the economic activities and money have a circular flow. Circular flow of money means that the money spent must not be hoarded and should continue to flow to maintain a certain level of economic activity and income. In order to obtain a clear idea of the relation between the numerous economic units in a country, it is best to reduce them to homogeneous groups. For example, all households may be taken as one whole, because their activities are more or less of the same type. Enterprises and government agencies too can be grouped also. Through economic activity (production, consumption, capital formation etc.), these groups are linked up not only with each other but also with other economic problems of the world--- by flow of goods and money. All those currents make up the circular flow of economic activity.

We see the GNP, GNY and GNE are all identical in values and when depreciation is deducted, they become net-i,e., NNP ≡ NNY ≡ NNE, (the symbol ≡ denotes identity). But the income, output and expenditure approach would not assume such a great importance if they were merely identical to each other; the fact of the matter is that income, output and employment are equal to each other functionally also. Keynes was the first to note the fact of the circular flow of economic activity. Consumers spend their incomes on goods and services produced by business and production units. The business sector pay them (to factors) in the form of wages, rent, interest and profits.

This forms the income of the factors which is again spent. Thus, the functioning of the economy consists in the production of goods and the services by the factors of production and production units. What are 'costs' to business are 'incomes' to the factors such as the workers and the resource-owners. Consumer's expenditure is income to business. It is expenditure by the consumers that determines the income of the producers. More expenditure means more income and greater production. It will increase the earnings of the factors and their spending and so on. Once we understand this, we understand the circular flow of economic activity. Keynesian approach of income also tells us the most important condition which must be fulfilled before the economy is said to be in equilibrium, i,e., the important condition of saving being equal to investment. We know that in a closed economy with no government activity the income(y) is divided between consumption expenditure (c) and investment expenditure (i). We also know that whatever part of income is not consumed is saved(Y=C+S). Since income (y)= Expenditure (E), therefore, C +S = C+I, therefore, S=I. Here in lies the greatest importance of Keynesian approach. In the fundamental Keynesian equation Y= C + I, C depends on Y, therefore, it is essential to understand clearly what Y stands for and what different concepts are that have come to lie associated with it. The definition of income presented good deal of difficulty to Keynes. Today, it has been refined and operationally made more significant.

Thus, one of the important conditions for the economy to be in equilibrium is that its circular flow of economic activities among the different sectors of the economy must be maintained, i,e., whatever is earned in the form of income (y) by the factors of production must be spent by them either Y= C+I this is the income-expenditure approach, in which the balance between the two sides is maintained-when this is done, it is said that the circular flow of economic activity has been maintained and the economy is in a state of macro equilibrium.

This circular flow of economic activity is maintained not only in two sector closed simple economy but also in three sector economy and four sector open economy in which we take into consideration the foreign trade sector transactions. In order to attain the circular flow of economic activity necessary adjustments of transactions in the various sectors of the economy are made. Circular flow model highlights the circular flow of spending and income between business and household sectors of the economy built on the concept that spending creates income.

1.1. d Two Sector Model

In a two-sector model of a simple economy we consider Household sector and Business sector called Firms etc. Households own all economic resource or factors of production. These resources are either labour force (human resources) or capital stock (non-human resources) or both. Households are not only families, they may be single people and communal groups as well. Households are basically consumer units and their ultimate aim is to satisfy the wants of their members. They are also the controllers of the factors of production. On the other hand, business sector employs the factors of production or resources (inputs) and produces the final output for sale. Business or firms take economic resources from households and in turn provide them with goods and services. These basic exchanges are known as real flows. By themselves these real flows would mean barter-but this being very inconvenient-we make use of money-the medium of exchange. Business sector gives money for the purchase of scarce economic resources from the resource markets and also receives money in return for the sale of goods and services produced and supplied through the product market. Business sector pays for factor services and incur---what are called 'factor costs' and receives income in return. Thus, flows of goods and services in one direction are always matched by the flows of money in the opposite direction. The model given below shows how circular flow in two sectors in a simple closed economy is maintained.

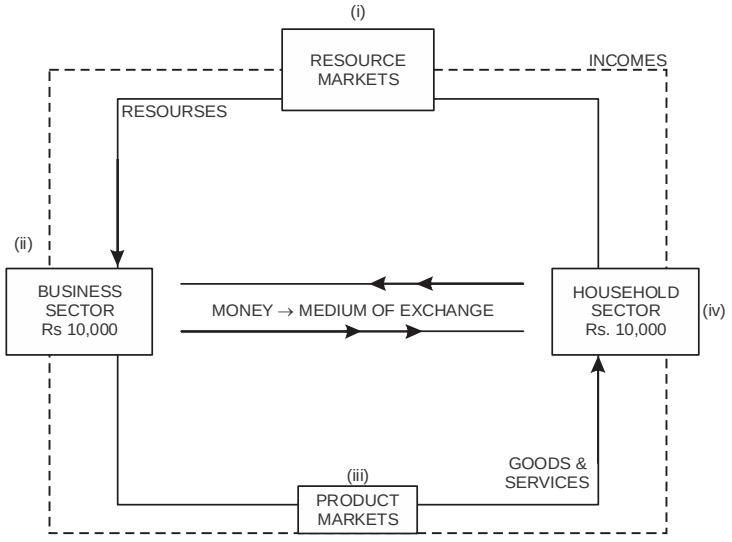


Figure 1.1

In this model we see that business and household sectors are the principals in the circular flow of real items and money---that takes place in the resource and product markets. In other words, business sector do not buy all the economic resources directly from the households; nor do the households buy goods and services directly from business sector. Both types of transactions are carried through the markets (the resource market and the product market). In resources market household sector supplies economic resources to satisfy the demand of business sector. Business sector makes use of these resources (inputs) in the production and in the process supplies final goods and services through product market to households for the satisfaction of their wants---through money, being the chief medium of exchange. The size of these flows depends on the amount demanded by the household sector and supplied by the business sector and on the prices of the final output. However, on account of the scarcity of resources and limitation of supplies these flows are finite in nature.

The model depicts circular flow in two-sector simple economy ,where household sector earns Rs. 10,000 from the sale of 'factor services' to business sector and this business sector makes use of these inputs to produce an output in the economy exactly equal to Rs.10,000. The basic assumption being that income payments to business sector for factor services return to business sector in the form of purchase of output of final goods and services--- the circular of income and product not only maintains itself but tends to perpetuate itself, production equals sales---output equals demand--- and there will be a tendency to continue operating at the same level---the whole process being described as macroeconomic short period static equilibrium.

Accordingly, the economic agents in the business sector are called 'producers' and economic agents in the household sector are called 'consumers'. As such there are mainly two broad types of transactions that take place between 'producers' and 'consumers'. From the viewpoint of producers these transactions take the form of, (i) purchase of the factor services from the household sector, (ii) sale of final output to household sector. From the 'consumers' viewpoint, these transactions take the form of, (i) sale of factor services to business sector, (ii) purchase of final output from business sector. The circular flow of economic activity in the two sector simple economy is, however, based on the following assumptions:

Assumptions

(a) The economy is a closed economy (no foreign trade sector),

(d) Production takes place only in business sector,

(c) Producers sell all that they produce. In other words, there is no inventory accumulation in the business sector,

(d) Consumers spend all their income on consumption. In other words, there is no saving in the household sector,

(e) There are no transactions involved like government expenditure on goods and services or taxes etc.

Given the above assumptions, it follows that production should equal sales and income should equal expenditure, then the circular flow is complete. In the real world, it is not possible to uphold these assumptions and at times these have to be dropped. In such circumstances the maintenance of circular flow in the economy becomes a bit more complicated. While basic circular flow of spending and income prevails, the real working of the economy adds complications in our simple two sector theoretical structure or model of the economy described above. These complications are caused by injections and leakages. Injections are factors which increase spending flow; while leakages are factors which tend to reduce spending. The basic mechanism of circular flow remains the same though some adjustments in transactions will have to be made.

Even in two sectors model based on simple assumption mentioned above there may be leakages from the income stream in the form of savings by the household sector. They may save a fraction of income say, Rs. 1,000 out of Rs. 10,000 (in the above example) and decide not to spend---as a result consumption expenditure will fall to Rs. 9,000---so production levels will have to be cut back in the second round, reducing, in turn, the flow of income to household sector. It shows that leakages in any form would reduce the production and income level and would also interfere with the smooth flow of circular activity. However, should the business sector decide to buy the leftover output worth Rs. 1,000 for any reason (because it wishes to add to its stock of inventories) total expenditure can still remain equal to output despite the saving leakage. Thus, if intended or desired business investment equals saving---equilibrium, flow can still be maintained at the original level of income and output. This is shown in the model given below:

The model shows that the household sector saves Rs. 1,000 and spends Rs. 9,000 on consumption--- business sector purchases goods and services worth Rs 1,000 for its

own use, thereby helping the economy to maintain the circular flow. But the model shows that there is a capital market also between S and I flows. Just as factor services or resources flow through resources market and the final output through product markets, S and I flow through capital market. According to classical, capital market is always acted in a manner that will make saving equal to investments automatically through the mechanism of the rate of interest. But modern economists believe that there is no automatic capital market mechanism making S = I. This outside action, force or mechanism is monetary policy, which can stimulate or retard investment spending. The model shows that monetary policy helps the capital market to bring savings (Rs. 1,000) equal to investments (Rs. 1,000).

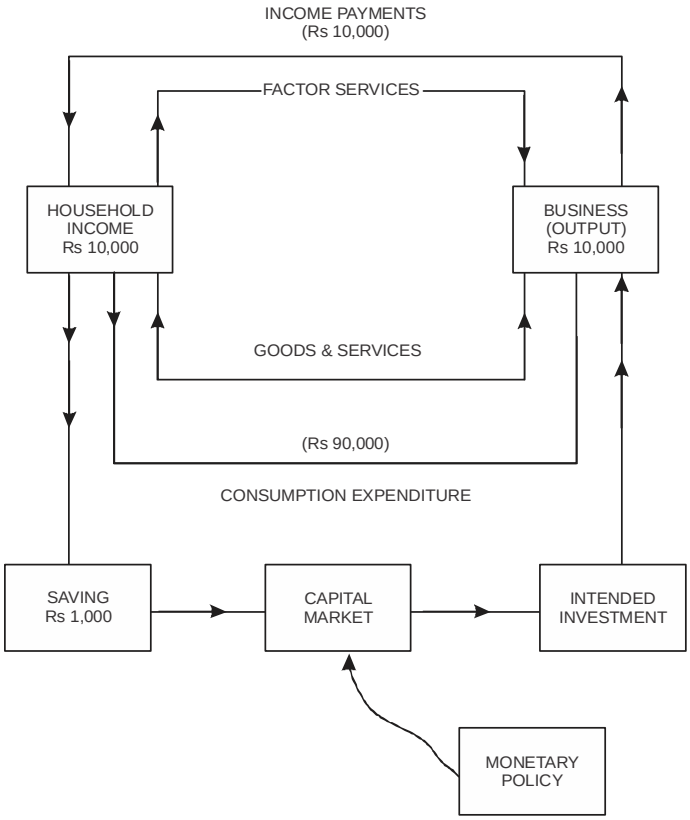


Figure-1.2

1.1. e THREE SECTOR MODEL

The three sector model of a simple economy shows the circular flow of economic activity involving government transactions. Government incurs expenditure on goods and services and gets receipts in the form of taxes. Taxes which are levied by the government constitute an important source of leakage apart from savings; whereas government expenditure on the purchase of goods and services constitutes an important source of injection. When we give money to government (Central, State & Local) in the form of taxes, our ability to spend is reduced but the government can offset the effect of this leakage through taxes by spending more on the purchase of goods and services called injection. This act on the part of the government to levy taxes and to spend more is called fiscal action. The working of the three sector model involving government transactions, taxes and expenditure is shown in the model given in figure given below :

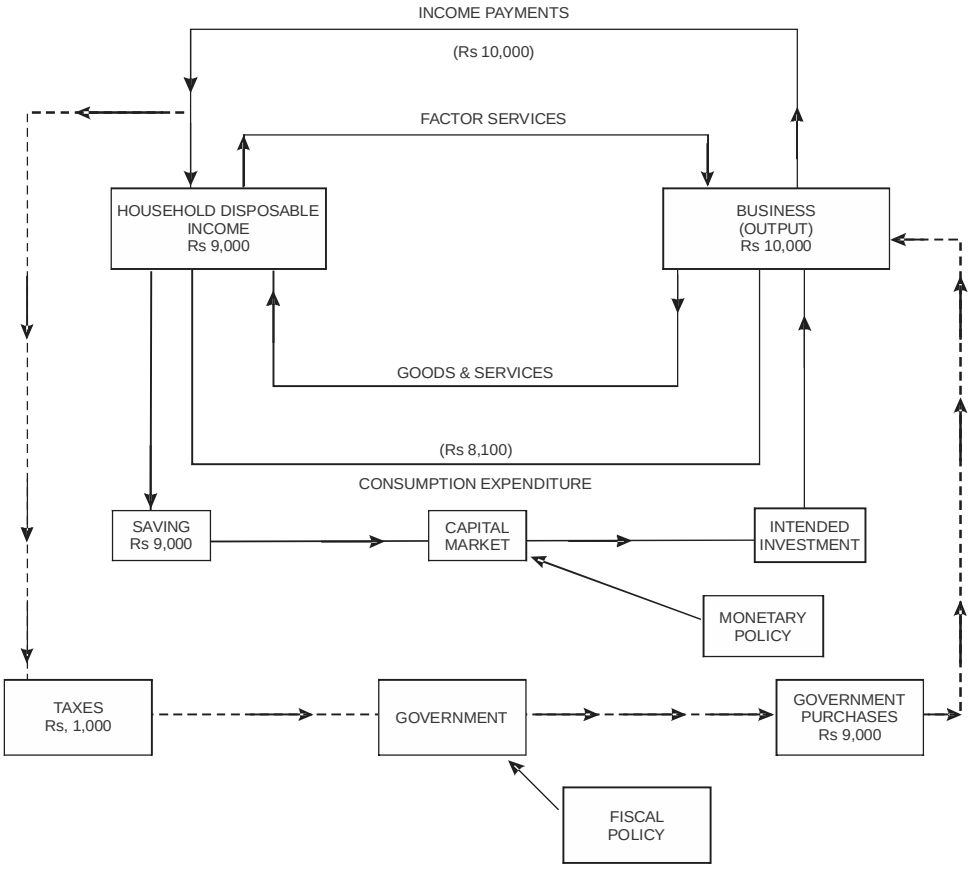


Figure-1.3

The model shows that the government collects Rs. 1,000 of the household income in the form of taxes. This will reduce the household consumption as well as saving, which in turn, will reduce business sales. But if there is a new source of injection in the form of government purchase and expenditure on goods and services, it will offset the effects of the tax leakage. If the government purchases (expenditure) from the business sector are equal to the amount by which the taxes reduce consumption, total business sales will again equal production and the circular flow of the economy involving three sectors will be maintained. In the model the total output is worth Rs. 10,000 before taxes. The government levies taxes worth Rs. 1,000 reducing the disposable income of the household sector to Rs. 9,000. This causes the households to reduce consumption by Rs. 900 and saving by Rs.100, as such the new level of saving is Rs. 900 and the level of consumption expenditure is Rs. 8,100. If intended investment remains as before (Rs. 1,000) total expenditure on C and I will be Rs. 9,100. Therefore, the government must purchase and spend on goods and services Rs. 900 to make the total demand equal to the total value of the output, i.e., Rs 10,000. What is important is that total expenditure must equal total output---which is equivalent to saying that total leakages must equal total injections. We see in the model that government expenditure is not equal to taxes and savings are no longer equal to intended investments but the macroeconomic equilibrium or the circular flow of the economy obtains nevertheless because total expenditure is equal to the value of total output. In the model taxes and savings (leakages) have reduced consumption to Rs. 8,100--- what is therefore, required is some source of demand(injections) worth Rs. 1,900.If $I < S$. then government should compensate the economy by spending more than it taxes. All this involves once again an action or a mechanism which in this case is in the form of fiscal policy on the part of government. It is, therefore, clear that the monetary policy and the fiscal policy are necessary instruments of maintain circular flows in the economy---in case it is temporarily disrupted by leakages in the form of savings in two sector model or taxes in the three sector model or imports in the four sector model.

1.1. f Four Sector Model

The two sector or three sector models given above of a simple closed economy can be extended to four sector open economy by waiving the assumption of closed

economy. The four sector model includes foreign trade and transactions taking place in foreign trade sector. When the household sector purchases goods from abroad and imports them into the economy---the expenditure represents a leakage from the circular flow. This leakage (import expenditure) has to be offset--- offsetting this are the expenditure incurred by foreigners on domestic goods and services(exports) and give rise to injections (export expenditure) into the domestic circular flow. When these flows are added in our four sector model we treat imports as leakages and exports as injections. These flows pass through a sector called 'balance of payments' sector---which is influenced by various types of foreign trade policies (say, like free trade or protection). The equilibrium condition for maintain the circular flow would still be that total leakage must equal total injections. However, in the four sectors open economy model, leakage would consist of imports besides savings and taxes and injections would consist of exports besides investment and government expenditure.

In the symbolic form the four sector model of circular flow can be shown as follows:

Let us put NNP = y, consumption expenditure including imports = C, intended investment = I, government purchase of goods and services = G, exports = X, and imports = Z. The supply of output available to an economy consists of its domestic production NNP or Y plus the level of imports (Z). In macroeconomic equilibrium condition when circular flow is maintained this supply must exactly equal the sum of demands of the household, business, government and foreign trade sectors for exports (denoted by X). As such we may rewrite the condition:

$$Z + Y = C + I + G + X$$

or

$$Y = C + I + G + (X-Z)$$

Where X-Z represents the net trade balance (the difference between exports and imports). Denoting saving by S and taxes by T and net disposable income of households by Yd-we rewrite the above equation as follows:

Y = Yd + T (But Yd can be either spent on C or saved, we get)

$$Y = C + S + T \qquad (\_ Yd = C + S)$$

Therefore, $C + S + T = C + I + G + X - Z$

or $S + T + Z = I + G + X$

It shows that injections must equal leakages to maintain the circular flow of economic activities in the four sector open economy. As we move from two sector simple model of a closed economy to three sectors or four sectors model of an open economy the adjustments becomes necessary. The mechanism of the circular flow for the maintains of macroeconomic equilibrium remains the same-only the nature of transactions and their adjustment undergo a change as is shown by a generalized picture of a model is given below.

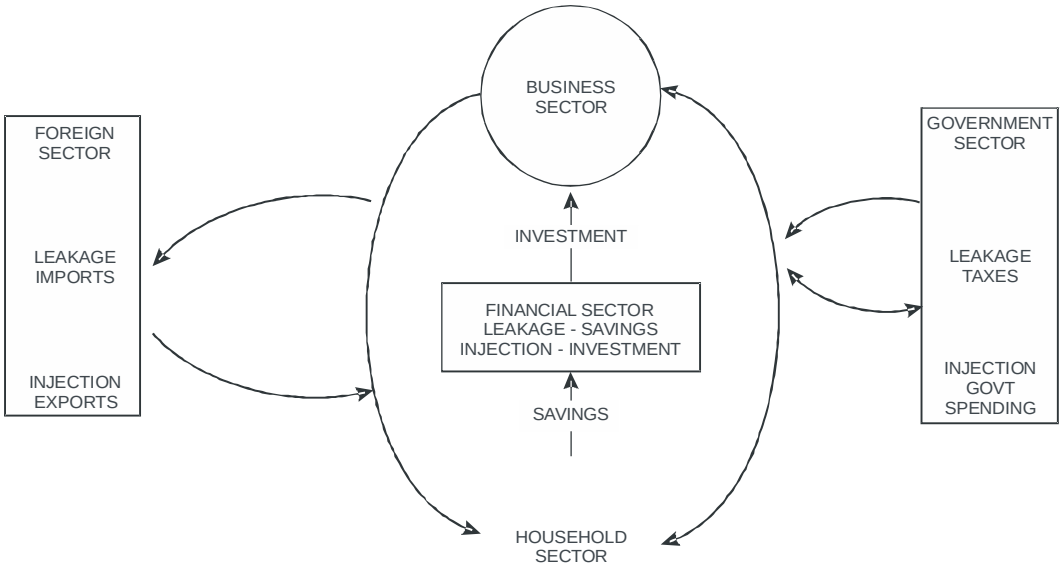


Figure -1.4

The model shows the various kinds of transactions which originate and take place in different sectors of the economy and cause complications but once the necessary adjustments between leakages and injections like saving and investment in two sector model--- taxes and government expenditure in three sector model and imports and exports in four sector model are made--- the circular flow of economic activity of the macroeconomic; static equilibrium is obtained irrespective of the fact whether these

minor constituents (activities) are equal to each other or not what is required at the macro level is that the circular flow of activities must be so adjusted that the aggregate income generated must equal the aggregate value of the final output.

1.1.g Importance of the Circular Flow

The concept of the circular flow gives a clear-cut picture of the economy. We can know whether the economy is working efficiently or whether there is any disturbance in its smooth functioning. As such, the circular flow is of immense significant for studying the functioning of the economy and for helping the government in formulating policy measures.

1. **Study of Problem of Disequilibrium.** It is with the help of circular flow that the problems of disequilibrium and the restoration of equilibrium can be studied.
2. **Effects of Leakages and Inflows.** The role of leakages enables us to study their effects on the national economy. For example, imports are a leakage out of the circular flow of income because they are payments made to a foreign country. To stop this leakage, government should adopt appropriate measures so as to increase exports and decrease imports.
3. **Link between Producers and consumers.** The circular flow establishes a link between producers and consumers. It is through income that producers buy the services of the factors of production with which the latter, in turn, purchase goods from the producers.
4. **Creates a Network of Markets.** As a corollary to the above point, the linking of producers and consumers through the circular flow of income and expenditure has created a network of markets for different goods and services where problems relating to their sale and purchase are automatically solved.
5. **Inflationary and Deflationary Tendencies.** Leakages or injections in the circular flow disturb the smooth functioning of the economy. For example, saving is a leakage out of the expenditure stream. If saving increases, this depresses the circular flow of income. This tends to reduce employment, income and prices, thereby leading to a deflationary process in the economy. On the

other hand, consumption tends to increase employment, income, output and prices that lead to inflationary tendencies.

6. **Basis of the Multiplier .** Again, if leakages exceed injections in the circular flow, the total income becomes less than the total output. This leads to a cumulative decline in employment, income, output, and prices over time. On the other hand, if injections into the circular flow exceed leakages, the income is increased in the economy. This leads to a cumulative rise in employment, income, output, and prices over a period of time. Infact, the basis of the Keynesian multiplier is the cumulative movements in the circular flow of income.

7. **Importance of the Monetary Policy.** The study of circular flow also highlights the importance of monetary policy to bring about the equality of saving and investment in the economy. The equality between saving and investment comes about through the credit or capital markets. The credit market itself is controlled by the government through monetary policy. When saving exceeds investment or investment exceeds saving, money and credit policies help to stimulate or retard investment spending. This is how a fall or rise in prices is also controlled.

8. **Importance of Fiscal Policy.** The circular flow of income and expenditure points toward the importance of fiscal policy. For national income to be in equilibrium desired saving plus taxes (S + T) must equal desired investment plus government spending (I + G). S + T represent leakages from the spending stream which must be offset by injections of I + G into the income stream. If S +T exceed I + G, government should adopt such fiscal measures as reduction in taxes and spending more itself. On the contrary, if I + G exceed S + T, the government should adjust its revenue and expenditure by encouraging saving and tax revenue. Thus the circular flow of income and expenditure tells us about the importance of compensatory fiscal policy.

9. **Importance of trade Policies.** Similarly, imports are leakages in the circular flow of money because they are payments made to a foreign country. To stop it, the government adopts such measures as to increase exports and decrease imports. Thus the circular flow points toward the importance of adopting export promotion and import control policies.

10. **Basis of Flow of Funds Accounts.** The circular flow helps in calculating national income on the basis of the flow of funds accounts. The flow of funds accounts are concerned with all transactions in the economy that are accomplished by money transfers. They show the financial transactions among different sectors of the economy, and the link between saving and investment, and lending and borrowing by them.

To conclude, the circular flow of income possesses much theoretical and practical significance in an economy.

1.1. h. Summary

1. Circular flow implies a continuous movement of money and goods in the economy.
2. One of the most important conditions of macroeconomic equilibrium is that its circular flow must be maintained.
3. The circular flow is first of all maintained in two sector simple and closed economy.
4. Two sector model comprises of the Household sector and the Business sector.
5. The circular flow in two sectors is attained when production equals sale and output equals demand.
6. When government sector involving government transactions are involved it is called three sector model and for circular flow certain adjustments in the transactions are made.
7. When the transactions involving foreign trade are taken into account like imports and exports---it is called four sector model of an open economy and the necessary adjustment amongst leakages (imports) and injections (exports) are made before the circular flow is maintained in such an economy.

1.1. i Questions

1. What is circular flow of income?
2. Explain the effect of injections and withdrawals in the circular flow of income.
3. Discuss the circular flow of income in four sector system.
4. Explain circular flow in two sector with product and capital markets.

2.1 NATIONAL INCOME ACCOUNTING

Chapter Highlights——————–

This chapter contains topics related to national income and its related aspects. Initially this chapter deals with its concept, economy, methods of estimation, relevant problems in estimation and also its distribution. The aggregates of national income are extensively applied in the measurement of material performance of an economic system. Any economic, political and sociological problem or strain gets clearly reflected in the fluctuations of the national income and product aggregates. These all pervading aggregates, however, suffer from certain limitations particularly when they are employed in the measurement of the welfare of the community.

Chapter Outlines——————————

2.1. a. Introduction

2.2. b. Objectives

2.3. c. Significance of study of National Income

2.3. d. Concept of National Income

2.4. e. Methods of Estimation of National Income

2.5. f. Problems in Estimation of National Income

2.6 g. Distribution of Income

2.1 a Introduction

Concept of National Income and national product has occupied most significant place in the Macroeconomic analysis. Both this two macro concepts are frequently used to estimate economic performance of an economy. While national product refers to flow of goods and services over any stipulated period of time, national income represents flow of total factor earnings in an economy during any specified time period.

Concept of national income is important in the context of production and distribution in the economic theory. It is an essential statistics for a nation in the similar manner as personal income in the case for an individual. It provides information about nation's productive capacity and economic stability. Study of national income also tells information regarding unemployment status.

But concept of national income is a broad issue and thus possesses diverse interpretations. According to Marshall, labour and capital of any country working on its natural resources produce annually curtain net aggregates of goods.

Word net is applied for using raw and half-finished commodities and for wearing-out and depreciation of plant which is associated in production, all wastages must be deducted from gross produce before net income can be found. In this context it is to be remembered that net income on account of foreign investment must be added. Theoretically, Marshall's definition is correct absolutely. It expresses complete meaning of national income, necessary deductions to be made and steps to be initiated to avoid double counting. Moreover, it runs in terms of goods produced. But it does not provide clear picture regarding the Methods for calculation of national dividend.

According to Pigou, national dividend is that portion of objective income of the community including the income derived from abroad which can be measured in money.

Advantage of above definition is that it comprises those commodities as well as services that are sold for money. But actual difficulty is that it makes artificial and deliberate separations between things that are exchanged for money and that are not exchanged for money.

On contrary, Irving fisher has taken the idea of consumption function as criteria for national income accounting. According to Fisher, national dividend or income comprises services received by actual consumers, whether from their material or environments.

Although Fisher's approach in scientific and reasonable in real life it is difficult to calculate money value of consumption of commodities and services. Again, many durable goods provide service for several years and it is not an easy task to measure value of services year after year.

In the words of Richard stone, national income or product provides a measure of total value at factor cost of goods and services manufactured in a period available for consumption or for additions to wealth. This total is valued in terms of money and it is equal to income going to factors of production——management labour, property and enterprise.

According to Simon Kuznets national income is net output of goods and services flowing during the year from country's productive system into the hands of actual consumers or into net additions to countries stock of capital goods.

In 1951, the national income committee defined the concept of national income in a simplified manner. According to this committee, a national income estimate measures volume of commodities and services turned out in a specified period counted without duplication.

The Department of Economic Affairs of United Nations provides a detailed definition of national income. According to this department, gross national product at market prices is market value of produce before deductions of provisions for consumption of fixed capital, attributable to factors of production provided by normal residents of any relevant country. It is equivalent to sum of consumption capital and gross domestic capital formation both private as well as public and surplus of the nation on current account. So, surplus is equal to net exports of goods and services plus net factor income received from abroad.

J. R. Hicks has defined national income as a collection of goods and services reduced to a common basis measured in terms of money.

All the definitions discussed above, implies that national income is the money measure of

1. An economy during a year.
2. Economy counted without duplication.
3. Both public and private sector of products and services.
4. Net gains from international transactions.
5. In consumption and capital goods sector.
6. Net value of all goods and services.
7. An economy after allowing for depreciation.

2.2. b. Objectives

How well an economy will perform is an important issue to those who are associated with it. But problem is how to estimate? Trends of National Income will indicate progress of an economy. In this chapter we will analyse National Income and its various measures which shows the growth trends and structural changes of an economy.

2.3. c. Significance of the Study of National Income

Every sector of economy uses human, natural as well as material resources to contribute in aggregate flow of commodities as well as services in a specified time interval normally is a years' time. According to Simon Kuznets, national income is net output of goods and services flowing in a year from nation's production to the actual consumers or net addition to nation's capital goods. While comparison is made with growth rate of net national income with the growth rate of relevant population—which states whether the status of economy is stagnant, developing or declining.

2.4 d. Concepts of National Income

Study of concepts of national income follows from that of definition. Generally countries have been compiling national income estimates for several years and they incorporated into them and following concepts which are as follows:

1. Gross National Product (GNP)

GNP is basic measure of nation's output stated in terms of money and represents total value of a nation's annual output. It is evaluated in market prices and includes all economic productions in an economy.

Gross national product may be defined as money value of national production for any specific period of time. But it is to be remembered that money value of final goods and services produced in the economy should be taken into consideration. Intermediate products are excluded from GNP.

Secondly, while calculating for GNP, money value of exclusively currently produced goods and services are taken into account to estimate economy's productivity during a particular year.

Thirdly, word '' gross" has sufficiently significant is the term GNP. Depreciation or replacement of the fixed assets is not to be deducted. Depreciation is treated as loss to the economy and thus it will not to be deducted from GNP manufactured in the economy.

The term GNP often used in national income concept calculation of GNP for several years and comparing them will indicate whether there has been a long run growth or decline in the economy.

Symbolically,

$$GNP = C + IG + G \times (X - M) + NFIA$$

Where,

C = Private Final Consumption expenditure.

IG = Gross Investment

G = Government Expenditure.

(X − M) = Net Exports i,e Export minus Imports.

NFIA = Net Factor Income from Abroad.

2. Gross Domestic Product (GDP)

Gross domestic product is money value of all goods and services produced in

the domestic territory of a country is in year's time. Various sectors of a country engaged in the production activities produce normally a certain amount of goods and services like fertilizers, cement, steel, rice, services of doctors, teachers and advocates etc. Money value of all these good and services taken together provides in the value of GDP.

Symbolically,

GDP = P (Q) +(S)

Where, = GDP + GROSS DOMESTIC PRODUCT.

P = Per unit.

Q = Gross output.

S = Services.

3. Net National Product (NNP)

Net national product at factor cost (NNP) is volume of goods and services turned out during an accounting year, counted without duplication. It can also be defined as net value added at factor cost in an economy during an accounting year. In terms of income earned by factors of production, net national product at factor cost or national income is defined as sum of domestic income and net factor income from abroad.

Symbolically,

NNP (National income) = DFI + NFIA

Where DFI = Domestic factor income.

NFIA + NET factor income from abroad.

Alternatively,

NNP may also calculate as gross national product minus depreciation during that year.

Symbolically,

NNP = GNP –Depreciation.

NNP is also called national income at market prices.

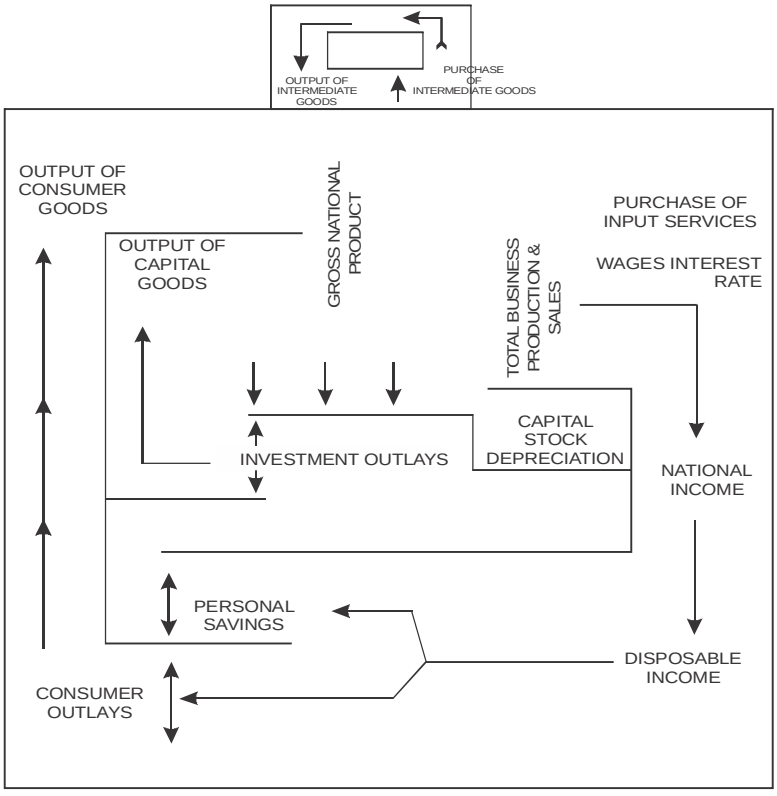
Net national product is a better and highly useful concept in the study of growth of economics because, it takes into account of net increase in total production of that country. But this concept has complex problem of fixing appropriate rates of depreciation for plants buildings, equipment etc. in an economy.

4. National Income at factor Cost

National Income at factor cost is marginally separate concept from GNP and NNP. It is total of entire incomes earned by owner of factors of production for their contributions. So, in measuring national income at factor cost – those payments which are not made for any productive service is not to be included. Therefore an individual may take value of gifts he receives, transfer payment from firms and governments to estimate his income, but he has not done any service to get that income. Thus, they are not to be entered in computation of national income at factor cost.

Thus, we say that national income is aggregate of factors earnings. It does not consider government allowance; capital consumption, individual as well as business transfer payments and also indirect taxes. Likewise, if government pays any subsidy to any sector that will be included.

FLOW CHART 2.1



RELATIONSHIP BETWEEN GNP AND NATIONAL INCOME AT FACTOR COST

Symbolically, N.I at (factor cost) = NNP⁻ indirect taxes + subsidies.

In flow chart (1.a) relationship between NI and GNP can be studied with the help of a hypothetical economy. Let us assume that in our hypothetical economy is a market economy without any government. So, there will be no government outlays, no taxes, subsidies and social insurance contribution also. Apart from above, we also consider that simple economy is a closed economy.

As per above situation, production process occurs in business sector, output of intermediates goods is positioned at top in the form of a small box. Total product originates in business sector. After making capital depreciation it goes into national income flow by way of interest, rent profits and wages from business sector to factory owners which is presented on R .H.S. Out of the national income, individual segregates it into consumption and savings which is presented at bottom side on R.H.S- which is return flow to business sector by way of demand for consumption and capital goods and in this way circular flow becomes complete.

But in actual world economy, situation differs from this simple economy. In simple closed economy-absence of government, NI, NNP and disposable income are same. But in reality international relations and government sector are important and therefore, social accountings are more complex in comparison to single national income accounts.

5. Private Income

Private income refers to income which accrues to individuals from any source; within domestic territory of a country and from abroad in an accounting year. It is obtained after adding to income from domestic product accruing to private sector the sum of net factor income from abroad, current transfer from rest-of-the world and interest on national debt.

Private Income: Income from domestic product accruing to private sector + Net factor income from abroad + Current transfer from the government + Net current transfer from rest of the world + Interest on national debt.

6. Personal Income (P.I)

Personal income aggregate money payment actually received by the individuals or household within domestic territory of a country from all sources in an accounting year. It means aggregate money payments received by people by way of wage interests, profits as well as rents. It is spendable income at current prices available to individuals. This aggregate amount will be different from national income at factor cost. National Income at factor cost is what is earned and personal income is what is received. This undistributed corporate profits is not available for individuals. Corporate income taxes and payment towards social security measures will also not be available for individuals. Therefore, all sorts of these amounts is to be deducted from what is actually earned. On the other hand, there are certain sources of income which are not currently earned but paid to individuals. For instance, payments like old age pensions or widow pensions unemployment allowance, payments of scholarship or other welfare measures accrued to individuals-which is known as transfer payments by government. All these types of income are to be add up to get the amount of personal Income. Thus, **Personal Income:** National Income-Corporate Taxes-Undistributed corporate savings or profits-Social security contributions + Transfer payments.

7. Personal Disposable Income

Personal disposable income refers to that part of the personal income which is actually available to individual for consumption and saving purposes. Entire personal income received by individual cannot be spent by them at their desires. They have to pay personal direct taxes viz., income-tax, education tax etc. Thus,

Personal Disposable Income: Personal income− **(**Direct Taxes + fines, Fees etc,− Social security contributions).

8. Net National Disposable Income (NNDI)

Concept of net national disposable income is different from personal disposable income. Net national disposable income is computed by adding to net direct taxes and other current transfer from rest of the world i,e net capital transfers to national income. Thus,

Net National Disposable Income:

National Income + Net indirect Taxes + Net capital Transfers from Rest-of-the World (ROW)

2..4.1 National Income Accounting and National Income Accounts

Every country of the world today wants to step up its rate of economic growth. Because a high rate of economic growth would improve the standard of living of the people. The rate of economic growth is expressed in terms of growth of National income and per capita income over a period of time. Thus, national income is a measure of economic growth. The sum total of the market value of goods and services produced in an economy during a period of time say one year is called national product or national income. Statements of data relating to a national income of a country are called National Income Accounts. The method relating to the preparation or compilation of these statements is called National Income Accounting.

1.2.1.a Meaning of National Income Accounts: Every country prepares and maintains statistics on National Income. These are called National Income Accounts or national income. In India we call them National Accounts Statistics. National income Accounts contain a number of statistical statements showing the value of goods and services produced in different sectors of the economy such as agriculture, industry, transport and communication, trade, banking, public administration, etc. for a number of years. They also contain statements showing the details of the distribution of national income among different factor groups (such as land, labour, capital & enterprise) and final expenditure on goods and services for the economy as a whole. In fine National Income Accounts are the data or statistics regarding statements of the production, distribution and consumption of National Income.

1.2.2. b.Some definitions of National Income Accounts : According to Edey, Peacock & Cooper, "National Income Accounts imply an organized arrangement of figures relating to the economic activity of a region."

In Charles Schultz's words, "National Income Accounts provide a quantified framework of output, spending and income."

According to Dornbush & Fisher, "National Income Accounts provide us Statistical framework for describing relationship among output, income and spending."

2.2.3.c. Meaning of National Income Accounting: The method relating to the preparation or compilation of national income accounts is called National Income Accounting. National Income Accounting prepares and organizes the national income data in such a way that accounting relationship is established as well as inter-relationships among the various sectors are easily understood from structure of the accounts. National Income Accounting tries to summarize the performance of a country's economy by measuring its total income and production of goods and services in a particular year.

2.2.4.d. Some Definitions of National Income Accounting:

1. According to Ruggles & Ruggles, "National Income Accounting can be defined as a system of classification that is necessary to provide a description & functional account of what has happened in the country".
2. According to M.Yanovsky, "National Income Accounting attempts primarily to measure national income, final product, consumption and accumulation of capital."
3. In France Zahn's words, "National Income Accounting is the means of identifying and measuring aggregate economic activities."
4. In Paul Stustki's words, "National Income analysis serves as a tool for determining the nature, size and inter-relationships of the economy's complex financial transactions."

2.2.5.2 Importance of National Income Accounting

Importance of National Income Accounting We come to know a number of things from the national income accounting. This Knowledge is of great importance from the practical and theoretical points of view. It is of great importance in the case of planning and economic development.

1. Broad Picture of the Economy. National income accounting gives us a correct picture of the structure of the economy as well as the distribution of income according to regions, industrial origin, functional services and persons. We come to know about the nature of an economy from the national income accounts.

2. Knowledge of Economic Conditions. National Income accounting enables us to have a correct idea about the economic conditions prevailing in the economy. They enable us to know the relative importance of the various sectors of the economy and their contribution towards national income. From these studies, we learn how income is produced and how it is distributed, how much of it is spent, saved, invested or taxed.

3. Knowledge about Economic Activities of People. We come to know about the economic activities of the people from the national income accounting. We come to know about the occupational distribution, for example, how many people are working in agriculture, how many are working in industries and how many are working in business, transport and banks etc.

4. Indicator of Economic performance. National income accounting is an indicator of the economic development of an economy. The increase or decrease in national income figures shows the rate of economic development and whether the national income is equally distributed in the factor of production or not.

5. Possibility of comparison. By comparing the national income accounts of different countries we come to know about their rates of economic development.

6. Indicator of Economic welfare. National income accounts are very often used as an index of economic welfare. A country with higher per capita income is presumed to afford a higher standard of living for its masses. Similarly, an improvement in per capita income of a country is taken as proof of a better standard of living and increasing in economic welfare.

7. Helpful in the Formulation of Fiscal Policy. The government takes into account the national income accounts while formulating fiscal policy. The main aim of the budgetary policy is to save the country from inflation and unemployment and to move towards economic development.

8. Helpful in Formulation of Public Policies. On the basis of national income accounting, the public policies are formulated and implemented. If we do not have the required figures then public policy will depend on assumptions and aim will not be fulfilled.

9. Formulation of Economic Plans. National income accounts are very important for planning. No country has ever gone along with the programme of economic planning without possessing a prior knowledge of the trends in national income measurements.

10. Knowledge about Structural Changes. National income accounts also tell about the structural changes which are taking place in an economy.

In brief, we can say that at present national income accounting is very important from the economic development point of view and this is the indicator of the economic development of an economy.

2.5. National Income Accounts can be used to measure Standard of Living

To measure how much output, spending and income has been generated in a given time period, we use national income accounts.

A term used in economic to refer to the bookkeeping system that a national government uses to measure the level of the country's economic activity in a given time period. National income accounting records the level of activity in accounts such as total revenues earned by domestic corporations, wages paid to foreign and domestic workers, and the amount spent on sales and income taxes by corporations and individuals residing in the country.

National income accounting provides economists and statisticians with detailed information that can be used to track the health of an economy and to forecast future growth and development. Although national income accounting is not an exact science, it provides useful insight into how well an economy is functioning, and where money is being generated and spent.

2.5.1. a.Measure of Standard of Living

The estimates of national income and per capita income (derived by dividing the total national income by the population) give us an average income and standard of living of the people. Economic welfare depends to a considerable degree on the level of national income and its distribution.

Therefore, to know about the level of economic welfare it is essential to have estimates of national and per capita income.

However, there are certain problems in taking per capita income as the only measure of standard of living or that of development of the economy. The per capita income may be high even when only a few people are very rich and vast majorities of people are poor. The process of economic development is a complex phenomenon and is influenced by many factors. If the income of the vast majority of people are low but free health and educational services are provided, the standard of the people will be better than if no free services are provided. In addition, the well-being of the people depends on the composition of the output. If luxuries are being produced in relatively greater quantities than necessaries there will be shortage of goods for the poor people.

Nowadays in addition to national income, a number of development indicators are being suggested for evaluating standard of living or development. Growth in national income is possible without development, but for development growth is essential.

2.5.2.b.Comparison across Time and Space

By comparing national income over a period of time we can know whether the economy is growing or not. If national income increases over years, it means the economy is growing and if national income is falling, it indicates that the economy is declining.

For having meaningful comparison of national income over time, the effect of change in prices has to be removed. If the monetary values of national income of an economy is increasing by 2 percent every year and if the prices are also increasing by 2 percent, then there is no real growth in the economy and it is stagnant. The comparison of the estimate of national income over time can be done only in real terms, i,e., If the estimates are prepared at constant prices. Because of this reason, the CSO is preparing the estimates of national income both at current and constant prices.

The incomes of different regions can be compared to study the regional disparities in incomes. Some of the regions may be more developed while some others may be less developed, e.g. Punjab is more developed than Assam. The per capita income, along with certain other indicators, gives us an idea of regional disparity. These estimates of different states are a guide in deciding the allocation of central funds to various states.

2.5.3.c.Sectoral Distribution of Income

The estimates of national income show contributions of different sectors of the economy, such as agriculture, manufacturing, transport, electricity services, etc. From the sectoral breakdowns of national income, one could study the broad sectoral shifts in an economy over time. For example, based on the sectoral estimates, it can be said that agriculture is overwhelmingly important for the Indian economy. The contribution of gross value added from agriculture decreased from 35.8 percent in 1980-81 to 22.2 percent in 2000-2001 (at 1993-94 prices). The contribution from manufacturing industries increased from 13.8 percent to 17.2 percent during the same period. The contribution from other sectors also showed an increase over this period. This shows that over period of time ,there is a shift from agriculture (in 1950-51, the contribution from agriculture was 50.2 percent) to manufacturing and other sectors.

2.5.4.d.Income Distribution by Factors of Production

National Income estimates throw light on the distribution among different categories of income such as wages, profits, rent and interest. The distribution of income into wage and non-wage income is of special importance, since the inequality in the personal distribution of income depends to a great extent on the share of working class (wages) and the share of property owners. From the size distribution of income, one can have an idea about the number of people who are poor.

1.2.5.e. International Comparison of National Income

National accounts are used for reporting to International agencies like UN Statistical Office. UN year Book on National Accounts gives national and per capita incomes of more than 120 countries. The national accounts statistics should confirm to standard, internationally accepted concepts, definition and classifications. The

resulting data are widely used for international comparisons of the volumes of major aggregates such as GDP or GDP per head, and also for comparisons of structural statistics, such as ratios of investment, taxes, or government expenditures to GDP. Such comparisons are used by economists, journalists and other analysts to evaluate the performance of one economy against that of other similar economies. They can influence popular and political judgments about the relative successes of economic programmes in the same way as developments over time within a single economy. Databases consisting of a set of national accounts for groups of countries can also be used for econometric analysis.

2..6Summary

Statistics regarding the national income data is highly essentially for the successful operation of planning of an economy. National income accounting shows the gross income, output, saving and consumption, etc. Without being aware of these variables developmental planning becomes futile. Thus, the future economic policy for development depends a lot on the correct estimate of all these factors. It shapes the budgetary policy of the government and makes the borrowing and tax policy in order to neutralize the fluctuations of income and employment. Government takes to deficit or surplus budget to arrest depression or inflation in an economy.

Economic policy in the short run is formulated on the basis of an assessment of the recent behavior and the current state of the economy and a view of a better forecast, about likely future developments. Short-term forecasts are made by using econometric models. Over the medium or long term, economic policy has to be formulated in the context of a broad economic strategy which may need to be quantified in terms of a plan. Most of the elements which make up a medium or long-term economic plan consist of national account flows and it may be impossible to draw up such a plan without them. A good macroeconomic model which accurately reflects the past performance of the economy may be indispensable for planning and forecasting.

2.7 Question

1. Explain the importance of National Income Statistics.
2. What are the problems of international comparisons of national income?
3. How can inter-temporal comparisons related to national income be made.

3.1 SOCIAL ACCOUNTING, FLOW OF FUNDS ACCOUNTING AND BALANCE OF PAYMENTS ACCOUNTING

Chapter highlights————

Social Accounts—Main features—types of social Accounts—Elements in preparation—input-output Matrix—limitations—uses—Sector accounts—Personal and Household sector—Business sector—Rest of the world sector—saving and Investment Sector—Matrix Approach to Social accounting—Importance—Special Considerations In Developing economies. The accounting technique dates back to the 15th century. But during the early stages of the development of this technique, it was not used as a method of measuring the economic activity of the society as a whole. The investigation on the subject of national income accounting was conducting by the academicians and economists.

Chapter Outlines————————

3.1. a. Introduction

3.2. b. Objectives

3.3. c. Meaning & Components of Social Accounting

3.4. d. Concept of flow-of-funds

3.5. e. Limitations of flow-of-funds accounts

3.6. e. Origin of flow-of-funds accounts

3.7. f. Balance of Payments accounting

3.1. a. Introduction

Since the publication of the General Theory national income accounting has become an official job, statistics of national income reflect changes in the economic health of the economy. They indicate the performance of the economy; the fluctuations in economic activity. As a result, many new concepts have come to be associated with the study of national income and social accounts. These concepts have become popular after Keynes. A grasp of the general concepts of social accounting is essential to the understanding of macroeconomic theory because the macroeconomic truisms like Y = C + I + G =I are generally derived from the social accounts. Accounts maintained by private individuals are called "Private Accounting" whereas the account of the entire economy is called 'Social Accounting'. Thus, the term social accounting is sometimes used for that part of descriptive economics which relates to the production and distribution of the national income. In order to have an accurate idea of the economic progress in different sectors and sub sectors of an economy it is but essential to maintain social or national accounts.

'Social Accounting' is a wider concept and embraces 'national income accounting'; as such it is concerned with the statistical classification of the activities of human beings and institutions in such ways which help us to understand the operation and the working of the economy as a whole. It also includes the application of the information thus gathered to the investigation of the operation of the economic system. In other words, national income and social accounts are no more than measurements of production and investment arranged in such a way as to stress the distinction between the decisions of people concerned with, on the one hand, the production of commodities, and on the other the consumption of what has been produced. All types of transactions, real or financial, national or international, big or small that takes place in the economy are properly recorded in the system of social accounts. Such a system of social accounts gives a summary in a purposeful way of the manifold and diverse transactions that take place in the various sectors and sub-sectors of the economy. From these accounts it is always possible to derive important aggregates like income, consumption, investment, saving, imports, exports, taxes, government expenditure etc. National income accounts are a very practical method of collecting factual information about the performance and structure of the economy.

Although we are not unaware of earlier attempts in this direction, especially in U.K and U.S.A., yet the real impetus to the preparation of social accounts was provided by the depression of 1929-32.

Depression meant heavy losses, steep fall in the purchasing and large scale unemployment of human and capital resources. As a result, it was necessary to devise a system which could properly measure these structural changes so that the necessary policy measures could be adopted in the field of taxation, expenditure, borrowing (fiscal measures) and money supply, rate of interest (monetary measure) to overcome the situation. It was done through the preparation of national income and social accounts. World War II also established the necessity of the preparation of such accounts because it is during wars and emergencies that nations are required to take stock of their total resources and to mobilize them in the best interest of the economy. It was realized in India also after the Chinese attack of 1962. A debate had started in the country between 'defense' and 'development'. The resources being scarce—were these to be employed for defense or development? It was found that despite scarcity of resources both defense and development were necessary and could go side by side because there cannot be any defense without development or development without defense. What became necessary was their proper distribution between defense and development after collecting true facts through social accounts. Defense does not mean production of more arms; the production of war materials has to be adjusted and co-ordinated with a certain amount of minimum level of consumption of goods and services by the community. Then, there is also the problem of financing the war efforts, i.e., the extent of taxes that could be imposed and other financial resources that could be mobilized or the curtailment of civilian consumption that could take place. Under such conditions, it becomes necessary, therefore, to have a comprehensive statistical framework (Social accounts) concerning the distribution of manpower and other resources amongst defense and other development industries and to investigate the interrelationship, amongst competing or alternative uses. There were, then, the circumstances that led to the preparation of detailed system of social accounts in U.S.A. and other European countries including India. The formation and use of social accounting is still in an experimental stage in several countries, despite, it is far superior method than mere observation of past events or guesswork.

3.2.c. Meaning & Components of Social Accounting

The term 'social accounting' was first introduced into economics by J.R.Hicks in 1942. In his words, it means 'nothing else but the accounting of the whole community or nation, just as private accounting is the accounting of the individual firm'. Social accounting, also known as national income accounting, is a method to present statistically the interrelationships between the different sectors of the economy for thorough understanding of the economic conditions of the economy. It is a method of studying the structure of the body economic. It is a technique of presenting information about the nature of the economy with a view not merely to get an idea of its prosperity, past or present, but also to get guidelines for state policy to influence or regulate the economy. In the words of Edey, Peacock and Cooper: "Social accounting is concerned with the statistical classification of the activities of human beings and human institutions in ways which help us to understand the operation of the economy as a whole. The field of studies summed up by the words 'social accounting' embraces, however, not only the classification of economic activity, but also the application of the information thus assembled to the investigation of the operation of the economic system." In other words, social accounting describes statistically the economic activities of the different sectors of the entire economy, which indicates their mutual relationships and provides a framework for analysis.

Components of Social Accounting

The principal forms of economic activity are production, consumption, capital accumulation, government transactions and transactions with the rest of the world. These are the components of social accounting. If the incomings and outgoings of a country relating to these five activities are shown in the form of accounts, they show a closed network of flows representing the basic structure of the economy. These flows are always expressed in money terms. We classify these flows as follows:

(1) **Production Account.** The production account relates to the business sector of the economy. It includes all forms of productive activity, i,e., manufacturing, trading, etc. It covers public and private companies, property firms and partnerships, and state-owned business undertakings. Since all productive activity takes place within this sector, all payments flows it to the other sectors. The production account of the business sector

is shown in table 1.

Table 1.3.1: Production account (Rs Crores)

Payments		Receipts	
1.Payments to sectors, i,e., wages, etc. (2-5)	279	5.Consumption expenditures (2-1)	219
2.Payments to government (3-5)	12	6.Government Purchases (3-1)	30
3.Business saving (4-3)	9	7.Gross private domestic Investment (4-1)	36
4.Imports of goods and services(5-2)	9	8.Exports of goods and Services (5-1)	24
Gross national income	309	Gross national expenditure	309

Note: Figures in brackets relate to corresponding Table and item number.

Payments to personal sector include rent, interest, dividend, wages, salaries, employees compensation and proprietors' income. The item 'payments to government' includes producers' net payment to government in the form of taxes and social security payments. Business saving refers to producers' retained income or corporate saving. The last item relates to payments made to the foreign sector for imports of goods and services. These figures make up gross national income. The receipt side of the production account shows the incomings to the business sector from sales of goods and services to the household or personal sector. Government purchases refer to goods and services sold by the business sector to the government. Gross private domestic investment comprises the gross flow of capital goods (fixed capital formation) and the net change in inventories.Net exports refer to the income earned by the business sector by selling goods and services to the rest of the world. The total of all these items gives GNP by expenditure.

2. Consumption Account. The consumption account refers to the income and expenditure account of the household or personal sector. The household sector includes all consumers and non-profit making institutions such as clubs and associations. The consumption account is shown in table 2.

Table 1.3.2: Consumption Account (Rs. Crores)

Payments		**Receipts**	
1.Consumption Expenditure(1-5)	219	5.Receipts from business,	
2.Payments to government(3-6)	45	Wages and salaries, etc.(1-1)	279
3.Personal Saving(4-4)	15	6.Receipts from government	
4.Transfers to foreigners (5-3)	6	(3-2)	6
Personal outlay and saving	285	Personal income	285

Note: Figures in brackets relate to corresponding table and item no.

The major item in the left side of the consumption account is the expenditure of household consumers in buying goods and services from the business sector to satisfy their wants. Payments to government include taxes and special insurances contributions. The next item refers to personal saving used for investment by the household sector. The item transfers to foreigners might be taken to relate to investment in foreign securities or expenses by the residents on education or travel abroad. The right hand side of the account shows income of business and household consumers as the major item which comes in the form of wages and salaries, profit, interest, dividend, rent and receipts from current transfers, etc. Receipts from government include transfer payments and net interest payments on public debt.

Government Account. The government account relates to the outflows and inflows of the government sector. The government sector included all public authorities- centre, states and local authorities in a country. The government account is shown in table 3.

Table 1.3.3: Government account (RS. Crores)

Payments		Receipts	
1.Payments to Business (1-6)	30	5.Receipts from business(1-2)	12
2.Payments to persons (2-6)	6	6.receipts from persons(2-2)	45
3.Government surplus (4-5)	15	Government Receipts	57
4.Payment to foreigners (5-4)	6		
Government outlay and surplus	57		

All items in the preceding Table have already been explained in the two accounts contained in Tables 2 and 3, except item 3. This refers to investment made by the government out of its surplus or saving. However, the important point to be noted is that state-owned business enterprises are excluded from the government sector as they have been included in the business sector because like private enterprises public undertakings produce goods and services for sale.

4. **Capital Account.** The capital account shows that saving equals domestic and foreign investment. Saving is invested in fixed capital and inventories within the country and /or in international assets. The capital account is shown in Table 4. The gross private investment includes the gross flow of capital goods and net change in inventories. Net foreign investment is the net foreign surplus on current account. On the right side, gross saving includes business and personal savings and government surplus.

Table-1.3.4 Capital Account

Payments		Receipts	
1.Gross private domestic		3.Business saving (1-3)	9
Investment (1-7)	36	4.Personal saving (2-3)	15
2.Net foreign investment(5-5)	3	5.Government surplus(3-3)	15
Gross investment	39	Gross saving	39

Note: Figures in brackets relate to corresponding Table and item number.

(5) Foreign Account. Foreign account shows the transactions of the country with the rest of the world. This account covers international movements of goods and services and transfer payments and corresponds to the current account of the international balance of payments. The foreign account or the rest of the world account is shown in table 5. For simplicity, such services as freight and insurance have not been shown

separately. All items have been already explained in the proceeding accounts. It should be noted that in the foreign account 'exports' have been shown under payments (on the left side) and 'imports' under receipts (on the right side). This is because the amount received by the nationals of the country for exports is paid to foreign countries in exchange for imports and transfer payments. Here payments and receipts relate to the rest of the world and not to the country itself.

The five-account system detailed above relates to flows of the economy in terms of production, consumption, government transactions,

Table 1.3.5: Foreign Account

Payments		**Receipts**	
1.Exports of goods and Services (1-8)	24	2. Imports of goods and services (1-4)	9
		3.Transfer payments to foreigners by Persons (2-4)	6
Net receipts from foreigners	24	4.Transfer payments to foreigners by Government (3-4)	6
		5.Net foreign investment (2-4)	3
		Net payments to foreigners	24

Capital accumulation and transactions with the rest of the world. The accounts based on them are known as functional accounts, as they are based on a classification of transactions according to their functions.

Importance of Social Accounting

Social accounting helps in understanding the structure of an economy and relative importance of the different sectors and flows. It is a key to the evaluation and formulation of government policies both in the present and future.

The uses of social accounting are as follows.

In Classifying Transactions. Economic activity in a country involves innumerable transactions relating to buying and selling, paying and receiving income, exporting and

importing, paying taxes, etc. The great merit of social accounting lies in classifying and summarizing these different kinds of transactions properly, and deriving from these such aggregates as national income, national expenditure, saving, investment, consumption expenditure, production, government spending, foreign payments and receipts, etc.

In Understanding Economic Structure. Social accounting helps us to understand the structure of the body economic. It tells us not only about the national income but also about the size of production and consumption, the level of taxation and saving and the dependence of the economy upon foreign trade.

In Understanding different Sectors and Flows. Social accounts throw light on the relative importance of the different sectors and flows in the economy. They tell us whether the contribution of the production sector, the consumption sector, the investment sector or the rest of the world sector is greater than the other sectors in the national accounts.

In Clarifying Relations Between concepts. Social accounts help in clarifying the relationships between such related concepts as net national product at factor cost and gross national product at market prices.

In guiding the investigator. Social accounts are a guide for the economic investigator by indicating the type of data which might be collected for analyzing the behavior of the economy. Such data might relate to gross national product, government expenditure on goods and services, private consumption expenditure, gross private investment, etc.

In Explaining Trends in Income Distribution. Variations in the components of social accounts are a guide to the trends in income distribution within the economy.

In Explaining Movements In GNP. Movements in Gross national products valued at constant prices and expressed per head of population indicate changes in the standard of living. Similarly, changes in the level of productivity can be measured by relating gross national product valued at constant prices to working population per head.

Provide a picture of the working of Economy. Social accounts provide an

ex past picture of the working of the economy. " They can also be used as a framework for drawing up an ex ante forecast of the likely outcome of the economy in the future. Thus, social accounts ensure consistency of forecasts, both internally and in relation to other Known facts."

In Explaining Interdependence of Different Sectors of the Economy. Social accounts also provide an insight into the interdependence of the different sectors of the economy. This can be known from a study of the matrix of social accounts.

In Estimating Effects of Government policies. The importance of social accounts lies in estimating the effects of government policies on different sectors of the economy and in formulating new policies in keeping with changes in economic conditions, as revealed by national income accounts. Their main function is to help the government judge, guide or control economic conditions and to formulate economic policies which aim at maximization of national income and wealth, preventing undue rise in prices, conserving foreign exchange, etc.

Helpful in Big Business Organization. Social accounts are also used by big business houses for assessing their performance and to improve their prospects on the basis of the statistical information about the various sectors of the economy.

Useful for International Purposes. Social accounting is also useful for international purposes. A comparative study of the social accounts of different countries of the world helps in the categorization of the countries into the underdeveloped, less developed and developed. It is on the basis of social accounts that the various agencies of the united nations make provisions for aid to the poor countries of the world.

Basis of Economic Models. Social accounts form the basis for economic models for the purposes of analyzing the bahaviour of the economy as a whole, of the economic forecasting and of illuminating problems of economic policy.

Difficulties of Social Accounting

Preparation of social accounts presents the following difficulties:

1. **Imputations.** In preparing social accounts, all incomes and payments are measured in money. But there are many goods and services which are difficult to impute in terms of money. They are services of the housewife in her home, painting as hobby by an individual, a teacher teaching his children at home etc. Similarly there are a number of non-traded or non - market products and services. They are vegetables produced in the kitchen garden and consumed by the family itself, rental value of house occupied by the owner himself, a portion of farm produce retained by the farmer for personal consumption, etc. All such non-market transactions which cannot be assessed in money terms present problems in preparing social accounts accurately.

2. **Double Counting.** The greatest difficulty in preparing social accounts is of double counting. It arises from the failure to distinguish between final and intermediate products. For instance, flour used by a bakery is an intermediate product and that by a household the final product. Similarly,' 'the purchase of a newly constructed building by the government is taken under consumption output of the economy. On the other hand, the purchase of the same building by a private firm becomes gross investment for the year.' Thus the same product is shown as consumption and investment in social accounts. Such problems lead to difficulties in preparing social accounts.

3. **Public Service.** Another problem is of estimating a number of public services in social accounts. They are police, military, health, education, etc. Similarly, the contribution made by multipurpose river valley projects cannot be fitted into the social accounts because of the difficulty of assessing their numerous benefits in monetary terms.

4. **Inventory Adjustment.** All inventory changes whether negative or positive are adjusted in the production accounts by inventory valuation adjustment.

But the difficulty is that firms record inventories at their original costs and not at their replacement costs. When price rise, there are gains in the book value of inventories. But when prices fall there are losses in the value of inventoriess, so for correct calculation of inventories in business accounts under social accounting, inventory valuation adjustment is required which is very difficult thing.

5. **Depression.** Another problem in business accounts under social accounting is of estimating is of estimating depreciation. For instance, it is very difficult to estimate the current depreciation rate of a capital asset whose expected life is very long, say fifty years. The difficulty increases further when prices of assets change every year. Unlike inventories, it is very difficult to have depreciation valuation adjustment in social accounts.

3.3.d. Presentation of social Accounts

Social accounts are presented on the double-entry basis like private accounts. Prevailing consensus is to present social accounts in the form of a social accounting table as recommended by the United Nations. A social accounting table is called a social accounts matrix. A transaction matrix is used for social accounts in which each row contains payments to other sectors and each column contains receipts from other sectors. Every single entry is both in a particular row and in a particular column. For balancing social accounts a row-total must equal its corresponding column-total. A matrix of social accounts is shown in table 6 which presents the relationship between the flows of payments and receipts in accounts given in table 1 to 5..

Table 1.3.6 Flow Matrix of Social Accounts

		Accounts				
Receipts from Paym-ents to	1 Production	2 Consumption	3 Government	4 Capital	5 Foreign	6 Total
1. Production	—	279	12	9	9	309
2.Consumption	219	—	45	15	9	285
3.Government	30	6	—	15	6	57
4.Capital	36	—	—	—	3	39
5.Foreign	24	—	—	—	—	24
Total	309	285	57	39	24	714

In table 6, each account has one row which shows the payments, and one column which shows the receipts, as explained below:

Row 1 shows payments made by the business sector to the tune of Rs. 279 crores to the consumption sector as wages, salaries, etc., Rs 12 crores to the government as taxes, Rs 9 crores as corporate saving to the capital account of firms and Rs 9 crores for importing goods and services from abroad.

Row 2 shows payments made to the business sector by the household sector amounting to Rs. 219 crores for buying goods and services from it, Rs 45 crores to the government in paying taxes, and insurances contributions, Rs. 15 crores to the investment (Capital) sector in the form of saving by household consumers and Rs. 6 crores as investment in foreign securities, expenses on education, travel etc. in foreign countries.

Row 3 relates to the outflows of the government sector. The government pays Rs. 30 crores to the business sector for purchasing goods and services from it, Rs. 6 crores to the household sector as net interest payment on public debt and as transfer

payments in the form of pension, gratuity, etc., Rs. 15 crores of government surplus is spent for investment purposes, and Rs. 6 crores are paid to foreign countries for goods and services received from them. The last item also includes expenditure on the maintenance of embassies abroad, and on delegations to foreign countries.

Row4 relates to the capital account of the economy out of which payment of Rs. 36 crores is made to business sector for capital goods and net change in inventories, and Rs. 3 crores are net foreign investments.

Row 5 relates to the rest of the world account or foreign account to which payments of Rs. 24 crores are made by selling or exports of goods and services to foreigners.

Similarly, the receipts of each sector can be explained column wise from table 6.

The social accounts matrix presented in table 6 further reveals three things. First, each sell (i,e., rectangular box) shows the equality of the payments to one sectoral account and the receipts from another sectoral account. For example, payment of Rs 279 crores by the production sector to the consumption sector, reading column-wise. Second, the total payments of each sect oral account equal the total receipts of that sector. For example, the total payments of the production sector reading row-wise amounting to Rs. 309 corers equal to the total receipts of the sector, reading column –wise. Third, the total payments of all sectors equal the total receipts of all sectors in the social accounting matrix. They are Rs 714 corers both row-wise and column-wise in the table.

3.4. e Flow of Funds Accounts:

The national income accounts do not tell anything about monetary or financial transactions whereby one sector places its savings at the disposal of the other sectors of the economy by means of loans, capital transfers, etc. In fact, the national income accounts do not take into considerations the financial dimensions of economic activity and they describe product accounts as if they are operated through barter. The flow of funds accounts are meant to supplement national income and product accounts. The

flow of funds accounts was developed by Professor Morris Copeland in 1952 to overcome the weaknesses of national accounting.

The flow of funds accounts list the sources of all funds received and the uses to which they are put within the economy. They show the financial transactions among different sectors of the economy and the link between saving and investment aggregates with lending and borrowing by them. The account for each sector reveals all the sources of funds whether from income or borrowing and all the uses to which they are put whether for spending or lending. This way of looking at financial transactions in their entirety has come to be known as the flow of funds approach or of sources and uses of funds.

In the flow of funds accounts, all changes in assets are recorded as uses and all changes in liabilities are recorded as sources. Uses of funds are increases in assets if positive or decreases in assets if negative. They refer to capital expenditures or real investment spending which involve the purchase of real assets. Sources of funds are increases, in liabilities or net worth or saving if positive, and repayment of debt or dissaving if negative. Net worth is equal to a sector's total assets minus its total liabilities. Therefore a change in net worth equals any change in total assets less any change in total liabilities.

3.5.f Limitations

The flow of funds accounts are beset with a number of problems which are discussed as under:

1. The flow of funds accounts are more complicated than the national income accounts because they involve the aggregation of a large number of sectors with their very detailed financial transactions.
2. There is the problem of valuation of assets. Many assets, claims and obligations have no fixed value. It, therefore, becomes difficult to have their correct valuation.
3. The problem of inclusion of non-reproducible real assets arises in the flow of funds accounts. Economists have not been able to decide as to the type

of reproducible assets which may be included in flow of funds accounts.

4. Similarly, economists have failed to decide about the inclusion of human wealth in flow of funds accounts.

Despite these problems, the flow of funds accounts supplements the national income accounts and help in understanding social accounts of an economy.

3.6.g. Importance

The flow of funds accounts present a comprehensive and systematic analysis of the financial transactions of the economy. As such, they are useful in a number of ways.

1. The flow of funds accounts are superior to the national income accounts. Even though the latter are fairly comprehensive, yet they do not reveal the financial transactions of the economy which the ,flow of funds accounts do.
2. They provide a useful framework for studying the behavior of individual financial institutions of the economy.
3. According to professor Gold Smith, they bring ‘’the various financial activities of an economy in explicit statistical relationships with one another and with data on the non-financial activities that generate income and production”.
4. They trace the financial flows that interact with and influence the real saving-investment process. They record the various financial transactions underlying saving and investment.
5. They are essential raw materials for any comprehensive analysis of capital market behavior. They help to identify the role of financial institutions in the generation of income, saving and expenditure, and the influence of economic activity on financial markets.
6. The flow of funds accounts show how the government finances its deficit and surplus budget and acquires financial assets.

7. They also show the results of transactions in government and corporate securities, net increase in deposits and foreign assets in the economy.
8. The flow of funds accounts help in analyzing the impact of monetary policies on the economy as to whether they bring stability or instability or economic fluctuations.

1.3.h. Difference between Flow of Funds Accounts and National Income Accounts

The flow of funds accounts differ from national income accounts in many ways.

First, the national income accounts are confined exclusively to nonfinancial transactions. They neglect the link between saving and investment aggregates with lending and borrowing by different sectors of the economy.

Second, the national income accounts confine all real investment to the business sector with the exception of building constructions. Consumers and governments are not allowed to invest in national income accounts. The flows of funds accounts treat consumer purchases of durable goods as real investment. Government enterprises are included in the producing sector of national income accounts but in the flow of funds accounts they are included in the government sector.

Thirdly, the number of sectors in flow of funds accounts are more with larger details than in the national income accounts. They are defined institutionally in flow of funds accounts whereas they are defined functionally in national income accounts.

Fourthly, there are fewer imputations in the flow of funds accounts than in national income accounts. For instance, taxes are carried on a cash basis is flow of funds accounts whereas some sectors are shown on an accrual basisi in national income accounts.

1.3.i. Balance of Payments Accounts

The balance of payments of a country is a systematic record of all its economic transactions with the outside world in a given year. It is a statistical record of the character and dimensions of the countries' economic relationships with the rest of the

world. According to Bo-Sodersten, ”The balance of payments is merely a way of listing receipts and payments in international transactions for a country”. B.J Cohen says, "It shows the country’s trading position, changes in its net position as foreign lender or borrower, and changes in its official reserve holdings."

Structure and classification

The balance of payments account of a country is constructed on the principle of double-entry book-keeping. Each transaction is entered on the credit and debit side of the balance sheet. But balance of payments accounting differs from business accounting in one respect. In business accounting, debits ($-$) are shown on the left side and credit ($+$) on the right side of the balance sheet. But in balance of payments accounting, the practice is to show credits on the left side and debits on the right side of the balance sheet. When a payment is received from a foreign country, it is credit transactions while payment to a foreign country is a debit transaction. The principal items shown on the credit side ($(+)$ are exports of goods and services, unrequited (or-transfer) receipts in the form of gifts, grants etc. from foreigners, borrowings from abroad, investments by foreigners in the country and official sale of reserve assets including gold to foreign countries and international agencies. The principal items on the debt side (-) include imports of goods & services,transfer payment to foreign countries and official purchase of reserve assests or gold from foreign countries.

The credit and debit items are shown vertically in the balance of payments account of a country according to the principle of double-entry book-keeping. Horizontally, they are divided into three categories: the current account, the capital account and the official settlements accounts or the official reserve assets account.

The balance of payments account of a country is constructed in Table no-7

Table 1.3.7 Balance of payments account

Credit (+) (Receipts)	Debts (-) (Payments)
Export	Imports
1. Current Account	
(a) Goods (b) Services (c) Transfer Payments	(a) Goods (b) Services (c) Transfer Payments
2. Capital Account	
(a) Borrowing from Foreign Countries (b) Direct Investment By Foreign Countries	(a) Lending to Foreign Countries (b) Direct Investment in Foreign Countries
3. Official Settlement Account	
(a) Increase in Foreign Official Holdings	(a) Increase in Foreign Official Holdings
Errors & Omissions	

1.Current Account. The current account of a country consists of all transactions relating to trade in goods and services and unilateral (or unrequired) transfers. Service transactions include costs of travel and transportation, insurance, income and payments of foreign investments, etc. Transfer payments relate to gifts, foreign aid, pensions, private remittances, charitable donations, etc. received from foreign individuals and governments to foreigners. In the current account, merchandise exports and imports are the most important items. Exports are shown as a positive item and are calculated f.o.b (free on board) which means that cost of transportation, insurance, etc. are excluded. On the other side, imports are shown as a negative item and are calculated c.i.f (costs, insurance and freight) are included. The difference between exports and imports of a country is its balance of visible trade or merchandise trade or simply balance of trade. If visible exports exceed visible imports, the balance of trade is favourable. In the opposite case when imports exceed exports, it is unfavourable.

It is, however, services and transfer payments or invisible items of the current account that reflect the true picture of the balance of payments account. The balance of exports and imports of services and transfer payments is called the balance of invisible trade. The invisible items along with the visible items determine the actual current account position. If exports of goods and services exceed imports of goods and services, the balance of payment is said to be favourable. In the opposite case, it is unfavourable.

In the current account, the exports of goods and services and the receipts of transfers payment (unrequired receipts) are entered as credits ($+$) because they represent receipts from foreigners. On the other hand, the imports of goods and services and grant of transfer payments to foreigners are entered as debit ($-$)because they represent payments to foreigners.The net value of these visible and invisible trade balances is the balance on current account.

2. Capital Account The capital account of a country consists of its transactions in financial assets in the form of short-term and long-term lending and borrowings and private and official investments. In other words, the capital account shows international flows of loans and investments, and represents a change in the country's foreign assets and liabilities. Long –term capital transactions relate to international capital movements with maturity of one year or more and include direct investments like building of a foreign plant, portfolio investment like the purchase of foreign bonds and stocks and international loans. On the other hand, short-term international capital transactions are for a period ranging between three months and less than one year.

There are two types of transactions in the capital account—private and government. Private transactions include all types of investment: direct, portfolio and short term. Government transactions consist of loans to and from foreign official agencies.

In the capital account, borrowings from foreign countries and direct investment by foreign countries represents capital inflows. They are positive items or credits because these are receipts from foreigners. On the other hand, lending to foreign countries and direct investments in foreign countries represent capital outflows. They are negative items or debits because they are payments to foreigners. The net value of the balances

of short-term and long-term direct and portfolio investments is the balance on capital account. The sum of current account and capital account is known as the basic balance.

3. The official Settlements Accounts. The official settlements account or official reserve assets account is, in fact, a part of the capital account. But the U.K. and U.S. balance of payments accounts show it as a separate account. "The official settlements account measures the change in nations' liquidity and non-liquid liabilities to foreign official holders and the change in a nation's official reserve assets during the year. The official reserve assets of a country include its gold stock, holdings of its convertible foreign currencies and SDRs, and its net position in the IMF". It shows transactions in a country's net official reserve assets.

Errors and Omissions. Errors and omissions is a balancing item so that total credits and debits of the three accounts must equal in accordance with the principles of double entry-book-keeping so that the balance of payments of a country always balances in the accounting sense.

3.6. J.SUMMARY

The social accounting framework is useful for economizes as well as for policy makers, because it represents the major economic flows and statistical relationships among various sectors of the economic system. It is of particular interest and significance to the policy-makers because by studying the national income series, over a period of time, it becomes possible to forecast the trends of economy more accurately. In many countries, annual economic planning is in the form of national budgets which are, in fact, nothing but forecasts of social accounts for the following years.

3.7. k. QUESTIONS

1. What do you mean by social accounting? How are social accounts arrived? Discuss the Importance of social accounting in economic analysis.
2. Explain and illustrate social accounting and indicate its usefulness as a tool of economic policy.
3. Explain and illustrate flow of funds accounts. In what respect they are different from national income accounts?

4. Explain fully flow of funds accounts. Discuss their limitations and importance.
5. Show how balance of payments always balances and why does a deficit or surplus arises in the balance of payments of a country?

4.1 NEO CLASSICAL THEORY OF DISTRIBUTION OF NATIONAL INCOME

The Neo-classical theory of distribution shows the division of National Income among the factors of production

Assumptions

1. Capital (K) and Labour (L) is constant

   $K = \bar{K}$

   $L = \bar{L}$

2. Factors of production are fully utilized that is, there exists full employment of labour. Therefore, the supply curve of factor is vertical.

3. No change in technology.

4. Output is fixed at a level $\bar{Y}$.

5. Constant returns to scale. This implies if we increase all inputs by a certain proportion (k), output will increase by the same proportion (k).

   $kY = f(kL, kK)$ where, k is a positive constant.

6. Perfect competition exists.

7. Firms produce only output, households own capital directly. Since output (Y) is a function of input (K,L) Production function : $Y = f(\bar{K}, \bar{L})$……..i

The output produced will depend on the contribution of factor to production. The national income generated will depend on the total output produced. Greater the output produced more will be the generation of national income. Therefore, Y=Y implies that national income (Y) = total output produced (Y).

Determination of Factor Price:

Price of the factor is determined at the point where:

Supply of the factor (N^S) = Demand for the factor (N^d)

$$N^s = N^d$$

It implies, the price which each factor (Labour, capital) receives (wage, interest) for their services rendered depends on the demand and supply of that factor. Since supply of factor is fixed, the supply curve of factor is vertical straight line (N^s).

Demand for factor (N^d) is negatively related to the factor price.

This implies, if factor price (e.g., wages) falls, demand for factor (Labour) will increase vice versa.

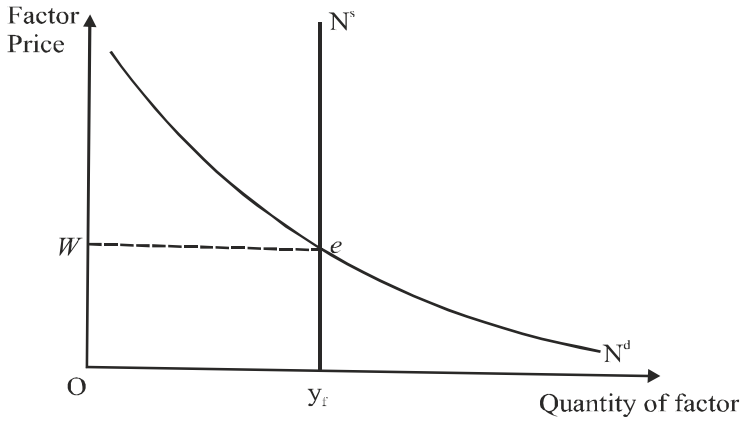


Fig. 4.1

Supply of factor (N^s) = Demand for factor (N^d) at point e

Equilibrium point is $\rightarrow$e (here $N^d = N^s$).

Equilibrium factor price is OW

Objective of the firm

The goal of the firm is to maximize profit (π)

(π = R - C).....ii

$$R = P.Y$$

$$C = wL + rK$$

Total cost = Labour Cost + Capita Costs

Substituting the values in ii we get:

$$\pi = P.Y - [wL+rK] \text{.....iii}$$

$$Y = f(\bar{K}, \bar{L}) \text{.....from i}$$

$$\pi = P.f(\bar{K}, \bar{L}) - [wL+rK] \text{ .....iv}$$

Note: R= Revenue, C=Cost, P = Price of the output, Y = Output the firm produces, w = Wages, L = Number of Labour employed, (wL = Labour Cost), r = Rental price of the capital, K = Amount of Capital, rK = Capital Cost.

Equation iv shows that profit (?) depends on :

a. Product Price (P)

b. Price of the factors (w,r)

c. Amount of the factor (L,K)

Where $\bar{P}, \bar{W}, \bar{K}$ are constant.

Demand for Factor

The firms will choose that amount of the factor that will maximize its profit. How much labour to hire and capital to rent will depend on the marginal productivity (MP) of the factor.

MP is the addition to the total output brought by the employment of an additional unit of factor of production.

As the firm increases the factor, MP of that factor decreases.

$$MP_L = f(K,L+1) - f(K,L)$$

Similarly

$$MP_k = f(K+1,L) - f(K,L)$$

Where :

(K+1) $\rightarrow$ additional unit of capital used

Note :

MP_L = MP of labour ;

f (K,L+1) = amount of output produced with K units of capital and an extra unit of labour employed (L + 1);

f(K,L) = amount of output produced with K units of capital and L units of labour.

Slope of production function is represented by MP_L

Since MP_L decreases with increase in the employment of labour, (with capital constant), the slope of production function decreases. thus, the production function becomes flatter.

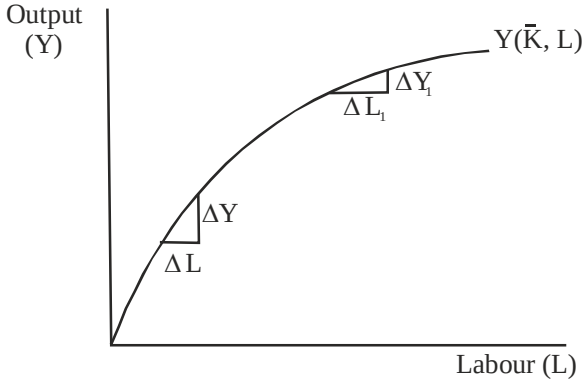


Fig. 4.2

Slope of production function is represented by MP_L

Where :

$$MP_L = \Delta Y/\Delta L$$

$$\Delta Y/\Delta L > \Delta Y_1/\Delta L_1$$

Slope of production function decreases

As output increases at decreasing rate due to fall in MP of labour, the firm is willing to hire more labour only at a less price (wage)

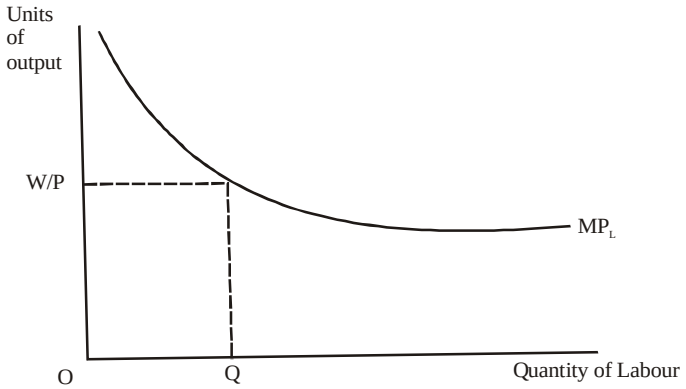


Fig. 4.3 The Marginal Product of Labour

Before employing an additional labour, the firm will compare extra revenue (ΔR) received from increase in production with the extra cost (ΔC) incurred on hiring an additional labour (that is, wages).

Increase in revenue depends on :

1. MP of Labour (MP_L)
2. Price of out put (P)

$$\Delta R = MP_L \cdot P$$

Firm will hire labour till : ΔR = wages paid (W)

or

$$MP_L \cdot P = W$$

or

$$MP_L = W/P \quad \text{where } W/P = \text{Real Wage}$$

Thus, it implies firm will hire the labour till the point where MP_L = Real Wage.

Algebraically :

Change in profit ($\Delta\pi$) from hiring additional labour :

$$\Delta\pi = \Delta R - \Delta C$$

$$= (P.\ MP_L)\text{-}w \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..v$$

Similarly, change in profit ($\Delta\pi$) from renting additional capital :

$$\Delta\pi = \Delta R - \Delta C$$

$$= (P.\ MP_k)\text{-}r \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots vi$$

A Profit maximizing competitive firm will hire the factor till the point where :

$(P.\ MP_L)$-w…………………………from.. v

or

$$w/P = MP_L$$

$$P.\ MP_k = r$$

or

$$r/P = MP_k$$

thus when each factor is paid according to its marginal productivity. The firm will maximize its profit. This is achieved when it hires OQ

$$\text{Real wages paid} = (W/P)$$

$$\text{Real Economic Profit} = Y - [(MP_L.L) + (MP_k\ .K)]$$

or $Y = (MP_L.L) + (MP_k .K) + \text{Economic Profit} \quad ...vii$

thus equation (VII) shows, National income(Y) is divided among :

1. Labour in form of wages
2. Capital in form of interest
3. Economic Profit

How is National income distributed among the factors of production?

Total income= Economic Profit of firm + payment to the factors(L,K)

According to their MP

Economic profit is the income which remains with the firm after making payments to the factors of production in form of interest and wages.

$\therefore$ Economic profit $= Y- (MP_K.K) - (MP_L.L)$

If the production function exhibits CRS

Economic Profit $= 0$

This is based on Euler's theorem according to which :

"If each factor is paid according to its MP, and these factor payments exhaust the total output then economic profit will be equal to zero."

On the basis of the theorem total output is divided between factors in form of : Payment to capital (interest) and payment to labour (wages) according to their contribution (MP) to the production.

$\therefore$ Total output (Y) = interest + wages

$\because$ (i) output is a function of labour (L) and capital (K)

$$Y = f(K,L)$$

(ii) interest is paid on the capital according to the contribution of capital to production ($MP_K.K$)

(iii) wages are paid on the labour according to the contribution of labour to production (MPL.L)

$$\therefore \qquad f(K,L) = (MP_K.K) + (MP_L.L)$$

As L.H.S = R.H.S., according to Eulers theorem, economic profit = zero.

Thus, if each factor is paid according to their marginal product, then the sum of these factor payments will be equal to the total output and economic profit will be equal zero (Source : N. Gregory Mankiw).

5.1 CLASSICAL MODEL OF DETERMINATION OF EQUILIBRIUM IN GOODS MARKET AND MONEY MARKET

Chapter Highlights——————————

This chapter contains detailed analysis of General Equilibrium and Rate of Interest—Goods market—Equilibrium in Goods market—The IS schedule—money market—Equilibrium in money market—LM schedule—General Equilibrium—Interpretations of General Equilibrium model—Rate of Interest and Optimum propensity to Consume—Determinate Theory of the Rate of Interest

Chapter Outlines————————————-

- Introduction
- Objectives
- Determinate Theory
- The LM Schedule
- The IS Schedule
- The General Equilibrium
- Shifts In IS and LM Curves
- Rate of Interest and Optimum Propensity To Consumes

5.1 INTRODUCTION

The chief aim of this chapter is to develop a general equilibrium model of the aggregate economy with the help of rate of interest. The general equilibrium model will be illustrated

fully with the help of different interpretations to show its applicability to problems relating to fluctuations and determination in income and employment. The general model consists of two parts. The first deal with the determinants of equilibrium in the market for goods and the second deals the determinants of equilibrium in the market for money. Goods market equilibrium is defined by equality between saving and investment. At the level of income at which S =I (in a simple two sector model) the leakage in the form of saving is exactly balanced by an equal amount offsetting investment— aggregate demand for goods is just equal to the aggregate supply. Money market equilibrium is defined by an equality between the supply of and demand for money—the condition that gave us equilibrium rate of interest— at the rate of interest at which M = L, the money market is in equilibrium. The particular level of income at which S = I depends to some extent on condition or factors in the money market and the particular interest rate at which M = L depends to some extent on conditions or factors in the goods market.

5.2 Objective

Which one to choose, Loanable funds or liquidity preference theory and Why?

5.3 The Problem

Between loanable funds and liquidity preference theory——which one to choose and why? Prof J. R. Hicks has described such a dispute as a 'sham dispute', for the neo-classical (loanable funds) formulation and the Keynesian formulation, taken together, do supply us with an adequate and determinate theory of the rate of interest. Since both the classical theory of the rate of interest and the Keynesian theory go to determine the rate of interest at a given level of income; both of them taken separately are indeterminate because one is unable to know the rate of interest, unless one knows the given level of income and one cannot know the given level of income unless one knows the rate of interest; thus both the theories are indeterminate. The determinate theory, on the other hand, emphasizes the fact that the two approaches are just two aspects of the more general approach in which income and the rate of interest are determined simultaneously.

For this purpose an economy is broadly divided into two sectors—the 'monetary sector' and the 'goods sector'. An increase in the quantity of money may be spent in the 'commodity market', thereby raising income to a point at which the excess cash

becomes the desired cash needed for transactions; or the extra cash may be used to purchase securities etc., thereby reducing the rate of interest until the excess cash is willingly held as an idle balance. In other words, the two (monetary and commodity) sectors are inter-related; but for the general equilibrium of the economy they must also be separately in equilibrium. For the equilibrium of the 'monetary sector' rate of interest and the level of income must be such that the supply of money equals the demand for it (M = L). The commodity sector is in equilibrium if the rate of interest and the level of income are such that they equate savings and investment (S = I).Thus, an equilibrium or determinate rate of interest is one which brings about simultaneous general equilibrium in the monetary as well as in the goods sector (at an equilibrium level of income when the multiplier process has worked itself out). In fact, when we talk of the determination of the equilibrium or determinate rate of interest, what we have in mind is the determination of the equilibrium level of income (because both the rate of interest and income are simultaneously determined).

We have seen that the changes in the quantity of money affect both income and the rate of interest. But quantity of money is only one determinate of income and rate of interest. Other determinants are: (i) the investment demand schedule, (ii) the consumption function, (iii) the liquidity preference schedule. These three, together with the quantity of money as fixed by the monetary authority, determine together the level of income and the rate of interest. Put in the conventional terminology we may restate the proportion as follows; There are four determinants of income and the rate of interest—(i) productivity, (ii) thrift, (iii) desire for cash, (iv) the quantity of money. An equilibrium condition (income) is reached when the desired volume of cash (L) equals the quantity of money (M), when the MEC is equal to the rate of interest; and finally, when the volume of investment is equal to the normal or desired volume of saving (i,e., L =M, r= MEC, S =I and, therefore, Y = C + I). All these factors are inter-related. Let us study analytically the inter-relationship of these factors:

5.4. DETERMINANT THEORY

The classical or neo-classical formulation of loanable funds does not give us a determinate theory of the rate of interest. It treats productivity and thrift as essential elements in any theory of interest but it doesn't tell us how the rate of interest gets determined. It throws no light on the most crucial question— whether the rate of interest is a determinant of the system or the determinate? All that loanable funds formulation gives us a family of loanable funds schedules (or saving schedules in the Keynesian-Pigovian sense) at various income levels—showing how much people will save at different rates of interest and different levels of income. In figure 5.1 (A) given below they are shown as SI(yI), S2 (Y2), S3 (Y3) etc. The shape of these schedules implies that people will save more at higher rate of interest than at low rates. The fact that there are different schedules for different assumed levels of national income shows the classical' belief that people will save more, given the rate of interest, the higher their income. II, I'I' are investment demand curves showing how much businessmen would wish to invest at different rates of interest. The position and shape of these schedules depend, among other things, on the physical productivity of capital. The figure is meant to know to show, not what the rate of interest will be, but what levels of income will be associated with different rates of interest.

Exactly the same criticism applies to Keynesian theory of liquidity preference of the rate of interest. It also fails us a determinate theory of the rate of interest; because the liquidity preference schedule will change up or down with change in income level, therefore, the theory is equally indeterminate. From the Keynesian formulation what we get is a family of liquidity preference schedule at various income levels and not a theory of the rate of interest. In the figure 5.1 (A) given below each liquidity preference curve is associated with one level of income and shows how the demand for money at that level of income will respond to changes in the rate of interest, with every rise in income, more money is required for 'transactions' and to satisfy the 'precautionary' motives and the liquidity preference schedule therefore, moves to the right. In the figure 5.1 (b) L1, L 2 and L 3 are the liquidity preference schedules at different levels of income. On this family of liquidity preference schedules, we superimpose a schedule of money supply. It is assumed that the money supply is fixed (by the Central Bank) and the money schedule is, therefore, a straight vertical line. Figure 5.1 (b), thus continues the essence

of the Liquidity Preference Theory.

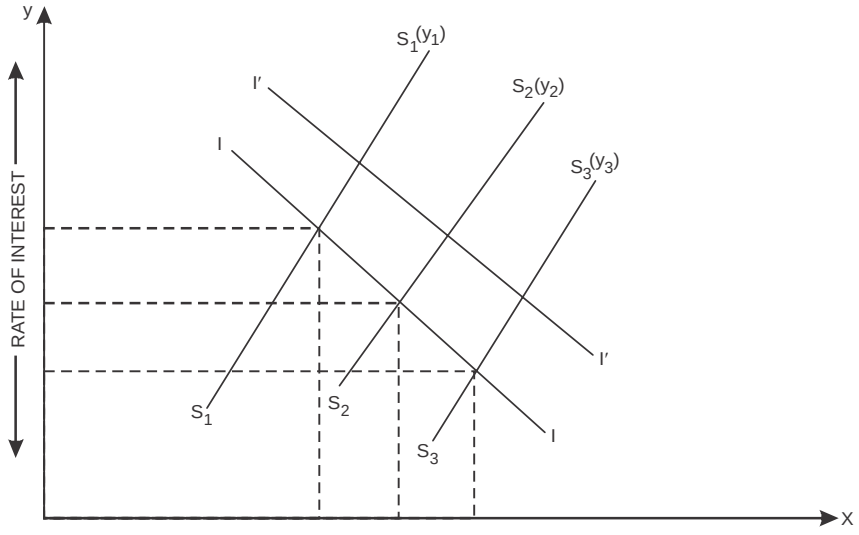


Figure 5.1 A (a) Investment Saving

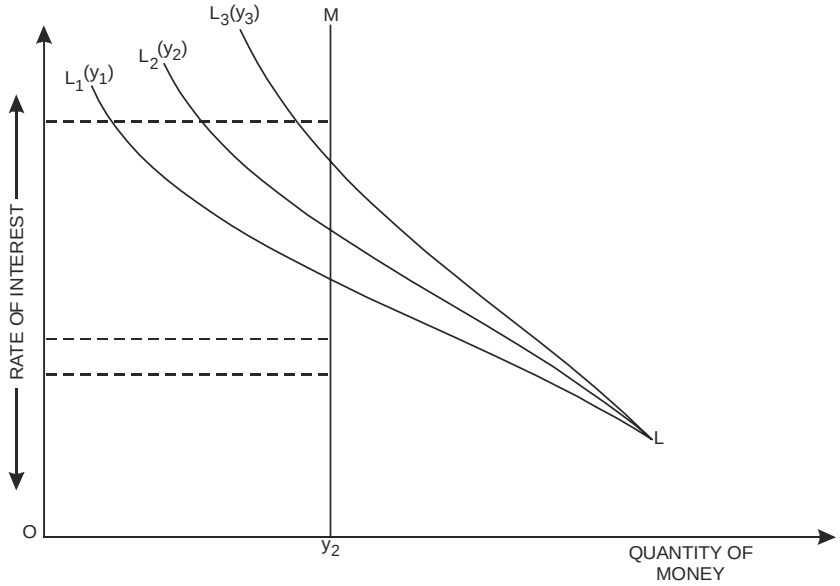


Figure 5.1 (b)

5.5 THE L M SCHEDULE

In the money market the economic activities centre round the demand for and supply of money to hold. These activities are lumped together because they include the different forms in which wealth holders seek to hold economic value over time. The demand for money consists of transactions demand (Lt) and the asset demand (La). Therefore, L =Lt +La. The money supply also consists of two parts for transaction purposes (Mt) and for holding it as an asset (Ma). Therefore, M=M1 +Ma. Hence, the essential condition for monetary equilibrium is:

$$Lt + La = Mt + Ma.$$

The total demand for money (L) is a function of both income and the rate of interest and one of its components: (Lt) is a function of income, while the other component, the asset demand (La)is a function of the rate of interest. In other words, equilibrium with respect to Lt is linked to income and equilibrium with respect to La is linked to the rate of interest. Therefore, general equilibrium in monetary sector is defined in terms of both income and the rate of interest.

The liquidity Preference function L and the money supply M also establish a relation between income and the rate of interest. Given a certain liquidity Preference (demand schedule for money) and a certain supply of money fixed by monetary authority, the rate of interest will be low when the income is low and high when the income is high. The curve showing this relation, we call the LM curve. It is also a functional curve and shows the relation between income and interest (given L function and the supply of M), when the desired cash equals the actual cash, or when L = M. The LM curve presupposes equilibrium between L and M, just as the IS curve presupposes equilibrium between I and S. The LM curve is shown in figure (1.5c) given below

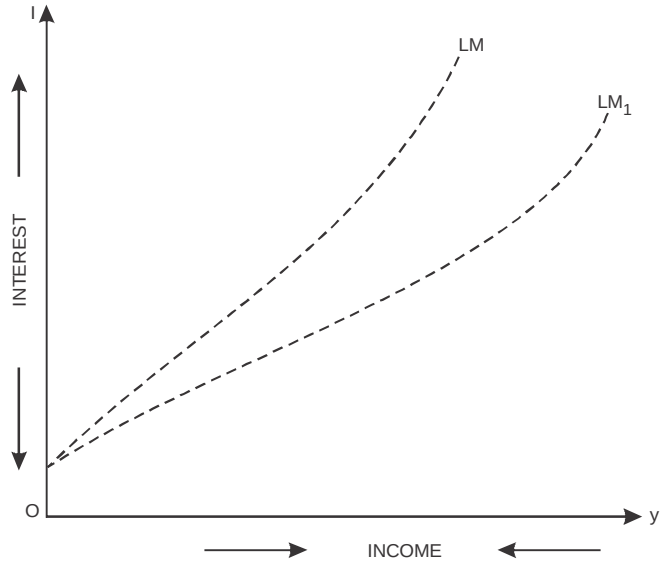


Figure 5.1 (C)

The LM curve shows (assuming the money supply rigidly fixed by the monetary authority), that a low level of income will mean a relatively abundant supply of money and so a low rate of interest: a high income will mean a relatively small money supply and so a high rate of interest. At high levels of income, there is large transactions demand for the limited quantity of money, and so the rate of interest rises steeply; the LM curve becomes highly inelastic with respect to the rate of interest at high income levels. On the other hand, at low income levels, there is a small 'transactions demand' for the fixed quantity of money, and so a large part of the money may be held as an idle balance; the effect is to lower the interest rate. The LM curve at low income levels is interest elastic. There is a limit to the extent that the rate of interest can fall, because the asset demand function becomes perfectly elastic at relatively low rates of interest. This is the liquidity trap. Once we reach the critical level at which interest rates do not respond to further increases in the quantity of money for holding idle balances, Then LM curve becomes perfectly elastic with respect to the rate of interest.

The dotted curve LM1 represents a shift in the LM schedule caused by either (i) an increase in the quantity of money controlled by the monetary authority or (ii) a decrease in LP. Assuming no change in LP, any increase in the quantity of money will shift the LM curve to the right; and similarly, assuming no change in the quantity of

money, any decrease in the demand for money (the L function) will ease the situation and tend to lower the rate of interest at any given income level, or conversely raise the level of income consistent with any given rate of interest. Thus, either a decrease in LP or an increase in the quantity of money will shift the LM curve to the right, as shown by LM1.

5.6. THE IS SCHEDULE

We know that the rate of interest, investment and income are all inter-related. Investment is a form of 'income generating' expenditure. It creates income not only directly but indirectly also through its effects on consumption.

The Hicksian theory is a synthesis of neo-classical and the Keynesian theory. Supply schedule of loanable funds is similar to supply schedule of saving. Saving schedule at various levels of income are shown in figure 5.1(d) given below

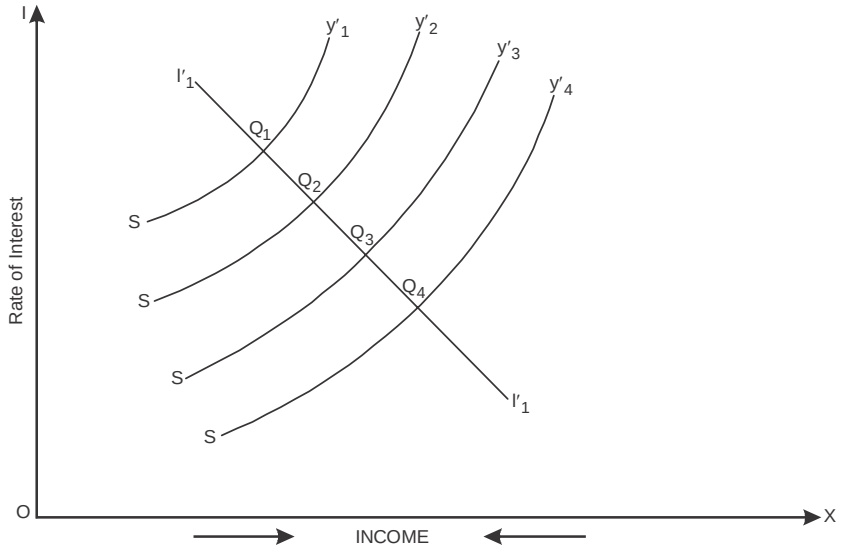


Figure 5.1(d) Saving and Investment

Saving Schedules at Various levels of income

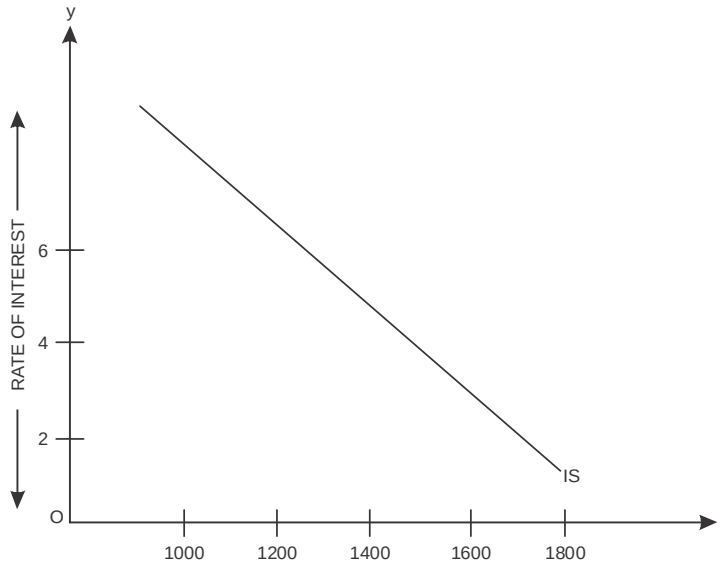


Figure 5.1(e) Saving and investment IS Curve

In the figure (5.1d), rate of interest is measured along OY-axis, saving and investment is measured along OX-axis. I'I' is investment curve. Let us consider S'Y'1, S'Y2',S'Y3, S'Y4 shows income saving level. While income level is Y1' equilibrium between saving and investment is obtained at Q1' rate of interest. Similarly, at income level Y2',Y3', Y4' equilibrium between saving and investment is attained at Q2'Q3',Q4' rate of interest. If a curve is drawn by connecting various rates of interest, following IS curve is obtained as in 5.1(e) given above.

Hicksian IS curve is shown in figure 5.1(e). IS curve slopes downwards to right which depends on the position of saving and investment curves. Any variation in relative position of these curves will vary the position of IS curve.

5.7 DETERMINATION OF THE RATE OF INTEREST——HICKSIAN CROSES

Rate of interest is determined at the point of intersection of IS and LM curves.

In the figure 5.1(f) given below, Q' is the point of intersection of IS and LM curves. At 8% interest rates saving and investment are in equilibrium on one side and demand and supply of money are also in equilibrium on other side.

IS and LM curves are connected with variables, income and the rate of interest. Thus, at the point of intersection of IS and LM curves, income and interest rate is determined.

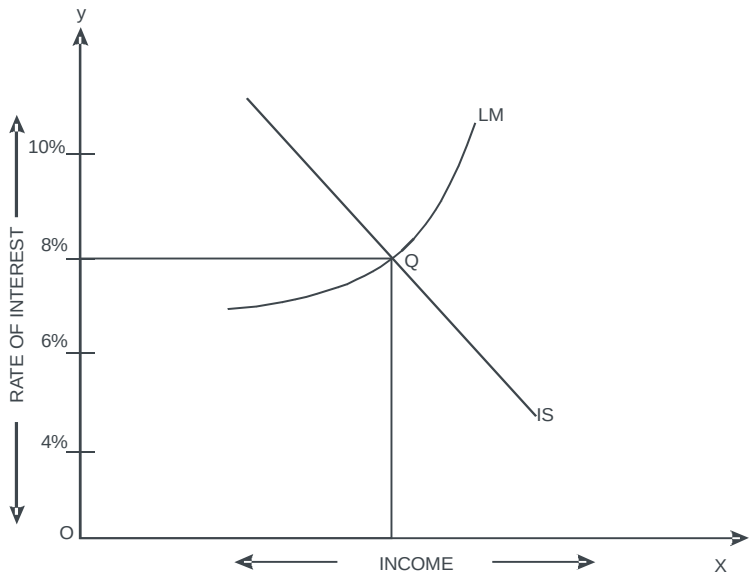


Figure 5.1(f) Intersection of IS and LM Curves

5.8. SUMMARY

1. Prof. Hicks, Hansen and Lerner developed modern theory of interest which constitutes two curves IS curves and LM curve. Point of intersection of two curves gives us equilibrium rate of interest.
2. Economists like Hicks, Hansen and Lerner had taken important points from earlier interest theories and synthesized them in a new theory. It is also known as determinate theory of interest. It explains interest rate determination by considering both real and monetary factors.

3. The modern theory of rate of interest comprises two curves viz, IS and LM curves. IS curve shows equilibrium in the real sector? While LM curve shows equilibrium in monetary sector. Point of intersection of IS and LM provides equilibrium rate of interest.

5.9. QUESTIONS

1. Describe stages in evolution of Hicks-Hansen Synthesis.
2. Discuss Hicks Hansen synthesis of money market and product market.
3. Explain Hicks Hansen Synthesis of product and money market. Illustrate dynamic adjustments of IS—LM model.
4. Describe Hicks-Hansen's synthesis relating to interest.

6.1. DEMAND SIDE EQUILIBRIUM

Chapter Highlights——————————

This chapter highlights Aggregate Demand and Aggregate Supply analysis an IS—LM techniques both on Keynesian and Classical approaches. Necessary derivation has been clarified alongwith graphical presentation to represent respective situations more lively.

Chapter Outlines——————————————

6.12.l. Impact of fiscal expansion of aggregate demand schedule

6.13.m. Monetary expansion

6.14.n. Impact of an increase in money stock on aggregate demand schedule

6.15.o. Aggregate supply schedule or curve

6.16.p. Construction of aggregate supply according to assumptions of rigidity of money wage rate (Keynesian)

6.17.q. Derivation of aggregate supply curve money wages rigid down and

6.18.r. Aggregate supply——Aggregate demand model

6.19.s. Reduction in Aggregate demand with money wages flexible

6.20.t. Reduction in Aggregate demand with money wages rigid downward (unemployment and stabilization policy)

6.21.u. Tax reduction in aggregate supply—aggregate demand model

6.22.v. Increase in nominal money supply in aggregate supply—aggregate demand model

6.23.w. Application of aggregate supply—aggregate demand model

6.24.x. Decrease in investment in aggregate supply—aggregate demand model

6.25.y. Increase in supply of labour with money wages flexible

6.1.a. INTRODUCTION

IS-LM analysis is based upon assumption that price level remains fixed. This indicates that whatever amount of commodities are demanded will be supplied at existing price. It implies concept of inflation has been excluded from analysis.

Aggregate supply and aggregate demand curve analysis is helpful in determination of price level and output level.

In figure (2.1a) given below, AD represents aggregate demand curve and AS represents aggregate supply curve X-axis represents output and income and Y-axis

represents price level. Intersection of AD and AS curve represents equilibrium level of output and its associated price level.

Aggregate demand curve shows combination of price level and output level at which commodities and assets (money, bonds etc) markets simultaneously are in equilibrium.

Aggregate supply curve is locus of points showing several combinations of output and price such that firms are willing at given price level to supply given quantity of output. Amount of output firms are ready to supply depends upon prices they get for their commodities and amounts they have to incur for labour and other factors of production. As such aggregate supply curve shows conditions in factors market—both labour and commodities market.

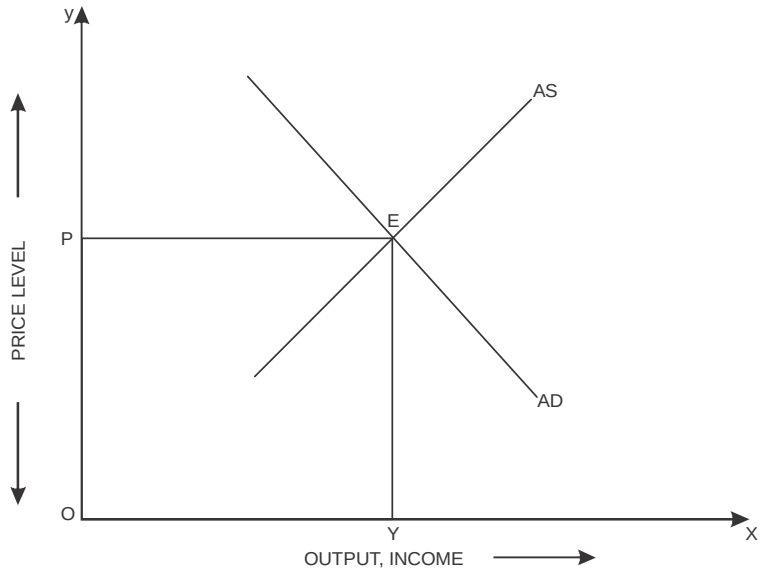


Figure 6.1

Equilibrium point show by Interesction of AD and AS Curve

Following two special cases of aggregate supply curve which depicts extreme cases regarding elasticity of aggregate supply are elaborated below—

KEYNESIAN AGGREGATE SUPPLY CURVE

It is shown by horizontal aggregate supply curve. It indicates that firm will supply at existing price level whatever quantity of commodities are demanded. In Keynesian theory, unemployment exists and hence firms hire as much labour as they require at prevalent wages. As, average costs of production do not change as output level changes, firms are ready to supply as much output as existing prices as shown in figure 6.2 given below:

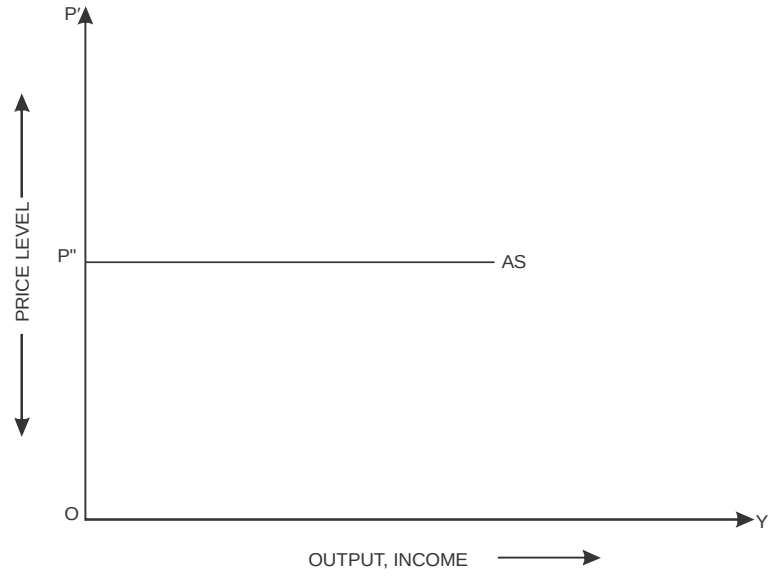


Figure 6.2 (a) Keynesian aggregate Supply Curve

Keynesian aggregate supply curve is horizontal, implies that any quantity of output will be proved at existing prices. Here, AS curve is horizontal at price level P"

CLASSICAL AGGREGATE SUPPLY CURVE

Classical thinkers assume full employment of labour prevails and as such there is no unemployment. Hence, there is no opportunity for further rise in output level even if level of price increase. Therefore, classical aggregate supply curve is shown by

vertical line at full employment output level. Any rise is aggregate demand leads to a higher price level but no additional output can be produced as shown in the figure 6.3 given below:

Figure 6.3 (b) Classical aggregate Supply Curve

Classical aggregate supply function is based on assumption that full employment of Labour Prevails or always exerts and output is always at the output level corresponding to full employment of Labour y′′ and independent price level. Here AS curve is vertical. Actual situation in real world is between these two extremes.

6.2 OBJECTIVES

Basic objective of this chapter is analysis of aggregate demand and aggregate supply by the help of IS & LM curve according to both Keynesian and Classical concept and established relationship in connection with money wages in different complex situations in an economy.

6.3 AGGREGATE DEMAND SCHEDULE/CURVE

In IS—LM Model, level of output is determined where goods and assets markets are in equilibrium, considering a given price level. Fiscal policy fixes position of IS and LM curve based on assumption of given money supply and level of prices.

DERIVATION OF AGGREGATE DEMAND CURVE FROM IS—— LM CURVES

Let us consider, change in price level from P' to P"—fall in prices, which in turn increases real money stock from m/p' to m/p". For money market, to deal with this situation:

(i) Either rate of interest should fall to induce people to hold more cash at hand.

(ii) Output must rise to increase transition demand for money.

It causes shifting of LM curve towards downward to the right i,e., LM to LM". E" is new equilibrium point where both commodities market and money market clears. Y" is new equilibrium level of output relevant to new price level P". Therefore, decline in prices, given nominal quantity of money results to a rise in equilibrium income and spending.

In figure 6.4 given below, for every level of real balances there is a different LM curve. When price level declines, stocks of real balances rises and therefore aggregate demand or spending rises and because of this fact aggregate demand curve shows the trend of downward slope. Figure 6.4

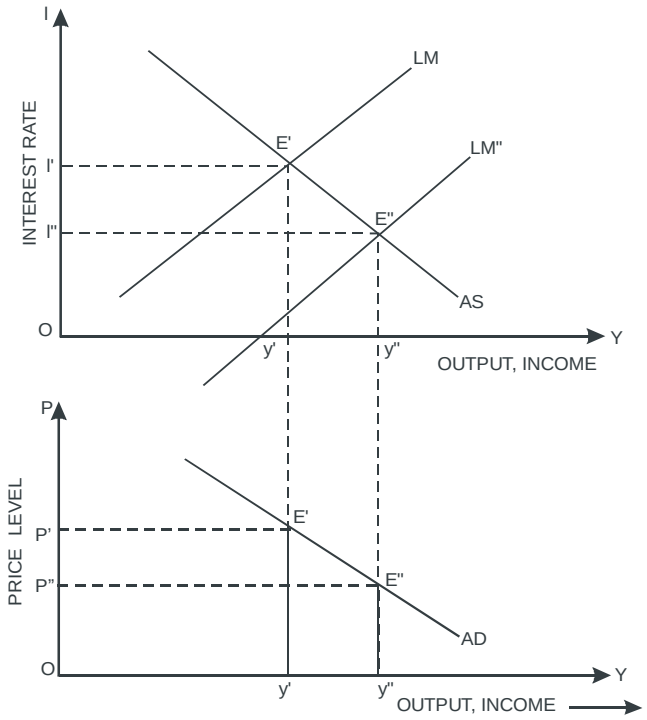


Fig. 6.4 Derivation of AD Curve from IS-LM Curves

DERIVATION OF AGGREGATE DEMAND SCHEDULE

In figure 6.4 given above, The upper portion depicts that IS schedule and initial LM schedule has been drawn for real money stock m/p'. Equilibrium is obtained at point E'. In lower portion, at price P' equilibrium level of income and spending is Y' which is shown by point E'. At lower price level P", real money stock is m/P" and so LM schedule shifts to LM" and consequently equilibrium income now is Y". Further in lower part at point E" combination of price level and corresponding equilibrium level of income and spending is P" and Y" respectively. By considering various price levels and connecting relevant point like E' and E" aggregate demand schedule AD may be derived—Which indicates equilibrium level of spending at each level prices, given nominal money stock and fiscal policy.

SLOPE OF AGGREGATE DEMAND CURVE

Factors responsible for determination of effect of change in stock of money on equilibrium output as well as spending also determine slope of AD curve.

1. AD curve is flatter (i) smaller the interest elasticity of demand for money, (ii) large the interest elasticity of investment demand.

2. AD curve is flatter (i) larger the multiplier, (ii) smaller the income elasticity of demand for money.

According to the classical theory of interest elasticity of demand for money is Zero.

In extreme Keynesian case—liquidity trap—— income elasticity of demand is equivalent to infinity.

According to Classical thinkers while demand for money is not responsiveness to interest rate change and LM curve is vertical, variations in real balances price level have a big effect on income and spending. It corresponds to a very flate AD curve such as AD'' in figure given below,

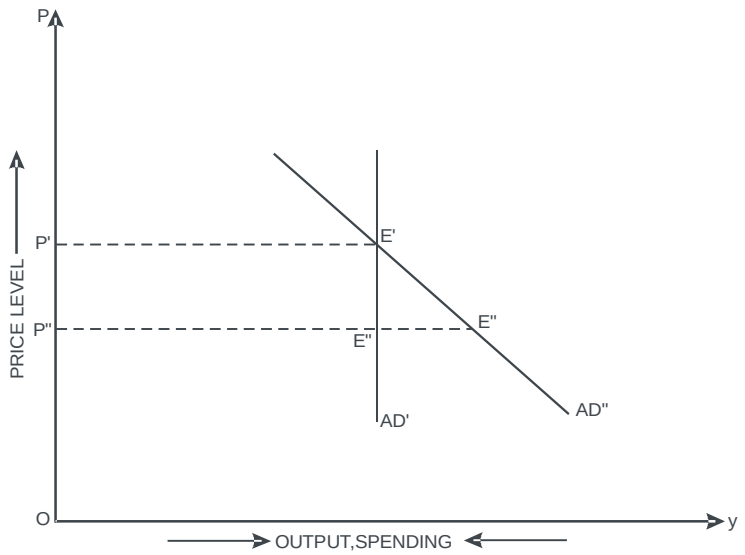


Figure 6.5 Slopes of AD curve

In extreme Keynesian case, liquidity trap, while people is ready to hold any amount of real balances at unchanged interest rates (interest elasticity of demand is equivalent to infinity) a reduction in price level and increase in stock of real balances will have negligible effect on income and spending. It corresponds to almost vertical AD curve as shown in the figure 6.6 given below,

SLOPE OF AGGREGATE DEMAND SCHEDULE

Figure 6.6 depicts two possible AD schedules, Along AD, change in price level from P' to P" has a smaller effect on spending them along AD". Former corresponds to changes in real balances have little effect on equilibrium income and spending and the latter real balance variation makes significant impacts.

SHIFTS OR POSITION OF AGGREGATE DEMAND CURVE

Similar factor which determine position of IS and LM curves also fix position of AD curve. Following clarification will explain how variation in fiscal and monetary policy shift AD curve.

6.3.1 FISCAL EXPANSION

It is observed in figure 6.6 given below, that, initial IS and LM schedules is related to given nominal quantity of money and price level P'. Equilibrium is obtained at E. Corresponding equilibrium point is AD' section below is E' on AD' curve.

Due to increase in government spending shifts IS curve toward rightward direction.

Due to operation of fiscal multiplier, AD' curve shifts towards right and new curve being AD". At initial price P', resultant level of income and spending is higher than what it was before the rise in government spending. New equilibrium is obtained at E" in both upper as well as lower portion. Fiscal expansion leads to higher level of income and spending, higher the interest elasticity of demand for money, larger will be marginal propensity to consume (MPC) and smaller will be interest responsiveness of aggregate demand.

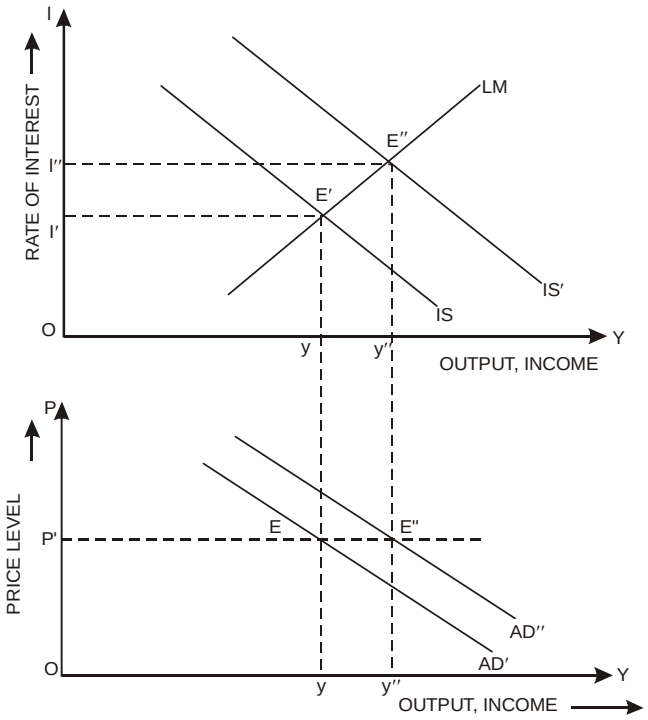


Figure 6.6 Fiscal Expansion

IMPACT OF FISCAL EXPANSION OF AGGREGATE DEMAND SCHEDULE

Fiscal expansion, like rise in government spending shifts IS curve in upper portion of figure 6.6 given above to IS'. At any given price P' and higher interest rate. I". Point E" in lower portion is a point on new aggregate demand schedule AD" corresponds to price P'. As a result, we get uniform effect of increased government spending on equilibrium level of output and spending in lower portion of every price level and therefore depicts that AD' curve shifts to AD" while fiscal policy is expansionary in nature.

6.3.2 MONETARY EXPANSION

Rise in money stock implies, at every level of prices, higher stock of real balances. Thus, interest rate falls, aggregate demand increases and consequently equilibrium level of income and spending also increases. A rise in nominal money stock shifts AD curve upward to the right direction to AD".

Extent of shifting is determined by magnitude of the Monetary policy Multiplier.

If value of monetary policy multiplier is large, shift of AD curve also be large. Monetary policy multiplier will have higher value, provided interest elasticity of demand for money is low and interest elasticity of demand for commodity are high.If on the other hand, LM curve is nearly flat monetary policy is ineffective and AD curve shifts slightly because of monetary expansion.

It is to be remembered that—what determines equilibrium income and spending is only real money stock m/p. Therefore, if rise in normal money supply is matched by a similar rise in price, stock of real money remains unchanged and hence equilibrium income and output also remains same.

IMPACT OF AN INCREASE IN MONEY STOCK ON AGGREGATE DEMAND SCHEDULE

Increase in money stock shifts LM curve to LM" in upper portion of figure 6.7 given below.

Equilibrium level of income increases from Y' to Y" at initial price level P'. As a result, AD curve moves out towards right to AD" with point E" in lower portion corresponding to E" in upper portion. AD curve shifts upwards in equivalent proportion as money stock rises. For example, at point K' price level P" is higher than P' in equivalent proportion that money supply has increased. Real balances at K' on AD" and so the same as at E' on AD.

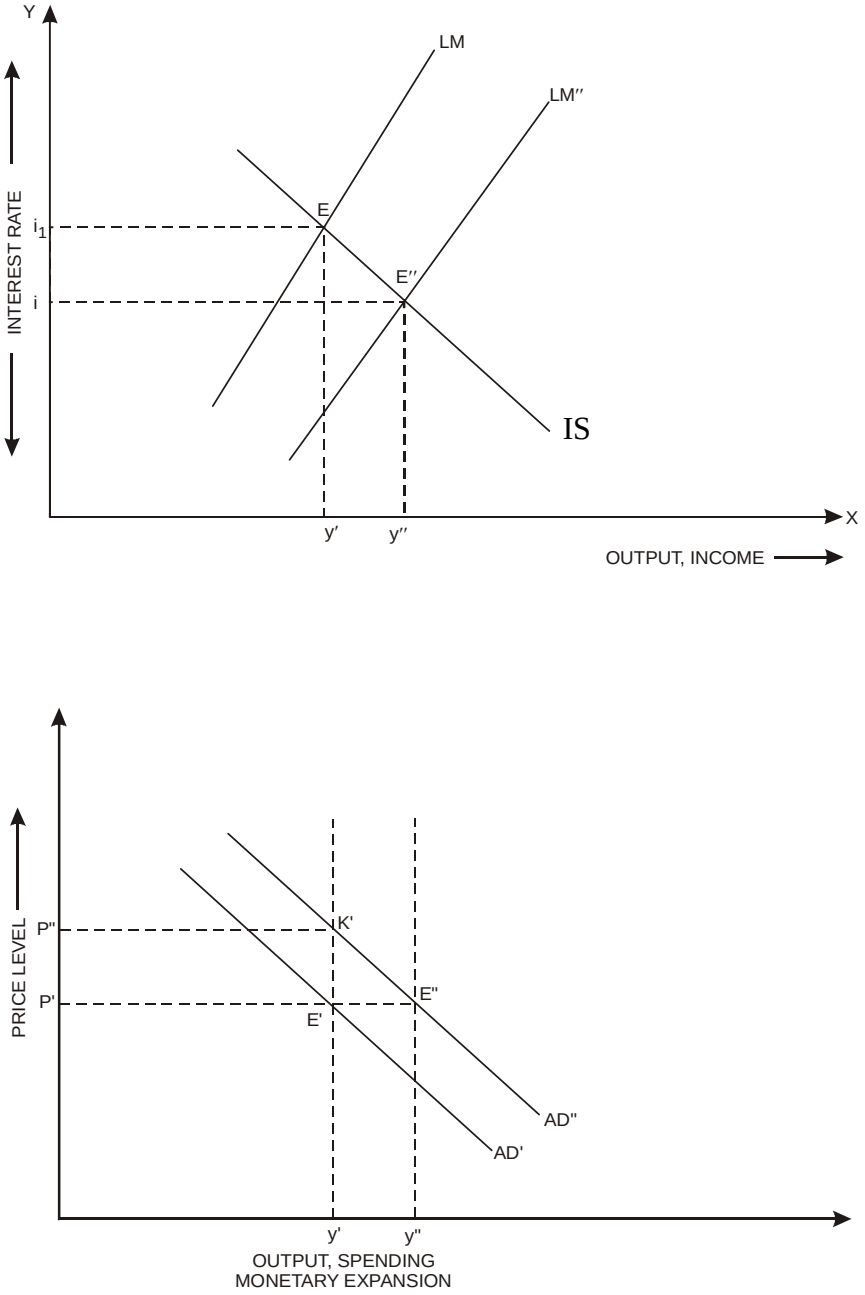

Y
LM
LM″
E
E″
i1
i
INTEREST RATE
IS
X
y′
y″
OUTPUT, INCOME
PRICE LEVEL
P"
P'
K'
E"
E'
AD"
AD'
y'
y"
OUTPUT, SPENDING
MONETARY EXPANSION

Figure 6.7

AGGREGATE SUPPLY SCHEDULE OR CURVE

It is most debated or controversial issue and at the same time it is least settled issue in macro-economics.

Problem grows from contrast between an idealized world where output prevails always at the level of full employment and labour market seems to be adjust slowly to variations in aggregate demand.

Again, it is also required to develop aggregate supply side to analyse effect of supply shocks (e.g., oil price increased in (1973-74) in an economy).

Supply side of an economy is an important part of dynamics of prices (inflation) and output i,e., of the adjustment of prices and output over time while economy is affected by any disturbance.

According to classical model, level of employment is fixed in labour market and full employment tends to exists.

Any deviations from full employment are adjusted by required changes in real wage rates. It is an ideal situation. Even if, in labour market full employment prevails, there may be some amount of unemployment, which is known as frictional unemployment which arises because of people shifts from one job to other jobs. Natural rate of employment is rate of unemployment generating from frictions in labour market even while labour market is in equilibrium.

Classical theory of labour market does not comply with this fact. Fluctuations in rate of unemployment are far greater than can be accounted for in term of frictional unemployment. Again, wage rate adjust slowly with variations in aggregate demand. Stickiness of rate of wages is because of in controvertible fact. It was confirmed by empirical findings which constitute basis of Phillips curve. It explains the concept that rise in aggregate demand first affects output and employment and then only wages and prices.

In classical theory, money wages are flexible and economy will always be in full employment level. Thus, classical aggregate supply curve is perfectly inelastic at full employment level of output as shown in figure 6.3 of this chapter.

6.4 CONSTRUCTION OF AGGREGATE SUPPLY ACCORDING TO ASSUMPTIONS OF RIGIDITY OF MONEY WAGE RATE (KEYNESIAN)

Basic assumption of the Keynesian theory is downward rigidity of money wage rate, which is justified on diverse theoretical as well as in practical grounds.

Keynes considered that money wages may not reduce at same rate in case of every industries. So, workers to protect their individual position relative to other co-workers, Keynes opined that it is in the workers interest to stop reduction in their money wages. Very recently, it has decided that money wages are rigid downward due to pressure of labour union as well as the minimum wage legislation. Labour unions pressures for quick rise in money wages. Likewise, the minimum wage legislation also provide a floor for money wages in many industries. As a result, due to reluctances of workers to take reduction in wages, labour union pressure and minimum wage legislation, money wages may be rigid downward. On contrary, in absence of wage and price controls, money wages are likely to be flexible towards upward direction, as there are few obstacles (like long-term contracts) to rise in money wages.

If money wages are rigid downward and flexible upward, classical aggregate supply curve is altered. Let us now derive new aggregate supply curve, assuming money wages are rigid downward and flexible upward.

In figure 6.8 given below, assumes money wages are rigid downward at W' level and initial price level is P1' and money wage W' real wage is (W/P)', it implies that employment is N_1' and output is Y' corresponds to price level P1', we can plot (y,' p1') in north-east quadrant.

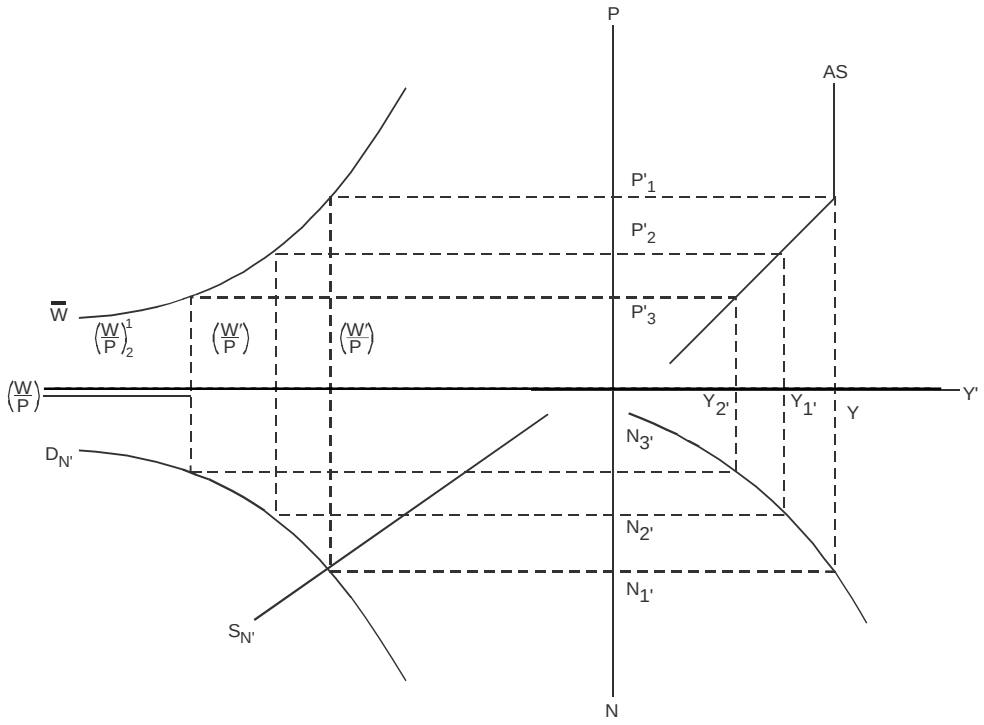


Figure 6.8 Aggregate Supply Curve with rigidity of money wagerate

DERIVATION OF AGGREGATE SUPPLY CURVE WITH MONEY WAGES RIGID DOWNWARD

Now, let us considered price P2' which is less than P1' Price P2' while combines with money wages W' produces real wage (W/P)', and as a result we get excess supply of labour. Earlier, money wages reduced as a result of excess supply of labour. When it is assumed that money wages rigid downward, but they do not decline and real wage (W/P)' exists. As a result employment is N2' and output level is Y1'. As output Y1' corresponds to price level P2', new equilibrium combination of output and price level (y1', P2') can be plotted in north-east quadrant of figure given above.

Likewise, now considered price level P3’ which is less than P2’. While, this level of price is combined with money wage W’ produced real wage (W/P)’3 with an even greater excess supply of labour. Money wage is assumed to be rigid downward, they do not reduce and hence employment is N3’ and output is Y2’. As output y2’ is relevant to price level P3’ new equilibrium combination can be plotted in northeast quadrants of figure(2.1.h) given above.

If other prices below P1’ are considered, points will be located to positively sloped portion of aggregate supply curve in figure given above. As a result of it, money wages rigid downward at W’ level, aggregate supply curve is positively sloped for price levels less than P1’. As money wages are assumed to be flexible upward, aggregate supply curve will be perfectly inelastic at full employment level of output y1’ for price more than P1’.

AGGREGATE SUPPLY——AGGREGATE DEMAND MODEL

For determining equilibrium combination of output and general price level, aggregate demand curve may be superimposed upon aggregate supply curve which is already derived in figure 6.9 given below. If related aggregate demand curve is AD0’,equilibrium combination of output and price level is (y0’, p0’), provided by intersection of aggregate supply curve AS0’ and aggregate demand curve AD0’. Price level P0’ should be equilibrium price. If price level is less than p0’ aggregate demand exceed aggregate supply and price level rises. On contrary, if price is greater than P0’ aggregate supply exceeds aggregate demand and price level decreases.

If aggregate demand is AD0’, money wage is W0’,real wage is (W/P)0 and employment is N0’, at full employment level. As, equilibrium combination of output and price level is (y0’,p0’), similar combination must prevail in IS—LM diagram from which aggregate demand curve AD0’ is derived. Given price level P’0, other equilibrium value in IS—LM diagram may also be determined in identical manner.

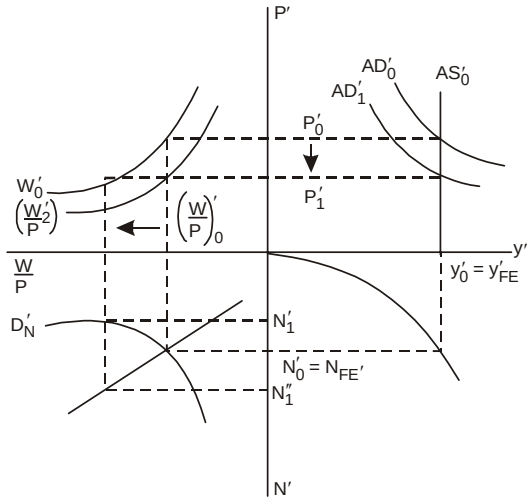


Figure 6.9 Aggregate Supply – Aggregate Demand Model

6.4.1 REDUCTION IN AGGREGATE DEMAND WITH MONEY WAGES FLEXIBLE

When aggregate supply is AS0' and aggregate demand is AD0' full employment prevails. It implies that irrespective of aggregate demand full employment prevails provided money wages and prices are flexible.

For instance, consider, aggregates demand declines to AD1', there is downward trend on price to P1' level. Price level P2 while combines with money wages W0' creates real wage (W/P)1' which generates an excess supply of labour and creates downward pressure on money wages. If they are flexible, declines to W2' where full employment real wage W'/P_0 exists. It signifies that, level of employment is N0' and resulting level of output is y'_0. Full employment is attained but at lower absolute level of money wages and prices.

Therefore, if money wages and prices are flexible, full employment exists. While aggregate demand declines, unemployment may temporarily exists. Money wages and prices adjust so as to restore full employment stage. Classical thinkers generally assumed

wage and price flexibility. They considered that full employment is a normal situation.

While money wages are rigid downward, full employment may not prevails. To explain, consider money wages are rigid downward and aggregate supply to AS0' in figure 6.10 given below.

If aggregate demand is AD0' equilibrium combination of output and general price level is (y'_0, P'_0). As y0' shows full employment level of output, full employment prevails. Assume, aggregate demand reduces to AD1'. If prices are flexible, price level reduced to P2', alongwith reduction in aggregate demand. Price level P2' while combines with money wage W0' generates real wage (W/P)2'. Here excess supply of labour occurs and thus money wages declines. But due to resistance of labour union, real wage is prevented from falling and real wages remains as (W/P)'2 and consequently resulting level of employment is N1' and output is Y1'. It is clear from this situation that employment level N1' is less than full employment level N_0' and thus unemployment exists.

Therefore, if money wages are rigid downward, level of aggregate demand is an important factor. If aggregate demand is AD0' or more as in figure given below, full employment will exists otherwise unemployment will prevail.

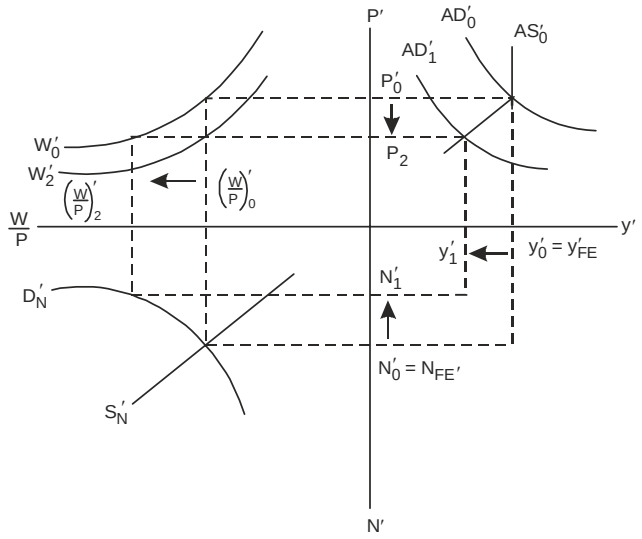
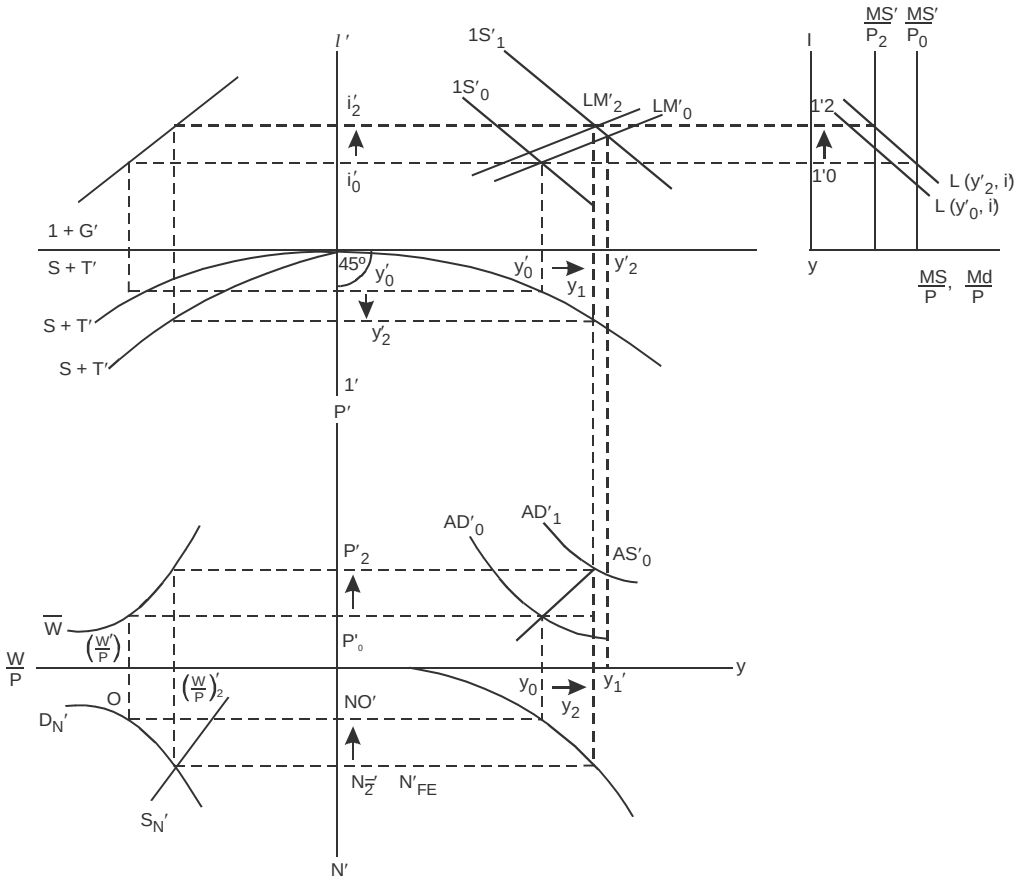


Figure 6.10 Reduction in Aggregate Demand with Money Wages Flexible

6.4.2 REDUCTION IN AGGREGATE DEMAND WITH MONEY WAGES RIGID DOWNWARDS

(UNEMPLOYMENT AND STABILIZATION POLICY)

While money wages rigid downwards, unemployment may prevails because of inadequate aggregates demand. In case, expansionary fiscal and monetary policy or any one of it is adopted to raise aggregate demand, thus, increases income and employment. For instance, if taxes are curtailed, consumption rises and hence rises aggregate demand. Effect of these variations can be determined by above model or figure 6.11 given below.



Reduction in aggregate demand with money wage rigid downward (unemployment and stabilization policy)

Fig 6.11

In the figure 6.11 given above, economy at the beginning was at output y0' and

price p0'. While tax is reduced, S + T' curve shifts to S + T' and IS curve IS0' to IS1'. At price P0' new income level is Y1' proved by intersection of new IS curve IS1' and original LM curve LM0'. Thus, at price level P0' aggregate demand is more than before as y1' is more than y0'. As a result in income-price level quadrant of figure (2.1.k) given above, points (y1',P0) is plotted which lies towards rightward of (y0',P0') and is a point on new aggregate demand curve AD1' is attained by variable price levels.

While aggregate demand rises, new equilibrium combination of income and price level is (y2',P'_2) provided by intersection of new aggregate demand curve AD1' and aggregate supply curve AS0'. As a result, with tax reduction, price increases to P1' real wage declines to (W/P)'1, employment rises to N1' and output rises to Y2'. As an output of tax cut and rise in aggregate demand, output as well as employment rises to full employment levels. If tax reduction becomes smaller, employment and output would have risen but not upto full employment levels. Due to tax cut and alongwith by rise in income, both consumption as well as saving rises.

6.5 TAX REDUCTION IN AGGREGATE SUPPLY- AGGREGATE DEMAND MODEL

From above clarification it is clear that tax cut stimulates the economy during recession. On the other hand, rise in government purchases also stimulates the economy by raising aggregate demand, which raises prices, employment and output. Hence, fiscal policy, use of government spending and taxes to achieve economic objectives which may be utilized to attain full employment.

6.5.1 APPLICATION OF AGGREGATE SUPPLY-AGGREGATE DEMAND MODEL

Aggregate supply—aggregate demand model may be used to other problem also.

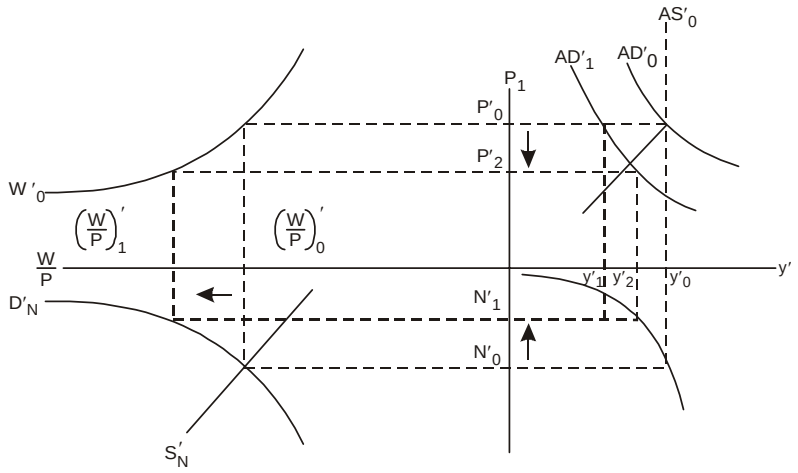


Fig. 6.12

Aggregate Supply Aggregate Model

For instance, due to recession authority decided to reduce investment. Effect of their decision may be analysed by this model. Assume that in the beginning, equilibrium condition of output and price level is (y0',P0') in the figure 6.12 given above. If investment is declined, investment plus government purchases curve shifts towards right and IS curve shifts towards left and income is reduced from Y0' to Y1'. As a result at price P0' in figure given above, level of income in Y1' instead of Y0'. At changing prices, rest of new aggregate demand curve AD1' is obtained.

DECREASE IN INVESTMENT IN AGGREGATE SUPPLY

AGGREGATE DEMAND MODEL

With decrease in investment and aggregate demand, employment output and general price level declines by considering money wages rigid downward. Therefore, decline in investment has an adverse effect on output and employment. Import of reduction in investment may be offset by impact of expansionary monetary and fiscal policy or either one of this policy.

One important application is related to supply of labour. Assume, that in the

beginning money wages are flexible and aggregate supply curve is AS0' in the figure 6.13 given below. While aggregate demand curve is AD0', initial equilibrium combination of output is (Y0',P0'). As Y0' is full employment level of output, thus full employment persists. If supply of labour rise, supply of labour curve SN' shifts to SN''.

As aggregate supply curve is derived from supply of labour curve aggregate supply curve also shifts. If new aggregate supply curve is derived in similar way as in case of new aggregate supply curve AS1, which is found to be perfectly inelastic at new full employment level of output Y1'. New equilibrium combination of output and price level is (Y1',P2') provided by intersection of aggregate demand curve, AD0', and new aggregate supply curve AS1'. Therefore, with aggregate demand remaining constant, rise in aggregate supply results a lower price level P2', a lower money wage W2', lower real wage (W/P)2', greater level of employment N2' and also a greater output level Y1'. While supply of labour increases, money and real wages fall—which in turn provides firms an incentive to hire additional workers. As employment rises, output rises. Due to constant aggregate demand, increase in output declines general price level. 2Greater the increase in supply of labour, more will be rise in output and employment.

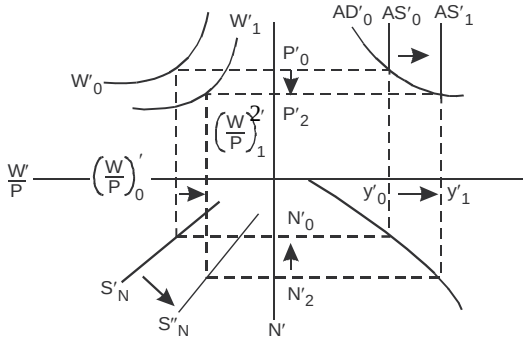


Figure 6.13 Decrease in Investment in aggregate supply Aggregate demand model

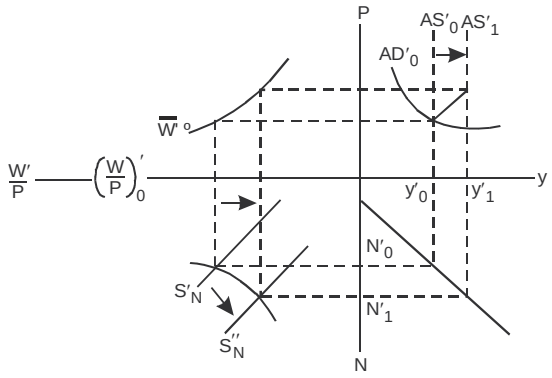


Figure 6.14 Increase in supply of Labour with money wages flexible

6.5.2 INCREASE IN SUPPLY OF LABOUR WITH MONEY WAGES FLEXIBLE

The full employment persists after increase in labour supply. It is shown in the figure 6.14 When there is flexibility in money wages and prices, rise in supply of labour do not cause rise in unemployment. Equilibrium combination of output and price is (Y0', P0'). Sn',Y0' shows full employment level of output. Again, consider that supply of labour rises and thus labour supply curve shifts to Sn''. It is also clear that new aggregate supply curve AS1' coincides with original aggregate supply curve AS0'.

New equilibrium combination of output and price level is (y0', P0') provided by intersection of aggregate demand curve and new aggregate supply curve. This combination is identical with original combination and thus prices, money wages, real wages, employment and output are unaltered. Therefore, inspite of rise in labour supply there will be no rise in employment. As, new full employment level of employment is N1' and employment remains N0' unemployment has been increased.

So, effect of rise in labour supply in different provided money wages are rigid downward. While money wages flexible, money and real wages reduces and thus, firms motivated to hire additional labours. As a result, full employment occurs. While money

wages are rigid downward, it does not reduce due to rise in labour supply. As a result, employers have no incentive to hire additional workers or labours and thus employment and output remains unaltered. Thus rise in labour supply does not necessitate rise in unemployment.

6.5 SUMMARY

1. IS—LM analysis is based upon the assumption that level of price remains fixed. It implies whatever quantity of commodities are demanded will be supplied at prevailing or existing prices.
2. Aggregate supply and aggregate demand curve analysis is used for analyzing joint determination of price level and level of output.
3. Aggregate supply curve is locus of points showing various combinations of output and level of price such that firms are ready to supply given quantity of output at given price level.
4. In extreme Keynesian case—liquidity trap- income elasticity of demand equal to infinity.
5. Fiscal expansion leads to higher level of income and spending, higher the interest elasticity of demand for money, larger marginal propensity to consume and smaller interest response of aggregate demand.
6. Rise in money stock means at every price level, higher stock of real balances. Thus, rate of interest falls, aggregate demand is increased and consequently equilibrium level of income and spending is increased. Rise in nominal money stocks shifts aggregate demand curve upward to the right. Extent of shift is determined by magnitude of monetary policy multiplier.

6.6 QUESTIONS

1. Explain Keynesian and classical supply function.
2. Derive Aggregate demand curve from IS- LM curves.

3. Illustrate graphically construction of aggregate supply under the assumption of rigidity of money wage rate (Keynesian).
4. Illustrate graphically reduction in aggregate demand with money wages rigid downwards in the context of unemployment and stabilization policy.
5. Derive graphically applications of aggregate supply aggregate demand model.

7.1 PRODUCT MARKET EQUILIBRIUM—IS CURVE AND MONEY MARKET EQUILIBRIUM—LM CURVE

Chapter Highlights……

This chapter contains detail analysis of equilibrium condition in both goods market and money market and simultaneously necessary monetary and fiscal policy is adopted or implemented to obtain general equilibrium conditions in a prospective economy.

Chapter Outlines……

7.1. Introduction

7.2. Objectives

7.3. Equilibrium in Goods Market

7.4. Money Market Equilibrium

7.5. General Equilibrium—The goods and money market

7.6. Roles of Monetary and Fiscal Policies

7.1 INTRODUCTION

The Goods Market and Money Market : Links Between Them

Keynes in his analysis of national income explains that national income is determined at the level where aggregate demand (i.e. aggregate expenditure) for consumption and investment goods (C+I) equals aggregate output. This is simply the goods market equiliburium. In the simple Keynesian income determination, investment was assumed to be autonomous. But according to keynes investment to be determined by interest rate along with MEC. Again the interest rate is determined by money market equilibrium, with the help of demand for and supply of money. So any changes in ROI due to changes in the supply of money and demand for money will affect the determination of national income and output in the goods market through changes in the level of investment. In this way, two market i.e. money market and goods market are interlinked.

J. R. Hicks, Hansen, Lerner and Johnson have developed a complete and integrated model based on the keynesian framework, where in the variable such as investment, national income, Rate of interest, demand for and supply of money are interlinked and mutually interdependent and can be represented by the two curves IS and LM Curves. This extended keynesian model is therefore known as IS-LM Model.

Product Market / Goods Market Equilibrium : The Derivation of the IC Curve

The Product Market is said to be in equilibrium when the aggregate demand is equal to the income (i.e. AD=Y). The aggregate demand is composed of C and I where C is a direct function of Income [i.e. C= f(y)] or C is directly related to income and the levelof investment is an inverse function of ROI [i.e. I=f(r)]. The businessmen therefore undertake greater investment at lower level of ROI and vice-versa.

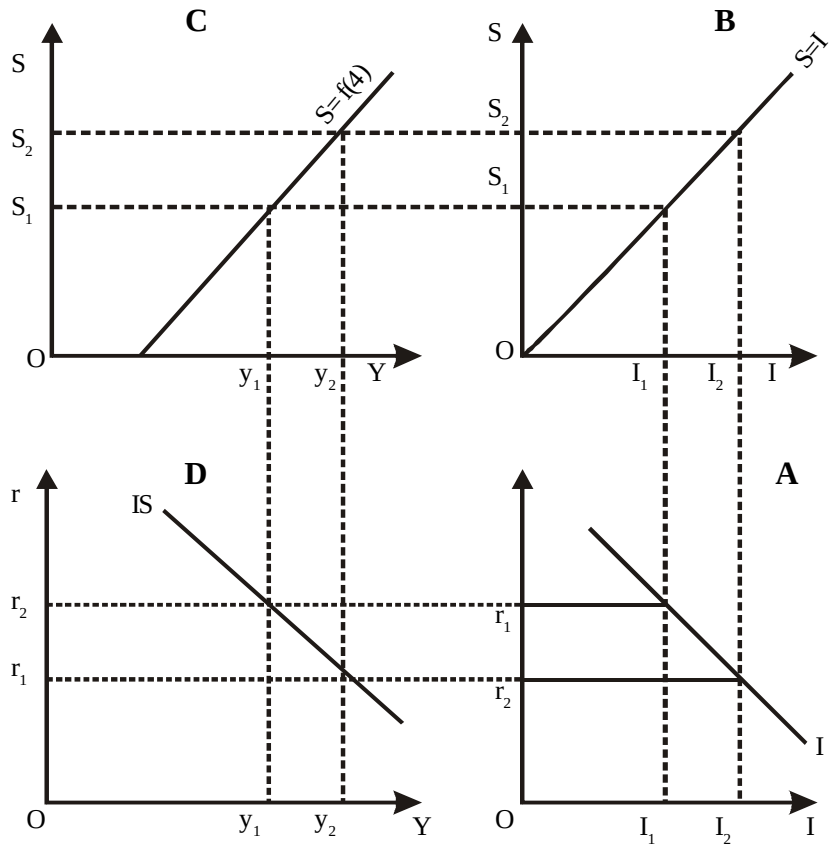


Fig. Derivation of IS - Curve

SPannel (A) of the fig. 1 gives the relationship between I and ROI which is an inverse one. The straight line of 45^0 in Pannel (B) shows the saving and Investment equality. Pancel (C) shows that saving varies directly with income. The IS curve is Pannel (D) is derived from other part of the fig.

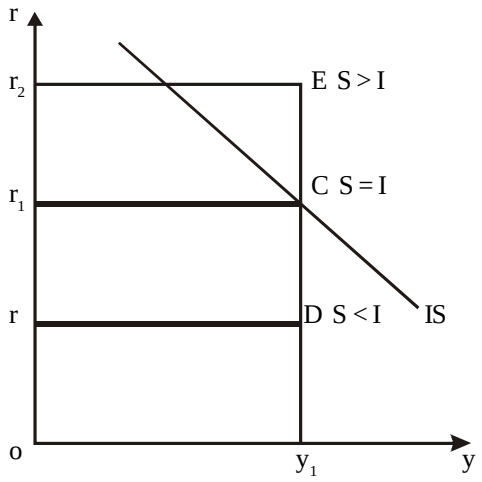
Let us assume the ROI is r_1 in Pannel (A), indicating that investment is I_1, In Pannel (B), to satisfies saving and Investment equality, Saving 'S_1' should be equal to I_1. In Pannel (C), 'S_1' amount of saving arises out of Y_1 amount of income. Bringing

Y_1 amount of income from Pannel (C) and r_1 amount of ROI from Pannel (A), gives one combination of ROI and level of income at which S=I or Y= C + I.

Similarly, if we assume a lower ROI 'r_2', there will be an investment of I_2which yield income level Y_2 in pannel (C), therefore income y_2 and Interest rate 'r_2' is another combination of y and r, where Saving = Investment or y= C + I.

This shows a negative relationship between y and r in Pannel (D) of the fig. Threfore, we can say that IS curve shows the combination of y and r at which S = I or Y = C + I or goods market equilibrium. Therefore, IS curve is the locus of the combination of y are r where goods market is in equilibrium.

Disequilibrium :

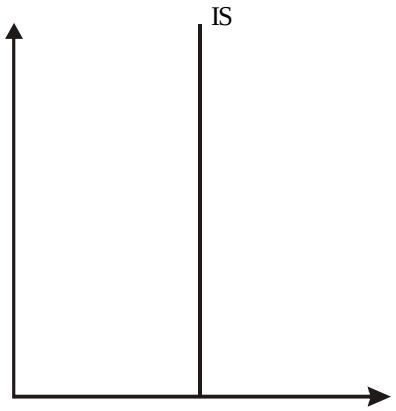


The IS-Curve represents all the various combinatin of interest (i) and income (Y), investment (I) and Saving (S) that keep the product market in equilibrium. The product market will nto be in equilibrium at any point away from the IS Curve. The reason is, all other proints away from IS Curve violate the equilibrium condition (I=S) of the product market. For example, at any point to the right of the IS Curve i.e. at pt.E, S > I, and at any point to the left of the IS Curve, i.e. at pt. D, S<1. So the product market equilibrium has to be only on the IS Curve.

Slope of IS-Curve

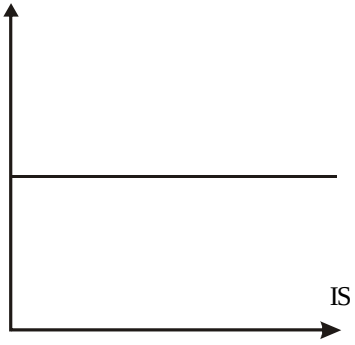
The IS Curve may be flat or steep depend upon the elasticity of investment, demand Curve and the size of multiplier in the economy. When the investment is very sensitive or more elastic to the ROI, the IS Curve will become a flat Curve. On the other hand, if the investment is not very sensitive to ROI, the IS Curve will be a steeper one. When the level of investment is inelastic to R i.e. (When I is insensitive to R), the IS Curve is vertical.

When Investment is perfectly elastic w.r.t. ROI, there will be a flat IS Curve i.e.



horizontal.

The Shape of IS Curve also depend upon the size of the multiplier. If the size of



multipler is large, income s more sensitive to changes in interest rate and IS Curve will become a flatter Curve and vice versa.

Shif in IS Curve

The IS Curve will shift due to change in autonomous investment. By autonomous investment, we mean investment expenditure, govt. expenditure and consumption expenditure which does not depend on the level of income or ROI.

Mathematical Derivation

At equilibrium,

$$Y = E = C + I + G$$

where Y = Output / Income

E = Aggregate expenditure $(C + I + G)$

We know,

$$C = a + bY_d$$

$$I = \bar{I} - i_1 r$$

$$Yd = Y - T$$

$$G = \bar{G}$$

$$\therefore \quad y = a + byd + \bar{I} - i_1 r + \bar{G}$$

$$\Rightarrow \quad y = a + b(y - T) + \bar{I} - i_1 r + \bar{G}$$

$$\Rightarrow \quad y = a + by - bT + \bar{I} - i_1 r + \bar{G}$$

$$\Rightarrow \quad y - by = a - bT + \bar{I} + \bar{G} - i_1 r$$

$$\Rightarrow \quad y(1 - b) = (a - bT + \bar{I} + \bar{G}) - i_1 r$$

$$\Rightarrow \quad y = \frac{1}{1 - b}(a - bT + \bar{I} + \bar{G}) - \frac{i_1}{1 - b} r$$

$$\Rightarrow \quad y = \frac{1}{1 - b}(\bar{A}) - \frac{i_1}{1 - b} r$$

Where $\bar{A} = a - bT + \bar{I} + \bar{G}$

$$\Delta y = \frac{- i_1}{1 - b} \Delta r$$

$$\frac{\Delta r}{\Delta y} = \frac{- (1 - b)}{i_1}$$

Where i_1 = MPI

Money Market Equilibrium : Derivation of LM Curve

The money market is said to be in equilibrium when the demand for money is equal to the supply of money, denoting 'L' or 'M^d' for money demand and 'M^s' for money supply. Equilibrium will occur when Md = Ms. The demand for money (M^d) consists of two types of demand, i.e. (i) Transaction demand (M_1) [includes Precautionary demand also]. (ii) Speculative demand (M_2)

The transaction demand for moey is positively related to income level. [It means al income increases, transaction demand for money also increases].

$$\mathbf{M_1 = f(Y) = KY}$$

Where, K = proportion of money the individual hold for transaction motive.

The speculative demand for money is inversely related to interest rate i.e.

$$M_2 = f(r) = -br$$

$$\therefore \quad M^d = M_1 + M_2$$

$$= Ky - br$$

Where b = degree of responsiveness of speculative demand.

Money Supply :

Money supply is determined by monetary authority or the Central bank fo the Country. At a given point of time, the supply of moey is constant. For money market to be in equilibrium.

$$M^d = M^S \quad \text{or}$$

$$M_1 + M_2 = M^S$$

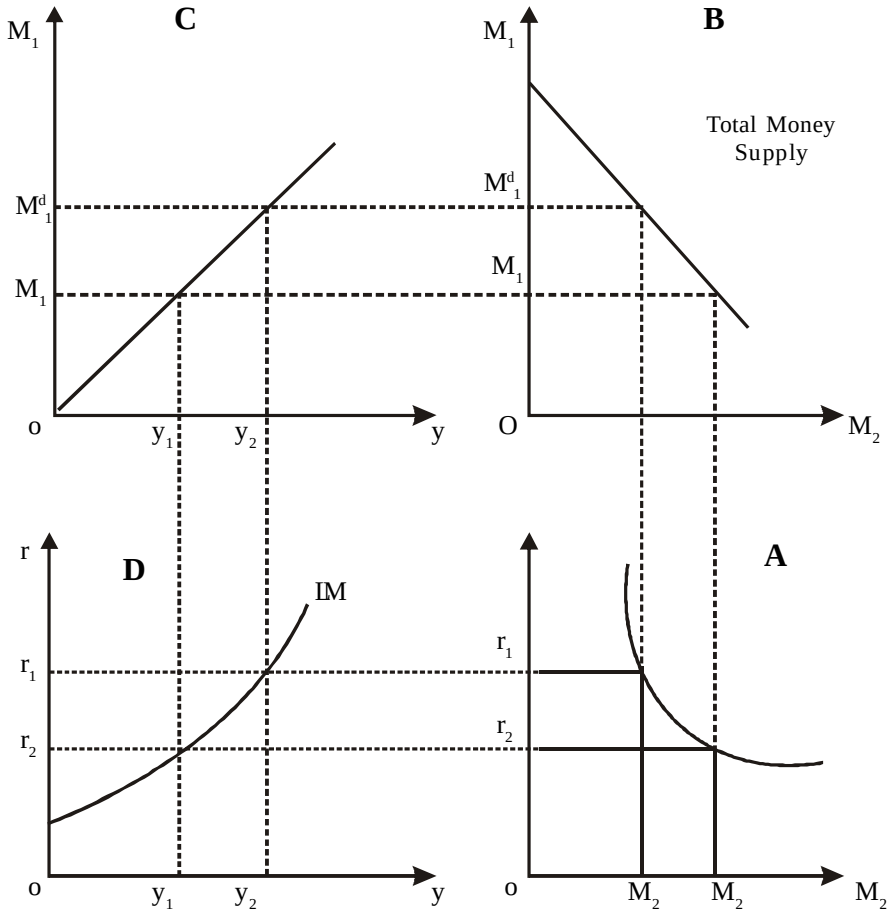


Fig. 2 Derivation of LM Curve

In Panel (A), we shows speculative demand is an inverse function of ROI. In Panel (B), we show total money supply as ($M_1 + M_2$) all of which must be held in either transaction or speculative balances. The point along the line indicate all the possible ways in which the given money supply must be divided between M_1 and M_2.

In Pannel C, we show the amount of money required for transaction purpose at each level of income. There is a direct relationship between the level of income and transaction demand for money. The LM Curve in Pannel (D) is derived from other parts of the fig. Let us assume in Pannel (A), the ROI is r_1, at which public

want to hold M_2 amount of speculative demand. In Pannel B, substracting M_2 of speculative demand from balance, we get M^d_1 of transaction demand at income level Y_2. Finally, bringing together income of Y_2 from Pannel C and ROI 'r_1' from Pannel A, we get one combination of y and r at which $M^d = M^s$ knwon as Money Market.

equilibrium :

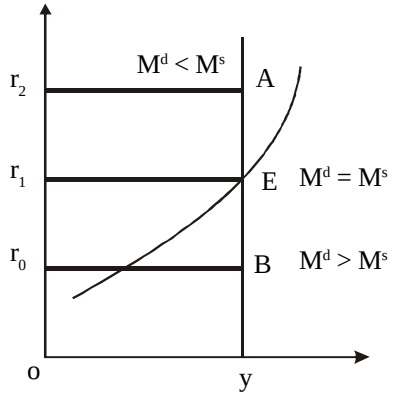
If we assume a lower ROI amount of r_2 in Pannel A indicating the speculative balances of M_2. In Pannel B, Corresponding to M^1_2 speculative demand, the transaction demand is M_1 and corresponding to M_1 transaction demand the income level is y_1, in Pannel (C).

Finally bringing together y_1 from Pannel C and r_2 ROI from Pannel A, we get another combination of y & r, at which there is money market equilibrium. If we join all the combination of y & r at which $M^d = M^s$, then we get the LM Curve.

Thus, LM Curve is locus of Combination of y & r at which money market are in quilibrium

Disequilibrium :-

The LM Curve represents all the various combinations of income and rate of



interest. The money Market will not be in equilibrium at any point away from LM Curve. The reason is, all other ponts violete the equilibrium condition ($M^d = M^s$) of money market. For eg. at any point to the left of LM Curve i.e. at pt. A, $M^d < M^s$, and at any point to the left of LM Curve, i.e. at pt. B, $M^d > M^s$. So the money market equilibrium has to be only on LM Curve.

Slope of LM Curve :-

The LM Curve slopes upward from Left to right LM Curve represent money market equilibrium i.e.

$M^d = M^s \therefore M_1 + M_2 = M^s$.

The slope of LM Curve depends upon two factors :

i) Responsiveness of D^M to change is income.

ii) Responsiveness of demand for money to change in interest rate.

The greater the extent to which demand for money for transaction motive increase with the increase in income, the greater decline in the money supply available for speculative motive, the higher will be the rise in the ROI & the LM Curve is steeper.

The lower the elasticity of liquidity preference for speculative motive, with respect to change in interest rate, the steeper will be the LM Curve.

Shift in LM Curve :

The Shift in LM Curve occurs due to two factors :-

i) The LM Curve is drawn by keeping the stock of money supply as fixed. The LM Curve will shift to the right when the stock of money supply is increased and vice-versa.

ii) A change in liquidity preference for a given level of income.

Mathematical Derivation

We know that

$M^s = M^d$ ..... (1) [For money Market equilibirium]

$\therefore$ $Md = M_1 + M_2$

$= M_1 (y) + M_2 (r)$

$M^d = C_0 + C_1y - C_2r,$ ..... (2)

Where C_1 & $C_2 > 0$

Put the value of eq. 2 in equation 1

$\therefore \quad M^s = M^d$

$\Rightarrow \quad M^s = C_0 + C_1y - C_2r$

$\Rightarrow \quad C_2r = C_0 + C_1y - M^s$

$\Rightarrow \quad r = \frac{C_0}{C_2} + \frac{C_1}{C_2} y - \frac{M^s}{C_2}$ ..... (3)

The equation 3 represents LM Curve.

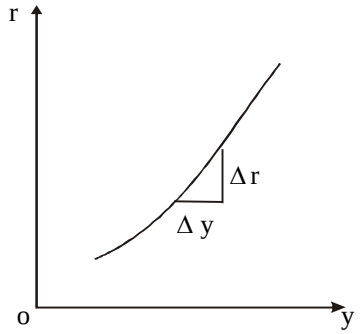
The Slope of LM Curve are

$\frac{\Delta r}{\Delta y}$

Now, From equation (3)

$\Delta r = \frac{C_1}{C_2} y$

$= \frac{\Delta r}{\Delta y} = \frac{C1}{C2} > 0$



Now, the slope chagne, either change in C_1 or C_2, then LM Curve will shift.

IS - LM Equilibrium or Equilibrium in Product and Money Market :

The equilibirum between saving and investment is possible at different combination of y and r indicated by the IS Curve. Similarly the equilibrium between demand for money and supply of money is also possible at different combination of y and r. There will, however be only a possible single combination of y and r at which both product and money market will in equilibrium. This combination is defined by the intersection of IS and LM Curve. It is clear from the fig. IS Curve

shows the equilibrium level of y at different levels of r with the condition that I=S. Similarly LM Curve shows the equilibrium level of y at different levels of r wit the condition that $M^d = M^s$. As shown in figure, the IS and LM Curve intersect at pt. C. Point E gives the unique combination of y and r that satisfies the equilibrium conditions of both the product and the money market. Any deviation from pt. E represent disequilbrium either in one market or both the market. Therefore pt. A, in zone I, B in II, C in III and D in IV represent disequilibrium in both market.

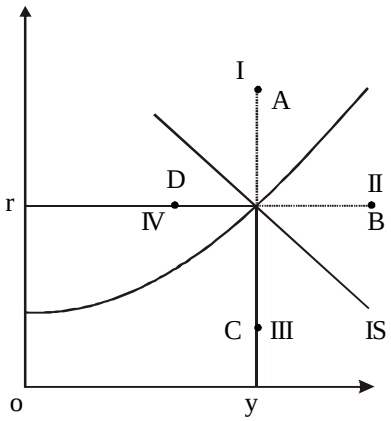


Fig. 3 Equilibrium in Goods and Money Market.

Zone	**Product Market**	**Money Market**
I	S > I, Y > C + I	Md < Ms
II	S > I, Y > C + I	Md > Ms
III	I > S, Y < C + 1	Md > Ms
IV	I > S, Y< C + I	Md < Ms

IS - LM Model with Government Sector or IS - LM Model in 3-Sector economy or IS-LM Model with Government expenditure and Taxation.

In 3-Sector economy along with consumption and investment we have government expenditure in aggregate demand schedule. Once the government spending and taxation have been added to the model, the equilibrium condition will be changed. In a 2 -Sector economy the equilibrium condition is S = I for the goods market or the product market to be in equilbrium and Md = Ms for the money market to be in equilibrium. But in case of 3-Sector economy the aggregate output or income (Y) is must be equal to Aggregate expenditure (E= C + I + G) for the product market to be in equilibrium. So after the addition of G and T, the three-sector product market equilibrium

condition is expressed as follows.

$$C + I + G = C + S + T$$

Since C is common to both sides, the three sector product market equilibrium can also be written as

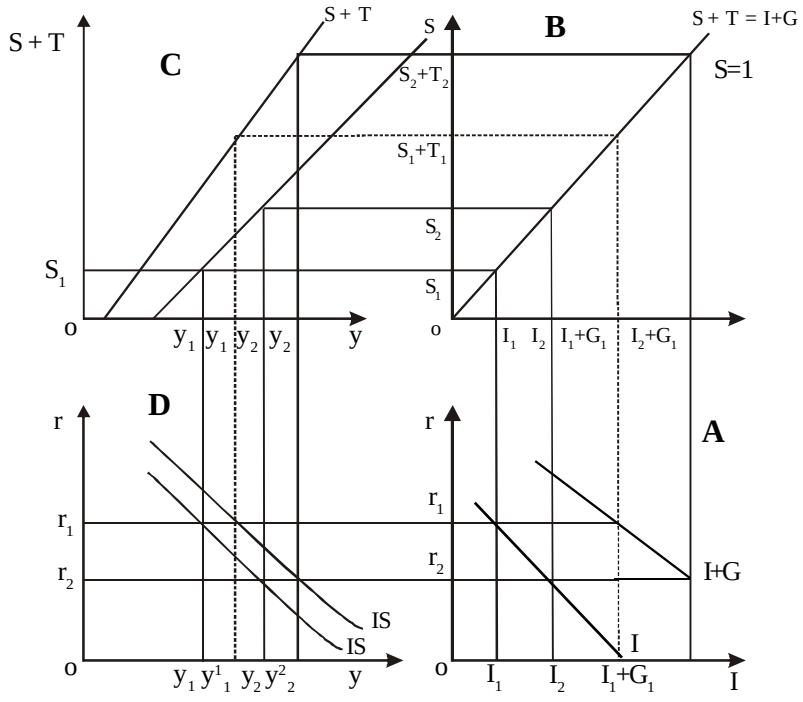
$$\mathbf{I + G = S + T}$$

and the equilibrium condition in the money marekt is

$$M^d = M^s$$

Derivation of IS Schedule and Product Market Gm in 3-Sector IS - LM Model

Let us begin with the two sector model the investment function I in quadrant (A) shows the investment without government expenditure, G. Corresponding to the investment and saving functions (I and S), the two-sector product - market equilibrium is presented by the IS Schedule in quadrant (d).



Let us assume the govt. purchases of goods and services and taxes are independent of the Y level. It means the government expenditure and taxes are automonous in nature.

Suppose there is an autonomous government expenditure which shifts the I curve to I + G in quadrant (A) of the fig. Once we introduce government sector (Govt. expenditure & taxation) the equilibrium condition will be S + T = I + G in the product market which is shown in part B of the fig. Quadrant (C) of the fig. explain how saving (including fixed amount of taxation) is related to income level. Once we introduce the tax, the saving curve is shift leftward. Finally part-D of the fig. represent the IS curve. Let us assume at ROI r_1, investment and government expenditure is $I_1 + G_1$ in part A of the fig. This $I_1 + G_1$ must be equal to $S_1 + T_1$ in part B in the fig. for the product market to be inequilibrium. Corresponding to this level ($S_1 + T_1 = I_1 + G_1$) the income level is y_1, which is shown in part-C of the fig. Now bringing r_1, from part A and y'_1 from part-C we get (r_1, y'_1) combinatino of r and y. Similarly at r_2 ROI, we get (r_2, y'_2) combination of r and y. If we join all the equilibrium point of r and y, we get IS curve IS, which is parallel to IS Curve.

Equilibrium in product market with government expenditure and taxation or The general equilibrium and shift in IS Curve : Having described the process of graphical derivation of the IS Function with govt. expenditure and taxation we explain now the determination of the general equilibrium in 3-Sector model and the effect of shift in IS-Schedule. Let us assume again the money market is not affected by the introduction of government expenditure and taxation and that the LM function remains unaffected Fig. illustrates the general equilibrium based on these assumption. Suppose that the initial IS Schedule is given by IS. The IS_1 and LM schedules intersect at pt. E. Point E, is therefore the pt of general equilibrium in the 3-sector model. This pt. of equilibrium will remain stable until there is a shift is IS and LM Schedules.

Let us now illustrate the shift in the general equation due to shift in the IS Schedule, assuming no shift in the LM Schedule. A shift in the IS Curve (leftward or righward) results either from a change in government expenditure or a change in taxation.

when government. expenditure increases or taxation decreases, the IS curve shifts rightward and vice-versa.

It can be seen in figure that with the shift in the IS curve, the pt. of the general equilibrium shifts too. It is important to note here that an upward shift in IS Schedule, LM curve remainig the same, causes a rise in both the equilibrium levels of the interest rate and the income and vice-versa. For eg., with an upward shift in the IS schedule, the equilibrium ROI increases from r_1 to r_2 and the equilibrium level of income increases from Oy_1 to Oy_2.

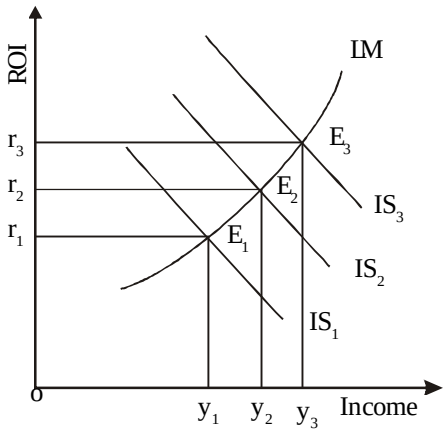
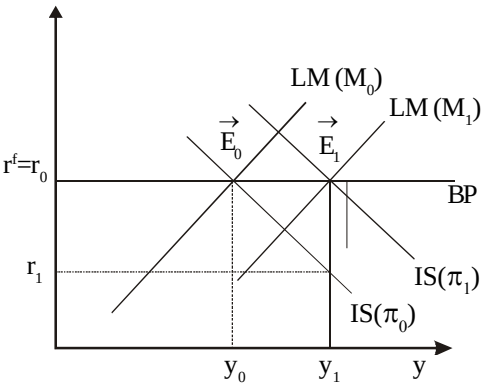


Fig : Shift in IS Curve and General Equilibrium

Policy effects Under Flexible exchange rates :

i) Monetary Policy :

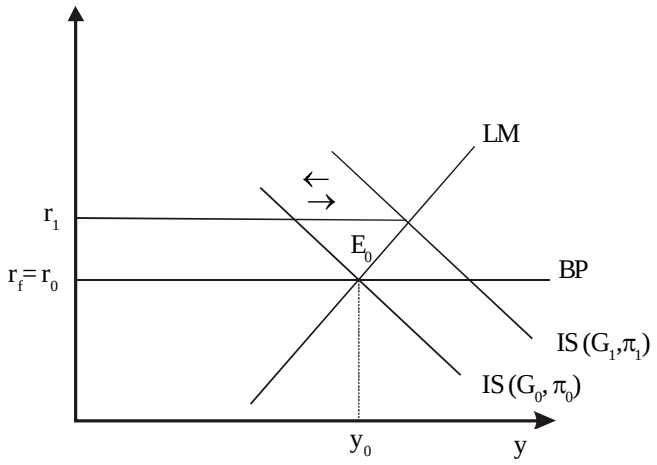
An increase in money supply cause LM schedule to shift from LM (M_0) to LM (M_1). The domestic interest rate fall below the foreign interest rate, so there is massive Capital outflow and excess demand for exchange rate leads to increase in foreign exchange rate. This increases in foreign exchange



exchange rate results in the shift in IS curve from IS (π_0) to IS (π_1) and the new equilibrium point will be restored at point E_1 where the two interest rate are equal. The income level also increase from y_1 to y_2 and the monetary policy is effective in this case.

ii) Fiscal Policy :

An increase in government spending cause the IS schedule to shift from IS (G_0, π_0) to IS (G_1, π_1). As a result, the domestic interest rate rises above the foreign interest rate with a massive capital inflow, which with a flexible exchange rate causes the exchage rate to fall. As a result exports fall and imports riss, which shifts IS schedule to the left i.e. IS (G_0, π_0) = IS (G_1, π_1). The domestic interest rate is requated witht he foreign interest rate when the income level returns to initial level. So fiscal policy is ineffective in this case.



7.4.1 ROLES OF MONETARY FISCAL POLICIES

Monetary policy refers to adoption of suitable policy regarding rate of interest and credit availability. Economists have followed conciliatory strategy to clarify efficiency of monetary and fiscal policies. They have just reconciled extreme approaches of Keynesians as well as monetarists by way of presenting there range analysis.

7.4.2 MONETARY POLICY

Monetary policy is explained in Figure 17.15 where the three-range LM curves LM_1 and LM_2 are shown with three IS curves. The LM_2 curve emerges after an increase in the money supply.

The Keynesian Range

First consider the Keynesian range where the LM curve is perfectly elastic. This is the Keynesian liquidity trap situation in which the LM curve is horizontal from R_1 toA, and the interest rate cannot fall below OR_1. An increase in the money supply shifts the LM curve from LM_1 to LM_2. This shift in the curve has no effect on the rate of interest. Consequently, investment is not affected at all so that the level of income remains unchanged at OY_1. This is because at a very low rate of interest such as OR1, people prefer to keep money in cash rather than in bonds (or securities) in the hope of converting it into bonds when the interest rate rises. Thus under the Keynesian assumption of the liquidity trap, the horizontal portion of the LM curve is not affected by an increase in the money supply. The IS curve intersects the LM curve in the flat range at A with little effect on the interest rate, investment and income. Monetary policy is, therefore, totally ineffective in the Keynesian range.

The Classical or Monetarist Range

Consider the classical range where LM curve is perfectly inelastic. In the classical range, the system is in equilibrium at D where the IS_3 curve intersects the LM1 curve and the interest rate is OR_5 and income level OY_4. Suppose the central bank adopts an expansionary monetary policy whereby it increases the money supply by open market operations. The increase in money supply shifts the LM_1 curve to the right to LM_2

position. As a result, the income level increases from OY_4 to OY_5 and the interest rate falls from OR_5 to OR_4, when the IS_3 curve crosses the LM_2 curve at E.

The increase in the income level and fall in the interest rate as a result of the increase in the money supply is based on the classical assumption that money is primarily a medium of exchange. When the central bank buys securities in the market, the security prices are bid up and the rate of interest falls. The wealth holders then find other assets more attractive than securities. They, therefore, invest the increased cash holdings in new or existing capital investments which, in turn, raise the level of income. But as long as wealth holders possess more money balances than are required for transactions purposes, they will continue to compete for earning assets. Consequently, the interest rate will continue to fall and investment will continue to rise until the excess money balances are absorbed in such transactions. Ultimately, the equilibrium level of income rises by the full amount of the increase in the money supply. Thus the monetary policy is highly effective in the classical range when the economy is at high levels of income and interest rate and utilizes the entire increase in the money supply for transactions purposes thereby raising national ncome by the full increase in the money supply.

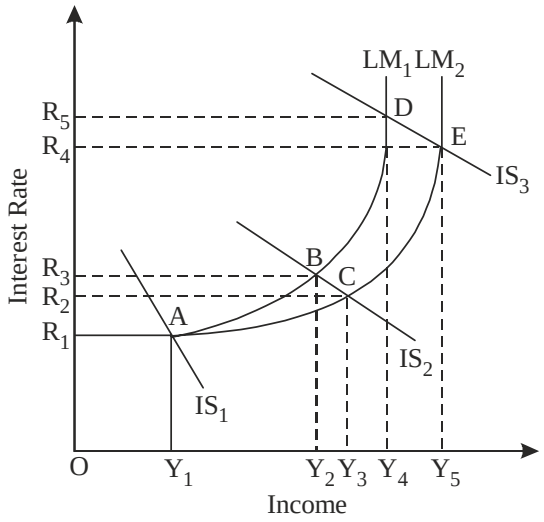


Fig. 15

Fig. 17.15

The Intermediate Range

Now consider the intermediate range when the initial equilibrium is at B where the IS_2 curve intersects the LM_1 curve, and the income level is OY_2 and the interest rate is OR_3. The increase in the money supply shifts the LM_1 curve to LM_2 position. As a result, the new equilibrium is established at point C where the IS_2 curve crosses the LM_2 curve. It shows that with the increase in the money supply, the rate of interest falls from OR_3 to OR_2 and the income level rises from OY_2 to OY_3. In the intermediate range, the increase in income by Y_2Y_3 is less than that I the classical range, ($Y_2Y_3 < Y_4Y_5$). This is because in the classical case the entire increase in the money supply is absorbed for transactions purposes. But in the intermediate case, the increased money supply is partly absorbed for speculative purposes and partly for transactions purposes. That which is held for speculative purposes is not invested by wealth holders and remains with them in the form of idle balances. This has the effect of raising the income level by less than the increase in the money supply. Thus in the intermediate range

FISCAL POLICY

Fiscal policy is explained in Figure 17.16 in which the three range LM curve is taken along with six IS curves that arise after increase in government expenditure in the case of the Keynesian, intermediate and classical ranges.

The Keynesian Range

Consider first the Keynesian range when the initial equilibrium is at A where the IS1 curve intersects the LM curve. Suppose the government expenditure is increased. This brings about new equilibrium at B where the IS_2 curve cuts the LM curve. Consequently, the income level rises from OY_1 to OY_2 with the interest rate unchanged at OR. The increase in income in the Keynesian case is equal to the full multiplier times the increase in government expenditure. This is because with fixed money supply at low levels of interest rate and income, there is lot of idle money with the wealth holders. This can be used to finance higher transactions without raising the interest rate. When the interest rate does not raise the level of investment remains the same as before and the increase in income is equal to the full multiplier times the increase in government expenditure. Thus in the Keynesian range, the fiscal policy is very effective.

The Classical or Monetarist Range

In the classical range, the LM curve is perfectly inelastic and the IS5 curve intersects it at E so that the interest rate is OR3 and the income level is OY_5. When the government expenditure increases for an expansionary fiscal policy, the IS5 curve shifts upward to IS_6. As a result, the IS_6 curve crosses the LM curve at F and the interest rate rises to OR_4 with income remaining unchanged at OY_5. This is because the classical case relates to a fully employed economy where the increase in government expenditure has the effect of raising the interest rate which reduces private investment. Since the increase in government expenditure exactly equals the reduction in the private investment, there is no effect on the level of income which remains constant at OY_5. Thus fiscal policy is not at al effective in the classical range.

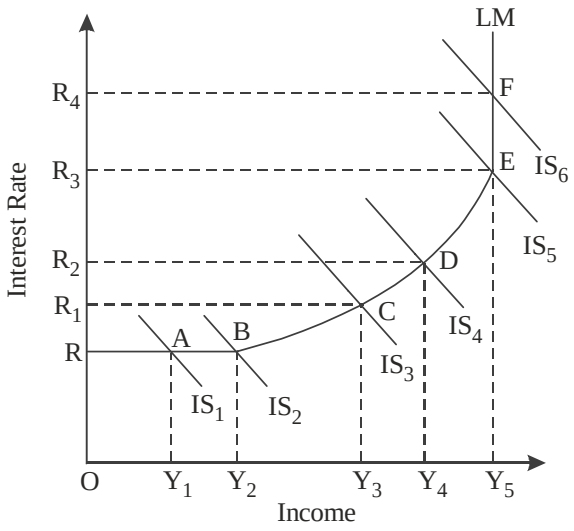


Fig. 17.16

The Intermediate Range

In the intermediate range, the initial equilibrium is at C where the IS_3 curve intersects the LM curve. Here OR_1 is the interest rate with OY_3 income level. With the increase in the government expenditure. The IS_3 curve shifts upward to the right to IS_4 and the new equilibrium between IS_4 and LM curves is established at point D. As a result, the increase in government expenditure raises the income level from OY_3 to OY_4 and the interest rate from OR_1 to OR_2. The increase in both the income level and the interest rate in the intermediate range is due to two reasons. First the increase in income resulting from a rise in government expenditure occurs because additional money balances are available for transactions purposes. Second, given a fixed money supply, a part of available transactions are held as idle balances by wealth holders which raise the interest rate. As a result of the rise in the interest rate, investment falls and the fiscal policy is not so effective as in the Keynesian range. In general, fiscal policy will be more effective the closer equilibrium is to the Keynesian range and less effective the closer equilibrium is to the classi al range.c

7.6 SUMMARY

Equilibrium in goods market requires Y=C + I and S =I.

Money market equilibrium implies equality between supply and demand for money.

IS curve represents all possible combinations of income and rate of interest leads to equilibrium between demand and supply of commodities and LM curve shows equality between demand and supply of money for each and every combination of income and rate of interest. But when goods market and money market intersect each other at one point, we get general equilibrium condition.

7.7 QUESTION

1. How are the IS and LM functions are derived? How do they explain general equilibrium in product and money market?
2. State IS-LM Model of General Equilibrium.**3.** Explain IS-LM model of income determination.
4. Analysis conditions necessary for the economy to be in general equilibrium. Explain through IS-LM diagram.
5. Explain derivation of IS and LM functions. Point out dynamic adjustments of IS-LM models.
6. Discuss attainment of general equilibrium in product and money markets.
7. Explain relative roles of monetary and fiscal policies.

8.1 MONETARY POLICY EFFECT ON DEMAND EQUILIBRIUM

Chapter Highlights-——————————

Monetary policy is concerned with government's attempt to provide a stable economy by regulating the rate of growth of money supply. Now the question is—how does monetary policy work? What is this transmission process by which a change in money supply cause a change in level of income? To provide answer of all these questions it is essential to analyse monetary policy in detail as an instrument of monetary policy.

Chapter Outlines……

Introduction

Monetary policy————————Meaning

Definition

Objectives of Monetary policy

Instrument of Monetary policy

Effectiveness of Monetary policy

Functions or role of Monetary policy

Limitations of Monetary policy in underdeveloped Countries

Monetary policy in India

Monetary policy————Full Employment

8.1 INTRODUCTION

Monetary policy is the oldest macroeconomic policy. During pre-Keynesian days, monetary policy was single instrument in the hands of policy makers for maintaining price stability. Two events during 1930s abruptly changed the role of monetary policy and its objectives.

1. Great depression which causes mass unemployment due to modified objectives of national economic policy targeting to achieve full employment.
2. Keynesian Revolution based on the General Theory of Keynes during 1936 adopted another policy instrument viz, fiscal policy as second objective for the purpose of restoring full employment which is in common words we call it economic stability.
3. In the word of Harry Johnson, monetary policy is an instrument in the hands of central Bank to control over supply of money for achieving objectives of economic policy like attaining full employment, price stability as well as rapid economic growth.

Further, there are several alternative open economy macroeconomic frameworks. The one used here is the Mundell-Fleming model, often called the workhorse model for open economy macroeconomics. The model is set out in section 1.1 given bleow. Then in section 1.2 and 1.3, we consider the effects of changes in policy and other variables under two different assumptions about the mobility of capital between countries.

8.2 Objectives of the Monetary Policy

The scope and objectives of monetary policy have expanded after Keynesian Revolution of 1930s. Before 1930 the simple objective of monetary policy was to secure price stability. After great depression of 1929, restoration of full employment or economic stability became prime objective of monetary policy during post-war years. Monetary policy aimed at attaining some other objectives like decentralization of industries, encouragement to agriculture and to small-scale industries and removal of the poorest section of the community. Monetary instruments came to be gradually evolved to attain these objectives.

8.3 INSTRUMENT OF MONETARY POLICY

In order to implement various objectives of monetary policy it has certain instruments and tools which may be classified into general or quantitative and selective or qualitative instruments. Let us discuss systematically various ways by which monetary policy operates as an instrument in the process of economic development.

1. Financial Institutions

Monetary policy can be used as an instrument of economic development, provided necessary currency and credit systems are available sufficiently in an underdeveloped country. There is major requirement of setting up banks and financial institutions to enhance credit facilities and diversion of saving towards productive activities.

Now-a-days, the central Bank is central authority of monetary and fiscal framework in every country of this world. Central Bank serves as fiscal agent of the government and therefore regulates public debts, issue government bonds and securities and sells them to people through Commercial Banks of that country. Additionally Central Bank should provide short-term, medium-term and long term credit at low rates of interest to peasants directly or indirectly through co-operative credit societies. As a custodian of money market, Central Bank has enormous power to control operations of commercial banks for broad interests of economic development.

2. Policy of suitable interest rate

According to the opinion of certain economists underdeveloped nation should adopt the policy of high rate of interest—which will limit allocation of scare capital only for most productive applications and will avoid wasteful unproductive utilisation of resources. It will serve as effective anti-inflationary technique to restrict undesirable investment and stimulate saving potentialities. For encouraging investment in agriculture and industry especially in private sector policy of low interest rate is mandatory. Likewise, policy of low rate of interest is also necessitate to boost public investment. Cheap money policy or reduced interest rates restrict cost of servicing public debt low and hence helpful in financing economic development.

3. Adjustment between demand for and supply of money

Monetary policy can be used as an instrument in bringing about a proper adjustment between demand for and supply of money. Shortage of money supply causes deflation whereas excess of money supply causes inflation, but both retard economic development. If Central Bank desires to change money supply, it should operate on bank reserve by way of open market purchase or sale of deposits. While, inflation prevails and there is a requirement to control it, Central Bank sells securities and reduces disposable income in the hands of public or community. But during deflation, Central Bank purchase securities, lends more and hence investment, output, income, employment, demand increases and reduction in price level may be prevented. Alternatively, in underdeveloped nation, supply of money should be managed in a manner so that level of price is to be checked from increasing alarmingly without affected investment and output.

4. Cost of Money

It implies Bank Rate at which Central Bank rediscounts first class bills of exchange and government securities held by commercial Banks. While inflation prevails Central Bank increases Bank rates and thus borrowing from Central Bank becomes costly. Consequently, Commercial Banks increases lending rates to business community and hence borrowers borrow small amount from Commercial Bank. This is a situation of contraction of credit and prices are prevented from further increase.

5. Availability of Credit and Credit Control

Total availability of credit depends upon bank advances and hire purchase advances. Former is dependent on Central Bank's directive regarding advances and specification of ceiling on advances. Latter is dependent on hire purchase terms.

So far a control of credit in concerned, monetary policy should control supply of credit to influence pattern of investment and production in developing economy. In this context, quantitative as well as qualitative credit control measures are adopted.

(a) Quantitative Credit Control:

Under quantitative credit control- policies like open market operations, bank

rate policy and changing reserve ratio may be implemented. In underdeveloped nations open market operation have limited scope because of reluctance of commercial Banks in government securities and bonds due to comparatively lower rates of interest.

(b) Qualitative Credit Control:

Qualitative credit control technique is more effective than quantitative credit control to influence credit allocation and investment pattern. Qualitative credit control may be operated or exercised by moral persuasion, change in margin requirements, credit rationing, control over consumers credit direct action.

6. Debt Management

Debt Management implies, government borrowing and its regulation and control. Its basic purpose is to decide accurate timing and issuing of government bonds and securities, stabilizing prices and minimizing cost of servicing public debt. It is central Bank the appropriate monetary authority who undertakes buying and selling of government bonds and securities. Managing public debt is an essential function of monetary policy in underdeveloped nations. In the word of Dr. J. D. Sethi, primary objective of debt management is to generate situations where public borrowing can rise every year and that too on large scale without any jolt in this technique.

The MUNDELL-FLEMING MODEL

This model is an extension of the Keynesian IS-LM model which analyses new monetary and fiscal policies in an open economy characterized by absolute exchange rate flexibility as well as perfect capital mobility. The closed economy IS-LM model consists of the following two equation

$$M = L (Y, r) \qquad ...(1.1)$$

$$S(Y) + T = l (r) + G \qquad ...(1.2)$$

Equation (1.1) is the money market equilibrium (LM schedule), and Equation (1.2) is the goods market equilibrium (IS schedule). The model simultaneously determines the nominal interest rate (r) and the level of real income (y), with the aggregate price level held constant. What changes will be required to analyze an open economy ?

When we consider an open economy, the LM schedule will not be changed. Equation (1.1) states that the real money stock, which we assume to be controlled by the domestic policymaker, must in equilibrium equal the real demand for money. It is the nominal stock of money that the policymaker controls, but, with the assumption of a fixed price level, changes in the nominal money stock are changes in the real money stock as well.

The equation for the IS schedule (1.2) is derived from the goods market equilibrium condition for a closed economy:

$$C + S + T \equiv Y = C + I + G \qquad ...(1.3)$$

Which when C is subtracted from both sides reduces to

$$S + T = I + G \qquad ...(1.4)$$

If we add imports (Z) and exports (X) to the model, (1.3) is replaced by 2

$$C + S + T \equiv Y = C + I + G + X - Z \qquad ...(1.5)$$

And the IS equation becomes

$$S + T = 1 + G + X - Z \qquad ...(1.6)$$

Where (X- Z), net exports, is the foreign sectors contribution to aggregate demand. If we bring imports over to the left- hand side and indicate the variables upon which each element in the equation depends, the open economy IS equation can be written as

$$S\ (Y) + T + Z\ (Y, \pi\ ) = I\ (r) + G + X\ (Y^f, \pi) \qquad ...(1.7)$$

Saving and investment are as in the closed economy model. Imports depends positively on income. Import demand also depends negatively on the exchange rate (π). And, we are defining the exchange rate as the price of foreign currency- for example, U. S. cents per German mark. A rise in the exchange rate will, therefore, make foreign goods more expensive and cause imports to fall. U. S. exports are other countries' imports and thus depend positively on foreign income and the exchange rate. The latter

relationship follows because a rise in the exchange rate lowers the cost of dollars measured in terms of the foreign currency and makes U.S. goods cheaper to foreign residents.

IS schedule can be shown to be downward-sloping, as drawn in the following figure (8.1). High values of the interest rate will result in low levels of investment. To satisfy Equation (1.7), at such high levels of the interest rate, income must be low so that the levels of imports and saving will be low. Alternatively, at low levels of the interest rate, which result in high levels of investment demand, for goods market equilibrium saving and imports must be high; therefore, Y must be high.

In constructing the open economy IS schedule in figure (8.1) we hold four variables constant: the levels of taxes and government spending, foreign income, and the exchange rate. These are the variables that shift the schedule. Expansionary shocks, such as an increase in government spending, a cut in taxes, an increase in foreign income, or a rise in the exchange rate, shift the schedule to the right. A rise in foreign income is expansionary because it increases demand for our exports. A rise in the exchange rate is expansionary both because it increases exports and because it reduces import demand for a given level of income; it shifts demand from foreign to domestic products. An autonomous fall in imports demand is expansionary for the same reason. Changes in the opposite direction in these variables shift the IS schedule to the left.

In addition to the IS and LM schedules, our open economy model will contain a balance of payments equilibrium schedule, the BP schedule in figure (8.1). This schedule plots all the interest rate- income combinations that result in balance of payments equilibrium at a given exchange rate. Balance of payments equilibrium means that the official reserve transaction balance is zero. The equation for the BP schedule can be written as

$$X\ (Yf,\ \pi) - Z\ (Y,\ \pi) + F\ (r - rf) = 0 \qquad ...(1.8)$$

The first two terms in equation (1.8) constitute the trade balance (net exports). The third item (F) is the net capital inflow (the surplus or deficit in the capital account in the balance of payments). The net capital inflow depends positively on the domestic interest rate minus the foreign interest rate (r -rf). A rise in the U. S. interest rate relative to the foreign interest rate leads to an increase in the demand for U .S. financial assets (e.g., bonds) at the expense of foreign assets; the net capital inflow increases. A rise in the foreign interest rate has the opposite effect. The foreign interest rate is assumed to be exogenous.

The BP schedule is positively sloped, as shown in figure (8.1). As the level of income rises, imports demand increases whereas export demand does not. To maintain balance of payments equilibrium the capital inflow must increase, which will happen if the interest rate is higher.

Before we go on to consider the effects of various policy changes, there is one point to note about the BP schedule. The BP schedule will be upward-sloping for the case of what is called imperfect capital mobility. For this case, domestic and foreign assests (e.g., bonds) are substitutes, but they are not perfect ones. If domestic and foreign assets were perfect substitutes, the case of perfect mobility, investors would move to equalize interest rates among countries. If one type of asset had a slightly higher interest rate temporarily, investors would switch to that asset until its rate was driven back down to restore equality.

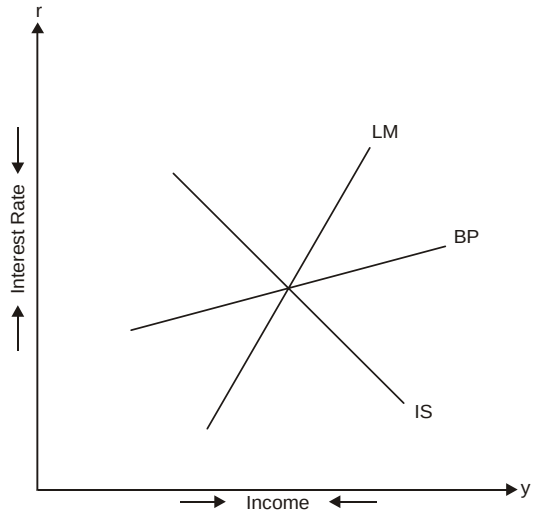


Fig 8.1

(The LM schedule shows combinaiton of r and y that are points of equilibrium for the money market, and the IS schudule shows combination of r and y that clear the goods market. The BP Schedule shows the combinaitons of r and y that will equate supply and demand in the foreign exchange rate.

THE CASE OF IMPERFECT CAPITAL MOBILITY

In this portion we consider monetary and fiscal policy under the assumption of imperfect capital mobility. We begins with the case of a system of fixed exchange rates.

Policy Under Fixed Exchange Rates

Monetary Policy

Conisder the effects of an expansionay monetary policy action, an increase in the money stock from M_0 to M_1, as illustrated in figure (8.2) given below. The increase in the money stock shifts the LM Schedule to the right, from LM (M_0) to LM (M_1). The equilibrium point shifts from E_0 to E_1 with a fall in the interest rate from r_0 to r_1 and an increase in income from Y_0 to Y_1. What has happened to the balance of payments? First, note that all points below the BP schedule are points of balance of payments deficit, whereas all points above the schedule are points of surplus. As we move from an equilibrium point on the BP schedule to points below the schedule, for example, we are increasing income or reducing the interest rate, or both, and therefore we are causing a deficit in the balance of payments. Consequently, as we move from point E_0 to point E_1 after the increase in the money stock, the balance of payments moves into deficit.

It is the fact that, beginning from a point of equilibrium, an expansionary monetary policy leads to a balance of payments deficit that raises potential conflicts between domestic policy goals and external balances. If at point E_0 in figure (8.2) the level of income, Y_0, is low relative to full employment, then the move to point E_1 and income level Y_1 may well be preferable on domestic grounds. But at point E_1 there will be a deficit in the balance of payments, and with limited foreign exchange reserves, such a situation cannot be maintained indefinitely.

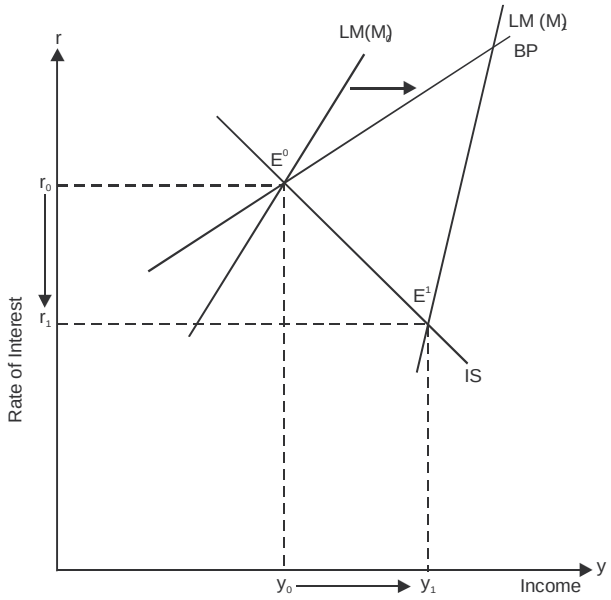


Fig. 8.2

Figure (Monetary Policy with fixed exchange rate)

An increase in the quantity of money will shift the LM schedule from LM (Mo) to LM (M_1). The equilibrium point shifts from E0 to E1. The rate of interest falls and the level of income rises. The new equilibrium point is below the BP schedule, indicating that the expansionary monetary policy has caused a deficit in the balance of payments.

Fiscal Policy

The effects of an increase in government spending from G_0 to G_1 for the fixed exchange rates case are illustrated in figure (8.3) given below. The increase in government spending shifts the IS schedule to the right from IS (G_0) to IS (G_1), moving the equilibrium point from E_0 to E_1 in the graph. Income rises from Y to Y_1 and the interest rate rises from r_0 to r_1. As shown in figure (8.3) given below, at the new equilibrium point we are above the BP schedule, there is a balance of payments surplus. We get this result because in figure (8.3) the BP schedule is flatter than the LM schedule. If alternately, the BP schedule were steeper than the LM schedule, an expansionary fiscal policy action would lead to a balance of payments deficit, as can be seen in figure (8.4).

The BP schedule will be steeper the less responsive capital flows are to the rate of interest. The smaller the increase in the capital inflow for a given increase in the interest rate (given the fixed value of (rf) the larger will be the rise in the interest rate required to maintain balance of payments equilibrium as we go to a higher income (and hence import level :

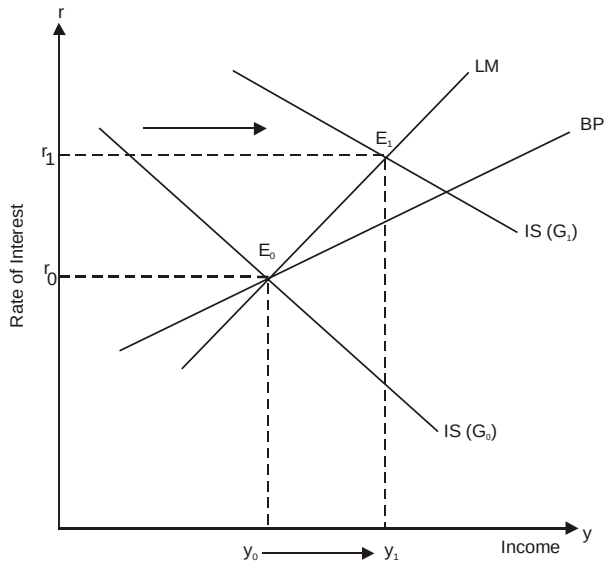


Fig. 8.3

Fiscal policy with The fixed Exchange Rate.

An increase in government spending shifts the IS schedule from IS (G_0) to IS (G_1). The equilibrum points shifts from E_0 to E_1. The level of income and the interest rate rises. The new equilibrium point is above BP schedule, indicating that, with a fixed exchange rate for the case in which BP schedule is flatter than LM schedule the expansionary fiscal policy results in a surplus in the Balance of Payments

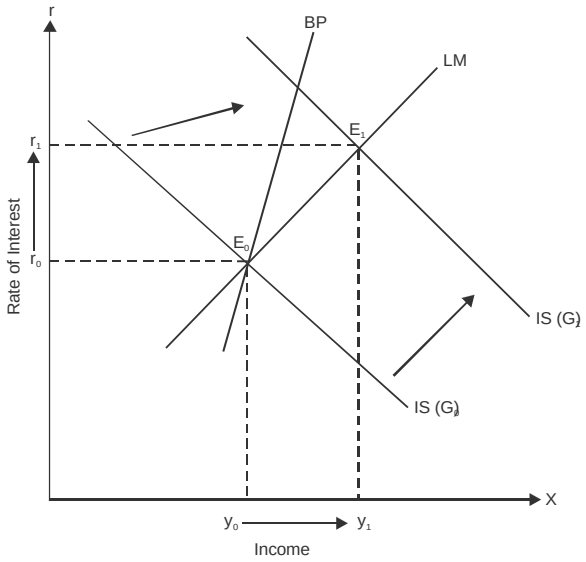


Fig. 8.4

Fiscal policy with a Fixed Exchange Rate : An alternative outcome

(As in figure before this, an increase in government spending shifts the IS schedule to the right, increasing both income and the rate of interest. In this case, where the BP schedule is steeper than the LM schedule, the new equilibrium point (E_1) is below the BP schedule. The expansionary fiscal policy results in a balance of payment deficit.)

That is the steeper will be the BP schedule. The BP schedule will also be steeper the larger marginal propensity to import. With a higher marginal propensity to import, a given increase income will produce a larger increase in imports. For equilibrium in the balance of payments, a larger compensatry increase in the capital inflow and consequently a larger rise in the interest rate will be required.

The expansionary fiscal policy action depicted in figures (8.3) and (8.4) causes income to increase. Increased income leads to a deterioration in the trade balance and causes the interest rate to rise resulting in an improvement in the capital account. The foregoing discussion indicates that the steeper the BP schedules, the larger the unfavorable effect (the effect on imports and the trade balance) and the smaller the favorable effect (on capital flows). Therefore, the steeper the BP schedule, the more likely it becomes that an expasionary fiscal policy action wll lead to a balance of payments deficit.

Finally, notice that is the slope of the BP schedule relative to the slope of the LM schedule that determines whether an expansionary fiscal policy action will result in a balance of payments surplus or deficit. Given the slope of the BP schedule, the steeper the LM schedule clearly the more likely it is that the LM schedule will be steeper than the BP schedule the condition for a surplus to result from an expansionary fiscal policy acton. This result follows because, ceteris paribus, the steeper the LM schedule, the larger the increase in the interest rate (which produce the favorable capital inflow) and the smaller the increase in income (which produce the unfavorable effect on the trade balance).

Policy Under flexible Exchange Rates

Monetary Policy

Let us turn where exchange rate is completely flexibly, the effects of this expansionary monetary policy action in the flexible exchange rate case are as illustrated in the figure (8.5) given below :

The initial effect of the increase in the money stock – the effect before an adjustment in the exchange rate– is to move the economy from point E_0 to point E_1. The interest rate falls from r_0 to r_1. Income rises from Y_0 to Y_1, and we move to a point below the BP schedule where there is an incipient balance of payments deficit. In a flexible exchange rate system, the exchange rate will rise (from π_0 to π_1) to clear the foreign exchange market. The rise in the exchange rate will, as explained above, shift the BP schedule to the right; in figure (8.5) the schedule shifts from BP (π_0) to BP (π_1). The rise in the exchange rate also causes the IS schedule to shift to the right, from IS (π_0) to IS (π_1) in figure (8.5), the because exports rise and imports fall with an increase in the exchange rate. The new equilibrium is shown at point E_2, with the interest rate r_2 and income at Y_2. The exchange rate adjustment reequilibrates the balance of payments after the expansionary monetary policy and eliminates the potential conflict between internal and external balance.

The rise in income as a result of the expansionary monetary policy action is greater in the flexible rate case than in the fixed rate case. In the fixed exchange rate case, income would rise only to Y1 in figure (8.2) or figure (2). With a flexible exchange

rate, the rise in the exchange rate will further stimulate income by increasing exports and reducing import demand (for a given income level). Monetary policy is therefore a more potent stabilization tool in a flexible exchange rate regme than in a fixed rate regime.

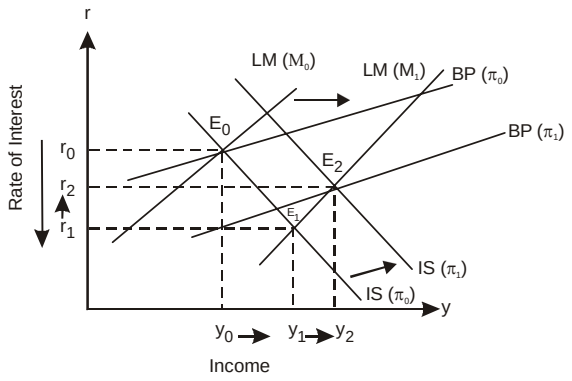


Fig. 8.5

Monetary policy with a flexible Exchange Rate.

(An increase in the money stock shifts LM schedule to the right, moving the equilibrium point from E_0 to E_1. The points E_1 is below the BP schedule, where there is an incipient balance of payments deficit)

Fiscal Policy

The figure (8.6) given below illustrates the effects of an increase in govenment spending from G_0 to G_1 for the flexible exchange rate case. The initial effect—meaning again the effect before the adjustment in the exchange rate– is to shift the IS schedule from IS (G_0, π_0) and move the economy from E_0 to E_1. The interest rate rises (from r0 to r1) and income increases (from Y_0 to Y_1). With the slopes of the BP and LM schedules as drawn in figure (8.6) (with the BP schedule flatter than the LM schedule), an incipient balance of payments surplus results from this expansionary policy action. If this is the case, the exchange rate must fall (from π_0 to π_1) to clear the foreign exchange market. A fall in the exchange rate will shift the BP schedule to the left in Figure (8.6), from BP (π_0) to BP (π_1). The IS schedule will also shift left, from IS (G_1, π_0) to IS (G_1, π_1), because the fall in the exchange rate will lower the level of exports and stimulate import demand. The exchange rate adjustment will work in this case as a

partial offset to the expansionary effect of the fiscal policy action. The new eqilibrium point will be at Y_2, which is above Y_0 but below Y_1, the level that would have resulted in the fixed exchange rate case.

Most economists believe that an expansionary fiscal policy will lower the exchange rate (rise the value of the domestic currency). This belief follows from the view that there is a relatively high degree of international capital mobility, so the BP schedule is relatively flat and therefore likely to be flatter than the LM schedule — the case in Figure (8.6) given below. Notice that this view is consistent with the experience of the United States, where an expansionary fiscal policy in the early 1980s was accompanied by a large rise in the value of the dollar.

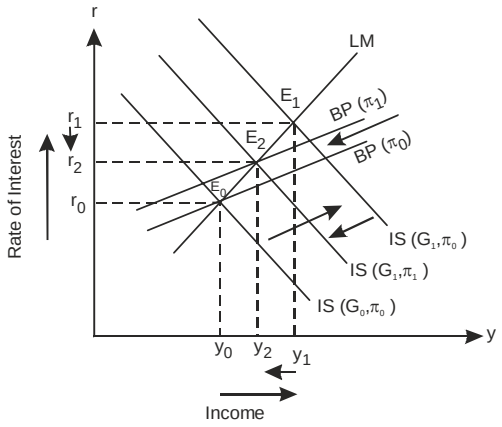


Fig. 8.6

Fiscal policy with a Flexible Exchange Rate

(An increase in government spending shifts the IS schedule to the right from IS (G_0, π_0) to IS (G_1, π_0), moving the equilibrium point from E_0 to E_2. With the BP schedule flatter than the LM schedule, E_1 is above the initial BP schedule, BP(π_0). There is an incipient balance of Payments surplus, and the exchange rate will fall, shifting the BP schedule to the left to BP (π_1). Equilibrium is at E_2 and shifting the IS schedule to the left from IS (G_1, π_0) to IS (G_1, π_1).

THE CASE OF PERFECT CAPITAL MOBILITY

In this section we consider monetary and fiscal policy for the case in which they are perfect subsitutes, the case of perfect capital mobility. This is the case in which capital moves freely between countries, differential risk in assets among countries is not important, and transactions costs are negligible.

In such a world, flows of capital will bring the domestic and foreign interest rates into euqality. If, for example, the interest rate on domestic bonds was 4.1 percent, and the interest rate on foreign bonds was 4.0 percent, in world of perfect capital mobility the domestic country would experience a massive inflow of capital until the domestic rate was driven down to equal the foreign rate.

In the Mundell—Fleming model, the assumption of perfect capital mobility means that the BP equation (1.8) is replaced with the condition

$$r = rf \qquad ...1.9$$

Graphically, the assumption of perfect capital mobility makes the BP schedule horizontal. Because massive capital flows result from any interest-rate differential, balance of payments equilibrium can ocur only when the domestic interest rate is equal to the exogenously given foreign (world) interest rate.

Before going on to look at policy effects in the case or perfect capital mobility, consider the interpretation of the assumption that the domestic interest rate must in equilibriun equal the exogenously given foreign rate. In section () we also assumed that the foreign interests rate was exogenous, but in the case of imperfect capital mobility, the domestic interest rate could deviate from the foreign interest rate. In that case there are two possibilities. One is that we are considering a small country, one so small that is action have no effect on the world economy. An expansionary monetary policy that lowers the domestic interest rate has no effect on world interest rate or income in foreign countries, which was also assumed to be exogeneous. A second possible assumption was that the country is a large country, such as the United States, but we were simply ignoring the effects of its actions on foreign economies and therefore ignoring possible repercussive effects. We were assuming that these were of second order importance.

In the perfect capital mobility case, it is only the first assumption that seems plausible: The domestic country is so small that its action cannot affect world finance market conditions, and capital is so mobile that the country's interest rate must move into line with world rates. To consider the United States in the perfect capital mobility case we would have to model the effect of U. S. policies on the world interest rate. It is unrealistic to view the U. S. interest rate as pinned down by a world interest rate completely outside its influence.

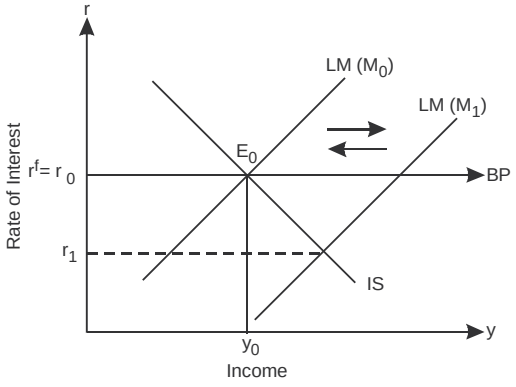
Policy Effects under Fixed Exchanges Rates

Monetary Policy

With perfect capital mobility, monetary policy is completely ineffective when exchange rates are fixed.

In section ( ) we found that in the fixed exchange rate case, an expansionary monetary policy led to a balance of payments of deficit. In figure (8.7) given below, the increase in the money supply shift the LM schedule to the right from LM (M_0) to LM (M_1).

To restore equilibrium, the Central Bank must let its intervention reduce the money supply via the process explained at the beginning of this section. The money supply will fall until the LM schedule shifts back to the initial position, LM (M_0). At this point (E_0), the money supply and level of income will be that at their initial levels. The monetary policy action will be ineffective.



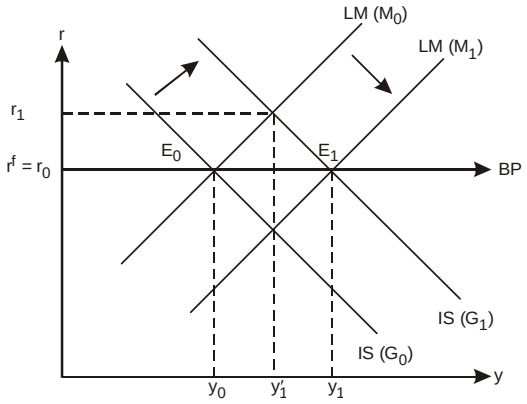
Monetary Policy with a Fixed Exchange Rate 8.7

(An increase in the money supply shifts the LM Schedule from LM (M_0) to LM (M_1). The domestic interest rate falls below the foreign interest rate, triggering a massive capital outflow. Central bank investegation to maintain the fixed exchange rate causes the money supply to fall back to the initial Level, M_0. The domestic interest rate is restored to equality with the Foreign interest rate, and income is back at its initial level.

Fiscal Policy

The situation is quite different for fiscal policy. Figure (8.8) given below illustrates the effects of an increase in government spending in the perfect capital mobility case. The direct effect of the increased spending is the shift of the IS schedule to the right from IS (G_0) to IS (G_1). The increased in spending pushes the domestic interest rate above the foreign interest rate and sets in motion a massive capital inflow. The central bank will have to keep buying foreign exchange until the money supply has increased enough to shift LM schedule to LM (M_1) and to restore equality between the domestic and foreign interest rates at point E_1. This endogenous increase in the money supply strengthens the expansionary effect of the increase in government spending. Outside rises to Y_1 instead of to Y'_1.

In a system of fixed exchange rates, with perfect capital mobility, this expansionary fiscal policy is highly effective because there is no rise in the domestic interest rate and therefore no crowding out of private-sector spending.



Income
Fiscal policy with a Fixed Exchange Rate 8.8

(An increase in government spending shifts the IS schedule from IS (G_0)to IS(G_1). The domestic interest rate is pushed above the foreign interest rate, rentaing in a massive capital inflow. Central Bank intervation maintain the fixed exchange rate causes the money supply to rise. The LM Schedule shift from LM (M0)to LM (M_1).The domestic interest rate is brought back into equality with the foreign rate, and the increase in the money supply reinforces the expansionary effect of the increase in government spending.

1. Changes in the velocity of money.

Changes in velocity of circulation of money may absolutely off-set restrictions made by Central Bank on supply of money and cost of money. There are several ways by which public can manage to use existing supply of money in an effective manner so that restrictive monetary policy of the Central Bank becomes less effective.

(i) Commercial Bank Portfolio Adjustment

Commercial Bank during tight money policy, may satisfy demand of consumer for loan by sale of securities. It implies replacement of securities for loans in bank portfolios. It is simply conversion of idle deposits into active deposits. But total deposit will remain unaltered. Because of sale of securities, prices reduced, yield will rise and consequently an upward trend in interest. It will result in capital loss to bank.

(ii) More Effective Utilisation of Available Funds

As a result of restrictive monetary policy, financial system collects and borrow funds by improved techniques from diverse resources—which will reduce effectiveness of monetary policy.

(iii) Growth of Financial Intermediaries:

Rapid growth of financial intermediaries during post war period is another factor which has weakened monetary controls of Central Banks. Financial intermediaries like savings banks, insurance companies and mutual funds- accept deposits and advance loans. Only thing which these intermediaries lack is money—creating utility. Functioning of these intermediaries enhance velocity of circulation of money.

2. Uncertainty Concerning Appropriate Monetary Policy

To make a policy effective, monetary authority should know about how much time will be required for a specific policy to give desired effect. But ironically, uncertainty prevails regarding what should be appropriate monetary policy.

8.3.2 FUNCTIONS OR ROLE OF MONETARY POLICY

Main functions or role of the Reserve Bank is make and implement monetary policy. Monetary policy means use of instruments adopted by central Bank to influence level of aggregate demand for commodities and services. Alternatively, monetary policy implies the implementation of monetary operation of the Reserves of Commercial Banks etc. Let us discuss different strategies in detail.

1. Working of Financial Institutions and Development of a Progressive Money Market

The Reserve Bank of India was set up in 1935 and nationalised in 1949. It has been acting as a custodian of our money market and succeeds in establishing a progressive and integrated money market now.

R.B.I. contributed in development of a stable money market by introducing Bill market scheme in 1952. Because of guidance of R.B.I. strong and comprehensive banking structure has been formed. Number of scheduled commercial banks increased from 93 in 1951 to 148 in 1980. Current and time deposits increased from Rs. 881 crores to Rs. 32,881 crores, Bank credit from Rs.547 crores to Rs. 23,118 crores in this period.

2. Suitable Interest Rate Policy

Economic development necessitates investment on huge scales both by public and private sector. So, cheap money policy is to be adopted to make public borrowing cheap, restricts costs of servicing public debt low and boost investment both public as well as private. Financing of large scale programmes of economic development in every sectors of the economy need easy credit availability at low rate of interest to private entrepreneurs- which provides an incentive for investment

for economic development. But on the other hand, to prevent mishandling of this policy i,e, to prevent utilisation of fund for hoarding stock- piling or for other speculative transactions by private investors selective credit control may be introduced and in this manner diversion of direction of investment into productive activities will be possible.

But according to certain economists, high rates of interest will be justified in following situations:

(i) It will stimulate savings and thus rises supply of investible sources.

(ii) It will secure allocation of scarce capital resources into productive channels and will avoid unproductive and wasteful utilisation of resources.

(iii) It will act as anti-inflationary measures by preventing from borrowing from banks for speculative transactions as well as unproductive investments.

However, all these arguments do not carry much importance. Productive and efficient utilisation of resources can be effected by direct control over capital issue, qualitative methods of credit control. Regarding stimulus to saving, it is to be remembered that volume of saving is a function of level of income instead of interest rate.

Higher interest rate may be a shock tricks to decline speculation in commodities and securities while it goes beyond control and other measures also failed to restrict it. Therefore, developing countries should be pragmatic in their approach and must evolve a suitable interest rate policy which shall prevent superfluous spending, restrict inflationary pressure, promote capital formation, sustain investment activity at a level so that growth rate should not be slowed down.

Hence, it is very difficult to take an ultimate decision about rate of interest. Low interest rate will encourage investment but will discourage savings and will show inflationary tendency. On contrary, high rate of interest will promote stability but will discourage productive investment and will rise burden of public debt. In this context, R.B.I. adopts varying Bank Rate according to varying situations. It increases during inflation and declines during recession, as it happened during 1968.

3. Adjustment between Demand for and supply of money

In any developing economy, growing population, transformation of subsistence sector into commercial one, conversion of non-monetised sector into monetised one, rising level of income, output and employment rises demand for money. Thus, supply of money has to be enhanced to counteract deflationary pressure.

Heavy deficit financing, increase in public expenditure, plan outlays for heavy investment projects led to excessive expansion in supply of money. Supply of money was estimated Rs. 2,016 crores during 1951 which enhanced to Rs.11,530 crores during 1975. During this period 95% of supply of money comprised of paper-currency. Money supply further increased to Rs. 18,000 crores during 1979.

As such, though R.B.I. ensured expansion of money supply to fulfill growing demands of the economy, yet R.B .I and government also initiate firm actions time to time to prevent or control monetary expansion upto a certain extent.

In other words, monetary policy plays a crucial role in economic development by minimising fluctuation in price level and general economic activity by restoring balance between for money and production capacity of the economy.

4. Price Stability

Maintenance of stability in domestic price level and exchange rates is an important condition for economic growth. Economic development results inflationary pressure in underdeveloped nations because of a various structural rigidities and imbalances. Inflationary rise in price levels affects propensity to save and diverts scarce capital resources into speculative and unproductive investment. So, monetary authority should observe movement of prices to regulate supply and direction of money and credit to check it from further rising.

Inflationary rise in prices causes devaluation of currency. Fluctuating exchange rates affect international trade and earning of foreign exchange decreases- which retard development of a nation. In other words, instability in internal prices and exchange rates

obstruct sustained economic growth. At the same time, monetary policy aims at preventing excessive rise in prices and maintain exchange stability upto a realistic level. Thus, in this manner, it will prevent inflation and frequent devaluation of currency.

Developing country normally suffers from balance of payment problems due to high propensity to import and little capacity to export so, monetary authority should administer both traditional weapons like bank rate, open market operations etc. and direct control over foreign exchange for correction of adverse balance of payments.

In under developed economies, government spends on a large scale in planning process to achieve growth rates alongwith the growth rates of population and to provide social as well as economic overheads. But due to low rate of saving, government has to resort to deficit financing to meet increasing investment. Because of scarcity of complimentary resources and supply curve of commodities being inelastic, abnormal rise in effective demand caused by huge government expenditure leads to inflation.

As such best remedy to prevent inflation is to decrease aggregate spending, encourage saving, discourage hoarding, central bank increase bank rates to reduce demand for bank credit by meaning it costlier. On contrary, rise in interest rate will stimulate savings. For reduction of credit capacity of commercial banks, central Bank sells bonds and securities, increases reserve ratios etc. Hence, Central Bank, by following both quantitative and qualitative credit control system can restrict inflation and helps in economic development.

6. Variation of Reserve Ratios

Every scheduled banks are desired to maintain part of their liabilities with R.B.I. in the form of cash reserves—which is known as reserve ratio or cash reserve requirements a statutory cash reserves. Initially its rate was 2% of time liabilities and 5% of demand liabilities. In 1962, R.B.I. raises it to 3% of total deposits. Again in June 1973, R.B.I. Further raised it to 5% and 7% in September, 1973. But, in 1974 R.B.I. reduced cash reserves to 5% and 4% thereafter. However, in September 1976,it was again increased

to 5% and in November 1976 raised to 6%. In May, 1981 it further raised to 7%. Thus, changes in cash reserve ratio helps to control credit administration and promotes price stability.

7. Bank Rates policy

Bank rate of R.B.I. is pacesetter for short term and long term market rates of interest. Thus, R.B.I differs bank rates as an instrument of anti-inflationary measures and reduces recession to some extent. After prolong cheap money policy, bank rate raised from 3% in Nov, 1951 to 4% in sep. 1964; 6% in February 1965. This rising trend of bank rates reversed in March, 1968 to 5% to revive the economy and control recession. But, in 1971 bank rates further increases to 6% and thereafter 7% in May, 1973.

In order to curb heavy inflationary pressures in early seventies bank rates increased from 7% to 9% in July, 1974 and at the same time lending rate also raised from 11% to 12%. Rate of interest on long term savings were also enhanced. In July, 1981 bank rate was further raised to 10%.

8. Variation of Statutory Liquidity Requirement

Apart from statutory reserve requirements commercial banks also maintains a particular percentage of their liabilities in liquid assets in cash, gold and other unencumbered approved securities. This percentage is called as statutory liquidity Requirements (SLR). IN 1949 SLR was at 25% but in November 1972 it was raised to 30%, in 1973 to 32%, in 1974 to 33% and in Dec.1978 it was 34%. In October, 1981 it was fixed to 35%.

8.4. LIMITATIONS OF MONETARY POLICY IN UNDER-DEVELOPED COUNTRIES

Monetary policy in underdeveloped countries by itself cannot be very effective because of certain limitations:

1. Main limitations of monetary policy is time lag involved in executing a policy.

2. There are non-monetised sector in underdeveloped countries which lies outside the influence of monetary authority. In this sector, transactions are carried on the basis of barter system and availability and cost of credit exert little impact on the level of economic activity.
3. Money market are not properly organised. Unorganized sector lies outside the control of monetary authority as it happens in case of indigenous bankers in India.
4. It was evident that monetary policy failed to check depression in 1930..
5. Changes in interest rate, frustration in stock market and affect entire economy.
6. Central Banks are unable and unwilling to adopt vigorous monetary policy.
7. In developing countries, money supply comprises of currency in circulation. Bank deposits is only a small part of it. But because of lack of banking habits of people, it is not possible to control banking system.
8. In underdeveloped countries, because of the lapse of administrative machinery, there is huge accumulation of wealth by tax evasion and other illegal transactions,—which is popularly known as black money. It gives birth, of a parallel economy and helps in speculative and illegal dealings and makes monetary policy ineffective.
9. Developing nations generally resort to deficit financing to supplement resources for economic development. It creates inflationary pressure and reduces effectiveness of monetary policy.

However, still the presence of above shortcomings, monetary policy may be implementing successfully, for economic growth by way of influencing supply and use of credit, restricting inflation and restoring balance of payments equilibrium.

But simultaneously, it is true that now-a-days nature of economic problem in case of under developed and developed economies is so complicated that no uniform policy can achieve predetermined goal. Therefore, monetary policy must be supplemented

by fiscal policy and other major policies of the government, which influences economic activities.

8.4.1 Monetary policy in India

India is engaged in the process of economic development and thus monetary policy of R.B.I. must be development oriented. Its major aim should be mobilization of productive resources on a large scale and also efficient allocation of resources. To achieve high rate of capital formation monetary authority should stimulate savings and canalize them into productive investment. Alternatively, monetary policy has to be operated for sustained and accelerated economic growth.

According to the R.B.I. Act, 1934,object of set up banking system is for regulation of bank notes and maintain reserve to secure monetary stability. It is only a single aspect of the R.B.I i,e, regulatory role. But after the planning period i,e, since 1951 R.B.I. also performing promotional role alongwith its regulatory function. Therefore, it is required to reorient traditional monetary policy influencing supply and cost of borrowing and utilize it to the requirement of economic development.

Maintenance of stability in domestic level of prices and rates of exchange is an essential condition of economic growth. Rapidly increasing prices absorbs domestic savings and discourage foreign investment and thus rate of net investment declines. Likewise, fluctuating exchange rates affect international trade and reduces inflow of foreign exchanges which may be utilized for developmental works of that country. Alternatively, instability in internal prices and rates of exchange adversely affect rate of sustained economic growth. It implies adoption of such monetary policy will check inflation and frequent devaluation of currency.

In India, government is spending on large scale in planning process. But because of low rate of saving, government has to resort to deficit financing to meet the expenditure of increased investment. As there is lack of complementary resources, supply of goods being inelastic, followed by abnormal rise in effective demand creates inflationary pressure. Hence, it is required to encourage saving and discourage consumption. Apart from that,it is also required to stop hoarding, stock-piling of essential consumer commodities

and raw materials. It is also mandatory to divert scarce resources into productive purposes only. Therefore, monetary policy in india has relied on quantitative and qualitative instruments of credit control.

8.4.2 Monetary Policy—Full Employment

For several decades price and exchange stability were considered as main objective of monetary policy. Publication of Keynes General theory also has been considered the importance of monetary policy to achieve full employment. In the words of Prof. Crowther, main object of monetary policy is to bring about equilibrium between saving and investment at full employment level.

According to the opinion of Keynes, objective of monetary policy should be optimum utilization of productive resources so as to promote full employment of resources—which is considered as best and ideal objective of monetary policy in advanced countries of the west. Prof.Halm also has supported the above view.

Keynes considers that, object of monetary policy should be to eliminate ebb and flow of trade fluctuations and restore equilibrium between saving and investment at the level of full employment.

Keynes believes that, full employment of available resources can also be obtained by making adequate volume of expenditure in the country. Best way to stimulate investment is to adopt cheap money policy by decreasing rates of interest.

Policy of full employment is supported on following grounds:

1. Policy of full employment is humanitarian policy and attempts to solve a purely human problem.
2. This policy promotes maximum social welfare of the community.
3. It eliminates cyclical fluctuation in the economy.
4. In the context of present day unemployment, full employment is best and ideal object of monetary policy.

But according to the opinion of Duesenberry, monetary policy is a set of instruments, which can be used to achieve the target of full employment. At the same

time, concept of full-employment is a vague concept. Thus, instead of full employment, term optimum employment should be used which aaelerates economic growth.

6SUMMARY

1. Monetary policy refers to the adoption of suitable policy regarding interest rate and availability of credit.
2. Cost of money implies bank rate at which Central Bank rediscounts first class bills of exchange and government securities held by commercial banks.
3. Under quantitative credit control—policies like open market operations, bank rate policy and changing reserve rate may be implemented.
4. Qualitative credit controls may be operated by moral persuasion, change in margin requirement, credit rationing, control over consumer's credit, direct action.
5. Debit management implies, government borrowing and its regulation and control.

8.12 QUESTIONS

1. What is meant by monetary policy? Explain various instruments of monetary policy.
2. Discuss main objectives of monetary policy in India. Critically evaluate its effectiveness.
3. Describe main objectives of monetary policy in a developing economy.
4. "while in a developed economy main objective of monetary policy is economic stabilization, in a developing economy the objective is resource mobilization." Discuss.
5. Disscuss objectives and instruments of monetary policy as a macro-economic policy.
6. Examine the objectives and instruments of monetary policy for stabilization and growth.
7. What type of monetary policy do you recommend for an economy suffering from under employment?

8. Evaluate the monetary policy pursued by the RBI in the plan period.
9. Give a critical account of monetary policy pursued by RBI.
10. Examine the objectives, instruments and effectiveness of monetary policy.
11. What are the problems involved in exercising the monetary policy in India?

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FISCAL POLICY EFFECT ON DEMAND SIDE EQUILIBRIUM

Chapter Highlights——————

In this chapter, our attention is limited in some selected aspects of fundamental of fiscal policy and its impact in formulation of macroeconomic policies. Initially we have started our explanation from merits and objectives of fiscal policy but as the chapter has advanced, it has explained detail analysis of impact of progressive taxation and public expenditure programme alongwith relevant comparison between underdeveloped and advanced nations of the world.

Chapter Outlines——————

Introduction.

Objectives of fiscal policy.

Relative merits.

Major fiscal functions of a modern government.

Limitation of fiscal policy.

Role of fiscal policy in developing countries.

Fiscal policy in India.

Fiscal policy strategy Statement.

9.1 Introduction

Importance of fiscal policy as a tool of economic control was first, of all pronounced by Keynes in his publication—-"General theory of Employment, interest and Money". Before Keynes, earlier economists clarified impact of individual fiscal measures. But complete implication of public finance for entire economic situation were not followed by those economists. While government spent money as relief works, money so spent was collected by way of special taxes.

Fiscal policy, thus comprises of public borrowing, taxes and public spending. It is linked to public finance and it implies use of taxation, public borrowing and public expenditure by government of a sovereign nation for attaining economic stabilization as well as economic growth. In the words of Arthur Smithies fiscal policy is a policy where government uses its expenditure and revenues programmes to produce desirable effect and to avoid undesirable effect on national income, production and employment. According to G.K Shaw, fiscal policy is a policy to encompass any decision to change the level, composition and timing of government expenditure or to vary burden, structure or frequency of tax payments. Instruments employed by state to influence general level of economic activity comprises core of fiscal policy, which includes, taxes, nation's budget, borrowing, spending, subsidies, relief expenditure, transfer payments, social security benefits. Efficient operation of nation's budget may help in attaining economic stability and higher rates of economic growth.

9.2 Objectives

It will not be proper to opine dogmatically objectives of fiscal policy as it will differ from economy to economy and also from time to time. But however, fiscal policy as a tool of economic growth having following principles:

1. Efficient and rational allocation of economic resources

Primary task of fiscal policy in an underdeveloped economy is allocation of scarce resources and mobilizing in desirable channels of productive investment. Available resources must locate their way towards socially desirable lines of development. Distribution of resources is to be determined depending upon priorities of the plan. Productive resources are within such limits, so that capable of being used growth.

Hence, fiscal policy should gravitate towards productive areas of investment.

2. Accelerating rate of capital formation

Fiscal policy is used as a tool of capital formation in developing countries. First of all it expands investment in public and private enterprises and by directing flow of resources from socially less desirable to more desirable investment. Secondly, changes content of total investment in an economy and creates capital by bringing a qualitative improvement in it.

Increase of investment in public sector is done by implementing planned programmes of development and by tracing requisite fund for this purpose. Qualitative changes are brought about by diverting investments towards socially desirable productive channels. Special emphasis is placed on economic overheads like transport, communications, irrigation, power etc. where investment is not profitable but attractive to private enterprise and are performed in public sector. Therefore, public finance should trace resources for investment purpose suitable for development.

Fiscal policy is an important tool which stimulates investment in private sector by providing depreciation in company taxation, provision of finance, development rebates, tax holidays, subsidies and other incentives. So, fiscal incentives are utilized to make diversion in utilization of resources from socially less desirable to more desirable directions. Therefore capital formation in private sector enjoys a great help as well as encourages from public finance operations.

3. Resource Mobilization

Underdeveloped countries suffer from low rate of voluntary private savings. Propensity to consume is high and propensity to save is low, due to low level of income. Therefore, it necessitates government intervention to mobilize resources and fiscal policy plays a crucial role here. Fiscal policy stimulate private saving and encourage public saving by fiscal incentives by way of tax concessions for saving and investment and creating and implementing small savings scheme. Government borrowing programmes also possess similar objective. Success of small savings schemes, government borrowing programmes depends upon monetary incentives offered, relative yield of several investments, confidence of state, psychological behavior of capital market. As, some of

these conditions are beyond control of government and thus impact of government policy on private savings are no doubt uncertain.

Alternative to voluntary private savings in forced savings especially for investment in public sector, which constitute two forms –increased taxation and inflation.

Tax policy is to be operated for effective mobilization of all scarce available resources and to utilize these in executing development programmes. It indicates, eliminating wasteful and luxury spending to savings and productive investment of increments which accrues to production because of development effects.

Taxation is an effective instruments of increasing total volume of savings as well as investment in any economy where propensity to consume is high. It promotes accelerate pace of development. In case of under – employment inflationary pressure and low level of income goal of fiscal policy should be promotion of highest possible rate of capital formation.

But, however, taxation is better than inflationary finance as the former is less harmful than the latter. Increased taxation results force savings and causes mobilization of resources which is otherwise very rare in a developing economy.

4. Development of private sector

In mixed economy, private sector occupies an important place of that economy. Therefore, objective of fiscal policy is to maximize mobilization of resources with the object of financing expansion of public sector should make significant contribution in the development of the economy and is to be encouraged. Capacity of state to make economic growth is limited. Hence, expansion of private sector is also necessary for viability of economy.

Tax rebates, tax reliefs, liberal deprecation boost development of private sector. Fiscal measures are required to activate capital market to enable private sectors to raise finance. Public borrowing programme is to be arranged in a manner so as to leave enough scope for private sector finance.

9.3 RELATIVE MERITS

For accelerating growth of the economy public finance or fiscal policy is utilized. Following are relative merits of fiscal policy:

1. To promote savings is an economy and minimize current consumption.
2. To mobilize human and material resources of an economy and maximize their flow.
3. To restrains inflationary forces to attain economic stability.
4. Equitable distribution of income and wealth in any country so that benefits of development are neutrally distributed. Eradicating economic inequalities and restricting concentration of economic power are two main objectives of fiscal policy in developing countries.
5. To protect an economy from unhealthy developments from abroad i,e, to reduce exposure of an economy to ebbs and flows of world markets and to eliminate dependence on foreign food or foreign investments.
6. To flow investment in productive channels both in public as well as private sector by giving suitable incentives.

9.3.1 MAJOR FISCAL FUNCTIONS OF A MODERN GOVERNMENT

1. Fiscal policy and Economic Development

Attitude of various economists and governments about role of fiscal policy has changed as an outcome of Keynesian theory. Earlier concept of neutrality of public finance has got a new term viz, functional finance. Public finance in its fiscal measures has assigned a positive and dynamic role for promotion and acceleration of rate of economic development.

Keynesian analysis of fiscal policy is especially applicable to advanced countries but less suitable in case of under-developed nations. Problem of developed countries is to stabilize economic growth rate by maintaining effective demand at its fullest extent possible and for this purpose, fiscal policy tries to reduce savings of people and rise

propensity to consume. But in case of underdeveloped nations, the people require more savings to raise rate of capital formation and to attain higher rate of economic development. But ironically, people of under-developed country having low rate of income and saving but having high propensity to consume. According to the view of Nurkse, there is no doubt regarding Keynes's General Theory possess a bias against saving and in favour of spending….but while transplanted in the situations of underdeveloped nation it is found to be pernicious.

Thus, this analysis of problem in connection with voluntary saving shows that because of low per capita income and savings in underdeveloped economies, question of voluntary savings does not arise. According to UN study, annual per capita incomes in Middle East, in Asia and in U.S.A. are less than 200 US dollars or less than one-seventh of U.S.A. and one-fourth of Canadian level. It was also revealed that in I.M.F. staff papers that in India savings contributed two and half per cent of national income for development. Hence, major determinant of economic growth is rate of savings and it can't be left to them to grow automatically. On the other hand fiscal measures have to be implemented to raise savings of people and to mobilize them for productive purposes. According to Nurkse, fiscal policy possesses a new significance in the problem of capital formation in underdeveloped, countries.

Backward nations suffer from vicious circle of low income, high consumption, low savings, low rates of capital formation and also low income level. To come out from this vicious circle of poverty, fiscal policy plays a constructive as well as dynamic role for economic development of underdeveloped countries. According to UN study, to break this circle without any foreign aid requires vigorous taxation and also government development programme. Thus, in poor nations, necessity of fiscal policy lies in increasing rate and volume of savings and divert those saving towards desired channels. If we go through UN report on taxes and fiscal policy, which states that fiscal policy is assigned central task of wresting from pitifully low output of underdeveloped nations, enough savings to finance economic development programme and make a condition for more private as well as public investment activity.

Shortcomings and ineffectiveness of monetary policy for accelerated rate of economic growth has further realized us regarding essentiality of fiscal policy. Fiscal

policy generally designed to supplement monetary policy to have supplanted monetary policy altogether.

Importance of fiscal policy as a tool of economic development was first considered by Keynes in his General theory where he depicted total national income was an index of economic activity and established relationship of economic activity to total spending. Direct as well as indirect effect of fiscal policy on aggregate spending in the society were distinctly established and consequently budgetary policy of government as a device of economic control and development become prominent.

2. Fiscal Policy and Rate of Saving

Shortage of capital resources is major obstacle in the process of economic development of underdeveloped nations there are certain forces functioning in these economies which enhances consumption and decline savings. Population pressure is first among them. Apart from high income groups those spend much of their earnings on conspicuous consumption and which is further reinforced by demonstration effect. Besides, major part of their meager savings are absorbed in unproductive channels like real estate, hoarding, jewellery, speculation etc. Aim of fiscal policy is to divert savings of people into productive directions. Its aim is to increase incremental saving ratio by taxation and forced loans and creates funds available for investment in both public and private sectors. It is possible only by reducing conspicuous consumption and restricting flow of funds for unproductive investments. Thus, high rates of tax both on personal and corporate incomes and commodity taxation on articles of maximum use and simultaneously conspicuous consumption should be discourage to the extent of actual and potential consumption of people. In this context, report of the Taxation Enquiry Commission, Government of India, states that, a tax system, which promotes capital formation by two aspects saving and investment fulfills an essential conditions. It must be remembered that object of taxation must not be mere transfer of funds from private to public use but also enlargement of total volume of savings for investment purposes.

Thus, it necessitates curtailing and restrains consumption and rising volume of savings in the economy. For instance, in Japan, productivity of agriculture was doubled between 1885 and 1915 and device of taxation was utilized effectively and much of

increase was taken away from farmers in the form of additional rents and taxes and thereafter that amount were diverted towards productive investment. Forced loans were also imposed an businessmen to collect surplus funds for economic development. In U.S.S.R., collective farms were taxed highly and agricultural surpluses were siphoned off by increased prices of manufacturers relates to farm products. The Economic Bulletin for Asia and the far East states, noticed that, taxation is only effective instrument for curtailing private consumption and investment and transfer of resources to government for the purpose of economic development. In the words of Prof. Kurihara, fiscal policy is desirable for underdeveloped countries having lack of private initiative, voluntary saving and innovation. According to him, fiscal role of government is as an additional saver, investor, innovator as well as income-redistribution.

As an additional saver, government should maintain persistent budgetary surplus by:

(a) Reduction in government average propensity to spend,

(b) Rise in average propensity to tax,

(c) Reduction in government average propensity to make transfer payments.

Prof. Kurihara says, in underdeveloped economies budgetary surplus is relevant position to be achieved and maintained. For that it necessitates to supplement private saving— a fiscal role of government as a saver which is to be performed.

As an additional investor, government should raise productive capacity of the economy and to establish an accelerated rate of economic growth by modifying pattern of investments and should emphasized on capacity building instead of income generating aspects, by curtailing government consumption and rising investment and also by increasing tax-rates which leaves its impact on reducing private consumption expenditures and enhance that portion of real income which is available for the purpose government investment.

As an innovator, government should encourage research and experiments and encourage innovations i,e, new process of production. It will reduce production cost which encourages investment. Further, government should also encourage innovation by providing subsidies and tax-relief to those firms which may introduce them of their own.

As income redistributor, government tries to eradicate economic inequalities upto maximum extent possible. A progressive tax structure may serve as a potent instrument it's the hands of the government, to enable effectively equitable distribution of income and wealth to the fullest extent possible.

3. Fiscal Policy and Optimum Pattern of Investment

An underdeveloped economy can hardly succeed to divert limited resources into socially desirable channels. Hence, it becomes mandatory to impose pattern of investment which will be sufficient enough to attain social marginal productivity. Heavy taxes on land value increments and capital gains etc. should be imposed to restrict flow of funds into unproductive channels like land, buildings, inventories or investment of speculative nature. It may be done by differential rates of taxation in one hand and grant of tax relief in certain areas on the other.

Investment in economic and social overhead like power, soil conservation, transport, education, technical training facilities, public health etc. is of great importance for optimum pattern of investment for speed up development process. It widens the extent of market, curtails cost of production and enhances productivity by forming external economics. Private sector cannot provide such basic amenities for huge expenditure and low-yielding returns. So government should undertake such projects financed through taxation system but not with borrowed debts. Increasing of compulsory saving by taxation for such development programmes is very popular now-a-days. Therefore fiscal measures must be targeted to attain optimum pattern of investment for accelerating pace of economic development of under-developed countries.

4. Fiscal policy to counteract inflation

Process to economic development in underdeveloped economies suffers from inflationary pressure because of imbalances between demand for and supply of real resources. Pressures of wages on prices, market imperfections, structural rigidities, bottle-necks hinders supply of commodities and services and price levels begin to inflate. As a result, when inflation goes beyond control, ruins entire economy and progress becomes standstill. Because of above stated facts economic growth and stability are treated as combined objectives for underdeveloped nation to accomplish. But, now-

a-days, choice is not between economic growth and stability but over inter-relationships and policies to attain it.

Fiscal measures must be for counteracting undue inflationary pressure by reducing effective demand. To attain this objective tax structure is to be modified and greater emphasis should be on progressive direct taxes and commodity taxes. Besides, special anti-inflationary taxes on excess profits, capital gains and other windfalls and also taxes on articles of conspicuous consumption in nature may also be imposed.

Besides, fiscal policies of government removal of market imperfections, removal of structural rigidities, subsidies, and protection of essential consumer goods industries are also required. But even if inflationary pressure goes on increasing further, capital levy on cash balances and liquid assets may be imposed to fight with inflation.

5. Fiscal Policy and Alternative Measures to Curb Inflation

Inflationary pressure creates because of excess demand, while spending on consumption and investment goods and foreign spending on commodities of home country in total exceed full employment and output. It indicates, true inflation begins only after full employment, but in reality it starts before full employment due to rigidities of factor supply, bottle-neck and pushes of profits, costs and wages.

Fiscal remedies of inflation are as follows:

(i) Reduction in government spending and no change in tax rates:

Such policy will provide a budget surplus and drain out purchasing capacity of community and will set a reverse process of government expenditure multiplier and brings contraction in national income and employment and leads to control on inflation.

(ii) Reduction in Government spending and Increase in Tax Rates:

This sort of fiscal measures is more effective than earlier one as rise in tax rates accompanied with a decline in government spending generates huge budget surplus and larger reduction will be affected or observed in national income and employment.

(iii) Rigid Government spending and Increase in tax rates:

While government spending becomes rigid for example at the time of war. Reduction in aggregates spending is only possible by increasing tax rates— which in turn reduces private disposable income. Consequently declines private consumption and investment expenditure to curb inflation. By this process during second World War U.S.A. could siphon off purchasing capacity by a measure capable of finance more than 48% of cost of war out of tax proceeds.

6. Fiscal functions and Economic stability

Underdeveloped nations are susceptible to economic instability because of deficiency of effective demand in short-run and fluctuations in demand for their commodities in world markets. Under-developed nations normally export agricultural as well as mineral products, demand for which is generally less elastic. On contrary, countries import capital goods, finished manufactured products, whose demand is elastic in nature. While price level of exported commodities declines in world market, terms of trade turns to unfavourable, earnings of foreign exchanges decreases, consequently national income declines and depression prevails in the economy. Underdeveloped nations are incapable to enhance their export to avail benefits of reduced prices due to limited production capacity. Likewise, due to boom conditions in international market, price of export increases, rise in foreign earnings does not result to increased output and employment, rather, it is dissipated in speculative investment as well as conspicuous consumption which create inflationary pressure in that economy.

Fiscal remedies can be adopted to offset international cyclical fluctuations in prices of exports. For instance, during boom period, heavy import and export duties should be imposed. Import duties will reduce conspicuous consumption and export duties will neutralize windfall gains from increase in international market price levels. Earnings from such duties will be helpful in capital formation. At the time of depression, subsidies may be provided to boost export and government should maintain level of effective demand by public works programme. Therefore contra-cyclical fiscal measures should be used to mitigate impact of world's cyclical movements and for the upliftment of entire economy and to curtail too much dependability exclusively on primary sector. So, a well planned fiscal policy is essential to promotes economic stability.

7. Fiscal functions and price Stability

Another types of instability in a developing economy is presence of inflation. It is a tendency for prices to increase due to huge development expenditure accompanied by corresponding rise in production. Production of basic consumable commodities especially food fails to maintain pace with increased income and as such inflationary gap is formed and price level goes up. Pressure created by demand pull are reinforced by cost-push. Increase price are strengthened by increase wage-rates and thus a spiral is set up between wage and price. If the condition is not effectively administered, it may turn to hyper-inflation.

Therefore, anti-inflationary, fiscal policy has a crucial role in a developing economy. It involves reduction in public expenditure and rise in taxation as well as public borrowing. Decrease in government expenditure leads to decline in total spending in an economy and brings down total demand. Reduction may also be effected in unnecessary spending on the part of government but at the same time, it will be difficult to differentiate between necessary and unnecessary outlay. However, emphasis should be ultimately lies on taxation and public borrowing. Rise in these may help government to increase income and keep total demand at lower level and which in turn will provide resources to government for economic development. Progressive taxation will be helpful in this context.

8. Fiscal functions and Distributive Justice or Equitable Distribution

Underdeveloped countries normally suffer from inequalities in income and wealth. In a feudal economy, there exists a huge gap between economic position of lord and serf.

Thus, it is required for government to implement a fiscal policy to decrease inequalities. Most important element in this context is progressive taxation of income as well as wealth. There is also a requirement for tightening administrative machinery to collect tax and reducing tax evasion scopes which will help to accumulate huge capital resources. Next element of suitable fiscal policy is the public expenditure programme—which has to be flowed or directed towards progress of human and physical capital.

Human resources development possesses desirable redistributive effect. Public expenditure policy also brings regional balances in a particular economy.

9.3.2 LIMITATION OF FISCAL POLICY

Effectiveness of fiscal policy depends upon measures adopted, their timing, exact variation effected in revenue of national income which is dependent on change in expenditure made by authority. It is also difficult to predict that a boom or slump is approaching. Measures adopted may be slow in taking effect. Thus fiscal policy often becomes absolutely in appropriate instrument for economic stabilization and growth. Following are some of the limitations of fiscal policy:

1. There may be a clash among several objectives of fiscal policy. Fiscal measures for decreasing income, inequalities or curbing inflation may affect adversely capital formation and rate of economic growth.
2. Anti-inflationary and redistributive fiscal measures also possess their limitations. Likewise, there is also a limit to which taxes as well as deficit-financing can be used for the purpose of resource mobilization without affecting an economy adversely.
3. Considerable part of public expenditure is likely to be wasted in case of underdeveloped economies for undesirable, unproductive activities or swallowed by corrupt officials.
4. Fiscal policy sometimes becomes absolutely inaccurate tool for economic stabilization and growth.
5. Political and administrative delay in making decision especially while legislative sanction is required for modifying rates of changing expenditures an various programme.

9.4 ROLE OF FISCAL POLICY IN DEVELOPING COUNTRIES

Fiscal Policy in developing countries differs from that of advanced nations both its objects as well as its contents. Following four important objectives of fiscal policy of a developing nation:

1. Promoting and accelerating capital formation both in public and private sector.
2. Creating conditions for a reasonable degree of stability in an economy according to the requirement of economic development.
3. To ensure social justice by redistribution of national income and wealth.
4. Mobilising real and financial resources for public sector without affecting expansion of resources for private expenditure.

Thus, there exists contradiction in objectives and achieving one may create difficulties in respect of other. For example, policy for rapid rise in capital formation may create inflationary conditions and widen inequalities of income. Again, an attempt to decrease inequalities may cause low rate of saving and capital formation. Hence, a suitable fiscal policy is required to bring harmony among all these targets or objectives.

9.5. FISCAL POLICY IN INDIA

During nineteenth century, financial requirement of government were small and land revenue was main source of earning revenue in India. During first part of twentieth century public expenditure was continued of slow pace. But, the Second World War necessitated huge increase in government expenditure. New resources thus traced gradually. In the early years of post-war period. Fiscal policy get its importance for rehabilitation of industry and boost investment and capital formation.

In recent years, public expenditure has been raised further due to formulation and implementation of plan for attaining economic development and efforts to establish of a welfare state. Since 1951, government has adopted budgetary policy for rapid economic development, price stability, reduction of inequalities of income and wealth, rising employment opportunities etc.

First of all, impact of fiscal policy on mobilization of resources for the purpose of economic development by planning process may be considered. Between 1957 and 1983 more than Rs. 1,75,000 crores has been invested in exclusively in public sector. To mobilize resources, government resorted to taxation, loans and deficit financing.

Secondly, fiscal policy since 1950-51 created inflationary pressure. Large scale investment particularly on basic and heavy industries and financing of development projects by budget deficits resulted to general rise in price level.

Thirdly, budgetary policy also caused rising inequalities of income and wealth. This is because of development of private sector by licensing and partly enabling rich class to evade taxes.

Lastly, impact of budgetary policy is also fall on employment. Large volume of investment in building up infrastructure reduced to some extent the problem of unemployment. Although, still this problem persists due to severe rise in population.

To sum up, since independence, government has initiated several steps to promote development.

An effective fiscal policy is required to deal with this complex situation.

9.6 SUMMARY

1. Fiscal policy comprises of public borrowing, taxes and public spending.
2. Fiscal policy is an important tool which stimulates investment in private sector by providing depreciation, in company taxation, provision of finance, development rebates etc.
3. Object of fiscal policy is to maximize mobilization of resources with the object of financing expansion of public sector.
4. Object of taxation must not be mere transfer of funds from private to public use but also enlargement of total volume of savings for investment purposes.

9.7 QUESTIONS

1. What are objectives of fiscal policy? What are limitations of obtaining price stability and full employment?
2. What should be its objectives in a developing country like India?

3. Discuss role of fiscal policy as an instrument of macroeconomic policy. What is meant by fiscal policy?
4. Evaluate potentialities and limitations of fiscal policy for achieving macroeconomic goals.
5. Explain relative merits of fiscal policy in over all macroeconomic policy. Discuss concept of monetary fiscal policy mix.
6. Examine importance of fiscal policy in promoting economic stability in our economy.

10.1 CROWDING IN AND CROWDING OUT EFFECT

Chapter Highlights——————————

The effect of fiscal policy is reduced by crowding out; Increased government spending increases interest rates, reducing investment and partially offsetting the initial expansion in aggregate demand.

Chapter Outlines——————————————

Introduction

Objectives

Crowding Hypothesis

Crowding out

Crowding-out Effect

Liquidity Trap

The Classical Case and Crowding Out

10.1 Introduction

America's longest expansion on record came to an end in March 2001. Figure given below shows the movement of the unemployment and the federal funds rate (the fed's key interest rate) during the expansion period in the late 1990s and 2000, and during the 2001 recession, as well as the recovery that followed. As is clear from the below figure the Federal Reserve lowered the federal funds rate to stimulate the economy during the downturn and raised the federal funds rate to cool off the economy during

the boom. For example, the federal funds rate fell from 6.52 percent in the third quarter of 2000 to 1 percent in late 2003 and early 2004. Once the economy started" heating up," the Fed reacted by raising interest rates. The federal funds rate reached 5.25 percent in the summer of 2006. In addition, the president and congress enacted major tax cuts in 2001, which also worked in the direction of stimulating the economy.

In this chapter we use the IS-LM model to show how monetary policy and fiscal policy work. These are the two main macroeconomic policy tools the government can call on to try to keep the economy growing at a reasonable rate, with low inflation. They are also the policy tools the government uses to try to shorten recessions, as in 1991 and 2001,and to prevent booms from getting out of hand. Fiscal policy has its initial impact in the goods market, and monetary policy has its initial impact mainly in the assets markets. But because the goods and assets markets are closely interconnected, both monetary and fiscal policies have effects on both the level of output and interest rates.

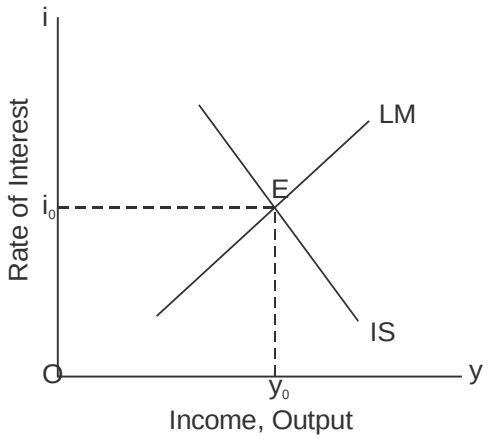

Figure (10.1) IS - LM Equilibrium

Figure (10.1) will refresh your memory of our basic framework. The IS curve represents equilibrium in the goods market. The LM curve represents equilibrium in the money market. The intersection of the two curves determine output and interest rates in the short run, that is, for a given price level. Expansionary monetary policy moves the

LM curve to the right, raising income and lowering interest rates. Contractionary monetary policy moves the LM curve to the left, lowering income and raising interest rates. Expansionary fiscal policy moves the IS curve to the right, raising both income and interest rates. Contractionary fiscal policy moves the IS curve to the left, lowering both income and interest rates.

10.2 Objectives

To study how, by the occurance of crowding out effect, the expansionary fiscal policy causes interest rate to rise and thereby reducing private spending, particularly investment.

10.3 Crowding Hypothesis

Refers to the argument that entry barriers and informational imperfections will be able to tend to crowd certain groups, chiefly women and blacks, into a limited range of occupations and in the process lower the relative wage of these occupations.

10.3.1 Fiscal Policy And Crowding Out

This section shows how changes in fiscal policy shifts the IS curve, the curve that describes equilibrium in the goods market. The IS curve slopes down words because a decrease in the interest rate increases investment spending, thereby increasing aggregate demand and the level of output at which the goods market is in equilibrium.

10.3.2 An Increase In Government Spending

We now show, in figure (10.2) given below, how a fiscal expansion raises equilibrium income and the interest rate. At unchanged interest rates, higher levels of government spending increase the level of aggregate demand. To meet the increased demand for goods, output must rise. In figure (10.2) given below, we show the effect of a shift in the IS schedule. At each level of the interest rate, equilibrium income must rise by $\propto G\ times$ the increase in government spending. For example, if government spending rises by 100 and the multiplier is 2, equilibrium income must increase by 200 at each level of the interest rate. Thus the IS schedule shifts to the right by 200.

If the economy is initially in equilibrium at point E and government spending rises by 100, we would move to point E" as shown in the figure given below, if the interest rate stayed constant. At E" the goods market is in equilibrium in that planned spending equals output. But the money market is no longer in equilibrium. Income has increased, and therefore the quantity of money demanded is higher. Because there is an excess demand for real balances, the interest rate rises. Firms' planned investment spending declines at higher interest rates, and thus aggregate demand falls off.

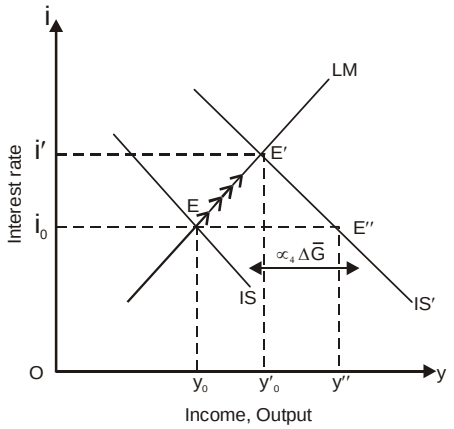

Figure : 10.2 Effects of an increase in Government spending

Increased government spending increases aggregate demands shifting the IS curve to the right.

What is the complete adjustment, taking into account the expansionary effect of higher government spending and the dampening effects of the higher interest rate on private spending? Figure (10.2) shows that only at point E' do both the goods and money market clear. Only at point E' planned spending equal to income and, at the same time, the quantity of real balances demanded equal to the given real money stock. Point E' is therefore the new equilibrium point.

10.4 Crowding Out

Comparing E' to the initial equilibrium at E, we see that increased government spending raises both income and the interest rate. But another important comparison is between points E' and E", the equilibrium in the goods market at unchanged interest rates. In comparing E" and E', it becomes clear that the adjustment of the interest rates and their impact on aggregate demand dampen the expansionary effect of increased government spending. Income, instead of increasing to level Y", rises only to y'0.

The reason that income rises only to Y'0 rather than Y" is that the rise in the interest rate from I 0 to I' reduces the level of investment spending. We say that the increase in government crowds out investment spending. Crowding out occurs when expansionary fiscal policy causes interest rates to rise, thereby reducing private spending, particularly investment.

What factors determine how much crowding out takes place? In other words, what determines the extent to which interest rate adjustments dampen the output expansion induced by increased government spending? By drawing for yourself different IS and LM schedules, you will be able to show the following:

- Income increases more, and interest rates increase less, the flatter the LM schedule.
- Income increases less, and interest rates increase less, the flatter the IS schedule.
- Income and interest rates increase more the larger the multiplier, $\propto$ G, and thus the larger the horizontal shifts of the IS schedule.

In each case the extent of crowding out is greater the more the interest rate increases when government spending rises.

To illustrate these conclusions, we turn to the two extreme cases we discussed in connection with monetary policy, the liquidity trap and the classical case.

10.4.1 The Liquidity Trap

If the economy is in the liquidity trap, and thus the LM curve is horizontal, an increase in government spending has its full multiplier effect on the equilibrium level of

income. There is no change in the interest rate associated with the change in government spending, and thus no investment spending is cut off. There is therefore no dampening of the effects of increased government spending on income.

You should draw your own IS-LM diagram to confirm that if the LM curve is horizontal, monetary policy has no impact on the equilibrium of the economy and fiscal policy has a maximal effect. Less dramatically, if the demand for money is very sensitive to the interest rate, and thus the LM curve is almost horizontal, fiscal policy changes have a relatively large effect on output and monetary policy changes have little effect on the equilibrium level of output.

10.4.2 The Classical case And Crowding out

If the LM curve is vertical, an increase in government spending has no effect on the equilibrium level of income and increases only the interest rate. This case, already noted when we discussed monetary policy, is shown in figure (10.3) given below , where an increase in government spending shifts the IS curve to IS' but has no effect on income. If the demand for money is not related to the interest rate, as a vertical LM curve implies, there is a unique level of income at which the money market is in equilibrium.

Thus, with a vertical LM curve, an increase in government spending cannot change the equilibrium level of income and raises only the equilibrium interest rate. But if government spending is higher and output is unchanged, there must be an offsetting reduction in private spending. In this case, the increase in interest rates crowds out an amount of private (particularly investment) spending equal to the increase in government spending. Thus, there is full crowding out if the LM curve is vertical.

In Figure (10.3) given below, we show the crowding out in Panel (b). The fiscal expansion raises the equilibrium interest rate from I 0 to I' in panel (a). In panel (b), as a consequence, investment spending declines from the level I 0 to I'.

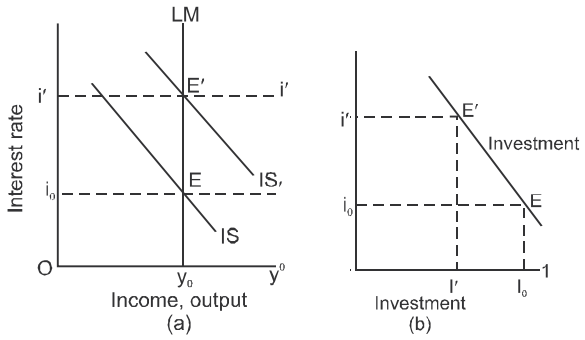

Figure : 10.3 Full Crowding Out

With a vertical LM Schedule, a fiscal expansion shifting out the IS schedule raises interest rates, not income. Government spending displaces, or crowds out. Private spending, dollar for dollar.

10.5 Is Crowding Out Important?

How seriously must we take the possibility of crowding out? Here three points must be made. The first point is also an important warning. In this chapter, as in the two preceding, we are assuming an economy with prices given, in which output is below the full employment level. In these conditions, when fiscal expansion increases demand, firms can increase the level of output by hiring more workers. But in fully employed economies, crowding out occurs through a different mechanism. In such conditions an increase in demand will lead to an increase in the price level (moving upward along the aggregate supply curve). The increase in price reduces real balances. (An increase in P reduces the ratio M/P) This reduction in the real money supply moves the LM curve to the left, raising interest rates until the initial increase in aggregate demand is fully crowded out.

The second point, however, is that in an economy with unemployed resources there will not be full crowding out because the LM schedule is not, in fact, vertical. A fiscal expansion will raise interest rates, but income will also rise. Crowding out is therefore a matter of degree. The increase in aggregate demand raises income, and with the rise in income, the level of saving rises. This expansion in saving, in turn, makes it

possible to finance a larger budget deficit without completely displacing private spending.

The third point is that with unemployment, and thus a possibility for output to expand, interest rates need not rise at all when government spending rises, and there need not be any crowding out. This is true because the monetary authorities can accommodate the fiscal expansion by an increase in the money supply. Monetary policy is accommodating when, in the course of a fiscal expansion, the money supply is increased in order to prevent interest rates from increasing. Monetary accommodation is also referred to as monetizing budget deficits, meaning that the Federal Reserve prints money to buy the bonds with which the government pays for its deficit. When the Federal accommodates a fiscal expansion, both the IS and the LM schedules shift to the right, as in Figure (10.4). Out put will clearly increase, but interest rates need not rise. Accordingly, there need not be adverse effects on investment.

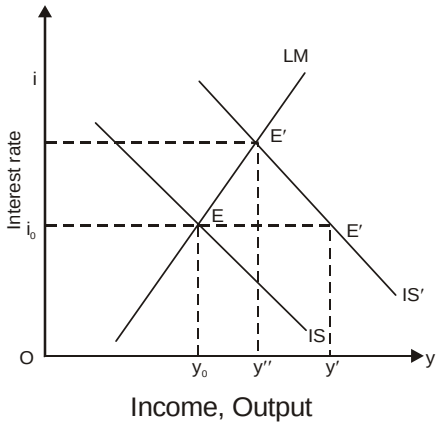

Figure 10.4 Monetary Accommodation of Fiscal Expansion

The Meaning and Mechanism of Crowding-in

Crowding-in means rise in the private investment due to deficit spending by the government. This is contrary to the crowding-out argument. The Crowding-in argument runs as follows. Deficit spending leads,undoubtedly, to the rise in the intrest rate which discourages private investment. But government deficit spending leads to rise in the aggregate demand. This demand is met with by increasing the production from the

existing capital stock.This brings the acceleration principle in force and intensive use of existing capital results in a greater depreciation. Therefore, demand for capital increases. That is, deficit spending stimulates new investments. Thus, there is crowding-in, instead of crowding-out of the private investment. This argument, however, holds only when there are unutilized resourses.

10.6 SUMMARY

1. The two extreme cases, the liquidity trap and the classical case, are useful to show what determines the magnitude of monetary and fiscal policy multipliers. In the liquidity trap, monetary policy has no effect on the economy, whereas fiscal policy as its full multiplier effect on output and no effect on interest rates. In the classical case, changes in the money stock change income, but fiscal policy has no effect on income—it affects only the interest rate. In this case, there is complete crowding out of private spending by government spending.
2. A fiscal expansion, because it leads to higher interest rates, displaces, or crowds out, some private investment. The extent of crowding out is a sensitive issue in assessing the usefulness and desirability of fiscal policy as a tool of stabilization policy.

10.7 QUESTIONS

1. What is a Liquidity Trap? If the economy was struck in one, would you advise the use the monetary or fiscal policy?
2. What is crowding out, and when would you expect it to occur? In the phase of substantial crowding out, which will be more successful—fiscal or monetary policy?

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