BBA-301

MACROECONOMICS

DIRECTORATE OF DISTANCE EDUCATION

SWAMI VIVEKANAND
SUBHARTI UNIVERSITY
Meerut (National Capital Region Delhi)

Contents

SYLLABUS

MACROECONOMICS (BBA-301)

Course Code: BBA-301		
Course Credit: 4	Lecture: 04	Tutorial: 1
Course Type:	Core Course	
Lectures delivered:	30 L + 10 T	

End Semester Examination System

Maximum Marks Allotted	Minimum Pass Marks	Time Allowed
70	28	3 Hours

Continuous Comprehensive Assessment (CCA) Pattern

Tests	Assignment/ Tutorial/ Presentation/class test	Attendance	Total
15	5	10	30

Objective:
The objective of this course is to provide knowledge about the principles of macroeconomics to students.

UNIT	Course Content	Hours
I	Macroeconomics Concepts, Background of Macroeconomics. Need and Limitations of Macroeconomics. Difference between micro and macroeconomics. The circular flow of income and expenditure, Two sector model of Economy.	12
II	Measurement of macroeconomic variables: National Income Accounts, Gross Domestic Product, National Income, Personal and Personal disposable income. Concept of Multiplier. Classical theory of income and employment. Keynesian Model of Income Determination: Aggregate Demand in a Two Sector Economy. Consumption Function, Saving Function	12
III	Money: Functions of money, quantity theory of money, determination of money supply and demand, H theory of money multiplier. The process of Credit Creation and the deposit multiplier. Natural rate theory. Demand for Money and rate of interest :Classical Approach Demand for Money and rate of interest :Keynesian Approach	12
IV	Monetary Policy: Introduction Instruments of Monetary Policy. Meaning of Fiscal Policy Instruments of Fiscal Policy	12
V	The IS-LM Model for a Two Sector Economy: Introduction, IS Curve,LM Curve Equilibrium in a Two Sector economy, Goods Market and Money Market. A shift in the IS-LM curves. Market Equilibrium in a Two Sector economy Open Economy: brief introduction to BoP account.Monetary and fiscal policy in open economy.	12

Course Outcomes: After studying this course the student should be able to

1. Describe the meaning of macroeconomics and circular flows of income.
2. Determine the theoretical aspects of National Income and its aggregates including solving numerical problems and develop an understanding of Keynesian macroeconomics
3. Identify the determinants of demand and supply of money and the working of multiplier in developed and developing countries
4. Display a mature understanding of monetary and fiscal framework for policy making and its limits
5. Grasp the integration of goods and money market and develop the ability to predict the cause and effect of policy changes on macroeconomic variables using IS-LM framework

Text Books:

1. Ahuja, H.L., Macro Economics, S. Chand & Co., New Delhi.
2. Froyen, R.P. (2011): Macroeconomics-theories and policies (8th ed.). Pearson:
3. Dornbusch and Fischer (2010). Macroeconomics . Tata McGraw Hill
4. N Gregory Mankiw (2010). Macroeconomics Worth Publishers

Reference Books:

1. Olivier Blanchard, Macroeconomics .Pearson

Unit–1

Introduction of Macroeconomics

Notes

Structure

1.1. Objectives

After studying this unit, students will be able to:

- Know macroeconomics.
- Know macroeconomics targets and instruments.

1.2. Introduction

If we can know the origin of macro then we will be able to know the meaning of macroeconomics. Macroeconomics has been taken from Greek word 'Macros' which means 'large'. Hence macroeconomics means to analyze whole economy at wide level.

1.3. What is Macroeconomics?

Macroeconomics is not a new term for students. In fact, you have already understood the difference of terms 'Micro' and 'Macro' at senior secondary level. Repeating this difference, it can be said that in microeconomics, economic problems are studied at individual level (like – an individual family, an individual firm, an individual industry, an individual market etc.) whereas in macroeconomics economic problems are studied at the level of economy as a whole.

- According to **Shapiro** – "Macroeconomics deals with the functioning of the economy as a whole."

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- In **Ackley Gardner's** words – "Macroeconomics concerns with such variables as the aggregate volume of the output of an economy, with the extent to which its resources are employed, with the size of national income and with the general prize level."
- In words of **M.H. Spencer** – "Macroeconomics is concerned with the economy as a whole or large segments of it . In macroeconomics attention is focussed on such problems as the level of unemployment, the rate of inflation, the nation's total output and other matters of economy wide significance."

1.3.1 Background of Macroeconomics

In old days, the subject matter of economics was divided into three basic activities *i.e.*, production, consumption and investment. The production of the goods and services with the help of the various factors of production is considered under **production**. The nature of human wants and the principles governing their satisfaction are studied under **consumption**. The surplus of production over consumption in an accounting year is defined as **investment or capital formation**. In this respect, classical economists like **Adam Smith, Malthus, Ricardo** etc., studied economic parameters from the viewpoint of the economy as a whole. However, neoclassical economists like **Marshall, Pigou** etc., attached greater significance to the study of Micro parameters and the trend continued till the world's Great Depression of 1930. Therefore, in order to eliminate this dispersion Prof. **Ragnar Frisch** of Oslo's University, Norway divided the study of economics into two branches in 1993. These were (*a*) *Microeconomics*, and (*b*) *Macroeconomics*. After that, in 1936, with the publication of **J.M. Keynes'** book, *The General Theory of Employment, Interest and Money*, study of two different branches once again assumed greater significance.

Microeconomics deals with the individual units of the economy. If we recollect the concept of microeconomics, we should recollect that it is concerned with particular to general. It studies economic problems in parts and deals with individuals of the system such as individual household, firms and industries. It deals with the trees of the entire economy in a forest and tries to prove that the behaviour of the forest reflects the behaviour of its trees. Now, it is time to study about the whole forest *i.e.*, macroeconomics.

1.3.2 A Necessary Caution

Generally, it is said that macroeconomics is the study of aggregates not of "individual units ", which are studied only in microeconomics. To understand this difference caution is needed. Regarding this following two points are needed to be considered:

(*i*) Macroeconomics is the study of aggregates and that is only at whole economy level. Therefore, when we mention about demand in macroeconomics then we refer to aggregate demand. Whose vested meaning is all goods and services for whole economy's by all sectors as (all families), all friends and government demand).

(*ii*) There is no doubt that in microeconomics individual units are studied, but it does not mean that individual unit aggregates are not studied in it.

Notes	In both 'micro' and 'macro' economics, supply/demand are added. But in microeconomics, it is limited to aggregate of any one goods or one market (as a market of cricket balls), whereas in macroeconomics all those goods and services are added which are produced by an economy, whether it is cricket balls or hens or chicken.

Notes

When we talk about supply and demand of textbooks of economics then we mean only market of economics textbooks, rather than in it total demand and total supply are included, whether this total demand of economics textbooks which students buy or total economics textbooks which seller sells.

1.3.3 Salient points on the Difference between Microeconomics and Macroeconomics

1. **Degree of Aggregation:** There is the difference in economic factors of microeconomics and macroeconomics. Microeconomics studies those economic problems which are related to single economic unit as a single firm or small group of economic units as a single industry. Microeconomics studies economic problems of firms of an economy. Microeconomics studies only a small part of economic factors whereas macroeconomics studies important aggregates of economic variables.
2. **Focus of Study:** The focus of study of microeconomics theory is related to optimum distribution of factors and, study of problems and policies. Just its contrary macroeconomics focuses on study of employment status of resources tends in economy, resources development related theory, study of problems and policies.
3. **Basic Parameters of Subject matter Difference:** In microeconomics and macroeconomics explaining basic parameter, **Prof. G. Thimmah** has said that the main determiner of microeconomics problem is price whereas the main determiner of macroeconomics problem is income. In microeconomics, consumer, producer, factor of production etc. economic units take their prices on different market basis. Just its contrary in macroeconomics total investment, total savings etc. related decisions are taken mainly on rational income's basis.
4. **Methods of Study:** At the time of formation of microeconomics' theories we assume, "Other things being equal". For example, in law of demand, we study about relation between price and quantity of demand. Other factors affecting demand, as a consumer's income, his habit, his interest, price of related goods etc. effects assume constant. This method of study is called Practical Equilibrium Analysis. Just its contrary in macroeconomics, economic factors are

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classified in important aggregates, as total demand, total supply, total investment etc. interdependence of these factors is focus of study of macroeconomics. The meaning of this method of study is called – Quasi General Equilibrium Analysis.

5. **Set of Assumptions:** Microeconomics and macroeconomics are based on group of various assumptions. In microeconomics generally it is assumed that in country full employment's conditions are found. Total production and total expenditures are also assumed constant. On the basis of these assumptions, it is tried to determine, how is optimum allocation of resources and how various economic units get equilibrium condition. Just its contrary, it is general assumption of macroeconomics that allocation of resources is optimum. On this assumption, it is tried to know that how national resources get full employment.

Micro –Macro Paradox

The matter which is right at individual levels perhaps is not right for whole economy : For example, (1) If a person saves major part of his income, it may be beneficial for him, but if whole society will save more than before then its result will decrease in total consumption, decrease in total demand, decrease in total supply and decrease in national income. Similarly, more savings will be descructive for whole society. (2) If a person withdraws all his deposits from bank, then it will no loss to bank; but if all depositors withdraw all their deposits from bank, then bank will be failed. (3) If a labourer accepts to work on low wage, then he will get a job, but if all labourers decrease their wages rate then their income will decrease also. Their total demand will be decreased, therefore, total production will decrease too. As a result of this, level of employment will decrease rather than increasing. Such a paradox is the difference between microeconomics and macroeconomics.

Prof. Boulding has clarified this difference of macro and micro economics by a tree and a forest example. According to him a forest is a group of number of trees, similarly an economy is the combination of many people. The differences between a forest and a tree are as follows— (*a*) A tree can die but a forest always exists. (*b*) There is no tendency of catching fire of a tree but wildfire is a common matter. (*c*) A single tree has no effect on climate but a forest affects climate. Such differences are found in micro and macroeconomics. Therefore, many times it seems that in one economic activity from individual point and view is changing but an aggregate point and view, stagnation founds in then.

We should not draw conclusion by studying difference of micro and macroeconomics that these two are the separate branch of economics, certainly not. In fact, studying of one, we get knowledge of others. This is in fact different method of studying different economic problems and issues. Many a time it becomes compliment to each other. Generally, in the light of macroeconomics (as a income, employment and aggregate demand level)

individual producer takes this decision that what and how much he produces. Similarly, generally in the background of micro level, present allocation of resources are made at macro level, economy's future development related plans and projects are made.

Notes

Self Assessment

Fill in the blanks:

1. Macroeconomics is related to ..... on whole programming.
2. Macroeconomics means at wide level whole economy's ..... .
3. Macroeconomics's relation is with whole economy or its major ..... .

Notes	In macroeconomics, economic problems are studied at the level of whole economy.

1.4. What do we Study in Macroeconomics?

This question is related to scope of macroeconomics. The meaning of scope is dimensions. Means which economic problems and issues are to be included in macroeconomics. Its knowledge is essential to understand its contents. Widely, in scope of macroeconomics study following are included:

1. **Theory of National Income:** In macroeconomics different concepts of national income, its different factors, methods to measure it and social accounting are studied.
2. **Theory of Employment:** In macroeconomics, employment and unemployment related problems are studied. Different factors that determine level of employment as an effective demand, total supply, total investment, total savings etc. are studied in it.
3. **Theory of Money:** Change in demand and supply of money affect employment level to a great extent. In macroeconomics function of money and related theories are studied. Banking system and other financial institutions are also studied in this context.
4. **Theory of General Price Level:** The study of change in general prime level is the main problem of macroeconomics. Inflation (general increment in price) and deflation (general decreasement in prices) are the main problems in this context.
5. **Theory of Economic Growth:** In macroeconomics, economic growth means increment in real per capital income, related problems are studied. Under developed economies growth related problems are studied specially. Government's monetary and Financial Policies are studied in this also.
6. **Theory of International Trade:** In macroeconomics, trade between different countries is studied also. Theories of international trade, tariff, protection etc., are the most important topic of macroeconomics.

Notes

Self Assessment

Multiple Choice Questions:

4. Macro word has been taken from Greek word .....
   (*a*) macros (*b*) micros
   (*c*) origin (*d*) none of these
5. In micro and macro economics are added .....
   (*a*) of demand (*b*) of demand/supply
   (*c*) of supply (*d*) none of these
6. In micro and macroeconomics, economic factor's ..... degree is found.
   (*a*) aggregate (*b*) cost
   (*c*) curve (*d*) none of these

1.5. Major Macroeconomics Issues

Why we need macroeconomics? Is microeconomics not sufficient to understand the economic problems and their analysis and solutions? Certainty not. We study microeconomics, economic problem as an individual economic unit like food industries, production of fruits or cloths. But some problems are of the type which are related to all industries or generally all production units, like infrastructural facilities in which much electricity (or other means of energy) is needed, besides credit and other facilities, efficient communication and transport facilities are needed. These facilities are needed in each industry. In fact, these are the fundamental necessities of production process. The solutions of these problems are sought at whole economy level. Investment is the compulsion of study of macroeconomics. Some macroeconomics related problems are mentioned ahead, it is clear from that study of macroeconomics as a special branch is necessary.

1.5.1 Growth and Development

Growth and development are the two important factors of microeconomics or macroeconomics related policies. 'Growth and development' have become the focus of study of macroeconomics of different countries' economy in this age of globalization. The continuous growth of economic policies is essential and this growth (in the form of flow goods and services) is necessary in the form of increasing standard of living of common people or otherwise total improvement in the quality of life should be there. Growth should be transformed into development. Its meaning is that the gap between the rich and the poor should be reduced in course of time. In fact, the problem of growth and development has got much importance in recent past. Attainment of economic growth should not be done by (*i*) downfall of environment and (*ii*) natural resources (particularly non-renewable resources) excessive exploitation because by this future generations production potentiality may be reduced. Only in this context economist talks

about 'sustainable development' and this is the rising problem of today's macroeconomics. In fact, planner and politicians are cautioned that they should formulate such types of macroeconomics related policies that could confirm consistent economic growth (in the form of continuing availability of goods and services increasing) and social justice (means in the form of equal distribution of wealth and income) and neither decay of environment nor future generations' production potentiality should decrease by any means.

1.5.2 Employment

In the decade of 1930, whole world was in the grip of Great Depression. Economic activities became very slow. The demand of goods and services had been fallen. As a result, massive fall in commercial benefit, investment cut down at large level and unemployment spread. If in the production field a large percentage of active population faces unemployment, then it becomes such a problem whose solution at the whole economy level becomes very essential. This is an important problem of macroeconomics. In India, unemployment continues to be a dreadful problem. Unskilled labourers at great scale has suffered from rural unemployment. In urban areas too in skilled artisians found amazing unemployment and under employment. In our country unemployment problem is so vast and long-termed that government has subjected to give reservation in government jobs. This reservation is trying to implement in private sector also. In fact, why reservation will be needed if all those who are ready to work on given wages, great number of jobs is created? It can be said certainly that our country is not developing at that rate on which whole manpower of country can be employed.

Unemployment is not a characteristic of underdeveloped country like India. This is a serious problem of developed countries like U.K. and U.S.A. In developed and underdeveloped countries only difference found in nature of unemployment. In underdeveloped countries its nature is chronic and its reason is shortage in production potentialities. Just its contrary, in developed countries its nature is cyclical for that reason there is decrease in the demand of goods and services. Still, an important problem of macroeconomics is unemployment and it is related to all economies of world.

1.5.3 Business Cycle

Economic activities always have ups and downs. The changes which occurred are not steady. When economic activities go down then it is called stage of recession when it reaches to its lowest position then it is called stage of great depression. When it improves then it is called stage of recovery and when it reaches at its topmost position then it is called stage of boom. Recession and great depression are the stages of low profit. In this condition marginal firms are closed, huge cut in quantity of investment and unemployment takes dreadful form. Just its contrary boom condition is such a condition where profit is increasing in which quantity of investment and means of production of demand increases continuously.

Notes

Business cycle is not limited to a special firm or a particular commercial activity. This is a macro phenomenon which takes into its grip, all production units of country. In fact, at times it becomes a global phenomenon, like great depression in 1930. It is a matter of fact to pay attention that the origin of microeconomics as a separate branch is given to 1930's great depression. During this period, capitalist economies of world, particularly in U.K. excessive employment was found. In U.K. economy unemployment level reached at the rate of 25%. In such a time great economist of world Lord Keynes had propagated theory of income and employment and deficiency of aggregate demand, caused occurred problems of unemployment's global remedy.

In fact, an economy's cyclic circulation in itself is a great macroeconomics related problem whose solution is to be sought not only by producer but also by government. Producer follows such a strategy by which recession and boom's condition can be faced. Government is to formulate such a policy by which effect of business cycle can be minimal and economic growth's fixed path can be made certain.

1.5.4 Inflation

Inflation is called such a condition in which at general price level (Average cost of all goods and services of economy) within a given period of time finds tendencies of continuously increasing. As a result, value of money decreases and people's real purchase power decrease. This is also a macroeconomics related problem, whose understanding and solution is very necessary.

Normal increment in price is helpful in economic growth. It causes increment in investment and whole level of economic activities is initiated. But inflation sometimes takes the form of galloping inflation of hyper inflation. In the condition of hyper inflation, factors of production become costly. Specially in investments' interest rate got tendency of heavy increment. As a result of this cost of production increases much and business competitiveness is becoming less, specially in world market. When the tendency of decrease in demand and rise in production cost are got then obstacles occur in production process. In such a case economy move towards boom to recession and great depression.

Common man suffers seriously due to inflation. His purchasing power decreases and his dissatisfaction towards government increases. General dissatisfaction finally takes the form of social restlessness. In fact, price control charity has become a part of election manifesto in countries like India. As a result, most welfare states have given priority on inflation controlling strategies. In this time for government prevails major policy problem is growth without inflation.

1.5.5 Budgetary Deficit and Fiscal Policy

After privatisation and globalistation of world's economies in development process, direct participation of government (as an investor) is becoming continuously less. But due to the extension of welfare related

work, government budget related expenditure is increasing. Specially, defence to face the challenge of terrorism and to maintain law and order, government expenditure is continuously increasing. Another cause of increase in government expenditure is giving subsidy to farmers. This matter is to be paid attention that a country like India a major part of government expenditure is expensing on non-development activities. It means that government expenditure is more on consumption of goods and services and less in their production. Countries like India mostly government as a means of income depends on borrowings. As a result of this, fiscal deficit borrowing by government in huge quantity is continuously increasing. As much increasing in borrowing by government, Reserve Bank of India's responsibility of producing currency notes increases. As a result of this, fuel add to inflation like fine whose adverse result affect country's growth and its development. As a form of alternative, government for increasing his income, tries to impose more tax. But, if money paid by taxpayer is invested in luxurious activities then production by government then social resentment spreads through which political instability occurs and the danger of economy activities for whole country increases.

Budgetary deficit and fiscal policy related to that is a central problem of macroeconomics on which serious supervision is needed, so that in economy for investment a favourable environment can be made.

1.5.6 Interest Rates and Monetary Policy

Monetary policy is related to those monetary measures by which government in economy (*i*) rate of interest and (*ii*) changes in supply of money, so that growth with stability can be promoted. High rate of interest means high cost of investment which is harmful to development process. India like underdeveloped countries high rate of interest is very sensitive, because due to this whole production cost is increased and in international market their competitiveness becomes less. As a result, these countries' exports are affected and their import capacities are reduced; whereas reality is that, for these countries economic development's acceleration fast, capital intensive goods import is necessary. On the other hand, high interest rate is a great challenge for these economies, because it causes more inflation. These economies are mostly agriculture intensive and weather affects them to a great extent, due to shortage of rain in these economies occur much imbalance between supply and demands of food. This imbalance causes inflation. Inflation gradually takes whole economy in its grip. When general price level increases, then increase of interest rate and their adverse effects are inevitable.

In above section it has been discussed that government's deficit budget and as a result of this borrowing by government has become a central problem of macroeconomics. Generally, in economy due to borrowing, supply of money increases that becomes the immediate cause of inflation whose production capacity is very low.

Supply of money and keeping rate of interest in control for underdeveloped countries regarding macroeconomics are great challenges

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because these countries become victims of immediate inflationary factor pressure. But, it does not mean that there is no relevancy of monetary policy in developed countries. If underdeveloped economies, due to low production capacity, and high aggregate demand are sensitive towards inflation-factor-pressure, then developed countries are also due to comparision of total supply of goods and services and recurring deficiency of aggregate demand are as much sensitive towards inflation factors pressure.

In inflation condition, investment initiative become very low, rather rate of interest is low. The purpose of monetary policy of such economies is to increase supply of money, so that expense on goods and services can be increased and in this way shortage of demand can be removed.

Exchange rate (in international market the value of one country's currency to other country's currency) is another parameter of monetary policy by which all levels of economic activities are affected. Favourable exchange rate, with comparison to other countries increase in value of currency of own country, is not a good sign. For those economies that want to make its development process rapid by export promotion, this is certainly not right. The meaning of increasing in value of Indian currency that by one American Dollar in Indian market will be purchased less goods and services form prior. In other words, now the demand of Indian goods in international market will be necessarily less.

Did You Know?	In macroeconomics, function of money and theories related to that are studied.

Self Assessment

State whether the following statements are True or False:

7. Macroeconomics studies trade among different countries also.
8. Change of demand and supply of money affect employment level much.
9. Macroeconomics studies employment and unemployment related problems.
10. Growth and development are not the main factors of microeconomics or macroeconomics related policies.

1.6. Macroeconomics Targets and Instruments

Above mentioned macroeconomics problems are generally divided into categories—(1) target of macroeconomics and (2) policies of macroeconomics. Growth and development, employment and economic stability etc. problems are the target of macroeconomics.

Each nation's target is to get high rate of growth and development for the improvement of standard of living of own countrymen. A nation tries to change growth process into development process so that in growth benefits can be distributed justificably. Its also endeavours that development

process makes a sustainable process, so that future generation's development potentialities do not less by any means. The target of a country is to maximize rate of participation, so that unemployment rate can be done minimal. Besides this, the target of each nation is to make rigid development process, means to keep minimal economy inflationary and disinflationary pressure.

For the attainment of target policy instruments are needed. These important policy instruments work as fiscal and monetary policies. These policies are formulated by government, however, any type of political system may be. This is remarkable regarding this that macroeconomics related policies are compliment to each other, rather alternative to each other. Fiscal and monetary both instruments are used together. Macroeconomics fixed target attaing government determines the appropriate importance of fiscal and monetary instrument.

☞ According to **Lipsey** and **Chrystal**, "Macroeconomics policy problem is to choose appropriate values of policy instruments in order to achieve the best possible combination of the outcomes of the targets. This is a continually changing problem because the targets are perpetually being affected by shocks from various parts of the world economy."

Task	Express your views on main problems of macroeconomics.

1.6.1 Limitations

Like other subjects macroeconomics is limited too. Regarding this following notes are to be paid attention.

1. **The Fallacy of Composition:** Macroeconomics may be conclusion based on simple combinations of individual units. But those facts are logical and right for an individual, it is not necessary that those are right and logical for whole economy. Undoubtfully, saving is virtue for an individual, but if all persons will have been saving then total demand will be less, so that no initiative for investment and decrease in national income. Finally, as a result of this national savings will decrease also, rather increase. **Prof. Samulson** called it the 'Fallacy of composition'. According to him, excessive generalization tendency of macroeconomics, due to this personal experiences are applied to whole economy is not appropriate.
2. **Heterogeneous Units:** In the study of aggregates many heterogeneous units are included. These units are measured by different types. It is not possible to express these units in uniform numbers or homogeneous measures. **Prof. Boulding** has explained it by following example.

   6 apples + 7 apples = 13 apples (This is a meaningful aggregate.)

   6 apples + 7 oranges = 13 fruits (This is also a meaningful aggregate.)

   6 apples + 7 houses = ? (This is a meaningless aggregate.)

Notes

It is clear from above example that generally heterogeneous units aggregates are vague. For heterogeneous units rather we use money as common denominator, but money value is not the true measures of its value in use.

3. **The Composition of Structure of the Aggregate is more Important than Aggregate itself:** In macroeconomics aggregates are studied, but in fact any system is affected by more composition of the aggregates or its structure than aggregates itself. Suppose that in 2006 and 2007 A.D. price level was constant, but it does not mean completely that in 2007 there was no change in price. It is possible that in 2007 there is some decrease in price and increase in industrial goods cost. As a result, general price level remained fixed. Therefore, to understand problems properly, study of structure of the aggregate is as necessary as aggregate itself. But in macroeconomics structural analysis of parameters are seldom given importance.
4. **Diverse effects of Aggregates:** Another limitation of macroeconomics is that various sectors of economies do not study the various affects of an aggregate. Macro parameters do not give uniform effect on all sectors of economy. For example, increment of price level has beneficial effects for businessmen and industrialist, but wage-earners suffer loss. In macroeconomics such cross section studies are mentioned in very pre use.

In short, doing concentration at collective analysis, macroeconomics generally, ignores such a micro parameter importance which is the basic factor of contents.

Therefore, at the time of people's poverty or standard of living assessment we assume their per capita income and consumption as parameters and ignore this fact that rather in course of time average parameter is continually increasing, since total number of people also increased that live below poverty line. Do microeconomists who make hue and cry over increment in per capita income in India, will pay attention to distribution of income? Will they think people died of starvation, particularly when supply of foods are more than their demand? Yes, but only few.

Key Points

- **Macroeconomics:** It studies at whole economic level economic problems or issues, as unemployment, rate of inflation, business cycle, etc.
- **Principal Points of Difference between Micro and Macro Economics:** (*i*) Microeconomics studies an individual economic unit as a single family or one firm related economic problems/issues. Macroeconomics studies economy related economic problems/issues. (*ii*) Microeconomics is centred on optimum allocation of resources, whereas macroeconomic is centred on production and employment level. (*iii*) In the contents of microeconomics "price" is the main

parameter, whereas in macroeconomics it is "National Income". (*iv*) Microeconomics is based on "partial equilibrium" analysis whereas macroeconomics is based on "quasi general equilibrium" analysis.

- **Areas of Macroeconomic study:** (*i*) Theory of national income, (*ii*) Theory of employment, (*iii*) Theory of money, (*iv*) Theory of general price level (*v*) Theory of economic development (*vi*) Theory of international trade.
- **Major Macroeconomic Issue:** (*i*) Growth and development (*ii*) Employment (*iii*) Business cycle (*iv*) Inflation (*v*) Budgetary deficit and fiscal policy (*vi*) Interest rates and monetary policy. Growth and development, issues of the employment and business cycles are considered to be target of macroeconomics.
- **Limitations of Macroeconomics:** (*i*) The fallacy of the composition: Many conclusions of macroeconomics are simply based on individual units' simple composition. (*ii*) Heterogeneous units : The aggregates of heterogenous units generally give false conclusion. (*iii*) The composition or structure of the aggregate is more important than aggregate itself, whereas study of macroeconomics generally ignores this aspect. (*iv*) On population's various classes, different effect of aggregates are generally given no impotance.

1.7. Summary

- In macroeconomic[s] [are] studied, but in fact to any system, composition of ag[gregate] [s]tructure affect more than aggregates itself.
- Suppose that in 2006 and [2]007 A.D. price level was constant, but it does not mean completly th[at] in 2007 there was no change in prices. It is possible that in 2007 there was some decrease in price and increment in the price of industrial goods. As a result general price level might have constant. Therefore to understand problem properly, study of structure of aggregate is as necessary as aggregate itself.
- But in macroeconomics, structural analysis of parameters are seldom given equal importance.

1.8. Keywords

- **Macro:** Big.
- **Micro:** Small.
- **Aggregate Demand:** Demanded by all sector.
- **National Income:** Income of the nation.

1.9. Review Questions

1. What is macroeconomics? Explain.
2. Explain main problems of the macroeconomics.
3. Write main points of macroeconomics.

4. Write short notes on
   (*a*) Background of microeconomics
   (*a*) Limitations of microeconomics

Notes

Answers : Self Assessment

1. Economy	2. Analysis	3. Areas	4. (a)
5. (b)	6. (a)	7. True	8. True
9. True	10. False		

1.10. Further Readings

1. **Macroeconomics**—*Mohan Srivastava, DND Publications, 2010.*
2. **Macroeconomics**—*S. K. Chakravarti, Himalaya Publishing House, 2010.*
3. **Macroeconomics: Theory and Policy**—*H.L. Ahuja, S. Chand Publishers, 2010.*

Unit–2

National Income : Concept of National Income

Notes

Structure

2.1. Objectives

After studying this unit, students will be able to:

- Understand the concept of national income.
- Understand the measurement of national income.
- Explain some related aggregates.
- Discuss components of national disposable income.

2.2. Introduction

A person will be considered to live in a country, when he does not live outside the country, for one year. But students who go abroad for study or patients who go for treatment, these terms and conditions are not applied on them. If any person, suppose any Indian lives in foreign for more than one year then he will not be considered as normal dissident of India, rather he will be considered as an NRI–Non-Resident Indian.

2.3. Concept of National Income

The common factor between domestic income and national income is that in the range of both concepts only production factor's income is included, means revenue (to land), interest (to capital) profit (to entrepreneur) and wages to employees (to labour). Those factors which are not common to both concepts, they are as follows:

Notes

(i) Whereas domestic income necessarily created in domestic border of the country, but national income can be created in any part of the world.

(ii) Whereas national income is created by both dissidents of a country and NRIs, national income is created only by dissidents of a country, who are called the "Normal Residents" of a country.

2.3.1 A Closed Economy

A country which has no economic relations with other countries is termed as a closed economy in Economics.

Main Features

(i) A closed economy **has no import or export** (visible and invisible items and relations with rest of the world.

(ii) In closed economy, we can **understand the inter-relationship between production, consumption and capital formation in a better way**. Total production of the country is available either for consumption or for capital formation or for both. Here, increase in consumption necessarily means less capital formation and vice-versa. We cannot increase both consumption and capital formation simultaneously in the same year.

(iii) In the world of closed economy there is **no place of international specialisation and international trade**.

(iv) Sometimes, for the simplification of analysis **economists make the assumption of closed economy**.

2.3.2 An Open Economy

An economy which has economic relations with other countries of the world is termed as an open economy.

Main Features

(i) An open economy has **open economic relations with other countries**. These international economic relations affect production, consumption and capital formation of the country.

(ii) Selling and purchasing of goods and services in the world market.

(iii) Selling and purchasing of shares in the foreign market.

(iv) Lending to foreigners and borrowing from foreigners.

(v) Sending and receiving gifts to and from the foreign countries.

(vi) People coming and going for work in other countries.

These days all modern economies are open economies. India is also an open economy.

Difference between Open Economy and Closed Economy

Points of Difference	Open Economy	Closed Economy
1. Meaning	An economy having economic relations with other countries is called open economy.	This economy has no economic relations with other economies.
2. GDP and GNP	Gross Domestic Product and Gross National Product amy be different.	Gross Domestic Product and Gross National Product are the same.
3. Realistic concept	The concept of open economy is a realistic concept.	It is not a realistic concept. It is imaginary these days.

Significance of the Distinction between Closed Economy and Open Economy

In brief, we can say that in closed economy there is no international transactions while in an open economy it takes place. The concepts of closed economy and open economy are very relevant to understand the distinction between gross domestic product and national income of a country. **If an economy is a closed economy, there will be no difference between gross domestic product (G.D.P.) and gross national product (G.N.P.) But if an economy is an open economy, G.D.P. and G.N.P. may differ**. In an open economy—

GNP = GDP + Net factor income from abroad.

2.3.3 Domestic Territory

In Gross Domestic Product we include only the goods and services produced in a domestic territory of a country. As such, it will be useful to understand the meaning of this term. Generally people do not make distinction between the domestic territory of a country and the political frontiers of a country. *Domestic territory is a bigger term and it incluses the following:*

(*i*) Political frontiers of a country including its territorial waters.

(*ii*) Ship and aircrafts operated by the residents of the country between two or more countries. For example, Air India services between different countries.

(*iii*) Fishing vessels, oil and natural gas rigs and floating platforms operated by the residents of the country in the international waters or engaged in extraction in the areas of exclusive rights of exploitation.

(*iv*) Embassies, consulates and military establishments of the country located in other countries. For example, Indian embassy in U.S.A., U.S.S.R., Japan or in other countries.

Notes

Domestic territory may, as such be defined as the political frontiers of the country including its territorial waters, ships, aircrafts, fishing vessels operated by the residents, embassies and consulates etc.

2.3.4 Normal Residents of a Country

Normal residents of a country are those

(*i*) Who generally live in that country, and

(*ii*) Whose economic interests are centred to that country.

A person living near by border, goes daily to earn livelihood, crossing border, but his centre of interest remains his own country, because he returns to his family daily. Such a person will be considered normal resident of his own nation.

This matter should be understood, that the persons who are citizens of a country, necessarily not that they are the normal residents of that country. For example, if an Indian citizen resides in U.S.A for more than one year then he will be considered a normal resident of U.S.A, not of India, rather by birth he is an Indian. Similarly, a person like Sonia Gandhi, however, by birth a citizen of Italy, rather than she will be considered a normal residents of India because generally she resides in India and her centre of interest is India also.

This matter is also important that "Normal resident" term, person and his rights are also included. State Bank of India like financial institutions branch may be situated in London. That branch's economic interest will be associated to India. As much profit that branch will earn that profit will be considered a part of State Bank of India's whole part.

2.3.5 National Income is an Attribute to Normal Resident only

A country's national income's relationship is only to normal resident of that country. Its meaning is that all foreigners residing in India and institutions, earn factor income will not be considered a part of India's national income, if that person and institutions are not the normal resident of India. Repeating this fact, the earnings of non-residents of India, being a part of domestic income of India, it will not be considered a part of India's national income. Therefore, the earnings of Indian, who are staying in foreign not being a part of India's Domestic Income is considered as a part of India's National Income. Therefore, if the earnings of Indians who are staying in foreign is added to the domestic income and subtracted from the earnings of Indians who are staying permanently India then the domestic income will be converted into national income. This relationship of domestic income and national income is explained by following equation.

Domestic income: [(Net Domestic Product at Factor cost (NDP_{FC})] + (*i*) Factor income earned by our residents from rest of the world – (*ii*) Factor income earned by residents of rest of the world in our country

= [National Income (Net National Product at Factor Cost)]

(*i*) – (*ii*) is called net factor income obtained from foreign.

Accordingly, above equation can be written as follows.

Domestic Income (Net Domestic Product at Factor Cost) + Net Factor Income obtained from Foreign

= National Income (Net National Product at Factor Cost)

Or

Net National Product at Factor Cost – Net Factor Income obtained from Foreign = Domestic Income

Notes	A country's national income relationship is only to normal residents of that country.

2.4. Circular Flow of Income

The process of production continues with the help of factors of production. In economics there are four main factors of production, *i.e.*, land, labour, capital and enterprise. Producer enterprises (*i.e.*, business sector) produce goods and services with the help of these factors and make payment to these factors for their services. These payments are *factor payments from the business side* and *factor-income from the viewpoint of factors of production.* The firms get these factors from the households, so households receive these factor incomes. Households in order to satisfy their wants purchase goods and services produced by the business and thus make payment for them to the business. These payments become the income of these firms. Thus, in an economy, *income is generated out of mutual payments between households and business sector for factor services and for goods and services.*

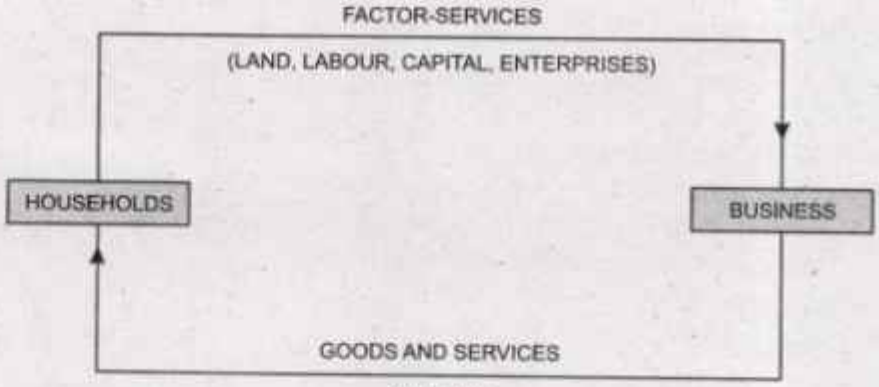
2.4.1 Real Flow and Money Flow

Production of goods and services is a continuing process in every economy to satisfy unlimited innumerable wants of all the individuals. Households render their factor services as owners of land, labour, capital and enterprise to business. The firm produces goods and services to meet to demand of the households. Such flow of goods, services and factor services is known as 'Real Flow'.

In modern economy, goods, services and factor services are valued in terms of money. Households receive rent for their land, wages for their labour, interest for capital and profit for their enterprise from business sector and make payment for goods and services supplied by business.

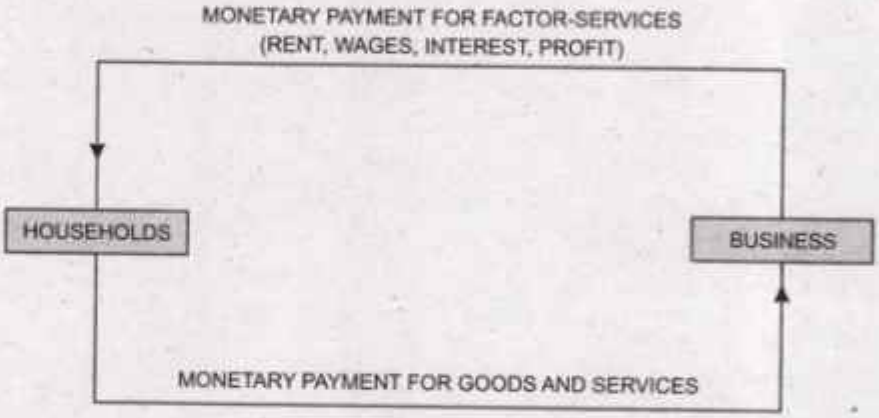
Real Flow. In an economy, **the flow of factor services fro households to business and flow of goods and services from business to households, is known as *real flow*. It is shown below:**

Notes



Real Flow

Money Flow. Modern economies are called money economies, because in these economies all transactions are conducted through the medium of money. All payments by the firms to the households for their factor-services and by the households to the business against goods and services supplied by them are made in money form. Thus, **the cycle of monetary payment from business to the households for their factor-services and in turn the monetary payment from households to the business against their goods and services, is known as money-flow.** It is shown below:



Money Flow

Difference between Real Flow and Money Flow

Real flow is the exchange of goods and services between households and business, whereas in case of *money flow*, exchange of money between the two sectors takes place.

In case of *real flow* raw material, land, labour, capital and enterprise flow from household sector to business. At the same time, firms supply goods and services to households.

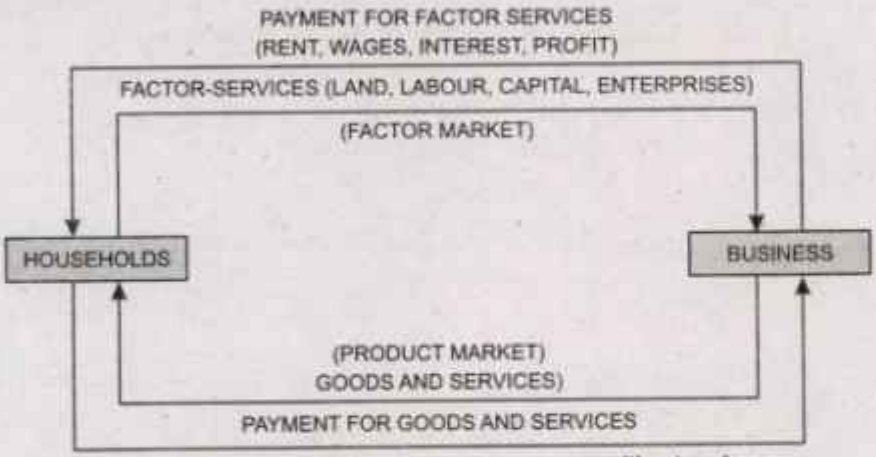
In case of *money flow* the households sector is remunerated for its factor services. The sector receives wages, salaries, rent, interest and profit for their factor services. The payment is received in monetary form. Household sector has got unlimited wants. The sector purchases goods and services from business sector, so the flow of money from household to business takes place.

If we prepare a diagram we shall find that real flow is always *clockwise*, whereas money flow is *anticlockwise*.

2.4.2 Circular Flow of Income

Circular flow in the two sector model. Income is generated during production process and flow of income between households and business in a two sector economy takes place. Business produce goods and services by obtaining factor services from households and pay rent, wages, salaries, interest and profit to them. These payments are the income of households, who use it in purchasing goods and services from production units (business). In this way, money reaches to the firms again who invest it in production process again, generate income, make factor payments to households, who purchase goods and services and in this way money is sent back to firms again and flow of income continues.

During the production process of an economy due to transactions between different sectors of the economy, income and expenditures move from one sector to the other in a circular form.



Circular flow of income in a two sector economy without savings

Circular flow has two forms: real flow and monetary flow. The circular flow of income in a simple two sector economy has been shown in the above diagram. The inner circle of the diagram shows real flow between households and business and outer circle shows monetary flow. In such an economy at the equilibrium level income and spendings are equal and there is no savings.

As a result of the above discussion we can dervie the following in case of simple economy.

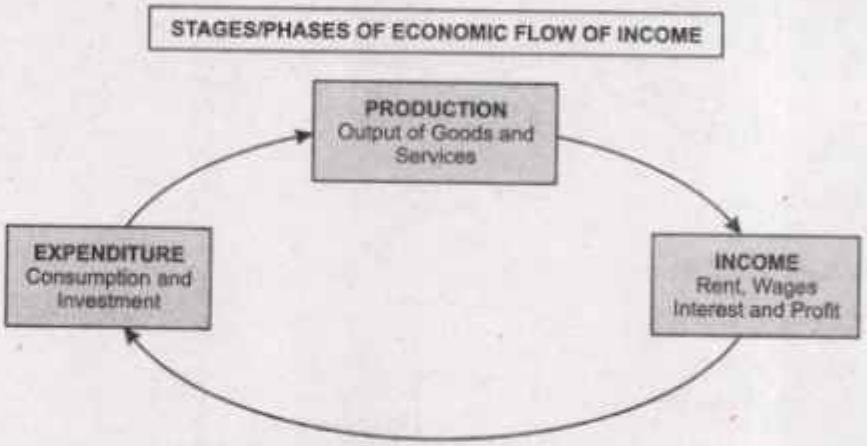
Total production of goods and services by business sector	=	Total consumption of goods and services by household sector
Factor payment by business sector	=	Factor income of household sector
Consumption expenditure of household sector	=	Income of household sector
Real flows of production and consumption of business and households	=	Money flows of income and expenditure of business and households

Notes

The two sector Economy which is shown in the previous diagram is too simple form of the economy which is not prevalent in practice.

2.4.3 Phases/Stages of Circular Flow of Income

National income is flow. The generation of national income is a continuing process. We introduce labour and capital as inputs and produce goods, and services. The production is the result of the combination of land, labour, capital and enterprise. The revenue generated by the production units if distributed among factors of production as Rent, Wages, Interest and Profit. The factor income is spent in the purchase of goods and services and thus goes back to business. The business again uses these founds in the production resulting in income and leading to expenditure. The process of the circular flow of income continues indefinitely. The phases of the circular flow of income are shown as under:



The above diagram shows the continuing process of economic flow of income.

1. **Production phase:** Production units assemble and integrate physical and human factors of production and produce goods and services. Firms exchange and sell these goods and services in the market and earn revenue. Payment to factors of production is made for their contribution in the production. Land is paid rent, labour gets wages. Capital is paid interest and entrepreneur finally gets profit as factor cost. Production is the first phases of income flow.
2. **Income phase:** Households offer factor services to the production units as owners of land, workers, owners of capital and entrepreneur. They are rewarded in the form of rent, wages, interest and profit as factor income. Factor income is classified as compensation of employees, operating surplus and mixed income. As such national income generated by producing sector reaches households as contributors of factor services.
3. **Expenditure or disposition phase:** We have got unlimited and unending wants. In order to satisfy these wants, we spend our factor income and purchase goods and services. In the process the

factor income received from producing sector goes back to them. It shows that national income received from producing sector as factor income has been repaid to the producing sector as expenditure and investment.

It shows that the circular flow of national income goes on uninterrupted between different sectors of the economy.

2.4.4 Now We Define National Income by Following Terms

National income is the total addition of income during a period of one financial year by normal residence of a country. This income in form of emolument (as rent, interest, profit and wages of employees) we get due to usages of own factor service.

Using the concept of value added, it can be defined by following type.

During a period of a financial year total summation of value added by normal residents of a country as a result of factor services is called national income. Keep in mind that value added and income generated are identical.

> *In Dernberg's words,* "National income is the factor income accuring to the residents of the country during a year. It is the sum of domestic factor income and net factor from abroad."

Gross and Net Concepts of National Income

National income have gross and net concepts. "National income" term is a pure concept. Necessarily, it is Net National Product at Factor Cost (NNP_{FC}). Rather, to change (NNP_{FC}) into GNP_{FC} depreciation or consumption of permanent capital is added to it.

Hence:

Net National Product at Factor Cost + depreciation = Gross National Product at Factor Cost

$$NNP_{FC} + \text{Depreciation} = GNP_{FC}$$

Gross National Product at Factor Cost – depreciation = Net National Income at Factor cost

$$GNP_{FC} - \text{Depreciation} = NNP_{FC}$$

2.4.5 National Income at Basic Price (or Factor Cost) and National Income at Market Price

The actual meaning of concept of national income is national income at factor cost. But if in it, value of net indirect tax (indirect tax-subsidy) is added then it will be national income at market value.

By following equation this relationship can be expressed:

Net National product at Factor cost + Net Direct Tax (Indirect Tax – subsidy) = Net National Product at Market value.

Or

Net National Product at market value – Net Indirect Tax = Net National Product at Factor Cost.

Notes

2.4.6 National Income is Linked with the Level of Product Activity

It is clear from above explanation that national income of a country is linked with that country's production activities level. The high level of national income shows high production activities level of country and vice versa. Production means "value added" and meaning of value added is "Generation of income". In an economy total sum of derived income due to value added is generally called national income. In developed countries the production level is high, consequently their national income level is high too. Just its contrary, in underdeveloped countries production level is low also. In the form of economic transition, development process means rising from "underdevelopedness to developedness." In national income's level being sustained rise or finding in the long period of time in the production level of economy sustained rise. A nation's national income at different time related data is the indicator of their growth. Different countries such a group of data is helpful in international comparison of economic growth.

☞ Why it is important to compute depreciation?

Due to investment the loss that occurs in the value of permanent capital is called depreciation. It is called the consumption of fixed capital. In whole economy level it is called current replacement cost also.

In depreciation following three types of expenses are included:

(*i*) **Normal Wear and Tear:** Its mean from those expenses that are to do for the continuous use of fixed capital (as machinery).

(*ii*) **Obsolescence:** It refers to those expenditures that producers have to invest when machinery get older (due to change in technique or demand). Change in technique or demand obsolescence is called expected obsolescence. This expected obsolescence is different from natural calamities like flood, fire etc. Keep in mind that only expected obsolescence is included in depreciation computation.

(*iii*) **Sudden Damage:** It means sudden out of order of machinery and plant. To take these three types of depreciation a producer is to establish Depreciation Reserve Fund. It is necessary for replacement of depreciated capital otherwise depreciation in his production capacity (in the form of his fixed capital) will found. At national level if attention is not paid on current replacement then country's production capacity will be decreased and its flow of goods and services will fall. Calculating replacement cost we keep in mind only present production capacity (or capital stock). Depreciated capital stock's again replacement related expenses is called investment expenditure of replacement investment.

Replacement investment is done only for depreciation related damages, by that means there is no increment in capital stock of a country. When besides replacement investment, more investment is done then there is rise in capital stock (or production potentialities) of nation and it is called net investment (net investment = gross investment – depreciation).

By calculation of depreciation we explain following:

(*i*) Importance of replacement cost

(*ii*) Difference between gross and net investment

(*iii*) Net investment's (extra investment besides replacement cost) capital stock (or nation's production capacity) rise related importance.

Self Assessment

Fill in the blanks:

1. A nation's national income relationship is only with that country's ..... residents.
2. ..... generation of income is done only by residents of the country.
3. The normal residents of a country are those whose economic interest is centred to that ..... .

2.5. Measurement of National Income

A country's national income or national product is measured at three different levels (1) Production Level (2) Income or Distribution Level and (3) Expenditure Level. Such is due to three aspects of circular flow, production of goods and services, distribution of income in honours of factors of production and at purchase of final goods and services doing expenditure of income. They are following:

The techniques which are used to measure the three aspects of circular flow of income are called methods of measu ment of national income.

1. Product or Value Added Method
2. Income Method
3. Expenditure Method

2.5.1 Product or Value Added Method

Product Method: It is also called Value Added Method, Industrial Origin Method or Net Out Put Method.

According to this method, in an economy in a financial year adding final goods produced and services to the market value, national income is estimated. As far as enterprise relationship is concerned, this assumes its sell as final sell. For example, a farmer produces one ton of wheat and selit to a flour mill at ₹ 400. As far as farmer's relationship is concerned, for him sell of wheat is his final sell and he gains ₹ 400 exchange of it. But purchasing wheat for flour mill is intermediate goods. Mill converting it to flour sells to a bakery at ₹ 600. For flour mill, flour is a final product, but bakeryman will assume it an intermediate product and will use it for making bread. Bakeryman sells it to bread shopkeeper at ₹ 800. For bakeryman bread is a final product but for shopkeeper it is an intermediate product. Shopkeeper sells double bread to final consumer at ₹ 900. As far as question of farmer, flour mill, bakeryman

Notes

and shopkeeper are concerned any person for estimation of final product will add ₹ 400, ₹ 600, ₹ 800 and ₹ 900, which will be ₹ 2700. But in economy, by this method GDP or total production is not estimated. In the above estimation of production, a producer /firm value of production is reflected in other producer's product value, because product one's is used as inputs for others. Hence in value flour's value of wheat is included and in value of bread of flour. In total value of production ₹ 2700, uses of ₹ 1800 value goods in form of intermediate goods or middle consumption. The value of final production's value, we do mistake of double counting, to escape from it is necessary.

Problem of Double Counting

In the estimation of national product, when the value of any goods is calculated more than once, then it is called mistaking of double counting. Clearly, due to this reason country's Gross Domestic Product (GDP) is increased unnecessarily. In above example in the estimation GDP value of wheat is added four times. First time, when it is produced by farmer, second time when it is converted to flour, third time when it is converted to bread and fourth time when it is sold to final consumer. Only that time when bread is sold to final consumer, then in the form of bread it makes a final product. Before this it revolves from one producer to another producer as an intermediate product whose role in production process is intermediate consumption. Double counting is done when those goods which are used now as intermediate products are included in the estimation of GDP.

Two Ways of Solving the Problem of Double Counting

By following two methods, double counting problem can be solved. Firstly, in the estimation of GDP, we add only the value of final goods not intermediate goods. We have given already the description of difference of final goods and intermediate goods in chapter repeat it again that:

(*i*) The use of intermediate goods as raw material in production of other goods or by firm and producer, it can be sold again. Just its contrary final goods are not used as raw materials in the production of other goods or resold producer and firms.

(*ii*) Intermediate goods are under the line of production. In these goods now the adding of value remains. Just its contrary final goods are the outside of production line and in them no value is added.

We can avoid problem of double counting only keeping in mind the final product. During the estimation of GDP not a single product is counted two times.

What is Value Addition?

The increase in the cost of production due to addition of intermediate goods to the production process is called value addition.

In **Beckerman's** words, "The term value added implies that it is the value added by each industry to the raw material or other goods and services that it buys from other industries before passing the product to the nest link in

whole chain of production." In previous example farmer did ₹ 400 value addition (assumption on that, that intermediate consumption is zero) flour mill ₹ 600 – ₹ 400 = ₹ 200 value addition, and bakeryman making bread value addition of ₹ 800 – ₹ 600 = ₹ 200. Shopkeeper sold bread, ₹ 900 – ₹ 800 = ₹ 100 is value added. Total value addition ₹ 400 + ₹ 200 + ₹ 200 + ₹ 100 = ₹ 900. This is equal to the market value of bread, which is final product or sum of value addition of various stages of production. Using value addition problem of double counting can be solved. Due to this property of value addition, it can be used widely in dates of national income. To find out the value addition by a firm the cost of intermediate goods is subtracted from total production value of that firm.

Value Addition = value of Production – cost of intermediate goods

Table 2.1 clarifies the concept of value addition

Table 2.1: Value Added Approach

Stages of Production	Value of Output	Cost of Intermediate goods	Value Added
1. Wheat	400	–	400
2. Flour	600	400	200
3. Bread	800	600	200
4. Sell of bread	900	800	100
Total	2,700	1,800	900

It has been assumed in above table that at wheat producing time, there is no cost of intermediate goods. Therefore, farmer value addition is equal to his value of product means ₹ 400. flour mill buys wheat in ₹ 400 and making it flour, sells in ₹ 600. Flourman ₹ 600 – ₹ 400 = ₹ 200 value addition. Bakeryman bays flour in ₹ 600 and making it bread, sells it to shopkeeper in ₹ 800. Bakeryman value added ₹ 800 ₹ 600 = ₹ 200 and sell bread to shopkeeper in ₹ 800. Shopkeeper sells bread to consumer in ₹ 900. Thus value addition by shopkeeper ₹ 900– ₹ 800 = ₹ 100. Therefore total value addition is equal to ₹ 400 + ₹ 200 + ₹ 200 + ₹ 100 = ₹ 900. If in each step of production value addition is added then it will be ₹ 400 + ₹ 600 + ₹ 800 + ₹ 900 = ₹ 2700. The value of wheat and flour will be double counted. To escape from double counting value addition method is followed.

GDP_{MP} IS estimated by adding up Value Addition by all the producing units in the economy. Thus $GDP_{MP} = \Sigma GVA_{MP}$

Generally, value addition has been done by primary, secondary and tertiary sectors of economy, we estimate separately. Therefore, in the whole context of economy these sectors' relative importance can be found out.

After the estimation of GDP_{MP} following adjustment find out NNP_{FC} (National income)

GDP_{MP} – Net Indirect Taxes = GDP_{FC} – Depreciation = NDP_{FC} + Net Factor Income from Abroad = NNP_{FC} or Nation Income.

2.5.2 Income Method

Notes

For the calculation of national income by income method, factors of production for their producer service get emolument or total sum of income is added. Broadly, in its emoluments of labour in the form wage, land emolument on tax, capital emolument in interest and entrepreneurship emolument in profit. If factor income can not be recognized separately then by Mixed Income (i.e., combination of rate, interest, profit and wages) national income is find out. Such is in economy's non-organised sector (or non-corporation sector) where factor of production is self owned. Its service can not obtained from market on rent. Income method is called Distributed Share Method of Factor Payment Method.

Components of Factor Income

Components of factor income are as follows:

1. **Wages and salaries or Compensation of Employees:** The income that gets from work is called compensation of employees also. According to **Central Statistical Organisation**, "Compensation of Employees means all payments by producer, wages and salaries to their employees in cash and in kind and contribution paid in respect of their employees to social security schemes, private pension, family allowance, causal insurance, life insurance and similar schemes." Thus, in employees, compensation (*i*) wages and salaries, bonus, commission and dear allowance (*ii*) Information of impute of payment, as a free residence, dress and medical facilities, (*iii*) contribution of proprietor in social security scheme and (*iv*) Retired employees pension etc., are included.
2. **Rental Income:** Rental income is that income which mainly gets from honourship of land or buildings. Therefore, the honour of land and buildings, for a fixed period of time, to give right to other persons for using them, gets income in the form of rent. Buses, tractors, machines etc. durable goods facilities of using for a fixed period can be given to other persons on rent. Thus accruing income will be understood as income from rent means those buildings in which their honour resides themselves their imputed rent is also part of income from rent and that is included in national income. Royalty is also included in income that gets from rent. People get royalty from the right of copyright, patent right and natural resources as mines.
3. **Interest:** Interest is that income that gets from bank deposit and loan given to firm. Remarkable thing is that the interest given by government and consumers are not included in national income because it is not considered payment for current economic production.

4. **Profit:** The income that gets from entrepreneurship is called profit. Here entrepreneur means corporation. An entrepreneur or corporation does not divide his total profit among his shareholders. He divides some parts of his profit. Profit of this divided part is called dividend. Companies keep undistributed profit in his hand as corporate savings. Some parts of profit go to government as corporate profit tax. Hence, corporate profit is divided into three parts means it has three components:
   (*i*) **Dividend:** This is that part of profit which is distributed among shareholders. Shareholders getting income as dividend depends upon total profit of firms or corporates. Distributed profit is only called dividend.
   (*ii*) **Corporate Savings:** This is that undistributed profit of firm, that he keeps in his hands as corporate savings.
   (*iii*) **Corporate profit tax:** This tax by corporate or firm is paid to government on their profit.
5. **Mixed Income or Income of Non-Corporate Sector:** Mixed Income of the self employed like doctors, engineers, retailers is the total income of own account workers as well as profit generated in the unincorporated enterprise. Income from employment and property as well as entrepreneurship is included in mixed income. Those persons get mixed income that gives his service in the form of households and as a producer uses his factor and services in the production of goods and services. These all are self-employed persons and earn self-employed income, in which wages, rent, interest, and profit are included. Those enterprises in which self-employed person's mixed income concept is used, thereby net value added at factor cost is equal to mixed income of self-employed persons.

☞ We get domestic income from total summation of rent, interest, profit, compensation of employees and self-employed person's mixed income. Hence, domestic income = compensation of employee + rent + interest + profit + mixed income of self-employed persons. To convert domestic income into national income net factor income from abroad is added.

For the measurement of national income, following factors of income are kept in mind.

6. **Net Factor Income from Abroad:** Getting income in exchange of giving factor service in abroad and in domestic boundary of a country by non-resident giving factor service paid income's difference is called Net Factor Income from Abroad.

Net National Income = Compensation of employees + obsolescence (rent + interest + profit) + mixed income + net factor income from abroad.

(Note: Total addition of rent, interest and profit are called obsolescence surplus.)

Notes

2.5.3 Expenditure Method

Expenditure method is that method by with in a financial year the total expenditure of domestic is measured in market value, this method is called Income disposable method or consumption investment method. This method calculates final expenditure or expenditure on gross domestic product.

Components of Final Expenditure

1. **Final Consumption Expenditure:** Its two main components are as follows:

   (*i*) ***Private Final Consumption Expenditure:*** In domestic market for calculation of private final consumption expenditure, consumer households and private non-profit institutions, durable consumption goods, half-durable consumption goods and destructible goods and service final selling, their total quantity is multiplied to retail price. From it every purchase made by non-residents is subtracted and every purchase made by residents is added. Resulting data will be equal to private final consumption expenditure.

   Product for Self-Consumption is also a part of Private Consumption expenditure. For self consumption quantity of production is necessary to multiply with producer's neighbour market uses cost. Similarly, owner occupied house rent is also included domestic market's final consumption expenditure.

   (*ii*) ***Government Final Consumption Expenditure:*** To calculate government's final consumption expenditure made by enterprises total sells to government is multiplied by retail price. Purchase from abroad is added also.

2. **Gross Domestic Capital Formation:** (Capital formation of following two types is included in it):

   (*A*) ***Gross Domestic Fixed Capital Formation.***

   (*a*) **Expenditure on Construction:** For the calculation of expenditure on construction, construction materials such as cement, steel, bricks, labour, capital factor quantity is multiplied with their prices. This type of expenditure calculation is called commodity flow approach. Following items are included in expenditure on construction — (*i*) self accounting, production of fixed capital, (*ii*) consumer households purchasing of new building, (*iii*) construction place going work and (*iv*) Capital repairs as main change in old buildings.

   (*b*) **The Final Expenditure on Machinery and Equipment:** The expenditure on machinery and equipment can be estimated by two methods — (*i*) The quantity of final selling is multiplied with market in use value, (*ii*) according to commodity flow approach in current year finding total

quantity of machinery produced and equipment in it cost paid by buyers is multiplied. By these two methods get equal sum. In it also purchase cost of machines and equipment for self-pupose is added.

(B) ***The Expenditure on change in Stock or Inventories:*** To calculate of expenditure on physical change in stock, quantity of physical change is multiplied with market value. We add in gross national product the cost of those goods and services which is produced in a financial year, but does not sell.

3. **Net Exports:** Finally the cost of those calculated the value of net export (export-import) from abroad is calculated. The difference in value of export and import is called net export. Export production is done on the basis of production sources of the country. Sells of exporting goods have no effects on the income of domestic factor of production. Due to this reason export values is considered a part of national income. The expenditure on imports is deducted from national income, because this expenditure is not done on domestic produced goods.

Gross Domestic Product at Market Price = Final private consumption expenditure + Final government consumption expenditure + Gross domestic capital formation (Gross domestic permanent capital formation + change in stock) + Net export (Export – Import)

At factor cost to find out the national production or national income at market cost from domestic product, net indirect tax and depreciation is deducted and from abroad net factor income is added.

Did You Know?	Production for self-consumption is also a part of private consumption expenditure.

Self Assessment

Multiple Choice Questions:

4. National income can be created
   (*a*) in any part of world (*b*) only in own country
   (*c*) only in abroad (*d*) none of these
5. If an Indian resides in abroad for more than one year then he will be considered
   (*a*) foreigner (*b*) non-resident Indian
   (*c*) domestic resident (*d*) none of these
6. In 'Normal Resident' term, both person and rights are ..... .
   (*a*) pioneer (*b*) included
   (*c*) separate (*d*) none of these

Notes

2.6. Some Related Aggregates

We have studied already in chapter 2, about domestic product and national income. We have known domestic product's gross and net concepts also. Besides this, at market cost and at factor cost/basic price, domestic product and national income's concepts have been described in short. In this chapter we will repeated measurement of concepts and other related aggregates.

1. **Gross Domestic Product at Market Price (GDP_{MP})**

   Using value addition method, it can be measured by following type:

   Gross domestic product at market price (GDP_{MP}) = During one financial year, under the domestic border of a country, total summation of value addition by all production units. = During a financial year under the domestic boundary of a country produced final goods and services value.

   Using Income Method GDP_{MP} is measured by following type:

   Gross Domestic Product at market price (GDP_{MP}) = compensation of employees + Rent + Interest + Profit + Mixed income of self employed + Net indirect tax + depreciation or consumption of permanent capital.

   Using Expenditure Method, Gross Domestic Product at Market Price is measured by following methods

   Gross Domestic Product at Market Price (GDP_{MP}) = private final consumption expenditure + Government final consumption expenditure + Gross domestic permanent capital Formation + changing in producer's stock (Final stock – initial stock) + net export (export – import).

2. **Gross Domestic Product at Factor Cost (GDP_{FC})**

   Attain of gross domestic product at factor cost, from Gross domestic product at market price, net indirect tax (indirect tax – subsidy) is deducted.

   Gross Domestic Product at Factor cost = Gross Domestic Product at Market Price – Net Indirect Tax (Indirect Taxes – Subsidy)

   $GDP_{FC} = GDP_{MP}$ – Net Indirect Taxes (Indirect Tax – Subsidy)

3. **Net Domestic Product at Market Price (NDP_{MP})**

   Deducting depreciation from Gross Domestic product at Market Price (GDP_{MP}), Gross domestic product at market Price (NDP_{MP}) is got. Therefore

   Net Domestic Product at Market Price = Gross Domestic Product at Market Price – Depreciation (Consumption of Fixed Capital)

   $NDP_{MP} = GDP_{MP}$ – Depreciation (Consumption of fixed capital)

Notes

4. Net Domestic Product at Factor Cost (NDP_{FC})

If from net domestic product at market price, net indirect taxes are deducted then we will get net domestic product at factor cost. Hence

Net Domestic Product at Factor Cost = Net Domestic Product at Market Price – Net Indirect Taxes

$NDP_{FC} = NDP_{MP}$ – Net Indirect Taxes

Self Assessment

State whether the following statements are True or False:

7. The real meaning of concept of national income is national income at factor cost.
8. High level of national income shows low level of production of a country.
9. 'National Income' word is pure conceptual.
10. During a financial year, by normal resident of a country as a result of factor services did value addition's sum is called national income.

Net Domestic Product at Factor Cost (NDP_{FC}) = Compensation of employees
+ Rent
+ Interest
+ Profit } = operating surplus
+ Mixed income of selfemployed

In this adding net indirect taxes, we will get Net Domestic Product at Market Price (NDP_{MP}) means

$NDP_{MP} = NDP_{FC}$ + Net Indirect Taxes

In this (NDP_{MP}) adding depreciation, we will get Gross Domestic Product at Market Price (GNP_{MP}) means

$GDP_{MP} = NDP_{MP}$ + Depreciation

5. Gross National Product at Market Price (GNP_{MP})

Using value addition, it is the market value in a financial year of final product and services produced in domestic boundary, in which abroad net factor income is included. Hence

Gross National Product at Market Price = Gross Domestic Product at Market Price + Net Factor Income from Abroad

$GNP_{MP} = GDP_{MP}$ + Net factor income from abroad

6. Gross National Product at Factor Cost (GNP_{FC})

When net indirect taxes are deducted from gross national product at market prices, then we get gross national product at factor cost.

Gross National Product at Factor Cost = Gross National Product at Market Price – Net indirect taxes

$GNP_{FC} = GNP_{MP}$ – Net indirect taxes

Notes

7. **Net National Product at Market Price (NNP_{MP})**

When depreciation is deducted from gross national product at market price, then we get net national product at market price.

Net National Product at Market Price = Gross National Product at Market Price – Depreciation

$NNP_{MP} = GNP_{MP} - Depreciation$

8. **Net National Product at Factor Cost (NNP_{FC})**

When net indirect taxes are deducted from net national product at market price then we get net national product at factor cost.

Net National Product at Factor Cost = Net National Product at Market Price – Net indirect taxes

$NNP_{FC} = NNP_{MP} - Net\ Indirect\ Taxes$

Net national income at factor cost = National income = Compensation of employees

+ Rent
+ Interest
+ Profit

Operating Surplus

+ Mixed income of self employed
+ Net factor income from abroad

= Domestic income = Net Domestic Product at Factor Cost

In short

Net National Product at Factor Cost = Net Domestic Product at Factor Cost + Net Factor Income from Abroad

$NNP_{FC} = NDP_{FC}$ = Net Factor Income from Abroad

9. **Income from Net Domestic Product Accruing to Private Sector**

Two sectors have found in each economy:

(*i*) **Private Sector** — In this all those corporate and non-corporate enterprises are included whose ownership and control are in private hands. The income of this sector is called income from net domestic product accruing to private sector.

(*ii*) **Government or Public Sector** — In this administrative departments, departmental enterprise (as Railway and Postal department) and non-departmental enterprise (as Air India and Indian Airlines) are included.

Income from domestic product to government (or public) is included, (1) Income from property and entrepreneurship accruing to administrative departments and, (2) Savings of non-departmental enterprises. Hence, the income form domestic product accruing to private sector is that income which only accruing to private sector.

In **Dernburg's** words, "Factor income from net domestic product accruing to private sector is that part of factor cost of net domestic product generated in the form of compensation of employees, operating surplus and mixed income which is accured to the private sector."

For the estimation of factor income from net domestic product accruing to private sector, from net domestic product at factor cost, (*i*) income accruing to government from departmental properties and entrepreneurship and, (*ii*) savings of non-departmental enterprises are deducted.

Factor income from net domestic product accruing to private sector = Net Domestic Product at Factor Cost – Income accruing from departmental enterprise's property and entrepreneurship – Savings of non-departmental enterprises.

10. Private Income

Private income means that income which accrus to private sector from all sources, productive or others during a financial year. Private sector's factor income and transferable payment are included in this also.

According to **Central Statistical Organisation,** "Private income is the total of factor income from all sources and current transfers from the government and rest of the world accruing to private sector."

In private income, factor income from net domestic product, net factor income from abroad, and transfers of payment are included to private sector. Consequently, in private income factor income and transfers payment both are included.

Private Income = Factor Income from net domestic product accruing to private sector + Interest on National loan + Net factor income from abroad + Current transfers from government + Current transfers from rest of the world.

Or

Private Income = National income + Transfers payment from government + Current transfers from abroad + Interest on national loan – Government accruing income from property and entrepreneurship – Savings of non-departmental enterprises.

11. Personal Income

Personal income is the total of accruing from factor income from all sources and current transfers payment of residents and household of a country, during a financial year.

In peterson's words, "Personal income is the income actually received by persons from all sources in the from of current transfer payments and factor income."

Notes

Personal income deals person's actually received income from all sources. For example, profit accrued by firms and corporates, some part of that are not distributed to persons. That undistributed profit which is called corporate saving in that form remain to firms.

It uses, (*a*) paid corporate tax and (*b*) for doing corporate saving (reserved fund). Therefore, it is not included in personal income.

Personal Income = Private income – Corporate tax – Savings of corporates (less Foreign companies' paid income)

12. Personal Disposable Income

To get personal disposable income from personal income direct taxes and miscellaneous receipts of government administrative departments means fees, fines etc. are deducted. Households are free to expense or saving only this income. Personal disposable income is the indicator of household's purchasing power.

Personal Disposable Income = Consumption of households + Saving of family

According to **Peterson**, "Disposable income is the income available to persons from all sources and remaining with them after deduction of all taxes levied against their income and their property by the government."

Disposable Income = Personal income – Direct tax (income tax and wealth tax) – Miscellaneous receipt of government administrative departments (By person, paid to government fees and fine)

13. National Disposable Income—Gross and Net Concepts

National disposable income is the income accrued from all sources (earned income and from abroad accruing transfers payment) that is available for a country's residents for consumption or saving during a year.

In gross national disposable income, current replacement cost is included whereas in net disposable income (in short disposable income), it is not included.

☞ What is current Replacement cost?

This is by a country using in a year, property become useless by their replacement cost. This is depreciation cost (or consumption of permanent capital) of whole economy.

Net National Disposable Income (in short, disposable income) = Gross national disposable income – Current replacement cost (which is depreciated at whole economy level)

Task	Express your views on total related aggregates.

2.7. Components of National Disposable Income

National disposable income is estimated by following types:

Natfonal disposable income = Net domestic product at factor cost (or domestic income) + net indirect tax + net factor income from abroad + receipts net current transfers from rest of the world.

☞ **Difference between Personal Disposable Income and National Disposable Income**

(*i*) Personal disposable income relationship is only a nations's residents and households' disposable income, whereas national disposable income relationship is whole country's disposable income.

(*ii*) For estimation of national disposable income, net domestic product at factor cost, net indirect tax, net factor income accuring from abroad, and net current transfer accruing from rest of the world is added. On the other hand, in personal disposable income, a country's domestic consumption and domestic savings are added.

National Income and Related Aggregates – A Glance

1.	Gross Domestic Product at Market Price (GDP_{MP})	=	In a financial year, produced by all producer final goods and services market value in domestic boundary of a country.
2.	Gross National Product at Market Price (GNP_{MP})	=	DP_{MP} + Net factor income from abroad
3.	Net National Product at Market Price (NNP_{MP})	=	GNP_{MP} – Consumption of permanent capital or depreciation
4.	Net Domestic Product at Market Price (NDP_{MP})	=	NNP_{MP} – Net factor income from abroad
5.	Net Domestic Product at Factor cost (NDP_{FC})	=	NDP_{MP} – Indirect tax + Subsidy or net domestic income
6.	Gross Domestic Product at Factor Cost (GDP_{FC})	=	NDP_{FC} + Depreciation
7.	Gross National Product at Factor Cost (GNP_{FC})	=	GDP_{FC} + Net factor Income from abroad
8.	Net National Product or National Income at Factor Cost (NNP_{FC})	=	GNP_{FC} – Depreciation

Notes

9.	Net National Disposable Income	=	Net domestic Income + Net factor income from abroad + Net indirect tax + Net current transfers from rest of the world
10.	Gross National Disposable Income	=	Net national disposable income + current replacement cost
11.	Factor income from net domestic product accruing to private sector	=	Net domestic product at factor cost – departmental enterprises property and entrepreneurship accruing income – saving of non-departmental enterprises
12.	Private Income	=	Income from domestic product accruing to private sector + Net factor income accruing from abroad + Current transfers from government + Current transfer from rest of the world + Interest on national loan
13.	Personal Income	=	Private income – Corporate profit tax – Savings of enterprises
14.	Personal Disposable Income	=	Personal income – direct personal tax (or income tax) – Miscellaneous fees and fines paid by households

Key Points

- **Gross Domestic Product:** An economy's under domestic border, produced final goods and service flow measurement is called gross domestic product. In this, depreciation is also included.
- **Value Addition:** Change of input into production is called value addition.
- **Final Goods:** Final goods are called those goods which cross production's line and are ready for final consumer.
- **Intermediate Goods:** Intermediate goods are those goods which are under production line and which value addition is to be done. These goods are purchased by firms so that it can be used as raw material or it can be sold.
- **Domestic Territory:** Under this besides political border, under country water region and for residents in different countries for earning operation of aeroplane and ships are also included.
- **Primary Inputs:** In it factors of input are included—land, labour, capital and entrepreneur.
- **Secondary Inputs:** Besides primary inputs, raw materials, fuel etc. used for production are included.

- **Normal Residents:** Normal residents of a country are those people who generally reside in that country, their economic interest is centred to that country.
- **Market Price and Bank Price:** Market price is that price on which final goods are purchased by consumer. Basic price is called that price that is obtained by producer. Basic price = Market price – indirect tax + subsidy.

2.8. Summary

- A country's national income relationship is only to normal residents of that country. It means that all foreigners and institutions those reside in India their earned factor income will not be considered, a part of national income. Repeating this fact, income earned by non-residents of India, rather a part of domestic income of India, but it is not considered a part of national income of India.

2.9. Keywords

- **Economic Interest:** Interest related to wealth.
- **Obsolescence:** Out of operation.
- **Expenditure Method:** Process of expenses.

2.10. Review Questions

1. What are the gross and net concept of national income?
2. What is meant by 'Measurement of National Income'?
3. What do you mean by 'Total related Aggregates'?
4. Explain components of national disposable income.

Answers : Self Assessment

1. normal	2. National	3. in country	4. (a)
5. (b)	6. (b)	7. True	8. False
9. True	10. True.		

2.11. Further Readings

1. **Macroeconomics:** *Economic Growth, Fluctuations and Policy—Report E. Hall and David H. Paipal, Vaina Books, 2010.*
2. **Macroeconomics:** *Theory and Policy—H.L. Ahuja, S. Chand Publishers, 2010.*
3. **Necessity of Macroeconomics:** *H. S Nath, Cyber Tech Publications, 2010.*

Unit–3

Notes

Economic Welfare and National Income

Structure

3.1. Objectives

After studying this unit, students will be able to:

- Know economic welfare.
- Study of national income.
- Know about factor affecting social welfare.

3.2. Introduction

It is not right to differentiate between economic and non-economic welfare, on the basis of money. **Pigou** accepts this matter also. According to him non-economic welfare can be corrected by two methods. Firstly, by the method of earning of income. Excess working hour and bad condition will lessen non-economic welfare. Secondly, by the method of expenditure of income. It is assumed in an economic welfare that expenses on various consumption goods, gives equal satisfaction, but in fact, it has not happened as such, because when from purchased goods less satisfaction is got then non-economic satisfaction is lessened by which total welfare is also less.

3.3. What is Economic Welfare?

It is necessary to define economic welfare before to know the relationship between economic welfare and national income. 'Welfare' is a mental state which is the indication of human happiness and satisfaction. In fact, welfare is a happy stage of human mental state. **Pigou** assumes personal welfare is the total sum of satisfactions experienced by a person and social welfare is

the sum total of individual welfares. He divides welfare in economic welfare and non-economic welfare. Welfare is that part of social welfare which can be measured directly or indirectly in terms of money since welfare term is much wide, therefore, **Pigou** gives importance only to economic welfare. In his words, "Our limitation of test is limited to that part of social (general) welfare which can be directly or indirectly come together measurment of money". Just its contrary, non-economic welfare is that part of social welfare which cannot be measured in terms of money, as a moral welfare.

But Pigou's thought is that such effects calculation is not possible. Since non-economic welfares cannot be measured by money, economists should follow this assumption that effects of economic factors that affect an economic welfare will be applied to total welfare also. Therefore, Pigou concluded that increase of economic welfare increases total welfare also and vice versa.

But it is not possible always, because those factors which increase economic welfare they are less than non-economic welfare. So increase in total welfare can be less than estimated. As, with increase in income both economic welfare and total welfare increase and with decrease in welfare they decrease. But economic welfare not only depends on income but also the way the income is earned and expended. When the farmers earn more money working on industry but stay on slum areas and suffocated environment then their economic welfare may increase but it cannot be understood that there is total increase in welfare if they expense on drinking, cigarette etc. harmful things of their increased income. Therefore, economic welfare cannot be considered as the indicator of total welfare.

Self Assessment

Fill in the blanks:

1. 'Welfare' is mental state that is an indicator of human happiness and ..... .
2. Welfare is a ..... state of human mental state.
3. Pigou assumes individual welfare experience by all satisfactions ..... .

3.4. Relation Between Economic Welfare and National Income

Economic welfare and national income both can be measured in terms of money, so Pigou establishes a close relationship between them. When national income increases then economic welfare increases and decrease in national income decreases the economic welfare also. National income's effects on economic welfare can be studied by two methods: **firstly** change in the size of national income; **secondly**, change in distribution of national income.

3.4.1 Changing in Size of National Income can be Positive or Negative.

Positive change in national income increases in size so that people consume more goods and services. Negative change in national income

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decreases its sizes then people get less goods and services for consumption so that economic welfare becomes less. But this relationship depends upon a number of matters.

Is change in national income real or monetary? If change in national income is due to change in prices then real change in economic welfare is tough to measure. For example, if the national income goes up due to an increase in prices, in that situation growth in economic welfare will not be possible because there may have been no increase in the production of goods and services in the economy. The possibility of less economic welfare is less due to price rise.

Secondly, what type of increment has happened in national income? If increase in national income doing exploitation of laborers then it cannot be said increase in economic welfare. As a labourer to increase production by doing excess hour, paid them less salary then minimum wages, so that they have to subject their children and wives to do work, they do not provide convenience for coming and going to factory and lodging and residing in slum areas. If in such a condition national income increases, then there will be no increase in economic welfare.

Thirdly, if per capita income is not considered then national income is not a reliable index of economic welfare. It may be possible with increment of national income population rate also and per capita income has not increased. In situation increament in national income no increase in economic welfare. But from this it should not be concluded that if per capita increases, then national income increases and if per capita decreases then there is decrease in the national income.

It is possible that due to increase in national income, per capita income also increases but if increase in national income is due to capital goods and short of consumer goods is due to less production then there may have been increase in both national and per capita income, there will be no increment in economic welfare because people's economic welfare depend upon consumption of goods, not on capital goods. Similarly, in war time when national and per capita income increase more, then there is not increase in economic welfare because during war period all the production power of a country is employed for making war materials and there is decrease in consumer goods by which the living standard of people deteriorates and economic welfare becomes less.

Generally, with increase in national and per capita income, economic welfare becomes less than before. It happens when with increase in national income, rich class income rises and the poor do not get any benefit of that. Means with increase in national income the rich become more rich and the poor become more poor. In this way when the welfare of the rich increases, welfare of the poor decreases because poor is more in number than rich, hence total economic welfare falls.

If with increase in income, people expense more on efficiency growing needs such as milk, ghee, egg and fans then there will be increase in economic welfare. But just contrary expenses on harmful goods such as drinking,

gambling etc. then economic welfare will decrease. In fact, due to increase in national income, the increase and decrease of economic welfare depend upon change in interest of people. If the tastes and fashion of people change towards good things then economic welfare increases otherwise with consumption of bad things economic welfare decreases.

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It is clear from above discussion that although there is a close connection between national income and economic welfare, yet it cannot be said surely that increase in national and per capita income will increase economic welfare. Increase in national income, increase or decrease of economic welfare depend upon a number of factors such as population's increment rate, methods of income earning, conditions of work, types of expenses, fashion, tastes etc.

3.4.2 'Changing' in the Distribution of National Income is of Two Types.

Firstly, transfers of wealth from poor to rich. **Secondly**, from rich to poor. When increasing to national income transfers of wealth is of first type then economic welfare is decreased. When it happens, government is benefited to rich classes and is imposed regressive tax on poor.

The actual relationship between distribution of national income and economic welfare is of second type of transfers, when wealth flows from rich to poor. National income's redistribution in favour of poor's can be done by decreasing the wealth of rich and increasing the income of the poor. The income of the rich class can be decreased through a number of methods as impure progressive tax on income and wealth, controlling on monopoly, nationalisation of social services and impose tax an dear and luminous goods used by rich. Just its opposite, income of the poor can be increased by a number of methods as fixing of minimal wages, increasing the production of goods used by poor, fixing the price of such goods, giving financial aid to producer, distribution of goods by cooperative stores and giving free education, social security and lodging facility at low rent by aforesaid measures when distribution of national income in favour of the poor, then economic welfare increases. Pigou has expressed this thought in these words, "Any cause, which increases the actual income of the poor, if from any point of view does not lessen the size of national dividend, then generally will increase economic welfare."

But it is not necessary that equal distribution of national income increases economic welfare. Just its contrary if policies following towards rich are not rational then there is much possibility of decreasing economic welfare. Imposing high rate of progressive tax capital investment's have ill effects on production ability and capital investment and eventually national income declines. Similarly, by government's efforts when poor's income increases, but if they spend this increased income on drinking and gambling etc. on bad things or their population is increased then economic welfare decreases, but these two points are not real, only a phobia because when government imposed many types of progressive taxes on rich then take special care of this matter that it has not adverse effect on production and investment. On

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the other hand when any poor's income increases then his endeavour is that he provides good education for his children and high standard of living. Therefore we conclude that increase in national income, increases economic welfare also, provided that poor's income shouldn't decrease rather should increase so that he can improve his standard of living and in same way rich's income decreases in such a way that production capacity, investment and capital formation are not reduced.

Notes	Non-economic welfare is that part of social welfare which cannot be measured in terms of money as a moral welfare.

Self Assessment

Multiple Choice Questions:

4. Economic welfare is that part of social welfare which can be measured directly or indirectly ..... .
   (*a*) in money (*b*) in goods
   (*c*) in person (*d*) in society
5. Excess working hour and bad condition will lessen ..... welfare.
   (*a*) money (*b*) non-economic
   (*c*) social (*d*) none of these
6. Economic welfare cannot be ..... of total welfare.
   (*a*) indicated (*b*) instructed
   (*c*) invested (*d*) none of these

3.5. National Income as a Measure of Economic Welfare

GNP is not satisfactory measure of economic welfare because in the estimation of national income some services and production activities are not included which affect welfare. Some such factors are explained below which affect human welfare, but GNP is not included in estimation.

1. **Leisure:** Leisure is an important factor of welfare of society, but it is not included in GNP. For instance excess working hours can lessen people's happiness because their leisure become less. Just its contrary, less working hours per week increases leisure and makes people happy. Taking more or less leisure, total production of economy is affected. But in the estimation of national income value of leisure is not taken.
2. **Quality of life:** In the estimation of GNP quality of life is not included which reflects society's welfare. Life is full of tension in excessive crow dy cities. Heavy traffic on road which wastes time. Accident occurs daily that make people disabled or courses death life becomes complicated and quality of life falls. On the other hand, such a place where there is no crowd and people enjoy fresh

air and nature's beauty their quality of life increases. But it is not reflected in GNP also.

3. **Non-market Transactions:** Some non-market transactions increase welfare but they are not included in the estimation of national income. Housewife's service in house and social activities as a religious increases, then this can bring a decline in their economic welfare but these are not included in the estimation of GNP because providing such services, there is no market transaction.

Did You Know?	If national income is incremented by exploiting labours then it cannot be said increment in economic welfare.

4. **Externalities:** Similarly, externalities have property to increase or less welfare but they are not included in GNP estimation. An enternality as a result of personal production and consumption is cost or profit someone, but as externalities' cost or profit cannot be measured by money but it is not included in market activities. Examples of external advantage, a man gets enjoyment by seeing neighbour's good garden. Farmers have the tendency of increase in welfare later is less since externalities without any monetary, transaction, therefore they are not included in the estimation of national income.
5. **Nature of Production:** In the estimation of GNP by different goods do not reflect the capacity of giving different satisfaction level of society. Doing equal expenditure on an atom bomb or a dam on river, do increase national income but it gives different levels of satisfaction to society. A bomb does not increase welfare whereas a dam does.
6. **Standard of living:** In the estimation of GNP society does not express standard of living. If most part of national expenditure is spent on war and capital goods and less part is invested consumption goods and then it does not seem in the estimation of International income. But less in the production of consumer goods have the nature to less people's welfare, whereas expenditure of war's equipment and capital goods does not increase welfare of present.

From above related point of view, GNP cannot be used as a measure of welfare. Rather than some economists have tried to define GNP more rudely so the economic welfare can be measured. Prof. Nordhaus and Tobin in 1972 tried first towards this. They constructed Measure of Economic Welfare MEW, which **Samyulson** calls Net Economic Welfare (NEW).

According to Nordhaus and Tobin, they have tried to measure all those consumption by which human welfare causes. For the estimation of MEW he deducts some items from consumption which does not provide welfare, regrettable necessities such as police, cleanliness etc. on government expenditure and daily by individual frame house to work place going by scooter, bus or vehicle cost, durable machine, fridge etc. are included, and

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thirdly expected cost form negative externalities which are found due to urbanization, crowd and pollution.

After the deduction of all these items, Nordhaus and Tobin following three items deposit in consumption. They are (1) Value of non-market activities, (2) Estimation of value of durable consumer goods which consumption actually, and (3) estimation of value of leisure.

Nordhaus and **Tobin** give more emphasis on evaluation of rest in estimation of MEW. For this they followed two methods: Alternate cost method and Actual value method. First method is based on this principle that when only a person selects more rest then it does on the sacrifice of more income. The meaning of one hour rest, sacrifice of one hour wage. According to their estimation, rest value measured by alternate cost are continually increasing during several years. Because with respect to time per hour real wage is continually increasing. Actual value method, value given by one hour rest is measured as actual pleasure (utility.)

Task	Give your views on economic welfare.

Using such a evaluation method, **Nordhaus** and **Tobin** in United States of America in 1965 estimated MEW that was 1200 Billion dollar which was double to GNP of that year. In the period of 1929-65 the estimation of per person MEW was 1.1 per cent annually, whereas precipitate GNP estimated was 1.7 per cent. Their estimation expresses clearly that during this period in America economic welfare increases magnificently.

But form above discussion it should not be concluded that the concept of MEW subsitutes GNP. Normally, it is supplementary to GNP in which economic welfare including GNP non-market activities.

Self Assessment

State whether the following statements are True or False:

7. The change in the distribution of national income is of two types.
8. Rest is an important factor in society's welfare.
9. In the estimation of GNP, the quality of life is not included.
10. Externalities have tendency to minimize or maximize welfare also.

3.6. Summary

- Economic welfare and national income both are measured in money, due to this reason Pigou has established close connection between these. When national income increases then economic welfare increases and vice versa. The effect of national income on economic welfare can be studied by two methods: first, change in the size of national income, secondly change in the distribution of national income.

3.7. Keywords

- **Regressive:** coming below.
- **Leisure:** Empty time, rest.

Notes

3.8. Review Questions

1. How the size of national income and distribution system, affects system of economic welfare, explain. Give an example.
2. Discuss the effects on welfare due to change in size and distribution of National Dividend.
3. Evaluate the views of economic welfare. Clearly define its relation with country's national income.
4. In the interest of the poor, change in the distribution of national dividend, effects economic welfare, explain it clearly.

Answers: Self Assessment

1. satisfaction	2. happy	3. total summation	4. (a)
5. (b)	6. (a)	7. True	8. True
9. True	10. True		

3.9. Further Readings

1. **Macroeconomics** – *S.K. Chakravarty, Himalaya Publishing house, 2010.*
2. **Macroeconomics: Economic Growth Fluctuations and Policy**–*Robert A. Hall and David H. Paipal, Vaina Books, 2010.*
3. **Macroeconomics: Theory and Policy**–*H.L. Ahuja, S. Chand Publishers, 2010.*

Unit–4

Notes

Classical Theory of Employment

Structure

4.1. Objectives

After studying this unit, students will be able to:

- Know the classical principle of Employment.
- Know the summary of full classical model.
- Criticise classical principle by Keynes.
- Discuss Say's law.

4.2. Introduction

John Maynard Keynes is directly hit on the element base of classical on his book. *'The Theory of Employment, Interest and Money, (1936).* He developed a new economics; it brought revolution in economic viewpoint and policy. *General Theory* was written in the background of his viewpoint. According to **Keynes**, classicals were the follower of Ricardo. In this, specially **J.S. Mil, Marshal and Pigou** are involved. Keynes disclaimed that customary and institutional economics, which was constructed till more than one century and fixed his dominance on economic viewpoint and tradition till before 'Great Depression'. Because the economics of Keynes is dependent on the criticism of classical economics, so it is necessary to understand the above nature, it is involved in the principle of employment.

4.3. Classical Theory of Employment

Classical principle believes that the full employment is found without inflation in capitalist economy. Being the flexibility in labour prices,

the automatic power of economics system able to keep continuing the situation of full employment and has ability of production on that level. So full employment is considered as a normal situation and there are some abnormal situations of deviation by that level which were towards for their full employment.

4.3.1 Assumptions

The classical principle of employment and production is dependent on following assumptions:

1. Full employment is found without inflation.
2. A close laissez faire capital economy is found without foreign business.
3. Full competition is found in labour and things markets.
4. Total production of economy is divided in the expenditure of investment and consumption.
5. The quantity of currency is given.
6. Wages and prices are flexible.
7. Currency wages and actual wages have proportional relation.
8. Capital stock and technology knowledge are given.

Notes	Classical principle believes that the full employment is found without inflation in capital economics.

4.3.2 Say's Law of Market

Say's law of market is the element of the classical principle of employment. In the starting of 19th century this establishment is presented by French writer **Jean Bapiste Say that** "Supply creates its own demand". It's called the rule of **Say**. In the words of **Say**, "Production created market for things. As anything produced then it creates market for other things which are similar to its price. The supply of other items is according to the demand of the item and not more than that. "This rule is applied on the barter economy, where finally things are sold in place of things. Every thing brought in the market is the demand for any other thing. According to **Say**, doing work is not interesting, **so** if any person is not wanting to exchange his favourite thing with any other things then he did not do work for the production of that thing. So the demand is involved in the work of supply of things. In that situation, more production is not possible because the supply of things will not be more than total demand. It may be possible that one special thing is more produced, because customers wrongly assessed the quantity of those things, which is necessary for others. However, this situation is temporary, because that special thing is more produced to reduce the production of others. So supply getting creates its own demand so unemployment is not possible.

This basic rule is not changed after getting the currency. As **Prof. Hansen** says that, "The market rule of Say is the description of things- exchange economics.

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This rule is true by the viewpoint that the main source of demand is that flow of source-income, which is created by the process of own production." When producer make use of different inputs (land, labourer and capital) are used in production process, then they create the necessary income which got to sources owner as interest, wages and tax. Above it creates demand for produced things. So supply creates its own demand. This logic is based on that perception that all income earned by source-owner is expended to buy that things they helped in that production. The part of income which is not spent, it is saved and it is invested. So saving will be equal to the investment. If both have any difference, then by the median of rate of interest, similarity is established. Interest is the reward of saving according to classical economist. The rate of interest will be more according to savings. Opposite to it the rate of interest will be as low, the demand of situation for investment will be as more and *vice-versa*. If at certain time the saving is increased from investment, then the rate of interest will fall. Investment will be increased and then savings will be reduced whenever both are not same at the level of full employment. It is because saving considers the increasing function of interest rate and investment is considers the decreasing function of interest rate.

The similarity of savings and investment is shown in Fig. 4.1 where SS is saving curve and II is investment curve. Both curves intersect each other at point E, where Or is the interest rate, and savings and investment both are equal to OA. If investment increases then investment curve is shifted right side and becomes I'I' and OC investment is more than OA savings at Or interest rate. According to classical economists, saving curve remains at its before situation when investment is increased. Interest rate will increase for continuing similarity in saving and investment. In this figure, Or has increased to Or'. At that interest rate, saving curve SS is intersecting at E' to investment curve I'I'. Saving and investment both are equal on OB.

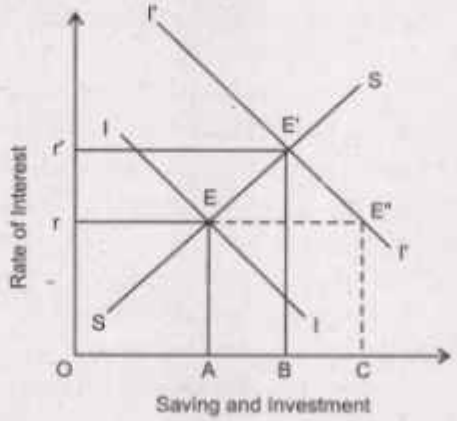

Fig. 4.1

In currency economy the validity of the rule of Say's is dependent on the classical magnitude principle which tells that price-level is the function of supply of currency. As Algebra, MV = PT where M, V, P, T are the supply of currency, the operating velocity of currency, price level and the transaction by currency. This equation tells that the total currency-inflation is equal to MV

in economies and the total price of production is PT, if we assume V and T are constants then supply of currency (M) is proportionate to change in price level (P) by change. It is based on that assumption that currency is source of exchange.

The quantity of currency, total production and price level is shown in Fig. 4.2 where price is on vertical and total production is on horizontal level. MV is the currency supply curve which is a rectangular hyperbola. It is because that the equation MV = PT is involved on all points of curve. When production level OQ is given then there will be one price-level OP similar with the quantity of currency as there is m point on MV curve. If the quantity of currency is increased then MV curve is shifted left side and will become M_1V. So when the production level OQ is given, then the price level will become OP to OP_1. That increment of price level is proportional with the increment of the quantity of currency, mean $PP_1 = MM_1$.

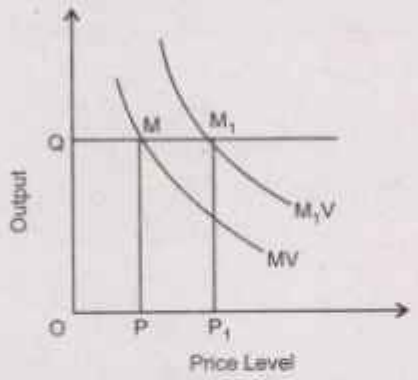

Fig. 4.2

According to classical economist, if the quantity of currency is double then the price level will become double. Opposite it, if the quantity of currency is half then price level will become half. So currency is only a veil, its main work is to decide the normal price level on which the things and services are exchanged.

4.3.3 Pigou's Version

Pigou provided the last form to classical principle of employment who formulated the rule of **Say** in the reference of labour market. According to Pigou, the nature of economic system is within the free competition that labour market itself provides full employment. Hardness in the structure of wages, provides unemployment by interference in the causation of free market economics. When states interfere to give the assumptions to trade union and apply the low wages rules and adopts the labour monopoly system, then wages increases and unemployment starts. If the interference of states removes and the power of competition is given to work freely, thus by increasing and decreasing the wages rate unemployment will be fulfilled. As per **Pigou's** objective, "By the independent competition.....always one such tendency will be operational in which the rate of labourer will be so aligned

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to demand that every person has employment." Pigou presented an equation N = qY/W which describes all the proposals. N is the employed labours in equation, q is the half part of national income earned as wages and salary, Y is the national income and if we reduce W then N can be increased. So the key of full employment is that currency wages to reduce. It is cleared in Fig. 4.3. In the part (A) of figure, S is the supply curve and D is the demand curve. The cut of both curves on E shows the point N_0 of full employment and actual wages W/P on which full employment is available. If actual wages kept on high level W/P_1, then by the demand of labour supply sd increased and N_0N_F labourer is unemployed. When wages are reduced and take on the point W/P then unemployment finished and got the level of full employment. It shows in the part (B) of figure. MPL is the curve of frontier productivity of labour, which is slant at down as demand curve. Its reason is that when more labour is applied on employment then the frontier productivity is reduced because every labour got wages according to their frontier productivity so when wages become W/P_1 to W/P then economies got the full employment level N_F

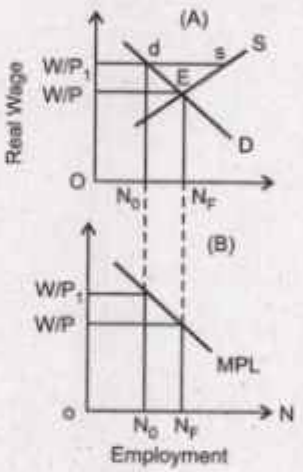

Fig. 4.3

In the classical model of employment, the change in currency-wages and actual wages are directly related or proportionate. When currency is cut then actual wages are also reduced in the same quantity, which reduce the unemployment and finally economies took full employment. This relation is based on the perception that prices are proportionate to the quantity of currency. The logic is that the decrement in currency-wages in competition economies reduces the prices of things and cost of production so the demand increases. To complete the increasing demand of things more labourers are kept for employment. When employment increases then total productivity also increases till it attains the situation of full employment. When economy is on the level of full employment then total employment becomes constant. So with the availability of stock of capital and knowledge of engineering a relation between total production and number of employment is made. Total production is the increasing function of wages number. It is shown in Fig. 4.4. that Q = f(K,T,N) in which total production is Q, function is f, capital

stock is K, technical knowledge is T and the number of labourers is N. This production function shows that total production, capital stock and technical knowledge are increasing functions of the number of labour. In Fig. 4.3 total production OQ is analogy to full employment level N_f.

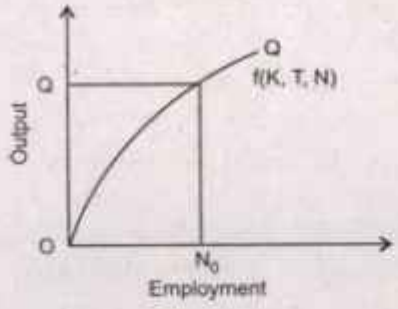

Fig. 4.4

Classical economist believed that in the normal competitive situation, full employment will continue without inflation. In spite of competition among the owners for putting labourers to work, wages will not be more than full employment level. Now because of applying the Say's rule, the full employment of production will generate the demand on that level. The increment in all the demands is the reason of inflation. But the mechanism of the rate of interest stops more increment in all demands. Again, inflaion is also because of that when the currency increases that increasing production cannot consume it. But it is also not possible because the increment in the quantity of currency increases only at absolute price level not relative. So full employment is got without inflation in classical system.

Did You Know?	The nature of economic system within free competition is that full employment is provided automatically in labour market.

Self Assessment

Fill in the blanks:

1. The market rule of Say is the heart of ..... employment.
2. According to Say, supply creates its own ..... .
3. The market law of Say, in the broad form free ..... is the description of economics.

4.4. Summary of Complete Classical Model

The Classical Principle of employment is based on the assumption of full employment, according to it a normal situation of full employment in economies is got and the abnormal situation of unemployment remains abnormal. In Classical Principle, the selection of production and employment is based on labour of economy, things and currency market, which is given in Fig. 4.5. The power of supply and demand in this market will bring the full employment. By any interference of government there will not full employment.

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Production and all production functions of employment in the Classical analysis are decided by the demand of labourer and supply of labourer. Due to stock of capital, technical knowledge and other inputs have certain relation in the quantity of total production and employment it is Q = f (K, T, N) as shown in the Fig. 4.5 panel (B). In other words, total production is the function (f), capital stock (K), technology (T) and labour number (N). When K and T are given then labourer number function is Q = f(N). But when more labourer goes after a limit then get the diminishing marginal returns.

The demand of labour and supply of labour in labour market distract the level of production and employment in economics. The demand of labour is dependent on total production. More production increase the demand of labour and the demand of labour is dependent on its frontier physical productivity (MPP) which reduce to apply more tax. The supply of labour is dependent on the labour rate $D_l = f(W/P)$which is the increment function of labour rate. Other side, the demand of labour is dependent on labour rate $S_l = f (W/P)$ and it is the diminishing function. So the demand and supply of labour is because of the actual wages rate (W/P). The intersection point E of demand and supply of labour decides the full employment on wages rate (W/P), $D_l = S_l - N_f$, as shown in panel (C).

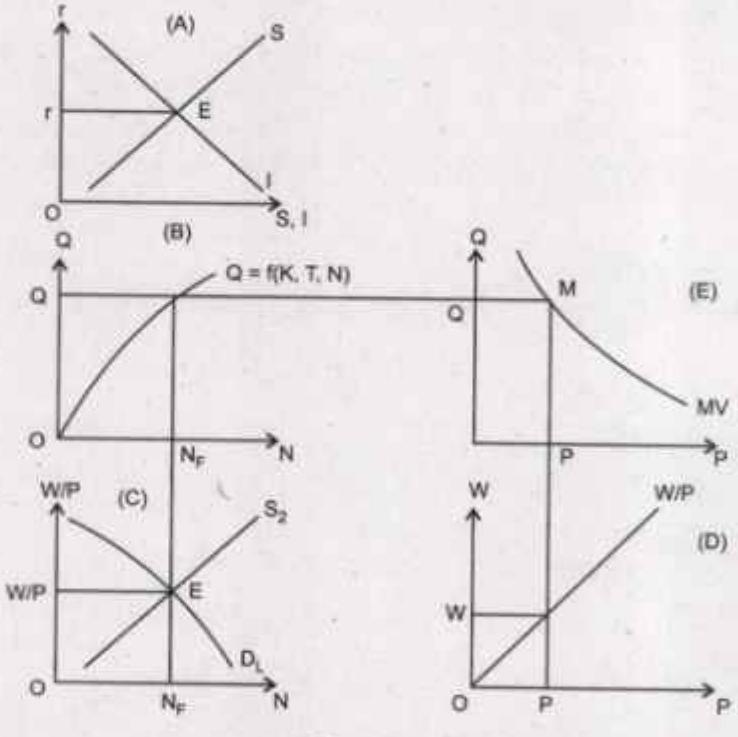

Fig. 4.5

Commodity market, savings and equality of investment (I = S) are in balance so the similarity in both on full employment point E is by the mechanism of interest rate so demanding quantity of things on full employment is equal to the quantity of supply. Savings is the function of interest rate, I = f(r) and investment is the opposite function of interest rate, S = f(r).

Currency market is balanced by the demand and supply of currency. It is elaborated by the currency magnitude principle. According to it, price level is the function of currency supply, P = f(MV). The change in price is proportionate to the quantity of currency. Balance is described by the equation MV = PT in currency market where MV is the supply of currency and PT is the demand of currency. The balances of currency market describe the similarity with full employment of the production of price level, which are penal (E) and (B). Line MQ is related with MQ.

Price level OP is decided by the total production (Q) and the quantity of currency (MV) as shown in panel (B) and (E). Now actual wages are decided with currency wages. As shown in panel (D) by W/P curve. When currency wages are increased by increasing the price level then actual wages W/P are reduced so there will be effect on level of production and employment. So the conclusion is that to get the level of full employment, currency wages should be reduced. So continuing the situation of full employment, classical economists were in favour of flexible price-wages.

Task	Express your ideas on the Classical Principle of employment.

Self Assessment

Multiple Choice Questions:

4. Classical economists considcr the savings of interest as ..... .
   (*a*) reward (*b*) measurement
   (*c*) part (*d*) none of these.
5. This basic ..... is not change on getting the currency.
   (*a*) principle (*b*) rule
   (*c*) exchange (*d*) non of these
6. Saving is considered as the increasing function and investment is considered as the ..... .
   (*a*) diminishing function (*b*) increasing function
   (*c*) cost (*d*) none of these.

4.5. Keynes' Criticism of Classical Theory

Keynes' criticized this principle because of the unreal perception of Classical Principle of employment. He writes in his book *'General Theory'* that, "Classical Principle is continuing to assume those specifcs, they did not keep relation with that economic society in which we live, its result is that when we apply it on reality experience, then its training is proved doubtful and destructive. Whatever behaviour we hope from our economy it expresses that type of facility. But it consider that it happens, is like closing the eyes in difficulties.

Keynes' attacked on classical principle because of following reasons:

1. **Under-employment Equilibrium:** Keynes rejected the basic

Notes

classical perception of balanced full employment in economics. He told unreal to this perception. He considers full employment a specific condition. Under-employment is the normal situation in socialist economy. Its reason is that capitalism does not work according to the rule of **Say** and supply is always increased by demand. We see that lakhs of labourers are ready to work on present wages and less than that, but they did not get work. So the existence of voluntary unemployment in capitalism economy proved that under-employment is the normal situation and full employment balanced situation is abnormal and immediate.

2. **Over-production Possible:** Keynes' disclaimed the market rule of **Say** that supply creates its own demand. His perception is that all income earned by sources-owner is not spent in purchase of those things which are helpful for production. Some parts are saved from the earned income, which are not automatically invested because saving and investment are two separate work. So when all earned income is not spent on consumer goods and some part remains, then total demand reduces. Resultantly, it is normal hyper production, because all could not be sold which has been produced, further, it leads to common unemployment. So by this taking the support of this rule proved **Say's** rule to be meaningless.
3. **Self-adjustment Impossible in the Economy:** Keynes' was not satisfed by this idea of classical economist that for the self process of full employment balance, laissez faire is necessary. He declared that capitalism system is not self adjust because of unequal structure of their society. There are two major classes– rich and poor. "Rich have more money but they did not spend all money on consumption." The poor have no money for purchasing things. So in the comparison of total supply there are normal low levels of total demand by this there are over-production and unemployment in economy, then it never happens. So 'big depression' was the result of it. If capitalism arrangement became self adjusted and self arranged, then this will never happen. So Keynes supported that thing that states interfere for adjust the demand and supply under economies by the median of exchequer and oral method.
4. **Equality between Saving and Investment through Income Changes:** It was the belief of classical economists that saving and investment are equal at the level of full employment and if there is any deviation, then the mechanism of the rate of interest brings similarity in them. According to Keynes', the level of saving is dependent on the level of income. So the rate of interest of investment is also decided by the productivity of frontier. If the business expectancy is less then in the low rate of interest, investment will not increase. If saving increases from investment, then it means that people have spent less on consumption. Resultantly, the demand reduces, and high production starts and investment in income and

production reduces. By this, with the change of interest equality between investment and savings on account is maintained.

5. **Refutation of Wage Cut:** Keynes' had disclaimed this principle of **Pigou** that full employment can be got in economy to cut the currency-wage. In the analysis of Pigou the big doubt is that the logic of specific industry is applied on all economy. In one industry the decrement in the rate of wage can increase the employment to increase the cost and demand but this type of employment is reduced for all economy. When normal wage is cut, then the income of labour reduces resultantly total demand reduces and employment also reduces.

   Behaviourally Keynes' never supported the policy of cut in wage. Labourers establish a strong trade union in present era which protests the policy of reduced wage. They will agitate in its protest. As a result, whatever disturbance will generate in economies, by that income will reduce. Now, social justice demand is also that if profit is not disturbed then wage should not be reduced.

   Keynes has also not accepted that opinion that there is directly proportionate relation between currency wage and actual wage. According to him, they have opposite relation between them. When total wages are reduced, then actual wages are increased and *vice versa*. So as the believers of the traditions that, as not happen and being the reduction on currency-wage the actual wages are not reduced but increase, the cost of wage and price will be reduced more to cut the currency-wage. So the opinions of traditions are not outstaying that employment will increase to reduce the actual wage. But the believe of Keynes was that employment can increase more to reduce the currency-wage by the medium of currency and exchequer. Now the institutional protest is stronger of decrement of prices and wage so that type of policy cannot be continued in trend.

6. **Support of State Intervention:** Keynes was not satisfied by Pigou's opinion that ,"The failure of temporary is responsible to full use of our productive power." Capitalism arrangement is that if it fells alone, then it is not able to use full use of production power. So it is necessary for the interference of state. State can directly invest to increase the level of economic activity, or supplemented the self-investment. We make laws for determination of wages of workers, relief to the workers through medium of social security measures and they affiliated the trade unions. So as the opinion of **Dillard**, "To protest, the rule of labour and labour union are understood good at the sight of economics, but it is bad at the political sight." So Keynes supported the states processing for complete use of the source of economy for full employment.

7. **Short-run Analysis:** In the long duration Keynes believed in full employment. Keynes had no patience that he can wait for long

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time, because he believed that "After long time we all die." As the objective of **Shumpeter**, "His life's philosophy was fundamentally of short duration." His analysis was limited till short duration sources. Opposite to traditionalists he believed that nature, method of production and labour are certain during short time he leaves the long duration impact on demand. Assuming that consumption demand is certain, he forced on those things that investment demand increases to remove the unemployment. But by this the balance is achieved, it is the short duration employment level not full employment level.

8. **Importance of Speculative Demand:** Classic economists believed that currency is demanded for the objective and transaction. They did not consider the speculative demand because for the speculative objective currency is related to remains. But Keynes is not satisfied by this opinion. He kept his attention on the importance of speculative demand. He tells that earned interest by property to keep the transaction objective, can be less on low interest rate. But on low interest rate the speculative demand will be more. So the rate of interest will not fall by a special lowest level and the speculative demand of interest will be fully flexible. It is the liquidity trap of Keynes, classical economists were failed to analyze it.

In this connection, Keynes cleared that being on positive interest rate possibly to more from the investment of savings. Liquidity trap is stopped to fall down from a certain lowest rate of interest rate. It is shown in Fig. 4.6. where SS is the saving curve and II is the investment curve. If liquidity traps on Or_1 i.s. interest rate then it stops to fall on Or of interest rate. In the situation of liquidity trap of Or_1 interest rate is more than i_1s_1 of saving to investment. So economy will not establish on the full employment level E where savings and investment are equal but on short employment level where more saving is possible.

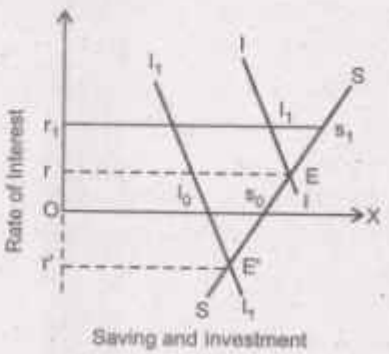


Fig. 4.6

Keynes told later that saving will be more even the rate of interest level falls to zero. It shows in Fig. 4.6 where II curve is shifted and becomes I_1I_1 and shows decrement in investment. Such a situation is

found. On zero interest rate saving $i_o s_o$ is more from investment. In that situation, classical saving and investment curve are intersected on E_1 point when Or' is negative on interest. It is the inconsistent situation.

9. **Money not Neutral:** Classical economists believed that currency was not effective. So they did not involve the production, employment and interest rate in currency principle. According to him, the level of production and employment and balance rate of interest are decided by actual powers. Keynes criticizes the classical opinion that currency principle is different from value principle. He joined the production principle and currency principle with value principle and brought interest principle in the currency sector in which he considered rate of interest as currency principle. So by this he showed established relation between the quantity of currency and price level. For example, when the quantity of currency increases then interest rate decreases, investment increases and income, production increase, demand increases, sources cost and wage increase, related prices increase and normal price level increases. So by this Keynes joined the currency and actual field of economics.

   So the classical principle employment is not able to solve the present economic problems of capitalism world.

Notes

Self Assessment

State whether the following statements are True or False

7. Hardness in the structure of wage and interference in the causation of market economic brings unemployment.
8. If the quantity of currency is doubled, then price level also gets doubled.
9. The change in currency-wage and actual wage in classical model of employment are related and disproportionate.
10. The classical model of employment is based on full employment.

4.6. Summary

- The classical principle believed that full employment is found without inflation in capitalist economy. Giving the wage-price flexibility, the automatic power gets in economic system which has nature to continue the full employment and does production on same level. So full employment is considered a normal situation and deviation in abnormal situation at that level which are the marching at full employment.

4.7. Keywords

- **Law of Market:** The rule of market.
- **Barter:** Exchange of things.

Notes

4.8. Review Questions

1. What is the classical principle of employment? Explain.
2. What is the market law of Say? Explain.
3. Write the summary of full employment model.
4. Write a note on the 'criticism of classical principle' by Keynes.

Answers: Self Assessment

1. classical principle
2. demand
3. thing-exchange
4. (a)
5. (b)
6. (a)
7. True
8. True
9. False
10. False.

4.9. Further Readings

1. **Macroeconomics:** *S.K.Chakravarti, Himalaya Publication House, 2010.*
2. **Macroeconomics:** *Mohan Shrivastava, DND Publications, 2010.*
3. **Macroeconomics:** *Economic growth, Fluctuations and Policy– Robert E. Hall and Devid H.Paipal, Vaina Books, 2010.*

Unit–5

Keynesian Theory of Employment

Notes

Structure

5.1. Objectives

After studying this unit, students will be able to:

- Know the employment principle of Keynes.
- Study of effective demand.
- Know the equilibrium determination.

5.2. Introduction

In effective demand two things are similar (*i*) demand of consumption things and (*ii*) demand of capitalism things and investment demand. If the increment of consumption demand is more than the increment of total income, then its difference shows the unemployment in economy. For increment in income and employment, the difference in income and consumption is removed by investment. So the level of employment is dependent on investment. So the effective demand is increased by investment for increase in the employment.

5.3. Keynesian Theory of Employment

Keynesian gave a special name to a famous principle, which is applied on limited area of his normal principle. According to him in the normal situation economic system is based on self property, there can happen anything from detailed unemployment to full employment. He striked established thoughts

Notes

from his prosperous viewpoint and developed economics to bring revolution in economic idea and policy.

John Maynard Keynes was the first economist; who gave systematic principle of employment. When in 1930 A.D., the famous principle failed he criticized it. In spite of very low interest rate, there was no increment in investment at that time. At that time, Keynes presented a perception of an effective demand for understanding the principle of income and employment of rendering effective demand.

This perception of effective demand brought revolution in economic principle. The experience of this principle has been proved. This principle describes that facts and causes, which describe the level of employment and income.

Self Assessment

Fill in the blanks:

1. J. M. Keynes was the first economist; he gave a systematic principle of ..... .
2. Keynes gave a name ..... to prosperous principle.
3. ..... principle keeps the strategic importance in the employment principle of Keynes.

5.4. Effective Demand

The principle of effective demand has a strategic importance with the employment principle of Keynes. It is that point, where public demand curve and public supply curve intersect each other. In other words, effective demand is that demand level in economy which is fully supported by related supply. So, entrepreneurs neither increase nor decrease supply. Effective demand decides the level of income and employment. The decrement in effective demand arises unemployment.

In effective demand two things are similar (*i*) demand of consumption things (*ii*) demand of capitalism things and investment demand. If the increment of consumption demand is more than the increment of total income, then its difference shows the unemployment in economies. For increment in income and employment the difference in income and consumption is removed by investment. So the level of employment is dependent on level of investment. So the effective demand is increased by investment for increasing the employment.

There are two important deciders of effective demand:

1. Aggregate Demand, and
2. Aggregate Supply.

5.4.1 Aggregate Demand

The total addition of demand of things and services in economics is called aggregate demand. It is the total of total consumption demand and

total investment demand. The demand of consumption of things and services are by self consumption and public consumption. And total addition of it is called consumption demand. So requirement of investment is done by entrepreneurship and government. Its addition is called total investment demand.

When any person, firm and government demand the things and services, the expenditure of consumption is called consumption expenditure. And that expenditure which is done on capitalism things, is called investment. Briefly,

Aggregate Demand (Expenditure) = Consumption Demand + investment expenditure (investment demand)

So Aggregate demand or expenditure consumption increases by the increment in investment expenditure or consumption. And it directly contacted with employment level in country. In the Fig. 5.1, X-axis shows the volume of employment and Y-axis shows the total expenditure. Aggregate expenditure can be treated as the total achievements of firms too. Because all expenditures belong to firms, which supply the things and services.

In this way, **Aggregate demand can be described as the received currency in exchange of those things and services of firms, which are produced in fixed number by labour.**

When firms want to earn more by increasing expenditure on services or society, they provide employment to more labour. Figure 5.1 shows the aggregate demand of produced things on different levels of employment and received by services. The expenditure on total production increases with the increment in the level of employment and reduces with the decrement of level of employment. In Fig. 5.1 the level of employment is increased with ON_1 and reached to ON_2, when anticipated expenditure (AD) on production is increased from OE_1 and reached to OE_2. Its function relation can be given as AD = f (N).

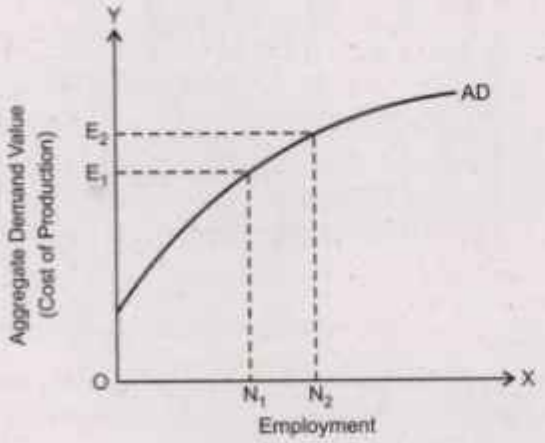


Fig. 5.1 Aggregate Demand Curve

Total demand function curve increases with decrement rate, because person spends less part of his income, which is increased in production and employment. So the shield is short of agreed demand.

Notes

5.3.2 Aggregate Supply

Aggregate Supply is the other important decider of equilibrium to income and employment level. It tells the addition of total things and services produced in an economy. If it is assumed that all things and services are available for consumption and investment, then total supply will be equal to national product and national income. Its national product, four sources (Land, Laborer, Capital and entrepreneurship) of production will be equal to the total income.

Aggregate supply or value is that low anticipated value, which is received by firms for production on a certain scale and for keeping the labourers engaged.

In the words of Stonyer and Hag, "Aggregate supply is that total volume of value currency on the given employment level which should be got by the sell of that product to all entrepreneurs, which was produced by given people, it is profitable to give employment to those." Aggregate supply increases within the value employment and decreases with decrement. It is shown in equation.

$$AS = f(N)$$

AS = Aggregate supply

N = Number of employed labour

In Fig. 5.2 X-axis shows volume of employment and Y-axis shows the aggregate supply. On the level of employment ON_1, the total income is OE_1 and total OE_2 is the total expenditure on the level on employment ON_2. Aggregate curve is also shown going up as Aggregate supply curve. As increase in the level of employment, total production and total cost are also increased. So firm keeps expectance of 'low sell receiving'.

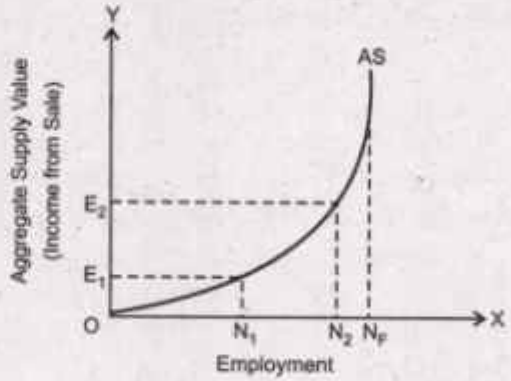


Fig. 5.2 Aggregate Supply curve

When frontier cost is reduced, then production in increment quantity is beneftted. The shield of aggregate supply curve is increased with the increment in the level of employment. It happens because low skill sources get employment as relative on the increment in employment. According to it the optimum ratio is disturbed between different sources of production. Output is always according to the descending resources or return of scale. In this way by increasing the employment, the production is increased and

therefore, total expense will always increase. The shield of Aggregate supply value curve is increasing as whenever every source is not getting employment.

Any increment in receiving sell and cost on full employment point cannot increase the employment. Total Supply curve becomes vertical on employment level ON_1. Aggregate supply curve on that point becomes fully flexible on more national level. There will be no change in employment and production level.

Notes	The total addition of things and services in an economy is called aggregate demand.

Self Assessment

Multiple Choice Questions:

4. Effective demand decides the level of income and ..... .
   (*a*) employment (*b*) unemployment
   (*c*) cost (*d*) curve
5. To increase the employment effective demand is ..... by investment.
   (*a*) decremented (*b*) incremented
   (*c*) expenditure (*d*) none of these
6. Aggregate supply is the second important decider of ..... the level of income and employment.
   (*a*) dissimilation (*b*) assimilation
   (*c*) equilibrium (*d*) None of these

5.5. Equilibrium Determination

The level of employment production and income is decided by the effective demand, which itself is decided by the aggregate demand and aggregate supply. The firm increases the employment at such level, whenever the total anticipated receiving is more than from total cost. In other words, whenever the aggregate demand curve is up to aggregate supply curve (as shown in the employment level ON_1 in Fig. 5.3), firms increase the employment level for receiving more profit. If aggregate demand curve is below in the aggregate supply curve (as shown in the employment level ON_2 in Fig. 5.3), then firm will decrease the employment level because of the loss by high cost. So equilibrium will decide at that point where both curves will intersect each other.

In Fig. 5.3, aggregate demand and aggregate supply curve are intersecting each other at E. This point (ON) is called the equilibrium point of effective demand and employment. This point represents expenses of produced things and services on equilibrium of employment. Briefly, Effective Demand = National product = Volume of employment = National income = National expenditure = consumption expenses = investment expenses. Firms have not the increment and decrement of nature at equilibrium point, because

Notes

its profits are more at that point. The competition among labours takes employment level on equilibrium.

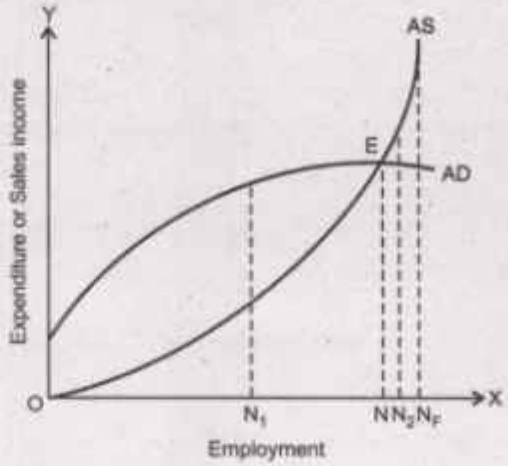


Fig. 5.3 Equilibrium within Keynesian Theory

When aggregate demand curve increases on upside, then employment level increases. In snatch the possibility of change is not existent in aggregate supply curve, because that production depends on techniques, availability of raw materials and machinery etc. By increasing the productivity of labour in long period, the aggregate supply curve can be done at below side. But it is not possible on unemployment economy. Now it is important to say that Keynes considers an important decider of effective demand and employment level to aggregate demand.

In Fig. 5.4 according to the increment in aggregate demand, effective demand is shift at right side. Therefore, equilibrium point becomes E_1 from E which is according to the change in total demand. Because of the change in total demand, there are the situations of unemployment in economy at point 'E', where NN_F labourers are unemployed. Whereas at point E_1 economy gets the full employment equilibrium. Here all persons who want employment get employment. In this way, situation of under-employment can be finished by changing the aggregate demand by increasing the investment expenses or consumption in an economy.

Did You Know?	The level of employment production and income is decided by effective demand, which itself is decided by aggregate supply and aggregate demand.

It is clear from above description that effective demand also can or get the point of full employment cannot. In other words, effective demand is always not related to full employment level. The viewpoint of **Keynes** was that the situation of underemployment is a normal situation in a free entrepreneurship economy and full employment is a situation of exception. A country can get the situation of full employment only in the situation of more prosperity. The full employment is only possible in an economy, when investment demand or investment expenses can find the total supply and

difference at that level. The difference between income and consumption is due to inadequacy of bridging by investment that is responsible for under-employment in economy. In Fig. 5.4, an economy will get the full employment situation to increase its appropriation from MM_1.

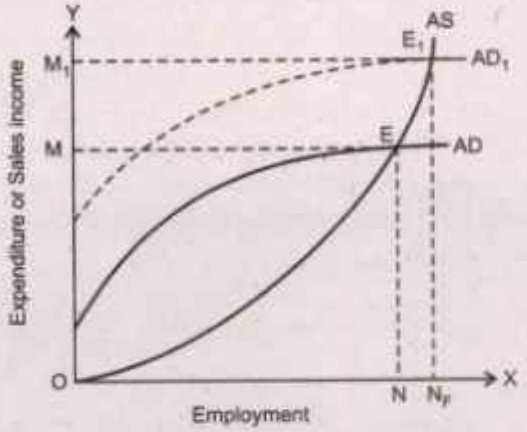


Fig. 5.4 Shifting in Equilibrium

Giving discount as tax and by decrement in institution cost to investor this investment can be inspired. With this in the work of social welfare should also invested by government. Full employment is important at one limit, because after that production and employment are unchanged to increase the effective demand. If aggregate demand is increased after the point of full employment, then it will raise the situation of currency inflation,because employment or production is not increased after full employment.

Self Assessment

State whether the following statements are True or False:

7. Employment production and the level of income are decided by effective demand.
8. When aggregate demand curve is risen up side, then the level of employment is increased.
9. Aggregate supply curve can be moved downwards to increase the productivity of labour in long period.
10. The availability of change is almost nothing in aggregate supply curve in long period.

5.6. Comparison of Classical and Keynesian Theory of Employment

The employment principle of Keynes is different in many forms from classical employment principle.

(*i*) Classical economists believe that an economy is in unstable equilibrium on full employment point as invariably. So classical principle is related with special situation of full employment, and ignores the possibility of normal unemployment. Opposite

Notes

to that the principle of Keynes, which indicates works in all situations of economy (full employment, under-employment and unemployment). According to Keynes— the situation of full employment is very less or an exception. Normally, economy is in equilibrium on low level from full employment level.

(*ii*) Classical economists believed that if full employment situation is not in economy, then equilibrium can be established to decrease the wage. But **Keynes** considers, this idea as unreal and impractical. According to **Keynes** if the rate of wage reduces in a special entrepreneurship then employment can be increased. But if it is done in whole economy then it will reduce the income, production and employment.

Task	Express your views on the employment principle of Keynes.

(*iii*) In classical system, the increment in currency supply takes the nature of currency inflation. Whereas according to **Keynes**, the increment in the currency supply after full employment creates the currency inflation.

(*iv*) According to classical economists the analysis of interest-investment is the instrument to decide the interest rate. Any change in saving interest does inequality in investment or savings. Apposite that **Keynes** considers the analysis of interest-investment is the instrument to decide the level of income and employment. If saving is more than investment, then consumption expense is less. So demand will reduce. So production and saving are responsible for the decrement in the investment, income, interest and employment. So when the atmosphere of business is disappointing then the decrement in interest rate is not increased by the investment. So the situation of equilibrium can be possible between savings and investment by change in the level of income. So the principle of **Keynes** is more useful for the analysis of more real and economic development.

(*v*) Classical economists consider that the level of economic activities can change by the change of the quantity of currency and interest rate. They are capable of stopping the use of monetary policy, unemployment, business depression etc. Apposite that Keynes believed to solve all problems by policy (public expenses, financial arrangement of loss etc).

(*vi*) Classical principle considers most important to conformable to decide the equilibrium level of income and employment in any economy. The assumption of that principle is that supply creates its own demand. Apposite that **Keynes** considers supply constant and considers the decider of equilibrium to demand of economy, so in Keynes principle, supply is a stock variable.

(*vii*) The decision of savings and investment is taken in one division within classical principle. So saving and investment are equal. The similarity is established by interest rate being any inequality in both. So interest rate keeps an important place in a classical arrangement. Apposite that **Keynes** considers interest as the return of sacrifice and gives less importance to it. According to him the changes that take place in an economy; it is according to the change of income and expenses, not according to the change of interest rate. With it in the situation of equilibrium in economy, savings and investment will be equal, because savings and investment are according to different objectives by different divisions.

(*viii*) There are two separate principles by classical economist—one is for currency, second is for value and production level. But **Keynes** presented a joint principle of currency principle, value and production level. According to him this principle cannot be presented as a separate principle, because the quantity of currency is directly affect the level of employment, production and income.

(*ix*) Classical principles are only active in long period. **Keynes** put a question mark on principle like this and rendered such a principle that is active in short period.

5.7. Summary

- Aggregate supply is the second decider of equilibrium of the level of employment and income. It indicates addition of total things and services produced in an economy. If it is assumed that all things and services produced in an economy are available for consumption and investment, then total supply will be equal to the national income and national product. This national product will be equal to the four sources (land, labour, capital and entrepreneur) of production. Aggregate supply or value is that anticipated value, which is received by firms for production on a certain scale and for keeping labourers engaged.

5.8. Keywords

- **Effective Demand:** Valuable order.
- **Equilibrium:** Balance.

5.9. Review Questions

1. Define the employment principle of Keynes
2. What is the aggregate demand? Explain.
3. Write a note on 'Equilibrium decider'.
4. Clear the meaning of aggregate total supply.

Notes

Answers: Self Assessment

1. employment
2. special principle
3. Effective demand
4. (a)
5. (b)
6. (c)
7. True.
8. True
9. True
10. False

5.10. Further Readings

1. **Macroeconomics: Economic Growth, Fluctuations and Policy**— *Robert E. Hall and David H. PaiPal, Vaina Books, 2010.*
2. **Macroeconomics: Theory and Policy**— *H. L. Ahuja, S. Chand Publishers, 2010.*
3. **Necessity of Macroeconomics**— *H.S.Nath, Cyber Tech Publications, 2012.*

Unit–6

Theory of Consumption Function

Notes

Structure

6.1. Objectives

After studying this unit, students will be able to:

- Know the consumption function principle of Keynes.
- Study absolute income hypothesis.

6.2. Introduction

In the previous unit we have described the relation between income and consumption rendered by Keynes, which he called as consumption function. After **Keynes**, economists are studying some components of consumption function and created new principles related to that. These are— (1) Absolute income principle of Tobin; (2) Relative income principle of Dussenberry ; (3) Certain income principle of Friedman; (4) life-cycle principle of Modigliani. Before describing these principles we briefly explain the principle of Keynes on which all these principles are based.

6.3. Keynes Consumption Function Theory

Keynes renders the consumption function principle in his book *General Theory*. According to him, all consumptions are the function of all current disposable income. It is given by-

$$C = a + cy_d$$

Where a is a positive autonomous consumption that is affected by non-income component on consumption. So it is not affected by the increment or decrement in income. It is constant. C is the frontier consumption nature

Notes

(MPC) and y_d is disposable income which is left with customers as expenses after paying tax.

The relation between consumption and income is dependent on Keynes' 'Psychological rule of consumption' which indicates that when income increases then consumption expense also increases but in low quantity. In other words, when there is increment in income, consumption expenses are not increased but not proportionally. The meaning of perception of this non-proportional consumption function is that short period average nature (APC) and frontier consumption nature (MPC) are not similar. But APC > MPC and MPC is positive but less than unity: 0 < MPC < 1. Lastly, consumption function of Keynes takes constant value in both short period and long period. The principle of Keynes proved unsatisfied because it cannot describe statically short period rationally in consumption and income.

For understanding that we differentiate in rational and non-rational consumption function. Consumption function is rational when APC is constant at every level of income and equals to MPC as shown in Fig. 6.1. Where consumption C cut on origin O. When income changes from OY_1 to OY_2 then on E_1 and E_2 points with C curve APC = MPC. In other words, on 45° curve at point E_1 APC = $OC_1/OY_1 = 1$ and MPC = $\Delta C/\Delta Y$ consumption function becomes non-proportional when with increase in income, APC decreases. In Fig. 6.2, C is the consumption function. OY_1 is income level to the C curve at point E of APC > MPC, where APC = OC_1/OY_1 and MPC = $\Delta C/\Delta Y = ER/RE_0$ but on OY_0 level when C intersect 45° curve at point E_0, there APC = MPC.

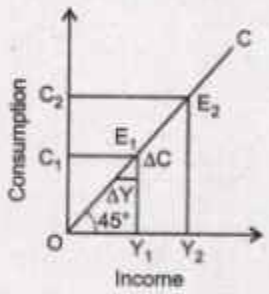


Fig. 6.1

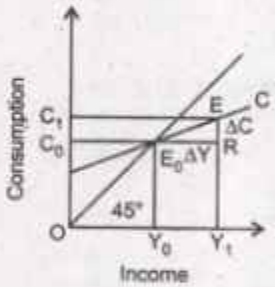


Fig. 6.2

Notes	Keynes renders the principle of consumption function in his book *General Theory*.

At the end of 1930s and at the mid of 1940s many studies were performed which were based on time series and cross-section. By these studies Keynes principle is proved that is called absolute income hypothesis.

In 1946 **Kuznets** studied the data of income and consumption of USA during the period 1869–1938 and studied consumption function of that duration 0.9. He then concluded that in the long run average APC graph has no tendency to go downwards and so, with the increase in income APC = MPC. Its meaning is that in long period, consumption function is a simple line that passes on original point, as shown in Fig. 6.3 by C_1 line.

Bold smith again inspected that conclusion in 1955 A.D. and concluded that long period consumption function constant on 0.87 or 0.9. From these two studies it is clear that consumption function is non-rational because APC > MPC and long period consumption function is rational, MPC = APC. So both studies are disclaimer to each other and become a puzzle for economists. To save this, from many years economists have tried to reconcile short-term consumption and long term consumption "The solutions they have given in them redefinition of consumption function has been mentioned. ". Above we are studying such a principle of consumption function.

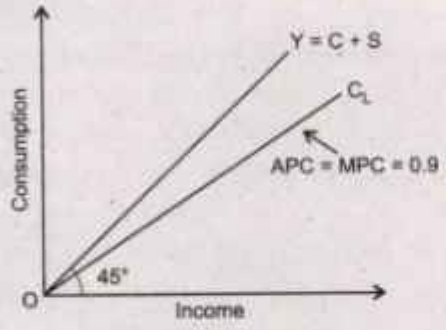


Fig. 6.3

Did You Know?	All customers are the function of whole disposable income.

Self Assessment

Fill in the blanks:

1. Keynes renders the principle of consumption function in his book ..... .
2. Being increment and decrement in income ..... expenses are also increased and decreased.
3. The consumption function of Keynes gives the name of ..... income hypothesis.

6.4. Absolute Income Hypothesis

The consumption function of Keynes has been given the name absolute income hypothesis that indicates when income increases, then consumption also increases but it increases less in comparison to the increment of income and *vice versa*. Its meaning is that the relation of consumption and income is non-rational. **James Tobin** and **Arthur Smith** inspected this hypothesis in different studies and concluded that the short period relation of consumption and income is non-rational, but by Time Series data the long period relation of both are rational. The relation of consumption-income is because by shifting up the short-period non-rational consumption function. For that different reasons are responsible. These reasons are described below.

Notes

Self Assessment

Multiple Choice Questions:

4. Short-duration consumption function is
   (*a*) non-rational (*b*) rational
   (*c*) a study (*d*) none of these
5. Long duration consumption function is
   (*a*) rational (*b*) non-rational
   (*c*) proportionate (*d*) none of these.
6. When income increases during resilience period, then it increases with the increment in saving
   (*a*) consumption (*b*) non-enjoyment
   (*c*) expenses (*d*) none of these

First, Prof. Tobin involved the asset holdings of Negro and White families in budget study for the inspection of this hypothesis. He concluded that if the assets of family increase, then the consumption also increases then accordingly the consumption function is shifted above. **Second**, many new domestic consumer products came fast in use after the end of the Second World War. Being the use of these necessary things, the consumption function was shifted to up. **Third**, the nature of urbanization increased after period of the War. The transfer speeds of public from rural areas to urban areas, the consumption function shifted up because the nature of consumption of urban labours is more than workers of field. **Fourth**, after long duration, the population of old age people increases. Though old age people are not earning, but they consume things. Due to their increase in number the consumption function is shifted up.

According to absolute income principle, these reasons have shifted consumption function level side as necessary to establish rational between consumption and income in long period and so it stops to seem like that those seem the non-rational relation only based on income.

Task	Express your views on consumption function principle of Keynes.

Absolute income hypothesis is presented in Fig. 6.4 where C_L is a long period consumption, as we grow with long period curve then it presents the rational relation between consumption and income.

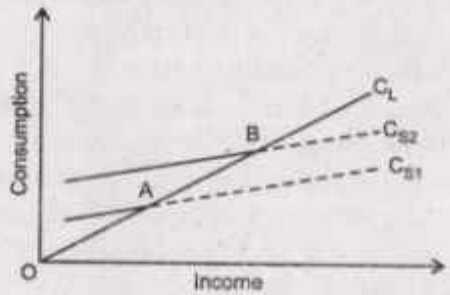


Fig. 6.4

Example, On A and B point of that curve APC and MPC is equal. C_{S1} and C_{S2} are the short period functions. But those reasons are described above, because of that these consumption function increased up side from A to B point with C_L. But C_{S1} and C_{S2} will not increase the dotted part of consumption function in the same proportion as increase in income. So this part shows the non-rational relation.

Its Critical Appraisal: The quality of that principles is that it forces all elements except income that preset the customer-behaviour. This is not described by Keynes. But the problems are that its non-rational consumption function continues with assumption. As **Prof. Shapiro** objected, "Now economists feel that basic consumption functions are rational which means to ignore the main principle of absolute hypothesis."

Self Assessment

State whether the following statements are True or False:

7. This principle of Keynes proved unsatisfied because it can rationally describe the statistics in long period in consumption and income.
8. Kuznets studied the data in 1946 of income and consumption of USA in 1869–1938 time periods.
9. When income increases then consumption also increases.
10. Consumption function tries to re-define the free component.

6.5. Summary

- The relation between consumption and income is dependent on Keynes 'Psychological rule of consumption'. It indicates that when income increases then consumption expenses also increases but in low quantity. In other words, being incremented in income, consumption expenses are not increased proportionally.

6.6. Keywords

- **Time Series:** Moment chain.
- **Cross-Section:** Sample slice.

6.7. Review Questions

1. What do you understand by the consumption function principle of Keynes?
2. What is the meaning of absolute income hypothesis?
3. Critically evaluate the absolute income hypothesis.

Answers: Self Assessment

1. General Theory	2. consumption	3. absolute	4. (a)
5. (a)	6. (a)	7. False	8. True
9. True	10. True.		

Notes

6.8. Further Readings

1. **Macroeconomics: Theory and Policy**— *H. L. Ahuja, S. Chand Publishers, 2010.*

Unit–7

Demand of Money: Quantity Theory of Money

Notes

Structure

7.1. Objectives

After studying this unit, students will be able to:

- Know the value of money.
- Explain the theories of value of money.
- Understand the quantity theory of money.

7.2. Introduction

There is an inverse relation between the value of money and general price level of commodities and services. When general price level decreases, value of money increases.

7.3. What is Value of Money?

In the words of **Crowther**, "The value of money is what it will buy." As much goods and services are received in exchange of one unit of money, it is its value. As per **Robertson**, "By the value of money we mean the amount of things in general which will be given in exchange for a unit of money."

Notes

Self Assessment

Fill in the blanks:

1. ..... of money is what it will buy.
2. There is an ..... relation between the value of money and general price level of commodities and services.
3. When general price level decreases, value of money ..... .

7.4. Value of Money and Price Level

Value of various goods and services is expressed in the form of money, but money's own value cannot be expressed in the form of money. If value of money is expressed in the form of goods and services there will be lakhs of values of money because lakhs of goods and services are found in this world. To overcome this difficulty we calculate a group value of money. For this we select few such representative goods and services, which we use daily. Their average price is calculated and it is called general price level. There is an inverse relation between the value of money and general price level of commodities and services. When general price level decreases, value of money increases.

$$\text{Value of Money} = \frac{1}{\text{Price level } (P)}$$

(Here, P: Price level)

In the words of **Irving Fisher**, "The purchasing power of money is the reciprocal of the level of prices, so that the study of purchasing power of money is identical with the study of price level."

Notes	Value of various goods and services is expressed in the form of money, but money's own value cannot be expressed in the form of money.

7.5. Theories of Value of Money

In theories relating to value of money, it is studied that how value of money is determined to be reciprocal of the price level. In the reference, two important theories are: (*i*) Quantity theory of money (*ii*) Keynesian Theory of Money. In this lesson, both the theories will be studied extensively.

Self Assessment

Multiple Choice Questions:

4. The purchasing power of money is the ..... of the level of prices.
   (*a*) reciprocal (*b*) favourable
   (*c*) opposite (*d*) none of these

Notes

5. There is an inverse ..... relation between the quantity of money and value of money.
   (a) abysmal (b) proportionate
   (c) one-to-one (d) none of these
6. Prof. Milton Friedman presented modern ..... theory.
   (a) quantity (b) cost
   (c) curve (d) none of these

7.6. Quantity Theory of Money

Quantity theory of money is the oldest theory of determining the value of money. It was demonstrated in 1566 by the French economist, Jean Bodin. In 1588, Italian economist **Davanzatti**, in 1691, British Economist **John Locke** and in 1752, **David Hume** made a much clearer description of this theory. In twentieth century, this theory was described in detail by economists like, Irving fisher, Marshal, Pigou, Robertson etc. **Prof. Milton Friedman** had presented the modern Quantity theory.

The Quantity Theory of Money states **that there is a direct and proportionate relation between quantity of money and general price level and an inverse proportionate relation between quantity of money and value of money**. As per this theory, by an increase in quantity of money price level increases in the same proportion and by a decrease in quantity of money, price level decreases in the same proportion.

- As per **J. S. Mill, "The value of money, other things being the same, varies inversely with its quantity; every increase of quantity lowers the value and every diminution raises it in a ratio exactly equivalent."**
- In the words of **Prof. A. C. L. Dey, "The quantity theory of money states that the price level varies in direct proportion to the quantity of money. If the quantity of money doubles so will be the price level. Similarly, they will fall together."**
- In the words of **Fisher, "Other things remain unchanged, as the quantity of money in circulation increases the price level increases in direct proportion and the value of money decreases and *vice versa*."**

Did You Know?	Purchasing power of money is called the value of money.

7.7. Two Equations of Quantity Theory of Money

Two main equations related to the theory of quantity of money are:

1. Transactions Approach or Fisher's Equation.
2. Cash Balance or Cambridge equation.

1. Transactions Approach or Fisher's Equation

Prof. Irving Fisher, in his book *"The purchasing power of money"*,

Notes

published in 1911 had demonstrated the transaction approach of theory of quantity of money. As per **Fisher**, "The quantity theory is correct in the sense that the level of price varies directly with the quantity of money in circulation provided the velocity of circulation of that money and volume of trade are not changed." Which shows that value of money (which is inverse of price level), changes inversely with the quantity of money. Generally, Fisher's theory of quantity of money is used in the form of below mentioned equation of exchange:

$$PY = MV + M'V'$$

or

$$P = \frac{MV + M'V'}{Y}$$

(Here, M: Quantity of currency or money in circulation; V: Velocity of quantity of currency or money in circulation; M': Quantity of bank money or credit money; V': Velocity of credit money; Y: Total quantity of goods or services which are exchanged through the medium of money. It shows the actual GDP. P: Price level)

From the equation it is known that **by multiplying the quantity of money (M + M') with its velocity (V + V'), net supply of money in a definite period may be known and by multiplying the quantity of goods and services in a definite period of time (Y) with the price level (P), demand for money may be known.**

As per **Fisher, in a definite time period, M', V, V' and Y are constants, hence a direct relation establishes between quantity of money and price level. In other words, with an increase in quantity of money (M) there is also an increase in price level (P) and value of money decreases in the same proportion** $\left(\frac{1}{P}\right)$.

Assume, $M = ₹100, V = 8$

$M' = ₹200, V' = 4$

$Y = 400$

$$P = \frac{MV + M'V'}{Y} = \frac{100 \times 8 + 200 \times 4}{400} = \frac{800 + 800}{400}$$

$$= \frac{1600}{400} = 4$$

And value of money $\left(\frac{1}{P}\right) = ₹\frac{1}{4}$

☞ The Underlying Classical Assumption

Inverse relation between quantity of money and price level or a one to one relation between quantity of money and value of money is an important

conclusion of classical theory and it is based on the assumption that there is only one job of money, which is medium of exchange.

Especially, it is assumed that apart from being a medium of exchange, there is not any other job of money, like store of value. If for once, this assumption is removed, (and definitely it must be removed because this assumption is opposed to actual life situation) then assertion of statistical relation between one for one supply of money and price level will crumple. It has been mentioned in the next section of the unit.

As per **Fisher**, proportion between credit money (M') and money in circulation (M) remains constant. It means that if money in circulation (M) doubles, credit money (M') will also be doubled. Hence,

$$M = ₹200, V = 8$$

$$M' = ₹400, V' = 4$$

$$Y = 400$$

$$P = \frac{200 \times 8 + 400 \times 4}{400}$$

$$= \frac{3200}{400} = ₹8$$

And value of money $\frac{1}{P} = \frac{1}{8}$

From the given example it is clear that by doubling the quantity of money, price level also doubles, i.e., from ₹ 4, it increases to ₹ 8 and value of money reduces to half from 1/4 to 1/8. From the given example, it is clear that when quantity of money doubles, then price level also doubles. It increases from 4 to 8 and value of money decreases from 1/4 to 1/8.

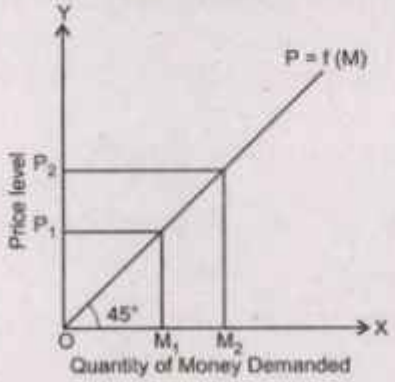


Fig. 7.1

Proportionate relation between quantity of money and Price level is shown in Fig. 7.1. straight line, P = f(M) moving upwards represents direct proportionate relation between the quantity of money on OX axis and price level on OY axis. Hence when quantity of Money M_1M_2 increases, price level P_1P_2 increases in the same proportion. Percentage increase in quantity of

Notes

money = $\left(\frac{M_1M_2}{OM_1}\right)$ is equal to the percentage increase in price Level = $\left(\frac{P_1P_2}{OP_1}\right)$

In the same way when there is a decrease in quantity of money from OM_2 to OM_1, then in price level decrease from OP_2 to OP_1 happens in the same proportion.

Task	Express your thoughts on value of money and price level.

7.8. Concepts of Supply of Money and Demand for Money in Fisher's Equation

1. Supply of Money

Supply of money depends on two factors, (i) Quantity of Money (ii) Velocity of Money.

(i) **Quantity of Money:** Quantity of money is meant, sum of money in circulation (M) and the demand deposits of bank (M') which is also known as credit money. Hence,

Supply of money = M + M' = (Notes + Coins) + Credit money

Hence, quantity of money is meant that net quantity of money which is available for purchasing goods and services. Actually, as per the classical economists (in which Fisher is also included) money is used only for medium of exchange. It is not kept in form of store of value. Accordingly, entire money in circulation is available for purchasing goods and services.

(ii) **Velocity of Money:** Velocity of money is the number of times a unit of money changes hands during a specified period of time. Meaning of velocity of money is that in a specified time, how many times a unit of money purchases goods and services. Consider that Ram has a rupee. He buys a pen from Shyam for one rupee and Shyam buys sweets from Mohan from the same rupee. In this manner, in a specified period of time a note of one rupee accomplished the transaction of exchange for four times, in other words, a note of one rupee did the job of four rupees. Hence, the velocity of one rupee will be called four. To know the velocity of money in a country, Gross National Product is divided by money in circulation.

$$\text{Velocity (V)} = \frac{\text{Gross National Product (GNP)}}{\text{Money in Circulation}}$$

In this manner, gross supply of money = MV + M'V'

2. Demand for Money

Money is demanded because it does the job of medium of exchange.

Hence, on any given time, demand for money depends on the exchange being done in the society. Quantity of exchange depends on two things:

(*i*) **Trade Transactions- Y:** Trade transactions is meant, gross physical quantity of goods and services sold in the form of money through trade transactions, in a specified period of time. As many times this object is sold in the specified period, it is counted in trade transaction.

(*ii*) **(P) Price Level:** Average price of each unit of 'Y', in a specified period is known as price level (P). In detailed meaning, it is known as general price level.

Hence, Demand for money = Price level (P) × Trade transactions (Y (P')

> **☞ Price in the Form of a Passive Parameter**
>
> Fisher's opinion is that price (P) is an inactive parameter. Price is determined by the supply of money, but it itself does not determine the value of production, income and employment of the economy, nature of all these is to stabilise on the level of complete employment. That is why in Fisher's equation, there is no influence on parameter Y of the changes happening in parameter P.

Assumptions of Quantity Theory of Money

Quantity theory of money is based on the following assumptions:

1. **Constant velocity of currency (V) and velocity of bank money (V'):** It is assumed that velocity of currency (V) and velocity of bank money and credit money (V') remain constant.
2. Generally, **in the economy situation of full employment is** found.
3. **Constant trade transactions:** Due to the situation of full employment Fisher's assumption is also that in a specified time, quantity of trade transactions (Y) i.e., quantity of goods, services and securities remain constant.
4. **Constant proportion between bank money (M) and currency (M'):** This theory is based on the assumption that changes in quantity of bank money (M') happen in the proportion of quantity of currency (M). When quantity of currency is extended, then there is an extension in the bank money also in the same quantity. As opposed to this, when there is shrinkage in currency, then there is proportionate shrinkage in bank money also because people withdraw their bank deposits. As a result, there is a reduction on quantity of bank money.

Criticism

Keynes and Keynesians economists like Crowther, Halm etc. have done the below mentioned criticism of Fisher's equation:

1. **A simple truism or Tautological:** In the words of Keynes, "The quantity theory is a truism which holds in all circumstances though without significance."Quantity theory of money is a simple truth

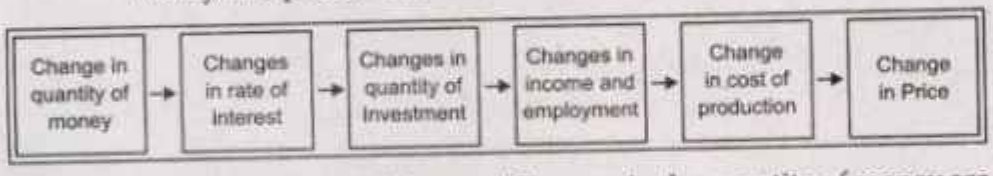
Notes

or a truism. It does not tell anything which people do not know beforehand. This theory tells us that gross monetary expense of buyers is equal to the gross monetary income of the sellers. In other words, as many goods and services are sold in the market, that many are purchased. It is one such truth which even an illiterate person also knows. It is not known through it that because of change in supply of money, what is the actual reaction of change happening in price level and of these factors, which factor is the cause and which is the result. It is also not known through it that why there are changes in supply or quantity of money. It only tells an identity.

2. **Unrealistic Assumption:** This theory is based on an unrealistic assumption that price level is only influenced by changes in quantity of money. Other elements of the equation like V, V', and Y have been considered to be constant. We can see that these elements are never constant in actual life and price level also changes through changes happening in them.
3. **Variables are not independent:** Fisher's assumption is that M, M', V, V' are independent variables i.e., one has no influenceon the other. But we see that in real life, these variables are not independent of each other. Change in any one variable, like Y, has its influence on other variables also.
4. **Lop Sided:** As per critics, as compared to demand for money, this theory lays more emphasis on supply for money. Fisher, by assuming the demand for money to be constant has ended the influence of demand in price determination. As per Fisher, only by change happening in supply of money, change in price level takes place. It means that importance is given only to the Money's job of 'Medium of Exchange' and the job of 'Store of value' has been ignored. Hence it is a lop-sided theory.
5. **Price Level is not a passive factor:** The assumption of this theory that price level is a passive factor is also wrong. Actually, price level is an active factor. Because of changes in price level, quantity of trade (Y) is influenced because due to increase in prices, profit sincrease. As a result, there is an increase in trade (Y) and quantity of money. That is why due to increase in prices there is increase in quantity of money and decrease in trade, quantity of money decreases.
6. **Applicable only in case of full employment:** Quantity theory of money is applicable only in case of full employment. But as per Keynes, economies may also be in a situation of incomplete employment. In such economies, on increase in quantity of money increase takes place in production and not in prices.
7. **It fails to explain trade cycles:** As per Crowther, "The quantity theory is an imperfect guide to the cause of trade cycle." It is not known through this theory that during recession, why the prices

do not increase even on increasing the quantity of money and during infation why do prices increase, even without increasing the quantity of money? The actual reason for this is that during the days of recession, velocity of money decreases and in the situation of inflation it increases. But this theory presumes the velocity of money to be constant. Actually, velocity of money keeps changing.

8. **Inconsistent:** As per **Halm**, quantity theory of money is inconsistent. In this effort has been made to know the quantity of money by multiplying quantity of money, which is related to a point of time or stock or is a static concept, with velocity, which is related to a time period, or which is a flowing or a dynamic concpt. It is technically inconsistent.
9. **It ignores the effect of rate of interest:** This theory ignores the effect of rate of interest on prices. As per Lord Kez, Hawtrey and Prof. Hayek the assumption of this theory that there is a direct relation between quantity of money and price level, is wrong. Actually, changes happening in quantity of money influence the rate of interest and changes happening in rate of interest create changes in price level. Hence there is an indirect relation between quantity of money and price level.



As per **Mrs Joan Robinson**, "Changes in the quantity of money are of great significance. Their importance lies in their effect on the rate of interest. But a theory of money that makes no mention of rate of interest is not worthy of being called money theory."

10. **Diffcult to measure velocity in Fisher's equation:** It is very diffcult to measure the velocity of money. It is not possible to count that in a specific period, how many hands does a unit of money goes into. Apart from this, to know the total quantity of money it is important to know the money collected in personal treasuries. In countries like India, Black money is also found in circulation. It is difficult to measure the net quantity and velocity of such money. Other than this, in short term, velocity may be presumed to be constant but in long term, velocity definitely changes.
11. **It ignores the effect of non-monetary factors:** This theory ignores the effect of non-monetary factors on price level. Not only does the quantity of money affect the price level but many non-monetary factors such as political and psychological factors also have an influence. These factors are not studied in this theory.

Full Employment—a precondition of the classical assertion of one-to-one relation between supply of money and price level.

Notes

Classical economists had the opinion that full employment is a natural incident in a free market economy. This assertion is actually a precondition of their belief that price level changes in the same proportion in which quantity of money changes. Once this pre-condition is fulfilled, proportionate relation between quantity of money and price level becomes a reality that may not be challenged. But the question arises that whether full employment is a self happening event in a free economy? The great depression of the decade of 1930, as a historical proof, does not support this opinion.

Cash Balance or Cambridge Equation

Many economists like Marshall, Pigou, Robertson (initially Keynes also) of Cambridge university have demonstrated cash balance equation of quantity theory of money. It is also known as Cambridge equation.

As per cash balance equation value of money is determined by its demand and supply. At a definite point of time, supply of money remains constant, hence changes in demand of money have more effect on value of money (or price level). Hence, this theory gives more importance to demand for money instead of supply of money. That is why this theory is also known as Demand theory of money. For completely understanding this equation, it is important to study concepts relating to demand and supply of money.

1. **Supply of Money:** As per cash balance equation, supply of money at a particular point of time is the sum total of all the notes and coins with the public and the demand deposits. Hence,

   Supply of Money = Notes + Coins+ Demand Deposits

   If it is thought about at a specific point of time, it is believed that velocity will have no effect on supply of money.

☞ **An Important Observation**

Supporters of Cambridge equation have recognised not only money's job as a medium of exchange but also as a store of value. But while describing the concept of demand of money, they have emphasised on using demand for money in the form of medium of exchange and for dealing an emergency situation. In other words, their meaning with 'demand for money' is 'demand for exchange' and 'demand for precaution'. Importance of demand for money with an objective of speculation or importance of demand for money with an objective of earning money from money was ignored by them.

2. **Demand for Money:** According to Cambridge equation by demand, is meant, the people's desire to keep money as cash balance. As per **Fisher**, demand for money is done only for using it as a medium of exchange. But as per cash balance equation money is demanded not only for using it as a medium of exchange but also with an objective of accumulating money. Cash balance is that ratio of annual actual income, which people like to keep as cash money. Hence,

Demand for money= Sum of Cash balances

As per this equation, **if supply of money remains constant, on an increase in demand for money or cash balance prices will decrease because people will like to keep with them, a big part of their income as cash and their demand for goods and services will reduce**. As opposed to this, if demand for cash balance will reduce, demand for goods and services will increase because of price level will rise. Accordingly, demand for money or cash balance has an inverse relation with price level.

Different Variants of Cash Balance Equation

There are various forms of cash balance equation. Important ones are described as follows:

Marshall's Equation: Dr. Marshall has explained the value of money through the below mentioned equation:

$$M = kY$$

(Here, M : quantity of money, Y: monetary income, K: that part of the income which people want to keep as cash)

Because monetary income (Y) is the product of gross production (O) and price level (P), i.e., Y = PXO. Hence, the above equation may be written as follows:

$$M = POk \text{ or } P = \frac{M}{Ok}$$

If M = ₹ 100 crores, O = 500 units, $k = \frac{1}{5}$ (i.e., people want to keep $\frac{1}{5}$ th part of their income as cash) then,

$$P = \frac{M}{OK} = \frac{100}{500 \times \frac{1}{5}} = \frac{100}{100} \text{ ₹ 1 per unit}$$

If people reduce cash balance (k) from $\frac{1}{5}$ to $\frac{1}{10}$ then price level will increase to $\frac{100}{500 \times \frac{1}{10}}$ = ₹ 2 per unit **Pigou's Equation:** Pigou's equation is as follows:

$$P = \frac{kR}{M}$$

(Here, M: total quantity of money, R: gross actual income, k: That part of actual income which people want to keep as cash.)

Notes

Value of money is inverse of the general price level. People do not keep all their money in the form of currency or legal tender money. They keep a part of their cash balance deposited in bank. Keeping this fact in mind, Pigou made some amendments in his equation in which some part of k is kept in the form of legal tender money and some part in bank. New equation is as follows:

$$P = \frac{kR}{M}[c + h(1-c)]$$

or

$$M = \frac{kR}{P}[c + h(1-c)]$$

(Here, c = cash with the people, 1 – c: bank deposits, h: cash reserve ratio or that part of bank deposits which bank keeps with itself as cash)

Illustration:

Assume, $K = \frac{1}{4}; c = \frac{1}{2}; h = \frac{1}{10}$

R = 2000 Quintal of rice, M = ₹ 550

We have to find P

We know that

$$P = \frac{kR}{M}[c + h(1-c)]$$

$$= \frac{\frac{1}{4} \times 2000}{550}\left[\frac{1}{2} + \frac{1}{10}\left(1 - \frac{1}{2}\right)\right]$$

$$= \frac{500}{550}\left[\frac{1}{2} + \frac{1}{10} \times \frac{1}{2}\right]$$

$$= \frac{500}{550}\left[\frac{1}{2} + \frac{1}{20}\right]$$

$$= \frac{10}{11} \times \frac{11}{20} = \frac{1}{2} \text{ quintal of rice.}$$

If we have to find M according to the Pigou' equation, we may find it out through the given method:

$$M = M = \frac{kR}{P}[c + h(1-c)]$$

$$= \frac{\frac{1}{4} \times 2000}{\frac{1}{2}}\left[\frac{1}{2} + \frac{1}{10}\left(1 - \frac{1}{2}\right)\right]$$

$$= \frac{500}{\frac{1}{2}}\left[\frac{1}{2}+\frac{1}{10}\times\frac{1}{2}\right] = 500\times\frac{2}{1}\left[\frac{1}{2}+\frac{1}{20}\right]$$

$$= 1000\left[\frac{1}{2}+\frac{1}{20}\right]$$

(in it, $1000 \times \frac{1}{2} = ₹\ 500$ is with people as currency or legal tender money and $1000 \times \frac{1}{20} = ₹\ 50$ is bank money)

$$= 1000\times\frac{11}{20} = ₹\ 500$$

According to Pigou, if k, R, c and h are considered to be constant, then because of changes happening in supply of money, proportionate change will take in value of money. It may be made clear with the help of Fig. 7.2.

In Fig. 7.2, demand and supply of money is shown on axis OX and value of money is shown on axis OY. DD is the demand curve of money. Q_1M_1; Q_2M_2; Q_3M_3 are supply curves of money. At a specified point of time, supply of money is constant; hence it is represented through a straight line. When supply of money increases from OM_1 to OM_2, then, value of money decreases from OP_1 to OP_2. Reduction in value of money is in proportion to increase in supply of money. In the same way, when supply of money increases from OM_2 to OM_3, value of money decreases from OP_2 to OP_3.

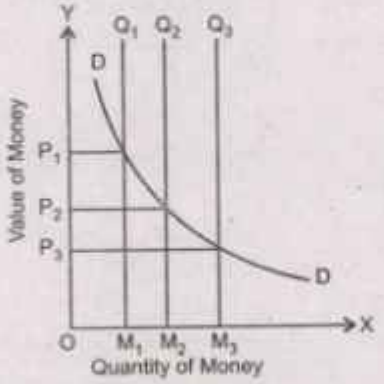


Fig. 7.2

Still in refernece to change in value of money, Pigou has given more importance to K as compared to M. i.e., in comparison to supply of money, demand for money is considered to be a more important determinant of value of money.

Robertson's Equation

As per Robertson's equation:

$$M = PkT \text{ OR } P = \frac{M}{kT}$$

Notes

(Here, P: Price level, M: Quantity of Money; T: quantity of goods and services bought at a specified point of time; k: that part of T which people want to keep as cash)

Robertson's equation is considered to be better than Pigou's equation because it is easy.

Criticism

In the words of **A.C.L. Dey, "Although the Cambridge version of the Quantity Theory represented a big advance on the Fisher version, it is not in itself an adequate monetary theory. Its weakness is that it is too simple to deal adequately with the complexities of economic system."**

Main criticisms of Cambridge equation are as follows:

1. **Unrealistic assumptions:** In this theory, some factors like k and T are considered to be constant. But in actual life, neither k, T nor R or O remains constant, they keep changing.
2. **Ignores speculative demand for money:** This theory does not completely explain the demand for money. According to it demand for money is done only for transactions and precautionary purposes. In this theory, demand for money for speculative purposes has been ignored.
3. **Circular reasoning:** In cash balance theory, fault of circular reasoning is found. As per this theory, at one side price level (P) or value of money is determined by cash balance (k) but at the other side, price level or value of money, determines cash balance (k). Hence in this theory, fault of circular reasoning is found, till where, value of money determines cash balance and cash balance determines value of money. It has been unsuccessful in establishing causal relationship.
4. **Incomplete theory:** Cash balance theory is an incomplete theory. This theory, in determining the cash treasuries (k), gives importance to just one factor, i.e., income (R). But in reality, cash treasury depends on many other factors such as price level, monetary habits, professional structure etc. in this theory, these factors are ignored.
5. **It ignores the effect of rate of interest:** The assumption of cash balance theory that a direct relation is found between quantity of money and price level, is wrong. In reality, on changes happening in quantity of money, first rate of interest changes. Because of change in rate of interest, quantity of investment changes. Because of change in quantity of investment, cost of production changes and because of change in cost of production, changes happen in prices. But in this theory, there is no mention of this reasonable process of change.

6. **Ignores the influence of real factor:** According to this theory, cause of change in value of money is change happening in demand for money. But many other real factors such as savings, investment, income etc. also have an infuence on value of money. This theory ignores these real factors.
7. **Lack of Integration of Theory of Value and Theory of Money:** As per **Don Patink** in, in cash balance equation, lack of integration is found in theory of value or level prices and theory of money or general price level. This theory has made the theory of value completely discreet from theory of money. In reality, mutual dependence is found among both the theories. This mutual dependence is determined by real balance effect. By real balance effect, it is meant that due to change in price level, change takes place in the real income of the people. It has an effect on demand and supply of goods. Thereby, it also affects the level prices. Hence theory of value and theory of money may be integrated through real balance. But the above mentioned theory ignores this integration.

Self Assessment

State whether the following statements are True or False:

7. By quantity of money, it is meant, the gross quantity of money.
8. Money is demanded because it works as a medium of exchange.
9. Supply of money depends on two factors— (*i*) quantity of money (*ii*) velocity of money.
10. Purchasing power of money is known as value of money.

7.9. Summary

- The Quantity Theory of Money states that, **there is a direct and proportionate relation between quantity of money and general price-level and an inverse proportionate relation between quantity of money and value of money**. As per this theory, by an increase in quantity of money price level increase in the same proportion and by a decrease in quantity of money, price level decreases in the same proportion.

7.10. Keywords

- **Price level:** Value level.
- **Quantity :** Amount.

7.11. Review Questions

1. What is known as value of money? Clarify.
2. Write about the theories of value of money.
3. Describe two equations of the quantity theory of money.
4. Mention the concepts of demand for money and supply of money in Fisher's Equation.

Answers: Self Assessment

1. Value	2. inverse	3. increas	4. (a)
5. (b)	6. (a)	7. True	8. True
9. True	10. True		

Notes

7.12. Further Readings

1. **Macroeconomics**— *S.K. Chakravarty, Himalaya Publishing house, 2010.*
2. **Macroeconomics Economic Growth, Fluctuations and Policy**— *Robert E Hall and David H. Paipal, Vaina Books, 2010.*
3. **Macroeconomics: Theory and Policy**— *H.L Ahuja, S. Chand Publishers, 2010.*

Unit–8

Keynesian Approach

Notes

Structure

8.1. Objectives

After studying this unit, students will be able to:

- Know the Keynesian principle related to price and currency.
- Explain the power of Keynesian approach.

8.2. Introduction

According to **Keynes** there is an indirect effect on price level to the change in quantity of currency. The fulfillment of currency only affects the rate of interest and cost of production to the level of price. To understand the idea of Keynes' related to the currency and prices a number of observations are there.

8.3. Keynesian Theory of Money and Prices

Keynes presented a principle related to price and currency in his famous book *"A Treatise on Money"* and *"The General Theory of Employment, Interest, and Money"*. In this, an effort has been made to establish the relation between money and price by bringing changes in the cost of production. According to the Quantity Theory of Money, there is a direct and proportional relationship between the change in quantity of money and price-level. However, according to Keynes, the change in quantity of money indirectly affects the price-level. The fulfillment of currency only affects the rate of interest and cost of production to the level of price. To understand the idea of Keynes related to the currency and prices note the following observations.

Notes

Self Assessment

Fill in the blanks:

1. According to Keynes there is a ..... effect on price level to the change in quantity of currency.
2. The change in the quantity of currency affects the rate of ..... .

According to Keynes the quantity of currency affects the price level in following ways:

1. The change in the quantity of currency first affects the rate of interest. When the quantity of currency increases then the rate of interest decreases, that there is no change in liquidity preference for speculated objective. This system continues like this:

The reasons of increment in the supply of money are

- the increment in remaining cash of people.
- the increment in the demand of bonds.
- the increment in the price of bonds.
- decrease in the rate of interest.

Notes	There is an opposite relation in the rate of interest and the price of bonds. The increment in the price of bonds is the decrement in the rate of interest in a simple means and also opposite to it.

2. The decrement in the rate of interest encourages the investment, with the condition that the capital limit production MEC remains constant.
3. Increment in investment (ΔI) increases the production, income and employment by multiplication process. It is because that the sources are not fully used.
4. Like production, income and employment (ΔY, ΔO, ΔN) increase, the demand of sources of production increases. However, before the condition of full employment, because of being their supply fully flexible, by the increment in production consequently there is no increment in prices.
5. Once the status of full employment is achieved, then there cannot be any increment in employment. So, due to the increase in the demand of inputs of production their cost price increases.
6. When the price of inputs increases then the cost of production increases too.
7. Due to increase in the cost of production, the price of produced goods and services increases.

This flowchart shows the relation of price and currency.

Increment in the fulfillment of currency ➪ increment in the cash fund of people ➪ increment in the demand of bonds ➪ Increment of bonds price ➪ decrease in rate of interest ➪ increase in investment ➪ increase of demand

of inward ➪ increase of price of inward (if Instrument is in the state of employment then) ➪ increase in cost of production ➪ increase in cost of products and services.

Notes	When the condition of full employment is found in an economy, then production and employment are increased because of the increment in the quantity of currency.

Notes

The summary of price and currency related to Keynesian principle is like this—when the condition of unemployment is found in an economy, then production and employment are increased because of the increment in the quantity of currency. The price is increased in the same ratio in price because of the increment in the quantity of currency at the condition of full employment.

Description by Figure

Figure 8.1, shows the relation among currency, production and prices. **Figure 8.1 (A)** shows that the quantity of currency is increased from O to A, then the production is also increased in that ratio from O to Q. When the quantity of currency becomes OA, then the production is OQ which is the production of full employment. But production is raised up till B curve point but after that adopts the form of straight line BM. The meaning is that after point B the increment in the quantity of currency does not inspire the production.

Now see the **Fig. 8.1 (B)**. When the quantity of currency is OA then price value is constant on OQ. When the quantity of currency increases more than OA then price line BR is raised up, which presents the ratio relation in price level and the quantity of currency.

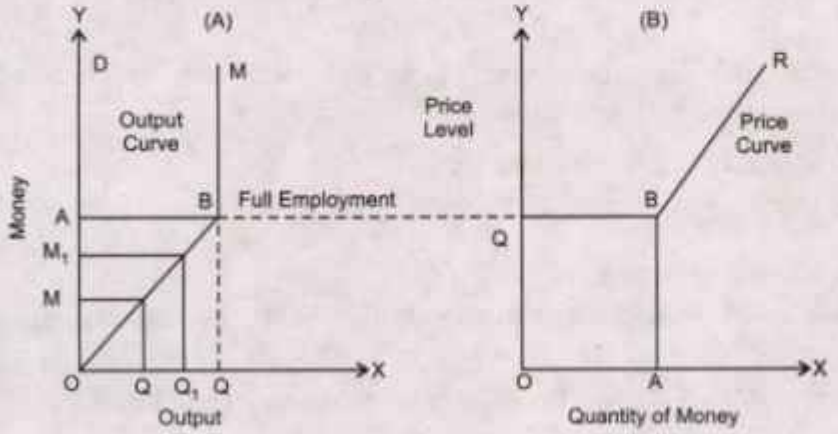


Fig. 8.1

Did You Know?	At the condition of full employment the price is increased in the same ratio because of the increment in the quantity of currency.

Notes

You are not to overlook the fact

According to Keynes the boundary attitude of increment in price level can be got before the condition of full employment. Its reason is 'barrier in movements' in production equipment though they are unemployed and are in desire of employment. It can take time in making the sources to reach to the place of their employment. Consequently, their supply can't be equal to its demand and its price get increased. The increment in cost means the increment in price-level. But this increment in price level is very general. Keynes has named it as Reflation (not as Inflation).

The Algebra of Keynesian Theory of Money and Prices

Or

Keynes' Fundamental Equation

Keynes; has shown his idea related to prices and money in the following equation-

$$Y = E + Q \quad ...(1)$$

(Y: National Income; E: Payment for sources; Q: windfall profit)

The national income (Y) is the addition of payments for resources (E) and windfall profit (Q)

Windfall profits are measured by subtracting the actual sell and sources payments. Only normal profits are gained in the condition of Y = E

$$O = R + C \quad ...(2)$$

(O: Total production, R: Customer things, C: Capital things)

$$S = E - PR \quad ...(3)$$

(S = Savings; PR: consumption things (R) × their price (P))

$$I = P_1C \quad ...(4)$$

(I = investment expenditure whose calculation can be obtained by consumption things (C) multiplied by their prices (P_1).

$$n = \frac{PR + P_1C}{O} \quad ...(5)$$

(n: Normal price level)

It represents the ratio of total expenditure ($PR + P_1C$) and total production (O).

Because PR = E – S (S = E – PR is from equation 3) and $P_1C = 1$.

Because the equation (5) can be written as"

$$n = \frac{E - S + 1}{O}$$

Or

$$n = \frac{E}{O} + \frac{I - S}{O}$$

It is the basic equation of Keynesian principle related to currency and price. Two important parts are- (*i*) $\frac{E}{O}$, the ratio of total production and payment of source and (*ii*) $\frac{I-S}{O}$ means the ratio of total production and the subtraction of I from S.

Keynes; considers $\frac{E}{O}$ to be almost constant and centralized his attention on $\frac{I-S}{O}$ so that, he can explain things that how price level is affected. In this reference the following observations are important—

(*i*) The reason in the difference of investment (I) and saving (S) is the difference in the natural rate and market rate of interest. The market rate of interest is the rate which is found in the fix point in currency market. The natural rate of interest is the rate which is analogues to the similar rate of interest and investment on the full employment level.

(*ii*) If saving on the level of full employment = Investment, market rate of interest = the natural rate and price level of interest is constant and there is no sign of change.

(*iii*) If I > S (whenever economy is at the condition of full employment) then the market rate of interest is less than natural level. Their reasons are the increment in the fulfillment of currency and increment the demands of bonds. The price increase to increasing the demands of bonds and the market rate of interest is decrease.

(*iv*) If I < S (economy is not in the condition of full employment) then in the rate of interest, an increment in fulfilment of currency would increase the production without increasing the price-level.

(*v*) If the quantity of currency decreases and resultantantly the rate of interest increases, then I will be less and it will be less more than S (I < S). In this condition, the demand decreased of inputs, its mean the production cost is decrease. Finally the price level will be decrease.

Self Assessment

Multiple Choice Questions:

3. Keynes has presented the relation in currency and price:
   (*a*) A principle (*b*) Rule
   (*c*) Laws (*d*) None of these.
4. The change in the quantity of currency effects the ..... and ratio on price level.
   (*a*) indirect (*b*) direct
   (*c*) economic (*d*) none of these.

Notes

5. There cannot be a/an ..... employment on getting the condition of full employment.
   (a) Increment (b) Less
   (c) Similarity (d) Non-similarity
6. The increment in cost means the ..... in price-level.
   (a) increment (b) decrement
   (c) similarity (d) non-similarity

8.4. Superiority of Keynesian Approach

Keynesian Currency Principle is better than Currency Magnitude Principle, as it is clear from following reasons:

1. **Integration of Monetary Theory with the Theory of Value:** One quality of Keynesian principle is that this principle has tried to integrate Currency principle or Principles of Normal Price-level and Value principle or Relative Price principle. According to Currency Magnitude Principle, normal price-level and different goods and services are determined from different ways. The cause of change in normal price-level is the change in the quantity of currency. So it is called as Currency principle. On its opposite side, the cause of change in relative prices is the change in supply and demand of commodities, so it is called as Value principle. **Don Patinkin** has named this difference of Currency principle as Classical Dichotomy. According to **Keynes**, this dichotomy is unrealistic. The main cause of change in normal price-level and relative prices is the change in cost of production. The relative prices are determined by the flexibility of supply and demand and cost of production. These financial elements also determine Normal price-level. So Price Theory and Currency Theory are affected by same causes.
2. **More Realistic Theory:** The Currency magnitude principle is valid only in full employment condition only. But the full employment condition is a rare condition. Underemployment condition is found in most countries. Keynes' currency principle is valid in both the full employment and underemployment conditions. In under employment condition, as a result of the increment in quantity of currency there is an increment in employment and production. But after full employment condition price level rise on the increment in currency quantity. Keynes also considers that in the partial employment condition also, because of the partialities of market, the price-level can also be increased with increment in production. But such increment is very limited.
3. **Integration Between Monetary Theory and Theory of Output:** Lord Keynes also integrated Monetary Theory with Production Theory. The change in quantity of Currency affects the interest rate and the resulting Investment quantity is also changed. So in an

economy production quantity is also changed. Because of change in production quantity, there are also changes in cost of production and price level.

4. **Proper Explanation of the Causal Process:** This theory explains causal process relation more scientifically instead of Currency Magnitude Theory. According to Keynes this is the demerit of Currency Magnitude Theory that those effects of currency, which occur on interest rate, investment, production and employment, are fully ignored. The entire concentration is kept on total quantity and prices of currency in this theory. But in Keynes theory these all elements are kept in concentration. According to this theory supply of currency on being greater than demand decreases the interest rate. As a result, there is an increment in investment on increasing the investment, the demand of production equipment is increased, and the prices are increased on increasing the cost of production. So currency quantity affects prices indirectly. This explanation is truly more realistic.
5. **Better Guide of Economic Policies:** Keynes Theory is more behavioural in comparison to Currency Magnitude Theory and also a better guide of Economic Policies. According to the Currency Magnitude Theory, every increment in Currency quantity becomes the cause of increment or inflation in prices. But according to Keynes the increment in quantity on money generally is made after money inflation after full employment. If the condition of recession or unemployment is found in any country then to overcome from this condition the financial arrangement of loss or the policy of credit expansion can be adopted without any fear. So because of increment in the supply of money price-level will increase, is not any dangerous thing.

   In brief, Keynes has this view that supply of currency is an equipment of economic development till when the condition of full employment is not found. Once the condition of full employment has been found, there is danger of increment in price level.

Task	Express your views about Keynesian Theory.

Key Points

- **Value of Money:** The number of commodities or services got in exchange with a unit money, is called the Value of this unit of money.
- **Value of Money and Price Level:** Value of Money and Price-level are inversely related. i.e., Value of Money = $\frac{1}{\text{Price Level}}$
- **Quantity Theory of Money:** There is a directly proportional relation between Quantity of Money and General Price-level and there is an inversely proportional relation between Quantity of Money and Value of Money.

Notes

- **Fisher's Equation:** $PY = MV + M'V'$ or $P = \frac{MV + M'V'}{Y}$
- **Assumptions of Quantity Theory of Money:** (*i*) The moving speed of money v and v' is constant. (*ii*) Trade Exchange is constant. (*iii*) Full Employment. (*iv*) The ratio of M and M' is constant.
- **Criticism:** (*i*) The relation in quantity of Money and Price-level is a general truth. (*ii*) This theory is based on unrealistic assumptions. (*iii*) The variables taken in this model are considered as independent but actually they are not independent. (*iv*) This theory is one-sided because it is centred on money supply. (*v*) This theory considers Price-level as an inactive cause which is wrong. (*vi*) This theory can only be used in full employment condition only. (*vii*) This theory fails to explain Trade cycle. (*viii*) This theory indicates inconsequence. (*ix*) It ignores the significance of interest rate. (*x*) It is very tough to measure the moving speed of money. (*xi*) It explains the non-monetary factors. (*xii*) Change in Price might be the result of change in income-level not of change in quantity of money.
- **Marshall's Equation:** $M = kY + k'A$
- **Pigou's Equation:** $P = \frac{kR}{M}$
- **Robertson's Equation:** $P = \frac{M}{kT}$
- **Criticism of Cambridge Version of Quantity Theory of Money:** (*i*)It is based on unrealistic assumptions. (*ii*) It ignores money demand for gambling objective. (*iii*) Circular logics are taken in this theory. (*iv*) It is an incomplete theory. (*v*) It ignores the effect of interest rate. (*vi*) It ignores the effect of realistic factors. (*vii*) It fails to explain Trade Circle. (*viii*) There is lack of combination of Value theory and Money theory in this theory.
- **Keynesian Theory of Money and Prices:** Till there is unemployment in economy, production and employment increase because of increment in quantity of money. Once there will be full employment in economy then increment in quantity of money will increase the price-level in proportional form.
- **Keynes Equation:** $n = \frac{E}{O} + \frac{I-S}{O}$
- **Superiority of Keynesian Approach Over Quantity Theory of Money:** (*i*) It is helpful to integrate Money Theory with Value Theory. (*ii*) It is actually a more realistic theory. (*iii*)) It is helpful to integrate Money Theory with Production Theory. (*iv*) It explains causal processes truly. (*v*) It is a better guide of Economic Policies.

Self Assessment

State whether the following statements are True or False:

7. Quantity Theory of Money is valid only in full employment condition.

8. Lord Ripen has integrated Money Theory with Production Theory.
9. Full employment condition is a rare condition.
10. The change in quantity of money doesn't affect interest rate.

Notes

8.5. Summary

- The summary of Keynesian Theory related to Money and Price is so—**When the unemployment condition is found in an economy, till then Production and Employment increases due to increment in quantity of money. On achieving the full employment condition because of increase in quantity of money prices also start to increase in the same proportion.**

8.6. Keywords

- **Inflation:** Money-inflation
- **Approach:** Understanding aspect.

8.7. Review Questions

1. Explain 'Keynesian Theory'.
2. What do you understand by the Superiority of Keynesian Approach?

Answers: Self Assessment

1. indirectly	2. interest	3. (a)	4. (b)
5. (a)	6. (a)	7. True	8. False
9. True	10. False.		

8.8. Further Readings

1. **Macroeconomics**— *S.K. Chakravarti, Himalaya Publishing House, 2010.*
2. **Macroeconomics: Economic Growth, Fluctuations and Policy**— *Robert E. Hall and David H. Paipal, Vaina Books 2010.*
3. **Macroeconomics: Theory and Policy**— *H. L. Ahuja, S. Chand Publishers, 2010.*
4. **Microeconomics**— *Mohan Srivastava, DND Publications, 2010.*

Unit–9

Notes

Money Supply: Definition and Importance of Money

Structure

9.1. Objectives

After studying this unit, students will be able to:

- Know the money supply.
- Study of money multiplier.
- Know the algebraic expression.
- Know the limits of credit creation.

9.2. Introduction

After knowing the meaning, working and qualities of money in last unit, you may have the curiosity to know the answers of many questions. As you would be curious to know that how the money can make trend in economy. How the quantity of money supply is determined in economy? Is there any role of commercial banks and people in the relation of quantity of money supply in economy? What should be the components of monetary aggregates? We'll try to answer sufficiently to all these questions in this unit. The contribution of commercial banks in money supply (which is also known as the name of credit creation of commercial banks) is also discussed in this unit. Except it, the current condition of money supply in India is also discussed briefly

9.3. Money Supply: Meaning and Definition

The purpose of money supply is the quantity of money available in an economy. This is a stock perception which is measured in time. The addition of total quantity of current currency and total quantity of demand deposits in economy in a definite time is called as money supply. Currency is the addition of currency coins and notes in economy. Demand deposit or cheque deposit is called that bank deposit which depositor can get on demanding or can take from the bank by cheque. But economists are not unanimous on the general definition of money. There are different approaches about money. Many economists consider the currency and money deposit as two components of money supply while other economists consider the term deposits as the third component of money supply. In actual, if only current currency and demand deposits will be included in money supply then we'll bound money till the media of exchange only. The base of store of value is also an important work of money. On interpreting this work, currency, demand deposit, term deposits and other financial instruments should be included which work as the base of store of value.

- According to **Milton Friedman**, Money supply should also include saving and term deposits besides currency in circulation and demand deposits.
- As per **Edward Shapiro**, Supply of money is dollar amount of all those things which are generally acceptable by the public in payment of goods, services and other valuable assets and for discharge of debts.
- According to **J.G. Gurley and E.S. Shaw**, Money should include all those things which are its close substitutes.

Why include term deposits in the supply of money?

These deposits are for definite time period. The interest rate on these deposits is decided according to time. These can't be converted into cash by the cheque, because of which these deposits are different from money deposits. So they can't be called cash-in-hand. Question arises that if these deposits are not liquid as currency then why are these included in the supply of money? Undoubtedly, the receipt of fixed deposit is not used in exchange medium for current and future payments; then also the economist like Milton Friedman is in the favour of including these receipts in the supply of money. His advice is that term (fixed)deposit can be converted into demand deposit on high discount rate. The conversion of term deposit into demand deposit takes the equal time as the payment of high discount rate to the bank. Therefore, fixed deposits should also be considered as a part of supply of money similar to demand deposits.

Notes	The conversion of term deposit into demand deposit takes the equal time as the payment of high discount rate to the bank.

Notes

Self Assessment

Fill in the blanks:

1. Currency is the addition of currency coins and ..... in economy.
2. The base of store of value is also an important work of .....

9.4. Two Main Components of Money Supply—Currency and Demand Deposits

The two main components of Money Supply are (1) Currency and (2) Bank Deposits. The detailed explanation is given here:

9.4.1 Currency

The purport from currency is the coins and notes in circulation.

(*i*) **Coins:** Nowadays the coins are released in every country by the government, though in old era private institutions also used to release the coins. Government used to restrict the private institution coins in the matters of weight of coins and purity of metal used in coins so that people could be saved from the fraud. There were two types of coins under the value of gold and silver—Full-bodied Standard Coins and Token Coins. But prevalent now-a-days under the Managed Currency System, there is no importance of Full-bodied Standard Coin. So those are not in use now. Indian Rupee is neither a full-bodied Standard Coin nor a Token Coin. The 50-paisa, 25 paisa, 10 paisa, 5 paisa, 2 paisa and 1 paisa coins are the Token Coins. The Token coins are not important components of money. Though a large quantity of small coins are in circulation because of poverty in India then also this is only 3.5 % part of total money supply. In the developed countries like America, Token coins are less than 2 % of total money supply.

(*ii*) **Currency Notes:** An important part of money supply is the currency notes. Now-a-days currency notes are released by either Central Bank of a country or Government itself. The One Rupee note is released by Indian Government and the all other notes are released by Reserve Bank of India. There can be many ways to release (issue) the note as, representation, proportional, minimum fund, variable, constant, etc. In the era of metal value, paper money was the representative. In other words, the metallic base was kept beside these notes. If Central Bank was releasing the notes of one crore then it had to keep the gold or silver of the value of one crore in the treasury. The two main objectives to release the currency representation letter were (*i*) Saving of the cost of minting coins, (*ii*) protection from the loss from rubbing the metal. But this system of note release was inflexible because the supply of currency letter was dependent on metal stock. It could not be more than metal stock. For removing the weaknesses of

currency representation letter Proportional Method was adopted. Reserve Bank was releasing the notes on the base of Proportional Reserve System, till 1956 A.D. According to this system 40 % of the value of entire notes was kept in gold, silver, foreign assets and foreign currencies. After 1956 A.D., Minimum Reserve System was adopted. According to this method, it is compulsory that Reserve Bank has to keep the minimum fund of 200 crores in reserves, in which the gold should be of 115 crores. There on the base of minimum fund of 200 crores Reserve Bank can release the notes until any limit. This system is very flexible but the fear of expansion of many notes occurs. Currency notes can be variable or constant. Under the variable currery exchange monetary authorities have to change the currency note with metal. Under the constant currency paper, Reserve bank (Monetary Authorities) gives the guarantee to change the paper notes into token coins or other notes, but not to change in gold or silver. **Currently, the unchangeable method to release the notes is circulated in all the countries of the world.** Notes are actually promissory notes. Monetary authority promises to give coins or other notes in exchange of it. In resulting of this method the importance of Monetary paper policy and Monetary management has very much increased. Now note release does not depend upon the stock of gold or silver. The monetary authority on keeping in the mind the needs of economy fulfils the requirement of notes.

9.4.2 Demand Deposits

The people in all the countries depos: their money in banks. Bank deposits are of two types—(*i*) Fixed Deposits and (*ii*) Demand or Current Deposits. Fixed deposits are of a definie time period. The cheque cannot withdraw these deposits. But the amount of demand deposits can never be withdrawn by the depositor. So the cash in demand deposit form is as liquid as money. In western countries, 90% payments are done by the banks. The importance of demand or current deposits is continuously increasing in India.

It is very safe and convenient to make the payment by the cheque from current or demand deposit account. The payment by cheque is so convenient because any amount of cash can be withdrawn by the cheques. The use of high value notes can be unsafe. Banks have the evidence of payments by cheques because these are noted in the bank accounts. If there would be a problem related to payment then it can be solved by the investigations.

Keynes has included the demand deposits in supply of money in his book "A Treatise on Money" (1930 AD). At that time, the economist like **Parker Wills** had objected it. But currently the demand deposits are started to be included in supply of money in every country approximately because goods and services can also be purchased by demand deposits. But this thing is remarkable that it is not compulsory by the law to accept the payment by cheque. Any of the person can deny accepting the cheque. But to pay in cash form is a legal obligation.

Notes

Banks give the loan on the basis of money deposited to them. From their own experiences, banks have the knowledge of this thing that all the depositors never withdraw their entire deposits at the same time. So if they keep with them a definite proportion of total deposits and give the remaining amount as credit then they can fulfill the needs of depositors. This is the reason that banks are in the situation that however total deposits they are having many times greater than that they can credit to people. This activity of banks is called as 'Credit Creation'. The credit created by banks is also included in supply of money because it is a part of demand deposits.

Did You Know?	Money supply should also include saving and term deposits besides currency in circulation and demand deposits.

Self Assessment

Multiple Choice Questions:

3. Money should include all those things which are its close ..... .
   (*a*) substitutes (*b*) installation
   (*c*) are not (*d*) none of these
4. The two components of money supply are ..... .
   (*a*) currency and bank deposits (*b*) wealth and assets
   (*c*) house and shop (*d*) none of these
5. The purport from currency is the coins and ..... in circulation.
   (*a*) wealth (*b*) notes
   (*c*) rupee (*d*) none of these
6. ..... are the important parts of money supply.
   (*a*) Banks (*b*) Currency Notes
   (*c*) Citizens (*d*) None of these

9.5. Monetary Aggregates and Money Supply Measures in India

Whereas there is a question of the history of money supply measures in India, only one supply measure M of money was being used by RBI till 1967–1968. M used to include people's demand deposits and currencies. M was traditionally called as narrow money supply measure. From 1967–1968 till 1977 A.D., a detailed money supply measure was used that was called as 'Aggregate Monetary Resources - AMR'. In AMR, currency, demand deposits, and term deposits were included. In 1977 A.D., Reserve Bank of India had propounded four new measures of money supply; these are M_1, M_2, M_3 and M_4. The detailed description is as follows:

M_1 = Currency of public + Demand Deposit of Banks + Other Deposits of RBI

M_2 = Currency of public + Demand Deposit of Banks + Other Deposits of RBI + Deposits in Saving Plans of Post Office

M_3 = Currency of public + Demand Deposit of Banks + Other Deposits of RBI + Term Deposits of Banks

M_4 = Currency of public + Demand Deposit of Banks + Other Deposits of RBI + Term Deposits of Banks + Total Deposit of Post Office (Except NSC)

☞ You please note it

In narrow mean money supply measure is not equal to M_1 of new series of M 1977, though the component of these sets is same. M_1 includes the money deposits of all the central, state and primary cooperative banks while M only includes the term deposits of state cooperative banks.

M_3 of new series includes the term deposits of all cooperative banks while Aggregate Monetary Resources (AMR) dose not include the term deposits of any cooperative bank.

In 1998 A.D., the Executive Committee of RBI advised two new measures as NM_2 and NM_3. Beside this committee also advised for three liquidity measures as L_1, L_2 and L_3. These three are called as Monetary and Liquidity Aggregates. The detailed explanations of these measures are as follows:

1. **NM_2** = Currency of public + Demand Deposit + Other Deposits of RBI + Short Term Deposits
2. **NM_3** = NM_2 + Long term Deposits + Short Term Fund of Financial Institutions
3. **L_1** = NM_2 + Deposits of Post Offices
4. **L_2** = Term Monetary Receipts + Certificate of Deposits + Term Deposits
5. **L_3** = L_2 + Social Deposits of Non-Banking Financial Institutions.

☞ Other Deposits

It shows the deposited amount in RBI besides the Government and Commercial Banks. The Demand Deposits of International Organizations, Foreign Central banks, Foreign Government and Financial Organizations etc. are included in it. M_3 of new series includes the term deposits of all cooperative banks.

Task	Express your views about money supply.

Self Assessment

State whether the following statements are True or False:

7. Notes are actually Promissory paper.
8. The people in all the countries don't deposit their money in banks.
9. Currently, the unchangeable method to release the notes is circulated in all the countries of the world.
10. Banks give the loan on the basis of money deposited to them.

Notes

9.6. Factors Influencing Supply of Money: A Theoretical Prescription

According to **Prof. Chandler** the supply of money in an economy depends on the following elements—

9.6.1 Size of the Monetary Base

It is called as High Powered Money or Outside Money or Reserve Money. High Powered Money or Outside Money is said to that money which Reserve bank or Government releases and which Public and Banks keep with themselves. In other words,

$$H = R + C$$

(Here, H: High Powered Money, R: Total Reserves of Banks, C: Currency in circulation) In other words,

High Powered Money = Total Reserves of banks + Currency of Public (Notes and Coins)

The difference in money and high powered money is that money includes demand deposits besides the currency while high powered money includes cash reserves of banks besides the currency. The supply of money then increases when there is an increment in high powered money. The size of supply of money depends upon money multiplier. The money multiplier is the ratio of high powered money and the sum of total of currency, required reserves of the banks and other deposits of the banks with the central bank.

9.6.2 Proportion of Cash and Demand Deposits

This thing also affects the supply of money, what is the ratio of cash and demand deposits. People will want to keep however larger proportion of money in deposit form, as larger will be the power of banks on the basis of those deposits, to create the credit. The quantity of credit creation depends on the size of credit multiplier. The size of credit multiplier is affected by Cash Reserve Ratio – CRR. The proportion of total deposits banks have to keep themselves as cash is called as Cash Reserve Ratio – CRR. The Cash Reserve Ratio will be as smaller, the power of credit creation of banks will be as larger and supply of money will also be increased as much. Therefore, if people would like to keep more part of total money as deposits then supply of money will increase.

9.6.3 Velocity of Circulation

To estimate the supply of money, economists have two approaches:

(i) **The Supply of Money at a Point of Time:** The approach of economists of Cambridge University, like- Marshall, Pigou, Robertson and Keynes was that at a point of time the supply of

money can be estimated by the sum of currency of people and demand deposit.

(*ii*) **The Supply of Money in a Period of Time:** In the exponents of Quantity Theory of Money, Irving Fisher was interested in knowing that in how much amount of money is supplied in a special time period. In a special time period, the unit of money can be used many times. So that unit of money can work in more than one unit. Assume that a unit of money is used average 7 times in a year in India. This means that single unit of money has worked of 7 units. It would be said Transaction Velocity of Money i.e., V is 7. Therefore, this is the purport from the Transaction Velocity of Money that "Velocity of money is number of times a unit of money changes hands in the course of a year."

Therefore, the Supply of Money in a definite time period can be estimated by multiplying the quantity of Money with circulation velocity. In other words,

Supply of Money = MV

9.7. Summary

- This thing also affects the supply of money what is the ratio of cash and demand deposits. People will want to keep however larger proportion of money in deposit form, as larger will be the power of banks on the basis of those deposits, to create the credit. The quantity of credit creation depends on the size of credit multiplier. The size of credit multiplier is affected by Cash Reserve Ratio – CRR.

9.8. Keywords

- **Money Supply:** Supply of Money.
- **Creation of Credit:** Secondary deposit.
- **Outside Money:** Creation of outside money.

9.9. Review Questions

1. Express the meaning and definition of money supply.
2. Which are the two main components of Money Supply?
3. Determine Monetary Aggregates and Money Supply measures in India.
4. Describe the factors influencing supply of Money.

Answers: Self Assessment

1. paper money	2. money	3. (a)	4. (a)
5. (b)	6. (b)	7. True	8. False
9. True	10. True		

9.10. Further Readings

Notes

1. **Necessity of Microeconomics**— *H. S. Nath, Cyber Tech Publications, 2012.*
2. **Macroeconomics**— *S. K. Chakravarti, Himalaya Publishing House, 2010.*
3. **Macroeconomics: Economic Growth, Fluctuations and Policy**— *Robert E. Hall and David H. Paipal, Vaina Books, 2010.*
4. **Macroeconomics: Theory and Policy**— *H. L. Ahuja, S. Chand Publishers, 2010.*

Unit–10

Money Multiplier and Credit Creation by Commercial Banks

Notes

Structure

10.1. Objectives

After studying this unit, students will be able to:

- Know the Money Multiplier.
- Understand the Algebraic Expression.
- Explain the Supply of Money in India.
- Know the Limitations of Credit Creation.

10.2. Introduction

Through credit creation, banks increase the supply of money in an economy which has a direct impact on production, consumption and level of investment and along with it process of development and prosperity is influenced.

Notes

10.3. Money Multiplier

Money multiplier is the ratio of change in supply of money to the change in monetary base. Monetary base is the sum of currency in circulation and cash reserve of the banks. Consider that if as a result of a change of ₹ 10 crores in monetary base, there is a change of ₹ 30 crores in the supply of money then money multiplier will be 3. Coefficient of money multiplier may be known from the below mentioned formula:

$$\textbf{Money Multiplier} = \frac{\textbf{Money Supply}}{\textbf{High Power Money}}$$

OR

$$m = \frac{M}{H} \qquad ...(i)$$

(Here, m = Money Multiplier, M = Supply of Money (currency in circulation and bank's demand deposits), H = High powered money)

Total supply of money is the sum of currency and demand deposits.

$$M = C + D \qquad ...(ii)$$

(Here C = Currency, D = Demand Deposits)

☞ Difference between M and H

M = Supply of money in which currency and demand deposits are included.

H = High Powered money which includes currency and reserves of commercial banks.

Cash reserve includes minimum required reserves of the commercial banks and excess reserves.

Notes	Money multiplier is the ratio of change in supply of money and change in monetary base.

Total supply of high powered money is equal to the sum of currency, required reserves of the banks, other deposits of the banks and excess reserve with the central bank.

$$H = C + RR + ER \qquad ...(iii)$$

(Here H: High powered money, C: Currency, RR: Required reserve of the commercial banks, ER: Excess reserve with the central bank)

If in equation (*i*) we substitute M and H we will get the below mentioned equation:

$$m = \frac{M}{H} = \frac{C+D}{C+RR+ER}$$

Divide the right side of the equation with D (Demand deposits)

$$m = \frac{M}{H} = \frac{\frac{C}{D} + \frac{D}{D}}{\frac{C}{D} + \frac{RR}{D} + \frac{ER}{D}} \quad ...(iv)$$

Notes

If in equation (*iv*), in place of $\frac{C}{D}$, we write c, in place of $\frac{RR}{D}$, we write r and in place of $\frac{ER}{D}$, we write e, then

(*a*) Money Multiplier

$$m = \frac{M}{H} = \frac{1+c}{c+r+e} \quad ...(v)$$

(*b*) Supply of Money = **Money Multiplier × High Powered Money**

$$M = M = \frac{1+c}{c+r+e} \times H = mH \quad ...(vi)$$

(*c*) High Powered Money

$$H = \frac{M}{m} \quad ..(vii)$$

In short, supply of money is influenced by money multiplier.

Self Assessment

Fill in the blanks:

1. Monetary base is the ..... of currency in circulation and cash reserve of the banks.
2. By giving loans, banks want to earn more and more ..... .

10.4. Expansion of Credit Money or Credit Creation

According to the above mentioned discussion, money supply in an economy depends on circulation of currency and demand deposits of commercial banks. Due to any increase in these two components, money supply in the economy increases. Quantity of currency is decided by the central bank which depends on the government's nature of spending whereas deposit constituent of money supply is influenced by commercial banks. Commercial banks influence the money supply in the economy by credit creation or expanding credit money. Credit expansion capacity of commercial banks depends on their cash reserve ratio. In the words of **Lipsey** and **Chrystal**, "Banks can create money by issuing more promises to pay (deposits) than they have cash reserve available to pay out."

In the words of **Newlyn**, "Credit Creation refers to the power of commercial banks to expand secondary deposits either through the process of making loans or through investment in securities."

As per **G.N. Halm, "The creation of derivative deposits is identical with what is commonly called the creation of credit."**

Did You Know?	Quantity of currency is decided by the Reserve bank.

Notes

Before analysing the process of credit creation, knowledge of some basic concepts will be useful for the readers.

10.5. Some Basic Concepts

1. Those deposits of the bank, which the depositor may withdraw at anytime by drawing a cheque, are known as demand deposits. It is also known as 'Chequing deposits' or 'Chequable deposits'. Its detailed classification is as follows:

   (*i*) **Primary or Cash Deposits:** The amount of money which is deposited by the people in form of cash in the banks is known as Primary or Cash Deposit. It is also known as passive deposit because banks have no role in developing these deposits. Amount of these deposits completely depends on the will of the depositor.

   (*ii*) **Derivatives or Secondary Deposits:** When a person takes a loan from the bank, bank does not give him this loan in form of cash but opens an account at his name and gives him a right to withdraw money from it through cheque. Such a deposit is known as Derivative or Secondary deposit. Hence each loan given by bank creates a new deposit. Secondary deposit is the result of primary deposit because banks create secondary deposit by keeping a part of primary deposit itself in reserve. According to **Halm**, "Creation of secondary deposit is credit creation; larger the amount that a bank advances greater is the creation of secondary deposits or loans created." That is why it is said, "loans create deposits and deposits create loans."

   Demand Deposits = Primary Deposits + Derivative or Secondary Deposits

2. **Cash Reserve Ratio:** No doubt that banks want to earn more and more profits by giving loan but it does not mean that it may lend its entire cash. The people who deposit their money in bank may withdraw it anytime because it is their money. Hence banks always keep a part of net deposits in form of cash reserve with them, so that the requirement of the depositors may be fulfilled. That part of net deposit which banks keep with themselves as cash is known as Cash Reserve Ratio.

3. **Excess Reserves:** The amount with the bank which is more than the required Cash Reserve Ratio (CRR) is known as Excess Reserve. In reality, it is this excess reserve which becomes the base of credit creation.

4. **Credit Multiplier:** Ratio of increase in primary deposit and increase in total deposit is known as credit multiplier. If as a result of an increase of ₹ 1,000 in primary deposits, there is a credit creation of ₹ 10,000, credit multiplier will be 10. Inverse relation between credit multiplier and Cash Reserve Ratio(CRR) may be expressed in form of following equation:

$$\text{Credit Multiplier} = \frac{1}{\text{Cash Reserve Ratio}}$$

Difference between money multiplier and Credit Multiplier

Money multiplier: It is the ratio of supply of money and high powered money.

$$m = \frac{1+c}{c+r+e}$$

Credit multiplier: It is the ratio of increase in total deposits and increase in primary deposits of the banks or is the reciprocal of Cash Reserve Ratio (CRR).

$$\text{Credit multiplier} = \frac{\Delta D}{\Delta P} = \frac{1}{r}$$

Here, r = Reserve ratio, D = Total Deposits, P = Primary deposits.

Self Assessment

Multiple Choice Questions:

3. Creation of secondary deposit itself is ..... .
   (*a*) credit creation (*b*) credit
   (*c*) deposit (*d*) none of these
4. Loans do ..... of deposits.
   (*a*) selection (*b*) creation
   (*c*) credit (*d*) none of these
5. Ratio of increase in primary deposits and increase in total deposits is called..... .
   (*a*) credit multiplier (*b*) credit
   (*c*) multiplier (*d*) none of these
6. Excess reserve itself becomes ..... of the credit creation.
   (*a*) base (*b*) budget
   (*c*) multiplier (*d*) none of these

10.6. Process of Credit Creation or How do Banks Create Credit?

Commercial banks' method of credit expansion is based on the following conditions:

(*i*) **Stability in cash reserve ratio of banks:** Cash reserve ratio of net

Notes

commercial deposits of banks, remains constant during the period of credit creation process.

(*ii*) **No flow of cash:** Excessive flow of cash should not happen from the banking system i.e., people should keep a designated amount of currency with them for exchange.

Study of process of credit creation can be done in two parts:

(1) Single Banking System (2) Multiple Banking System

1. Credit Creation in a Single Banking System

It is just an easy assumption that in an economy only one bank does all the banking business. Assume that MR. X deposits ₹ 1000 in the bank. In form of primary deposit, this amount is demand deposit of the bank. On this assumption CRR is 10%, Bank's balance sheet will look like this:

Balance Sheet of the Bank

(On primary deposit being ₹ 1000)

Liabilities		Assets	
Demand Deposits...	₹ 1000	Cash	= ₹ 1000
(Primary Deposit)		Cash Reserve fund	= ₹ 100 (10% of ₹ 1000)
		Excess Reserve	= 1000 – 100 = ₹ 900
	Total = ₹ 1000		Total = ₹ 1000

Without liquidity or security risk, bank can give a loan of ₹ 900. If bank does so, its explanation will be as follows:

Balance Sheet of the Bank

(When initial excess reserve is converted to loan)

Liabilities		Assets	
(*i*) Demand Deposits (Primary Deposit)		(*i*) Cash received	= ₹ 1,000
	₹ 1000	Cash Reserve fund (10% of 1000)	= ₹ 100
(*ii*) Demand Deposits	= ₹ 900	Excess Reserve = 1000 – 100	= ₹ 900
(Secondary and derivatives deposits)		(*ii*) Loan	= ₹ 900
	Total = ₹ 1,900		Total = ₹ 1,900

Where does the loan amount of ₹ 900 go? If the person taking the loan gives the cheque of ₹ 900 to another person (who has an account in the same bank), then there is no disturbance in bank's cash reserve of ₹ 1000. Bank's demand deposit becomes 1,900 for which it needs cash reserve fund of ₹ 190 $\left(\frac{10}{100}\times 1{,}900\right)$. In such a situation, bank is left with an excess reserve of ₹ 1,000 – 190 = ₹ 810. For bank, it will be possible to give another loan of ₹ 810. Accordingly, bank's demand deposit will increase to ₹ 1,000 + 900 + 810 = 2,710. If the person taking the loan gives the cheque of ₹ 810 to another person

(who has an account with the same bank), there will be again no disturbance in bank's cash reserve of ₹ 1,000. Bank, by keeping ₹ 271 (10% of 2,710) in cash reserve fund, for demand deposit of ₹ 2,710, will be able to give its excess reserve of ₹ 729 (1,000 – 271) in form of loan to some other persons. This process of giving loan by the bank will go on until excess reserve becomes zero. At the end bank's balance sheet will be as follows:

Balance Sheet of the Bank
(When excess reserve ends completely)

Liabilities		Assets	
Demand Deposits		(*i*) Cash received	= ₹ 1,000
(*i*) Primary Deposit	= ₹ 1,000	(*ii*) Loan	= ₹ 900
(*ii*) Secondary and derivatives deposit	= ₹ 900		= ₹ 810
	₹ 810		= ₹ 729
	₹ 729		
This cycle will go on until excess fund does not become zero			
Total = ₹ 10,000		Total = ₹ 10,000	

In this manner, on the basis of cash received of ₹ 1,000, bank created demand deposits of ₹ 10,000.

$\left(\frac{1}{CRR} \times 1{,}000 = \frac{1}{10\%} \times 1{,}000 = ₹\ 10{,}000\right)$ because in this example, credit multiplier is 10.

$$\text{Credit multiplier} = \frac{1}{CRR} = \frac{1}{10\%} = 10$$

There is an increase of ₹ 10,000 in supply of money/ credit in the economy.

Conclusion: On an initial increase of ₹ 1,000 in bank's demand deposit (in form of primary deposit) and on the basis of assumption of CRR to be 10%, bank's demand deposit (sum of primary and secondary deposits) will increase to ₹ 10,000.

10.7. Algebraic Expression

Algebraic expression of credit creation process as following:

$$\Delta D = \Delta P + \Delta P(1-r) + \Delta P(1-r)^2 + \Delta P(1-r)^3 + \ldots\ldots\ldots$$
$$= \Delta P\{1 + (1-r) + (1-r)^2 + (1+r)^3 + \ldots\ldots\ldots\}$$

Where, ΔD: Net change in demand deposit because of initial change of primary deposit.

ΔP: change in Primary deposit

r: Cash Reserve Ratio (CRR)

Continuing the above example where ΔP = ₹ 1,000 and r (CRR)= 10%, process of credit creation will be as such:

Notes

$$\Delta D = \Delta P + \Delta P(1-r) + \Delta P(1-r)^2 + \Delta P(1-r)^3 + \ldots\ldots\ldots$$

$$= 1{,}000 + 1{,}000(1-10\%) + 1{,}000(1-10\%)^2 \ldots\ldots\ldots$$

$$= 1{,}000 + 1{,}000 \times \left(\frac{9}{10}\right) + 1{,}000 \times \left(\frac{9}{10}\right)^2 + \ldots\ldots\ldots$$

$$= 1{,}000 \left\{1 + \frac{9}{10} + \left(\frac{9}{10}\right)^2 + \ldots\ldots\ldots\right\}$$

$$= 1{,}000 \times \frac{1}{1-\frac{9}{10}} = 1{,}000 \times \frac{1}{\frac{10-9}{10}}$$

$$= 1{,}000 \times 10 = ₹\ 10{,}000$$

In this way an initial primary deposit of ₹ 1,000, creates a credit of ₹ 10,000 in the economy, here cash reserve ratio is 10 per cent and there is no excess (unnecessary) flow of cash from the banking system. This process of credit creation is shown through Fig. 10.1.

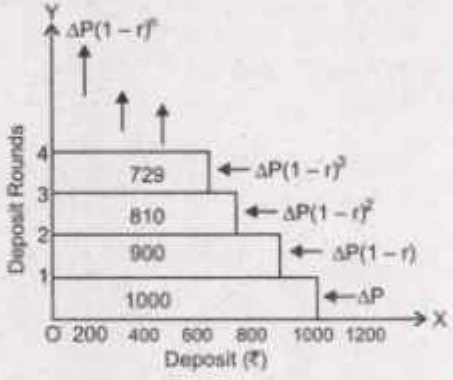


Fig. 10.1

In Fig. 10.1 axis X shows deposits and axis Y measures various deposit rounds happening due to primary deposit. Primary deposit is ₹ 1,000 in the first round and net deposit is also ₹ 1,000. Initial deposit of ₹ 1,000 creates deposit of ₹ 900 in second round and ₹ 810 in third round. In this manner, this round of deposit creation will go on until all primary deposits are not divided in cash reserve ratio.

2. Credit Expansion in Multiple Banking System

Credit expansion process in multiple banking system, though the medium of providing loan, is like single banking system only, which we have discussed earlier. We will ananlyse credit expansion by using the visualized equilibrium letter (Kalpit Santulan Patra) of various commercial banks. Here banking system increases its multiple credit creation when all banks increase their deposit amounts with each other. In comparison to single banking system, credit expansion process in multiple banking system is more realistic.

Assume that in an economy, A, B, C, and many other banks are found. Firstly, a person deposits ₹ 1,000 as primary deposit in bank A. In such a situation, balance-sheet of bank A will be as follows:

Initial Balance Sheet of Bank 'A'

Liabilities	₹	Assets	₹
Deposits	1,000	Reserves	1,000
Total	1,000	**Total**	1,000

Bank A, keeping the cash reserve fund of 10%, gives ₹ 900 as loan. In such situation, final balance sheet of bank A will be as follows:

Final Balance Sheet of Bank 'A'

Liabilities	₹	Assets	₹
Deposits	1000	Reserves	100
		Loans	900
Total	1000	**Total**	1000

Assume that a person takes a loan of ₹ 900 from bank 'A' and gives a cheque of ₹ 900 for paying off debt, to another person who has an account on bank B. Then initial balance sheet of bank B will be as follows:

Initial Balance Sheet of Bank 'B'

Liabilities	₹	Assets	₹
Deposits	900	Reserves	900
Total	900	**Total**	900

Bank B, after keeping 10% of primary deposit of ₹ 900 as cash reserve ratio, gives balance ₹ 810 as loan. The final balance sheet of the bank will be as follows:

Final Balance Sheet of Bank 'B'

Liabilities	₹	Assets	₹
Deposits	900	Reserves (CRR)	90
		Loans	810
Total	900	**Total**	900

A person borrows ₹ 810 from bank 'B' and for repayment of debt, gives a cheque of ₹ 810 to another person who has an account with bank C. In such situation, initial balance sheet of bank C will be as such:

Notes

Initial Balance Sheet of Bank 'B'

Liabilities	₹	Assets	₹
Deposits	810	Reserves (CRR)	810
Total	810	**Total**	810

Bank C, after keeping 10% of primary deposit of ₹ 810 as cash reserve ratio, gives balance ₹ 729 as loan. The final balance sheet of bank C will be:

Final Balance Sheet of Bank 'C'

Liabilities	₹	Assets	₹
Deposits	810	Reserves (CRR)	81
		Loans	729
Total	810	**Total**	810

This process of credit expansion will go on until primary deposit of ₹ 1,000, does not get distributed in the complete banking system in form of reserve fund. All banks will collectively create a new deposit worth ₹ 9,000 and deposit of total banking system will be ₹ 10,000 as is shown by table 10.1.

Table 10.1

Bank	New Deposits	CRR	New Loans
A	1,000	100	900
B	900	90	810
C	810	81	729
Other banks	729	–	–
	–	–	–
Total for the banking System	10,000	1,000	9,000

Change in Total Deposit = Primary Deposit × Credit Multiplier

Credit Multiplier $\frac{1}{CRR} = \frac{1}{10\%} = 10$

Change in total deposit = 1000 × 10 = 10,000

In short, total deposit of complete banking system, because of the primary deposit of ₹ 1,000, will become ₹ 10,000.

Task	Express your views in relation to money multiplier.

Notes

10.8. Limitations of Credit Creation

Banks cannot create credit in unlimited quantity. There are many limitations to the credit creation power of commercial bank, details of which are as follows:

1. **Cash Reserve Ratio:** Power of credit creation mainly depends on Cash Reserve Ratio (CRR). There is a mutually inverse relation between credit creation and cash reserve ratio. As much cash reserve ratio will be more, creation of credit will be as less. As opposed to this, as much less will the cash reserve ratio be that much more will the creation of credit be. For example,

Cash Reserve Ratio (r)	Primary Deposit	Increase in Total Deposit $\left(\Delta D = \frac{1}{r}\Delta P\right)$	Credit Creation
10%	1,000	10,000	10,000 – 1,000 = 9,000
5%	1,000	20,000	20,000 – 1,000 = 19,000
20%	1,000	5,000	5,000 – 1,000 = 4,000

(Here, ΔP: increase in primary deposit; ΔD: increase in total deposit; r = cash reserve ratio.)

It is clear from the above example that when cash reserve ratio (r) will be 10 per cent, then increase in total deposit will be ₹ 10,000. When cash reserve ratio will increase to 20 per cent, then increase in total deposit will be just ₹ 5,000. Opposed to this, when cash reserve ratio decreases to 5 per cent then increase in total deposit will be ₹ 20,000.

2. **Amount of Primary Deposits:** Expansion of Credit creation depends on the quantity of primary deposit. There is a direct relation between credit creation and primary deposit. If quantity of primary deposit is more, creation of credit will also be more and if quantity of primary deposit is less, creation of credit will also be less, even if cash reserve ratio remains constant. For example, if

$$\Delta P = ₹\,1{,}000;\ r = 10\% \Rightarrow \Delta D = ₹\,10{,}000$$
$$\Delta P = ₹\,5{,}00;\ r = 10\% \Rightarrow \Delta D = ₹\,5{,}000$$
$$\Delta P = ₹\,2{,}000;\ r = 10\% \Rightarrow \Delta D = ₹\,20{,}000$$

If Cash reserve ratio (r) is 10%, then form a primary deposit of ₹ 1,000, total deposit of ₹ 10,000 may be obtained. On the other hand, primary deposit just left to be ₹ 500, total deposit can only increase to ₹ 5,000. If primary deposit is ₹ 2,000, total deposit may increase up to ₹ 20,000. Hence, we reach the conclusion that if cash reserve ratio (r) remains constant, then there is a mutual direct relation between primary deposit and total deposit.

3. **Banking Habits of the People:** Bank's power of creating credit also depends on banking habit of the people. If people do their

Notes

business mainly through cheque, they will need to keep very little cash with them. As a result cash with the banks will increase because of which, their power of credit creation will also increase. In developed countries of the world, it happens the same way. But in under-developed countries, people mainly do their business through cash. As a result, their demand for cash is always more. Because of this, cash balance of banks reduces and along with it their power to create credit also reduces.

4. **Credit Policy of the Central Bank:** Power of commercial banks to create credit also depends on credit Policy of the central bank of the country. If the central bank follows cheap credit policy (credit expansion policy), credit creation power of the commercial banks increases; as opposed to this, if the central bank follows expensive credit policy (controlled credit policy), credit creation power of the commercial banks reduces.
5. **Policy of Other Banks:** Power of credit creation by one bank also depends on credit policy adopted by other banks. If all banks work in the same tune then their power of credit creation will be more. But if one bank expands credit but other banks do not co-operate with it then process of credit creation will be limited.
6. **Confidence of Depositors:** Power of commercial banks to create credit is also influenced by the confidence of the depositors. If depositors have full faith on the banking system then they will let their money lie in the bank. It will increase the credit creation power of the banks. As opposed to this, if people do not have faith in the banking system then they will not keep their savings in banks. Less amount of cash balance with the banks reduces their credit creation power.
7. **Availability of Good Borrowers:** Availability of borrowers worth credit also influences credit creation power of the banks. If such borrowers are available in big numbers then more credit will be created. If good borrowers are not available, banks will hesitate in giving loans and credit creation will be limited.
8. **Commercial and Industrial Conditions:** During the period of recession, businessmen's and industrialists' demand for loan is very less. Hence not much credit is created by banks in form of secondary deposits. But during boom period, giving loans is profitable for the banks and they create more credit in form of secondary deposits.

Two principal parameters that Delimit the Credit Creation Capacity of the Commercial Banks

Two principal parameters that delimit the credit creation capacity of the commercial banks are as follows:

(i) **Primary deposits of commercial banks or cash reserves:** As much more will be cash reserves that much more will be the power of the banks to create credit.

(ii) **Cash reserve ratio determined by the central bank:** It is compulsory for the commercial banks to follow the orders of the central bank, relating to Cash Reserve Ratio (CRR). If CRR is increased as in situation of inflation, credit creation power of banks is contracted. As opposed to this if cash reserve ratio is reduced, as in the condition of recession, then credit creation power of the banks increases a lot.

Self Assessment

State whether the following statements are True or False:

7. Money Supply in an economy depends on velocity of currency and demand deposits of the bank.
8. Credit expansion capacity of commercial banks depends on their cash reserve ratio.
9. That deposit of the bank is called the demand deposit which the depositors cannot withdraw anytime by issuing a cheque.
10. Supply of money and high powered money is ratio.

10.9. Competitive Banking and Credit Expansion

Like Joint stock companies, commercial banks also work for profit. According to the perspective of credit expansion, commercial banks through the medium of credit expansion, want to maximise their profits. But credit expansion is not always possible. If people decide to make an increase in their primary deposits then, commercial banks will be able to increase their secondary deposits. Banks, with the help of the primary deposits of the people, increase secondary deposits and expand credit. But in current competitive age, commercial banks, in order to maximise their profits and for expanding credit try other measures. Banks keep excess reserves with them which fulfil the increasing credit requirement in money market. For expanding credit and increasing profits commercial banks plan their policies demand and supply parameters of money market.

In competitive banking system quantity of credit of banks is determined by demand and supply of loans. Demand for loan depends on the prevailing interest rates and supply of loan depends on quantity of deposit and spread of interest rates. What interest rate banks give for accepting deposits from people and what interest rate banks charge for giving loans to the people, the difference between them is known as spread of interest rates. Spread of interest rate is decided by loan supply line and deposit supply line. Demand for loan is inversely related to interest rates. Excessive interest rate reduces demand for loan and less interest rate increases demand for loan. In this manner loan demand curve is a downward falling line. Supply of loan and supply of deposit are directly related to rate of interest. On high interest rates banks do a greater supply of money and people deposit more cash in banks. Slope of both loan supply and deposit supply line is upwards.

Notes

In Fig. 10.2, S_L is line for supply of loan; S_d is line for supply of deposit. D_L is the demand curve of loan. Balanced Rate of interest is Or where $D_L = S_L$. It is that rate of interest which bank receives for giving loan to the people. Or_1 is that rate of interest which bank gives to the people on deposit amount. Difference between both interest rates rr_1 (spread of interest rate) determines the quantity of loan supply by the banks.

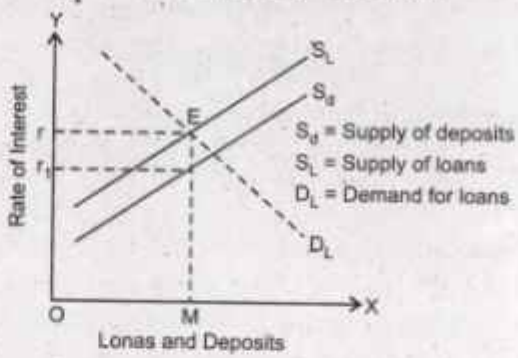


Fig. 10.2

In the figure, interest rate spread is assumed to be constant that is why loan supply curve and deposit supply curve are mutually parallel. Quantity of loan supply by the banks depends on interest rate spread and deposit supply. Undoubtedly, when there is a boom in money market then for adjusting supply of loan and demand of loan, excess reserves of the bank have a very important role.

10.10. Do Banks Really Create Credit?

There is a difference of opinion found among the economists that in reality whether credit is created by banks or depositors. **Walter Leaf** and **Cannon's** opinion is that banks do not themselves create credit. Depositors do the job of credit creation who through their deposits, provide monetary resource to the banks. One part of this deposit is given by the banks as loan. This loan is helpful in credit creation. If depositor does not deposit his money in bank, bank will not be able to create credit. Bank may be compared to a cloakroom. Assume that, in a party 50 guests come with similar overcoats which they deposit in a cloakroom. Also assume that party will continue till 12 o'clock. Watchman of the cloakroom keeps 10 overcoats with himself and gives the rest 40 overcoats to other people on rent for until 11:30 at night. He has kept 10 overcoats with himself because if some people want to go from the party before 12 o'clock then he may give them these coats. Thus in this manner, by giving 40 overcoats for rent, has the watchman created 40 new overcoats? It is absolutely wrong. In the same way bank also by lending the money of the depositors, does not create credit. Keeping this in mind, **Cannon** has said, "The talk of credit creation by banks is all moon-shine and that every practical banker knows that he is not a creator of credit or money or anything else but a person who facilitates the lending of resources by the people who have them, to those who can use them."

But according to modern economists, above thought of Walter Leaf and Cannon is not correct, because banks lend money more than primary deposit. That is why, it will have to be accepted that banks create credit. **Hartley Withers** have rightly said, **"Loans make deposits and the initiative of creating them goes to the banks."**

Lipsey and **Steiner** also believe that expansion of credit is not automatic. It depends on decisions of banks. If banks do not use the increase in cash reserve fund, expansion of credit may not happen.

10.11. Money Supply in India

Since 1977, RBI in India is using four monetary aggregate measures which are M_1, M_2, M_3, M_4. M_1 is a narrow measure while M_3 is a detailed measure of money supply. Since the first five-year plan till today, there is a rapid increase in both M_1 and M_2. In currency component and bank deposit components of money supply, in both there has been a rapid increase. In the initial years of the plan, increase in currency component was more than deposit component. But at present time, in comparison to currency component, increase in demand deposit component is much faster; its main reason is extensive increase in banking services. Table 10.2 shows increase in M_1 and M_3 aggregates of money supply.

Table 10.2: Money Supply (M_1 and M_2)

Year (1)	M_1 (2)	M_3 (3)
1970–71	7,321	10,958
1980–81	23,117	55,358
1990–91	92,892	2,65,828
2000–02	4,22,843	14,98,355
2004–05	6,46,263	22,33,164
2005–06	8,26,375	27,29,545
2006–07	7,65,195	33,10, 278

(Source : RBI Bulletin 2006, Statistical Outline of India, 2007–08)

From table 10.2 it is clear that from 1970–71 to 2006–07, there was a rapid increase in M_1 and M_3. Rapid increase of M_3 (approximate 302 times) happened due to increase in time deposits. Extensive increase of M_1 happened due to increase in demand deposits.

Knowledge of money supply in India during various plan periods, national income and per centage increase in price levels can be obtained through table 10.3:

Notes

Table 10.3: Percentage Growth Rate in Money Supply, National Income and Price Level

Period	Growth Rate in Money Supply (M_3)	Growth Rate in National Income	Growth Rate in Price-Level
First Plan	2.2	3.7	–3.6
Second Plan	5.3	4.1	+6.3
Third Plan	9.1	2.4	+5.8
Fourth Plan	15.5	3.3	+9.0
Fifth Plan	17.9	5.0	+6.3
Sixth Plan	16.7	5.4	+9.7
Seventh Plan	17.5	5.7	+6.7
Eighth Plan	13.8	5.8	+6.6
Ninth Plan	14.2	5.6	+3.9
Tenth Plan (2002–03)	16.4	8.7	+5.2

(Source: Statistical Outline of India, 2007–08)

This general belief has been found that there is an intense relation between supply of money and price level. When there is an increase in supply of money then through increase in demand prices also increase. Undoubtedly, supply of money has a direct influence on prices but it is difficult to agree with this opinion of **Irving Fisher**, the main supporter of Quantity Theory of Money, that there is a direct and proportionate relation between quantity of money and price level. For example, in the given table it is shown that during the period of first plan, there was a fall in price level whereas money supply increased. During the period of ninth plan, in price level there was an increase of only 3.9 per cent, whereas in supply of money, there was an increase of 14.2 per cent. In an under-developed country like India, a large part of the economy is un-monetized. In this field, all transactions are done on the basis of exchange of goods. If one part of supply of money is used for monetization of this field then demand will increase by this but there will be no increase in prices. Hence in under developed countries like India, if increase in supply of money is used for increasing production and for monetization of non-monetized areas, then prices will not increase.

From the given table, it is known that supply of money does have an influence on prices but there is no special relation between these two. How increase will be there in prices, as a result of increase in supply of money, this depends on many factors, especially on increase in production in the economy. According to **Prof. B.N. Pandit**, almost a time lag of one year is found in increase in supply of money in India and its influence on prices. During the period of plans, average rate of increase in supply of money was 14 per cent whereas rate of growth (on increase in national income) was 4.1% and increase rate (growth rate) of price level had been 6.6%.

10.12. How does Money Get into the Economy?

How does a unit of money Introduce into the economy? It is an important question which a student of economics should understand. In most countries of the world central bank issues notes and coins. For a general person, central bank (RBI in India) prints money and introduces it in the economy. But on which conditions and under what circumstances central bank prints money and introduces it, this question is not as easy as a general person thinks.

Government, for fulfilling budgetary loss, takes loan from the central bank (RBI) by giving its security. Central bank, by printing more money, gives loan to the government and government spends this loan on various developmental and non-developmental works. People may find their income in form of tax (Lagan), labour, profit and interest, from expense done by the government on various projects. In this form currency is introduced in the economy.

☞ As per **Lipsey** and **Chrystal**, "The central bank gets high powered money into the economy simply by buying securities (usually government debt instruments). It pays for these purchases with newly issued high powered money."

10.13. Does Supply of Money in the Economy Depend on the Discretion of the Central Bank?

No, Supply of Money in the economy does not depend on the discretion of the central bank. Undoubtly, RBI of our country is the issuing authority of currency of the country. But net supply of money does not only depend upon the discretion of the central bank. Net supply of money in an economy depends on the nature and below given factors of the economy:-

(*i*) Central bank of the country (*ii*) Commercial bank of the country (*iii*) General public.

- Deciding the quantity of high powered money which does the job of money multiplier, central bank does determines its supply.
- By determining its Cash Reserve Ratio (CRR), which is the base of credit multiplier, commercial banks influence the supply of money.
- General public, by determing their preference for liquididty, influence the supply of money. It determines the cash reserve ratio of commercial banks and their power to create credit.

Velocity of money should not be ignored. It means that how many times, one unit of money (like a note or a coin) is used as a means of exchange. If velocity of money is measured in form of per unit timeperiod or in form of flowing concept then, it will also be an important determinant of money supply.

Notes

Ideal Supply of Money

Supply of money has an influence on net expenses. Consequently, trade activities, production and employment, all are affected by this. The question arises that for purchasing products produced by an economy with full employment, in which no source of production is wasted, how much money is needed? This supply of money itself is known as ideal supply. As a result of this supply, it becomes possible to completely utilize the production capacity of the country. In a situation of full employment, if supply of money exceeds ideal supply, condition of inflation arises and prices will rise sharply. As opposed to this, if supply of money is less than ideal supply then prices will start declining, depression will be there and unemployment will be there all around. Hence supply of money should be such so that in the country, all those goods which are being produced may be purchased so that condition of inflation or deflation may not be created.

Students are advised that they should read this paragraph carefully so that they may have knowledge about how supply of money affects the financial activities in an economy.

It must be kept in mind that influence of supply of money on total expense will only be there when people will spend money and not keep it with themselves in form of cash. In reality, by change in supply of money there is also a change in liquidity of the people. People keep their assets in form of monetary, financial and actual fund with themselves. As a result of change in supply of money, changes also happen in monetary assets of the people. If due to change in monetary assets people want to spend more money on actual assets like house, car, TV set etc., then total expense, and along with it national income will increase. As opposed to this, if people will want to spend their money on financial assets like shares, securities etc. then their prices will rise and rate of interest will decline. Low rate of interest will encourage investment and national income will rise. But if people will prefer to keep their increased monetary assets in liquid form, then there will be no change in total expenditure and nor will the national income change. Hence only by change in supply of money objective of price stability or full employment cannot be achieved. Calculating people's demand for money is equally important.

Key Points

- **Money Supply:** It shows the quantity of money available in the economy for business. It is a stock concept which is measured on a definite time.
- **Components of Money Supply:** (*i*) Currency (*ii*) Demand deposits.
- **Monetary Aggregates used in India:** According to old measures these are M_1, M_2, M_3 and M_4. According to new measures these are NM_2, NM_3, L_1, L_2 and L_3.

- **Factors Influencing Money Supply:** (*i*) Size of monetary base (*ii*) Ratio of cash and demand (*iii*) Velocity.
- **Money Multiplier:** It is the ratio of change in money supply and change in monetary base.
- **High Powered Money:** It is that money which is issued by central bank or government and is kept with themselves by the public or commercial banks.
- **Credit Multiplier:** It is the ratio between change in total deposit and change in primary deposit.
- **Demand Deposit:** It is that amount kept by the people with the bank, which may be withdrawn any time through cheque.
- **Primary Deposits:** Amount deposited as cash by the people in the bank is known as primary deposit.
- **Derivatives or Secondary Deposits:** Derivative deposit is the result of primary deposit because commercial banks, keeping a part of primary deposit in form of money, create secondary deposit.
- **Cash Reserve Ratio:** That part of total deposit which commercial banks keep with themselves as cash is known as cash reserve ratio.
- **Excess Reserve:** Cash reserve that remains with the bank in excess of cash reserve ratio is known as excess reserve.
- **Limitations of Credit Creation:** (*i*) Cash reserve ratio: on cash reserve ratio being more, quantity of credit creation reduces. (*ii*) Amount of primary deposit: more primary deposit shows more credit creation capacity (*iii*) Banking habit of the people: by more use of banking services by people, more credit will be created. (*iv*) Credit policy of central bank: cheap credit policy of central banks provides the facility of more credit creation (*v*) Credit policy of other banks: is all banks work united, more credit will be created (*vi*) Confidence of depositors (*vii*) Availability of good borrowers (*viii*) Commercial and industrial conditions.
- **Principle Parameters that Delimit the Credit Creation Capacity of Commercial Banks:** (*i*) cash reserve of commercial banks (*ii*) cash reserve ratio of central bank.

10.14. Summary

- Velocity of money should not be ignored. It means that how many times, one unit of money (like a note or a coin) is used as a means of exchange. If velocity of money is measured in form of per unit time-period or in form of flowing concept then, it will also be an important determinant of money supply.

10.15. Keywords

- **Discretion:** Will.
- **Non- Monetized:** Where there is no money.

Notes

10.16. Review Questions

1. What do you understand by money multiplier?
2. Describe the limitations of credit creation.
3. How does money get into the economy?
4. Does supply of money in the economy depend on the dicretion of the central bank?

Answers: Self Assessment

1. sum	2. profit	3. (a)	4. (b)
5. (a)	6. (a)	7. True	8. True
9. False	10. True		

10.17. Further Readings

1. **Macroeconomics**—*Mohan Srivastava, DND Publications, 2010.*
2. **Macroeconomics**—*S.K. Chakravarty, Himalaya publishing House, 2010.*

Unit–11

Monetary Policy

Notes

Structure

11.1. Objectives

After studying this unit, students will be able to:

- Know the meaning of monetary policy.
- Understand the objectives of monetary policy.
- Explain the expansionary monetary policy.
- Know the restrictive monetary policy.

11.2. Introduction

Monetary policy is related to credit control measures adopted by the central bank. It is of two types: (1) Quantitative—general and indirect control; and (2) Qualitative—selective or direct control. Under first category, changes in bank rates, operations of open markets and changeable reserve requirements are included. Their objective is to regulate complete level of credit in the economy through the medium of commercial banks. In it changeable limit requirements and regulation of consumer credit are included.

11.3. Meaning of Monetary Policy

Monetary policy is meant for credit control measures adopted by the

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central bank of a country. Johnson defines monetary policy like this, "This policy is in the form of a tool to control the supply of money by the central bank for achieving the objectives of general economic policies."G.K Sha has defined it as, "Any conscious activity done by monetary authorities for changing quantity, availability or cost of money."

11.4. Objectives of Monetary Policy

Main objectives of monetary policy are as follows:

1. **Full Employment:** Full employment has been kept under the main objectives of monetary policy. It is an important objective because by unemployment not only there is a loss of possible production but by it social prestige and self-respect are also hurted. Apart from this it creates poverty. That is why attaining full employment is extremely important.

Notes	Monetary policy is in the form of a tool to control the supply of money by the central bank for achieving the objectives of general economic policies.

2. **Price Stability:** Bringing stability in price level is one of the main objectives of monetary policy.
3. **Economic Growth:** In the recent years one of the most important objectives of monetary policy had been that there should be a fast economic development of the economy.
4. **Balance of Payments:** Since the decade of 1950 another objective of monetary policy had been to maintain a balance of payment.

Self Assessment

Fill in the blanks:

1. Full employment has been kept under the main ..... of monetary policy.
2. When prices start rising and there is a need to stop them then central bank sells ..... .

11.5. Instruments of Monetary Policy

Monetary policy is related to credit control measures adopted by the central bank. It is of two types: (1) Quantitative—general and indirect control; and (2) Qualitative —selective or direct control. Under first category, changes in bank rates, operations of open markets and changeable reserve requirements are included. Their objective is to regulate complete level of credit in the economy through the medium of commercial banks. In it changeable limit requirements and regulation of consumer credit are included.

11.5.1 Bank Rate Policy

Bank rate is that minimum rate of loan given by the central bank at

which it re-discounts the first category hundies of exchanges and government securities adopted by the commercial banks. When central bank sees that inflationary pressures have started showing in the economy, it increases bank rates. Taking loan from central bank becomes expensive and commercial banks will comparatively take fewer loans from it. Commercial banks will increase their rate to give loans to traders. That is why those taking loans will take fewer loans from commercial banks. Contraction of credit takes place and prices stop from rising further. As opposed to it when prices fall, then central bank reduces its bank rate. It is cheaper of commercial banks to take loan from central bank, and then commercial banks also reduce their rate of lending. By it traders are motivated to take more loans. Investment is induced. Production, employment, income and demand start to increase and price stop falling.

11.5.2 Open Market Operations

Open market operations are related to sale and purchase of securities by the central bank in money market. When prices start rising and there is a need to stop them then central bank sells securities. Reserves of commercial banks reduce and they are not left in the situation to give loans to traders' class. Further investment is discouraged and increase of prices stops. Opposed to it, when forces of recession start in the economy, then central bank purchases securities. Reserves of commercial banks increase. They give more loans, investment, production, employment and demand increases and falling of prices stops.

11.5.3 Changes in Reserve Ratios

Keynes had suggested this tool in his book *Treatise of Money* and The United States of America was the first country which adopted its form of a monetary method. According to law each bank has to keep some percentage of its deposit in its godown in reserve and some percentage with the central bank. When prices start rising then central bank increases the reserve ratio. Banks have to keep more amounts with the central bank. Their reserves reduce and they give fewer loans. Unfavourable effect is there on the quantity of investment, production and employment. In situation opposite to it, when reserve ratio is reduced, then reserves of commercial banks increase. They give more loans and there is a favourable effect on the economic activity.

11.5.4 Selective Credit Controls

Selective credit controls are brought in use to control special type of credit with specific objectives. For controlling speculative activities inside the economy these often take the form of changing margin requirements. When in economy or in specific areas, there is fast speculative activity in some goods and prices start to rise then central banks raise margin requirements on them. Result is that those taking loan are given less money in form of loan on specific securities. For example, meaning of increasing margin requirement to 60 per cent is that to the pledger of securities worth ₹ 10,000, 40 per cent of its value (₹ 4000) will be given as loan. In situation of recession in specific fields,central bank by reducing margin requirements encourages loan acceptances.

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Conclusion

For an effective analytic monetary policy it is important that bank rate, open market operations, reserve ratio and selective credit control measures are adopted together. But all monetary theorists have accepted that (*i*) in depression when trade confidence is at its weakest state, then success of monetary policy is zero; and (*ii*) it is successful against inflation. Monetarists say that in comparison to fiscal policies, monetary policies have more flexibility. They can be applied soon.

Did You Know?	Monetary policy is meant for credit control measures adopted by the central bank of a country.

11.6. Expansionary Monetary Policy

Expansionary (or cheap) monetary policy is used to come out of the deflationary gap or recession. When there is a decline in consumer demand of goods and services and trade demand for investment goods then deflationary gaps emerge. Central banks start expansionary monetary policy which makes the conditions of credit markets easy and brings an upward change in the entire demand.

For this objective central bank purchases government securities from open market, reduces reserve requirements of member banks, reduces discount rates and through selective credit measures encourage consumer and trade credit. Through these measures it reduces the cost and availability of credit in the money market and improves the economy.

Expansionary monetary policy has been described through Fig. 11.1 (A) and (B), where initial recession is at R, Y, P, Q. In part (A) of the figure economy is already at extra money supply in interest rate OR. Consider that due to the credit policy of the central bank there is an increase in money supply in the economy. It shifts the curve LM rightward to LM_1. It increases the income from OY to OY_1 and entire demand increases and in part (B) curve D shifts upward to D_1. Along with increase in demand for goods and services, production at high price level OP_1 rises from OQ to OQ_1. If expansionary monetary policy works properly then balance at point E_1 may take place at full employment. But because of the below mentioned limitations possibility of reaching to that situation is not there.

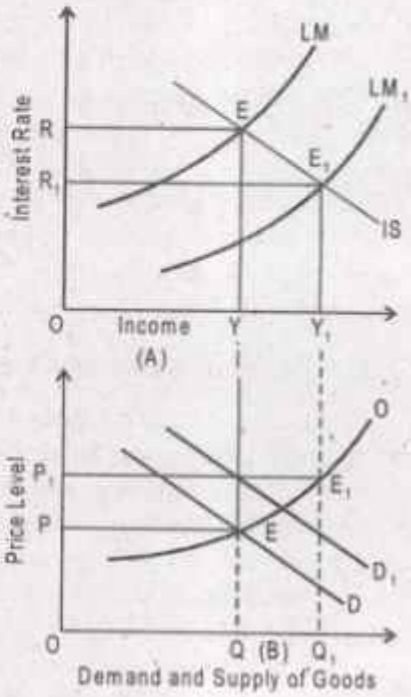

Fig. 11.1

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During the decades of 1930 and 1940 it was believed that in comparison to control boom and inflation,success of monetary policy was very limited in inducing recovery in depression. This concept emerged from the experiences of the great depression and publishing of the general theory of Keynes.

Monetarists' opinion is that during depression central bank through cheap credit policy may increase the reserves of the commercial banks. It may do so by purchasing securities or by decreasing the interest rates. As a result by increasing the facilities of those taking loans, banks' capacity will increase. But experience of the great depression tells that during sharp depression when traders are pessimistic, then practically success of such a policy is zero. In such a situation banks are helpless on bringing revival. Since trade activities are almost in the situation of stagnancy hence traders have no tendency for taking loans to make inventories, though interest rates are very less. Since they want to reduce their already taken loans for inventories by returning. Apart from this question of taking loans for long term requirements does not arise in depression, when trade activity is already at very low level. With consumers also the condition is same who are struggling with reduced income and unemployment. Hence, they do not wish to purchase any durable goods through bank loans. In this manner, all banks may make credit available but they cannot compel traders and consumers to accept it. In the decade of 1930, very low interest rates and unused reserve amount with banks could not have any important impact on world's economies with depression.

"It is not said that during sharp contract cheap monetary policy will be without any profitable impact, but its most effect will be in preventing a bad situation from reaching to a worst situation. But restrictive monetary policy associated with downturn business will definitely make downturn business worse—its traditional example was the monetary policy of 1931 which gave its contribution in making the great depression serious. At the other side, if credit is easily available at favourable terms then definitely it will have a stabilising effect. It may become slow on fulfilment of liquidity requirements of the trade and perhaps may decrease the limit of downturn."

But what was the cause of collapse of monetary policy in the decades of 1930 and 1940? Apart from painful and disillusion experiences during the great depression and after it, General Theory of Keynes in form of a tool for more stability became the causes of collapse of monetary policy. Keynes told that more flexibility liquidity preference schedule (liquidity net) presents monetary policy in form of helpless at the time of sharp depression.

Self Assessment

Multiple Choice Questions:

3. Bringing stability in price level is one of the ..... of monetary policy.
   (*a*) main objectives
   (*b*) main work
   (*c*) plan
   (*d*) none of these

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4. Attaining full employment is ..... .
   (a) unnecessary (b) extremely important
   (c) main work (d) none of these
5. ..... are brought in use to control special type of credit with specific objectives
   (a) Selective credit controls (b) Objective
   (c) Specific area (d) None of these
6. Central bank starts expansionary monetary policy which makes the conditions of credit markets ..... .
   (a) difficult (b) easy
   (c) changeable (d) none of these

11.7. Restrictive Monetary Policy

Monetary policy made for reducing the entire demand is known by the name of restrictive (or expensive) monetary policy. It is used to come out of an inflationary gap. Due to increase of consumer demand for goods and services, inflationary pressures are created in the economy and because of it boom also comes in trade investment. By increasing the cost and availability of bank credit for reducing entire consumption and investment, central bank starts restrictive monetary policy. Central bank may do so by selling government securities in the open market, by increasing the reserve requirements of member banks, by increasing the discount rates and by controlling the consumer and trade credit through selective measures. Through these measures central bank increases the cost and availability of credit in the open market and by which it controls the inflationary pressure.

11.7.1 Its Scope and Limitations

But field of monetary policy is very limited in inflation control. Its limitations are as follows:

1. **Increase in Velocity of Money:** There is an important limit of effectiveness of monetary policy in stopping inflation—increase in velocity of money kept with the public. Central bank, through expensive monetary policy, may control money supply and cost of money but it has no such power by which it may stop the velocity of money. Public may effectively bring in use money supply available with it as a result of which restrictive monetary policy becomes unsuccessful. It may be done in many ways.
   (a) ***Commercial Banks Portfolio Adjustment:*** When restrictive monetary policy is going on, then commercial banks fulfil the demands of borrowers for loans by selling government securities to the central bank. Such type of policy just changes the deposits kept by the banks in form of securities to active deposits. Government securities kept in the portfolio of the banks are substituted in place of loans. But there is no change

in total deposit and money supply of the bank. But through it, total expense increases, because banks lend money to borrowers. In this manner restrictive monetary policy of the central bank becomes ineffective.

Then, when banks sell government securities to central bank, their prices fall in the market and rate of interest on them increases by it general interest rate structure in the market increases. But by fall of prices of securities banks will have capital losses and banks will not like to suffer those. It depends on it that whether banks hope that fall in securities prices (or increase in interest rates) is short-term or is going to last long. If banks hope that decline in security prices will stay for some time only then instead of selling those (securities) at capital loss, they will like to keep them. At the other side, if they hope that decline in securities prices will go on for some time then for giving loans to the customers at high rates they will sell the securities and will fulfil the capital- loss by sale of securities by giving the loans at high interest rates. But once demand for loans will reduce then banks will be able to buy back the government securities at prices lower than that at which they had sold them and will again be in profit in this deal. In this way, commercial banks' policy of portfolio adjustments increases the velocity of net money despite an expensive monetary policy and as a result expensive monetary policy is left ineffective.

(*b*) ***Role of non-Banking financial Intermediaries:*** NBFIs stop the money supply controlling capacity of monetary policy in two ways. First, they sell securities for giving loans and like commercial banks, increase the velocity of money in the same way as has been described above. Secondly, under expensive monetary policy as the rate of interest increases on securities, in order to achieve more reserves from the savers financial intermediaries keep increasing interest rates of deposits with them. It encourages savers that they give their inactive money to these intermediaries by which their loan capacity increases further. In this way these intermediaries are successful in increasing the velocity of money as a result of which expensive credit policy is left incapable.

(*c*) ***Methods to make better use of available money supply:*** Many methods have been devised for better use of available money supply which make restrictive monetary policy ineffective. Some such methods are there like development of better methods of fund collection of sales financial institutions; in comparison to commercial banks more loan taken by NBFI from the public etc. By obtaining funds from various sources of commercial banks, such institutions, even under restrictive monetary policy, are successful in increasing the velocity of available supply of money.

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2. **Discriminatory:** Expensive monetary policy has discriminatory influence on various fields of economy. It is said that those firms which depend on internal sources under financial system, they are not influenced by restrictive monetary policy. At the other side, only those firms are influenced which depend on banking system for funds. Especially, it is understood in relation to expensive monetary policy that it works against the traders, because they are extremely sensitive towards changes in credit costs reason for which is that they cannot take credit risk and are ageist residential construction and some types of state and local government expenditure. It cannot only slow their expenditure but may even stop it.
3. **Threat to Credit Market:** If central bank strictly controls credit market and investors expect interest rates to rise continuously then it may end loan sum reserves of credit market. Consequently, securities may not be sold and credit market may stop working.
4. **Threat to solvency of NBFIs:** Strong restrictive monetary policy, through fast increasing interest rates, may create a threat to solvency of saving bank and savings and loan institutions like NBFIs. This happens because different from commercial banks, they are not in a conditions to keep themselves balanced in fast increasing interest rates.
5. **Changes of Expectations of Borrowers and Lenders:** A very expensive monetary policy may change the expectations of borrowers and lenders. That is why they bring unchangeable changes in credit market situations. Sharp increase in interest rates can change the expectations so much that when this policy is given up and an expansionary monetary policy is started, even then lenders are unwilling to give long-term loans with an anticipation of further increase in interest rates. At the other side, borrowers, with an anticipation of increase in interest rates in future, may take long-term loans though they do not need it.
6. **Time Lags:** One more limitation on effectiveness of expensive monetary policy is that there are time lags in need for action and identification, decision and popularization of action. Since due to these time lags monetary officers are not able to follow measures of restrictive monetary policy on time that is why monetary policy works very slowly. Hence, it is not very effective in controlling inflation.

Self Assessment

State whether the following statements are True or False:

7. Monetarists have the opinion that central bank may increase the reserves of commercial banks during depression, through cheap monetary policy.
8. Full employment is not kept under the main objectives of monetary policy.

9. There is an important limit of effectiveness of monetary policy in stopping inflation—increase in velocity of money kept with the public.
10. When banks sell government's securities to central banks, their price in the market rise up.

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11.8. Role of Monetary Policy in a Developing Economy

In a developing economy, monetary policy does an important job in increasing economic growth by influencing cost and sufficiency of credit, by controlling the inflation and maintaining the equilibrium of balance of payment. Hence, in such countries main objectives of monetary policy is to control credit, stabilise exchange rate for controlling inflation and for stabilising prices, attain equilibrium in balance of Payment and increase economic growth.

1. **To Control Inflationary Pressures:** For attaining control on inflationary pressures created during the process of development, both quantitative and qualitative measure credit control of monetary policy are required. In tools of monetary policy, open market operations are not successful in controlling credit in undeveloped countries because bill market is small and undeveloped. Commercial banks keep flexible cash deposit ratio because they are not completely controlled by the central bank. Because of relatively low interest rate from them, they are unwilling to invest in government securities. Apart from this instead of investing in government securities they like to keep their reserves in liquid form like gold, foreign exchange and cash. Commercial banks also do not want to take loans or do re-discounting from central bank.

   Bank rate policy is also not effective in such countries because of the following reasons: (*i*) shortage of discount bills; (*ii*) contracted shape of bill market; (*iii*) huge non-monetised field where goods exchange happens (*iv*) existence of local banks which do not do discounting of bills with central bank; (*v*) tendency of commercial banks of keeping large cash reserve; and (*vi*) being of large unorganised money market.

   Use of Variable Reserve Ratio in form of a tool of monetary policy in LDCs is more effective in comparison to bank rate policy and open market operations. Since market of securities is very small, hence, open market operations are not successful. But increase or decrease in variable reserve ratio by the central bank increases or decreases cash available with commercial banks without having an unfavourable influence on prices of securities. Again, commercial banks keep huge cash reserves which cannot be reduced by the central bank. But by increasing variable reserve ratio, liquidity of banks is reduced. There are some limitations of use of variable reserve ratio in LDCs— first, since non-banking financial intermediaries do not keep deposits with central banks that is why

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they are not influenced by it. Secondly, those banks which do not keep extra liquidity, in comparison to them, those who keep it are influenced more.

But in influencing the allocation of credit and consequently in influencing the procedure of investment qualitative measures of credit control are more effective in comparison to quantitative measures. In LDCs strong tendency is found to invest in gold, jewellery, inventories, tangible assets etc. in comparison to optional productive sources available in agriculture, mining, plantation and industries. For controlling and limiting credit facilities for such unproductive objectives qualitative credit control is more appropriate. They are useful in limiting speculative activities in matter of larders and raw materials. They are more useful in stopping sectional inflation in the economy. They cut the demand for import by making it compulsory for importers to deposit advance amount equivalent of foreign exchange. It also has this influence that reserve rates of banks reduce so much so that in this process their deposits are transferred to the central bank. Selective credit control measures may be in form of change in limit requirement instead of definite type of security, consumer credit regulation and rationing of credit.

2. **To Achieve Price Stability:** Monetary policy is an important tool to attain price stability. It brings appropriate adjustment in money demand and supply. Imbalance in both of these will be reflected in price level. Decrease in money supply stops growth, while its excess will bring inflation. When economy is marching towards development then by increase in agricultural and industrial production and by slowly changing of non-monetised areas to monetised areas, demand for money rises slowly. By it demand for money, exchange and speculation objectives will also increase. Hence, monetary officer, for stabilising prices and stopping inflation, will have to increase supply of money more than the ratio of demand for money.
3. **To Bridge BOP Deficit:** In form of interest rate policy, monetary policy does a very important task for bridging the BOP deficit. For achieving the planned target of development, developing economies have to face serious balance of payment difficulties. For establishing foundational structures like electricity, irrigation, transportation etc. and for directly productive activities like iron and steel, fertilizers, chemical etc. such countries have to import capital equipment, machinery, raw material, parts and furniture. Because of which there is an increase in their export. But their exports are stagnant and because of inflation prices of export are also very high. As a result difference in import and export is created because of which balance of payment is imbalanced. Monetary policy through high interest rates may be helpful in bridging the

deficit of balance of payment. High interest rates are helpful in reducing the difference in balance of payment by motivating inflow of investment.

4. **Interest Rate Policy:** For a developing economy high interest rate policy encourages more savings, develops banking habits and provides strength to monetization of the economy, which is necessary for capitalization and economic development. High interest rate policy also removes inflation because it discourages borrowing and investment of speculation and investment. Then this policy encourages allotment of scarce capital resources towards more productive sources. Some economists are supporter of low interest rates in such countries because high interest rates are hurdle in development but experienced results tell that in developing countries investment in trade and industry is interest-inflexible because in net cost of investment, interest has a very little ratio. Despite of these opposing opinions, it is correct for the monetary officer to follow discriminatory interest rate policy. According to this policy for high interest rates should be there for unnecessary and unproductive experiments and for productive experiments low interest rates should be there.
5. **To Create Banking and Financial Institutions:** In LDCs, one objective of monetary policy is to establish and develop banking and financial institutions for collecting, floating and inducing savings. Monetary officer should encourage establishment of branch banking in rural and urban areas. Such policies will be helpful in monetization of non-monetized area and will induce saving and investment for capital building. It will also organise and develop money and capital market. It is necessary for developmental monetary policy, in which debt management is also included.

Debt Management: In a developing country, managing public debt is one of the important tasks of monetary policy. Its objective is to issue government bonds on appropriate time, stabilising their prices and minimising the service costs of public debt. Main objective of debt management is to create such situations in which public debts keep increasing year after year. In such countries, public debts are necessary for controlling money supply and providing finance to development programmes. But public debt should necessarily be at cheap rates. Low interest rates increase the price of government bonds and make them more attractive for the people. They also feel the weight of debt to be less.

Conclusion: In this way entire monetary policy, as has been told above, is helpful in controlling inflation,reducing the balance of payment gap, inducing capital building and in increasing the economic development.

11.8.1 Limitations of Monetary Policy in LDCs

Experience of developing countries tells that monetary policy has a limited role in such countries. Below mentioned are its reasons:

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1. **Large Non-monetized Sector:** In such countries, there is large non-monetized area which is a hurdle in success of monetary policy. Most of the people live in rural areas where there is a trend of goods exchange method. Consequently, monetary policy is unsuccessful in influencing a wide part of the economy.
2. **Undeveloped Money and Capital Market:** Money and capital markets are undeveloped. There is a lack of bills, stocks and shares which limit the success of monetary policy.
3. **Large number of NBFIs:** In such countries local bankers such as Non-Banking Financial Intermediaries work on a large scale, but they do not come under the control of monetary officer. Because of this reason also effectiveness of monetary policy is limited in such countries.
4. **High Liquidity:** High liquidity is found with the commercial banks because of which they are not affected by the credit policy of the central bank. It also makes the monetary policy less effective.
5. **Foreign Bank:** Almost in all developing countries foreign commercial banks are there. They also by selling the foreign assets and by taking out money from their main office,make the monetary policy less effective, while central bank may be following expensive monetary policy.
6. **Less Bank Money:** In such countries monetary policy is also not successful because bank money is a small ratio of total money. As a result of which, central bank is incapable of controlling credit in an effective manner.
7. **Money not Deposited with bank:** Prosperous people do not deposit money with banks instead use them for jewellery, gold, real assets, speculative consumption etc. Such activities encourage inflationary pressures because they do not come under the control of monetary officer.

Task	Express your thoughts in relation to expansionary monetary policy.

11.9. Fiscal Policy

1. Meaning

Fiscal policy is meant for use of taxation or public expenditure by the government for stabilisation or growth. "By fiscal policy we refer to government actions affecting its receipts and expenditures which we ordinarily take as measured by the government's net receipts, its surplus or deficit."Government may balance undesirable changes in personal expenses and investment by anti-cyclical changes in public expenditure and taxes. **Arthur Smiths** has defined fical policy like this, "A policy under which

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the government uses its expenditure and revenue programmes to produce desirable effects and avoids undesirable effects on the national income, production and employment." Though the last objective of fiscal policy is long-term stabilisation of the economy, still this objective may be achieved only by taking care of economic ups and downs. In this context, **Otto Eckstein** has defined fiscal policy like this, "Changes in taxes and expenditures which aim at short run goals of full employment and price-level stability."

2. Objectives of Fiscal Policy

Below mentioned are the objectives of Fiscal Policy:

1. To attain and maintain full employment,
2. To keep the price level stable,
3. To stabilize the growth rate of the economy,
4. To maintain balance in the balance of Payment,
5. To increase the economic development of under developed countries.

3. Instruments of Fiscal Policy

By the medium of change in government expenditure and taxation fiscal policy strongly influences national income, employment, production and prices. Increase in public expenditure during depression increases total demand for goods and services and does a huge growth in income by the way of multiplier process, while the influence of reduction in taxes is that disposable income increases as a result of which people's consumption and investments increase. At the other side, during inflation decrease in public expenditure decreases total demand, national income, employment, production and prices whereas increase in taxes reduces disposable income and consequently reduces consumption and investment. In this way through a strategically combination of expenditure and taxation programmes government may control inflationary and deflationary pressures in the economy. Now we will discuss various sources of Fiscal policy.

4. Budgetary Policy: Contra-cyclical Fiscal Policy

Budget is an important source of fiscal policy. Budgetary policy controls the results and relations of receipts and expenditures of fiscal policies. Further we discuss those general budget policies, which are adopted for stabilising the economy:

(*i*) ***Budget Deficit Fiscal Policy under Depression:*** Deficit budget is an important measure to control depression. When government expenditure exceeds its receipts then in the stream of national income more than that quantity is put in as much has been taken out from it. Deficit expresses net expenditure of the government which increases the national income multiplier times of the net expenditure. If MPC is 2/3, multiplier will be 3 and if in government expenditure there is a net increase of ₹ 100 crores then it will increase

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the national income to ₹ 300 crores. In this way, budget deficit puts an expansionary effect on total demand, even if by fiscal process marginal tendencies are unchanged and disposable receipts are redistributed. Expansionary effect of the budget has been shown in Fig. 11.2 in non-linear form. C is the consumption function. C + I + G expresses consumption, investment and government expenditure (total expenditure function) before the presentation of budget. Assume that government expenditure G is increased in the economy. Consequently, total expenditure function shifts upwards to reach C + I + G'. Income increases from OY to become OY_1 where as equilibrium situation moves from E to E_1. In comparison to increase in government expenditure E_1B (= Δ G) increase in income $YY_1 + EA = E_1A$ is more. BA ($E_1A - E_1B$) expresses increase in consumption. In this way budget deficit is always expansionary because as compared to amount of actual government expenditure there is more increase in national income. In this method of budget deficit taxes are kept as it is.

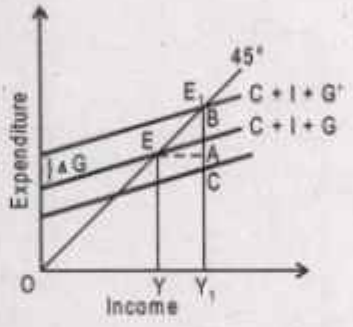

Fig. 11.2

Budget deficit may be obtained by doing reduction in taxes and without reducing government expenditure. Reduction in taxes leaves comparatively more disposable income in hands of the people and in this way increased consumption induces expenditure. As a result it further increases total demand, consumption income and employment. It has been clarified in Fig. 11.3 where C is the original consumption function. Assume that quantity ET is reduced taxes. By this consumption function will shift upwards and reach C' and from OY income will increase to become OY_1.

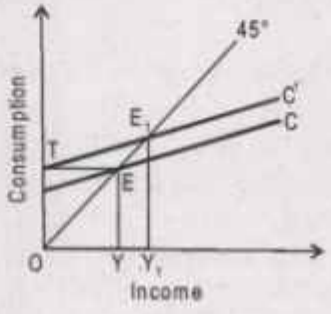

Fig. 11.3

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But reduction in taxes is not very expansionary from the path of increased consumption expenditure, because it may happen that tax relief is not spent on consumption and is saved. If business expectations are low, then it may happen that traders may also not invest much. For saving from such dangers what government need to do is that he along with reduction in taxes also follows the increased policy of government expenditure. Its multiplier effect will be much more in that situation when we assume that because of tax relief some consumption and investments also increase.

(*ii*) ***Surplus Budget Fiscal Policy Under Boom:*** There is a surplus in the budget when government expenditure exceeds the revenue. Policy of surplus budget is followed for controlling inflationary pressures inside the economy. It may happen by increase in taxation by decrease in government expenditure or by both. By it there will be a reduction in income and total demand, which (reduction) as a result of increased taxes will be equal to multiplier times of reduction in government and/or personal consumption expenditure. It may be made clear with the help of Fig. 11.2, where economy is in initial equilibrium condition at E_1.

Assume that there is a reduction of amount of ΔG in government expenditure by which total expenditure function shifts downwards to C + I + G. When E is the new balance situation which tells that as a result of reduction of E_1B in government expenditure income falls from OY_1 to OY. Reduction in income $Y_1Y = AE > E_1B$ which is the reduction in expenditure because in consumption also there is a reduction of BA.

When there is an increase in taxes then despite of government expenditure there may be surplus budget. Increased taxes reduce disposable income of the people and motivate reduction in consumption. Result is that there is a reduction in total demand, production, employment and income. It has been made clear in Fig. 11.4. Before levying tax, C is the consumption function. Assume that tax equivalent to ET is levied then consumption function will shift downwards to C_1. New equilibrium condition is E_1. Consequently, income falls from OY to OY_1.

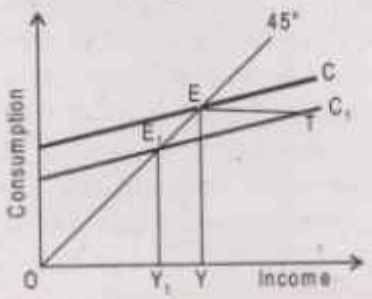

Fig. 11.4

Notes

(iii) *Balanced Budget Multiplier:* Another expansionary fiscal policy is Balanced Budget. In this policy, amount of increase in taxes and increase in government expenditure are the same. Its result is that net national income increases. Its reason is that reduction in consumption due to levy of tax is not equal to government expenditure.

5. Compensatory Fiscal Policy

Objective of compensatory fiscal policy is to compensate economy against unending trends towards inflation and deflation by adjusting public expenditure and taxes. That is why it becomes necessary for it that at any definite time instead of measures forever long-term lasting fiscal measures are adopted. When there are deflationary trends in the economy then government must reduce its expenditure through deficit budget and reduction in taxes. Doing so is necessary for compensating reduction in personal investment and for increasing effective demand, employment, production and income inside the economy. At the other side, when inflationary trends are there, the government must reduce its expenditure by making a surplus budget and increasing taxes so that economy may be made stable at full employment level. There are two ways of compensatory fiscal policy: (*i*) Built-in Stabilisers and (*ii*) Discretionary Action.

1. **Built-in Stabilisers:** Meaning of built-in stabilisers is that without any plan from government's side, adjustment of expenditures and taxes in the process of cyclical ups and downs inside the economy. Under this arrangement changes happen in the budget automatically that is why it is also called automatic technique of stabilisation. Following are the various automatic stabilisers—incorporated profit tax, income tax, production tax, survivor and unemployment insurance and unemployment relief payment. In form of sources of automatic stabilisation tax and expenditure are related to national income. On unchanged structure of tax rate being given, tax receipts, along with movements in national income, change directly, while government expenditure change inversely with changes in national income. When national income falls in downward phase of trade cycle, which is based on the percentage of national income, reduce them and as a result tax income reduces. Along with it, government expenditure on unemployment relief and social security benefits increase automatically. There will be an automatic loss in the budget which will stop deflationary trends. At the other side in the upwards phase of trade cycle when national income rises fast then on an increase in tax rates, tax receipts will increase automatically. Also government expenditure on unemployment relief and social security benefits will decrease on its own. These two forces will themselves build a surplus budget and in this way inflationary forces will be controlled themselves.

Notes

Merits

In form of fiscal measure, built-in stabilisers have many merits. First, when personal purchasing power falls then built-in stabilisers do the job of cushion for it and during deflationary conditions, they reduce the difficulties of the people. Second, they stop the national income and consumption level from falling at low level. Thirdly, in this measure budgetary changes are automatic and there is no delay in taking administrative decision. Fourth, automatic stabilisers minimise the wrong forecasts and mistakes of time of fiscal measures. Lastly, they unite the short-term and long-term fiscal policies.

Limitations

But in form of an automatic compensatory measure effectiveness of built-in stabiliser depends on the flexibility of tax receipts, level of taxes and on flexibility of public expenditure. As more will be the flexibility of tax receipts that much more powerful will be automatic stabilisers in controlling inflationary and deflationary trends. But flexibility of tax receipts is not so much that even in developed countries like America they may do the job of automatic stabiliser; secondly when level of taxes is low then during downswing in form of automatic stabiliser high flexibility of tax receipts also do not have much importance. Thirdly, built-in stabilisers after giving tax do not think over the secondary effects of trade-income stabilisers and consumption expenditure on trade expectations. Fourthly, this measure is silent about the stabilisation effects of local bodies, state governments and personal fields of the economy. Fifth, they cannot end trade cycles, they can only reduce their intensity. Sixth, their effects are no favourable from recession to recovery. That is why, economists have suggested that from discretionary fiscal policy of fiscal policy, built in stabilisers are substituted.

6. Discretionary Fiscal Policy

For discretionary fiscal policy there is need for bringing such thoughtful changes in the budget like changes in tax-rates or government expenditure or both. Generally, it takes three forms (*i*) change in taxes, when expenditure stays stable (*ii*) change in expenditure, when tax stays stable, (*iii*) change in tax and expenditure together.

First, when there is a deduction in taxes while no change is done in government expenditure, then there is an increase in disposable income of this business and domestic area. Personal expenditure increases by it. But increase in income depends on the fact in whose tax and to what extent deduction is done and do the tax payers consider this deduction as permanent or temporary. If those attaining profit from tax deduction are people of high-middle income group, then there will be an increase in total demand. If it is related to low income group, then there will be not much increase in their total income. If traders have not motivation to invest, then tax deduction will not motivate them to invest. At the end, if tax payers consider the tax reduction to be temporary then this policy will be less effective that is why this policy is more effective in controlling inflation by increasing taxes because by high

Notes

rates of taxes there will be a reduction in disposable income of people and businessmen, by which there will be a reduction in total demand. Secondly, for controlling deflationary trends, second method is more useful. With taxes remaining unchanged, if government increases its expenditure on goods and services then total demand will increase equal to increase in government expenditure. At the other side if government expenditure is reduced during inflation then it is not much effective, because trader expectations of the economy are of high trade of which there is no possibility to reduce effective demand. Third method is much more effective and better than the other two methods of stop inflationary and deflationary trends. For stopping inflation, taxes must be increased and government expenditure reduced. At the other side for facing depression, taxes may be reduced and government expenditure may be increased.

Limitations

Discretionary fiscal policy depends on right time and correct forecast. First, correct forecast is necessary to know that stage of the cycle through which the economy is passing. Only then it is possible that complete fiscal activity may be done. Wrong forecast may instead of slowing the cyclical ups and downs, may increase it. Actually, for correct forecasting, economics is not a complete science. As a result, fiscal action is always taken when in the trade cycle, turn points have arrived. Secondly, there are two time lags of public fiscal policy. First is "decision lag", which is related to the time that is taken in study of the problem and in taking the decision. Lag found in this process may be very long. Secondly, once the decision is taken then "application lag" is there. In it that expenditure is found which has been allocated for application of programme. In country like the U.S.A, it may take more than two years and in a country like U.K., more than a year. Thirdly, some public plans are so complex that with an objective to increase or decrease expenditure on them, it is not possible to make them slow or fast.

11.10. Summary

- In comparison to change in tax rates because of higher multiplier effect of government expenditure, in comparison to expenditure tax changes may be applied much faster. That is why for controlling cyclical ups and downs more emphasis is being laid on taxation in form of best fiscal measure. In this manner, when turn point of trade cycle is already on then discretionary fiscal policy gives power to built-in stabilisers, as is the experience of developed nations like USA.

11.11. Keywords

- **Fiscal Policy:** Financial policy.
- **Goals:** Objectives.

11.12. Review Questions

1. What do you understand by Fiscal policy? Write the difference between three main types of discretionary fiscal policy.
2. Discuss compensatory Fiscal Policy.
3. Do a critical analysis of automatic stabilisation.

Notes

Answers: Self Assessment

1. objectives	2. securities	3. (a)	4. (b)
5. (a)	6. (b)	7. True	8. False
9. True	10. False		

11.13. Further Readings

1. **Avasyaktaien of Macroeconomics**—*H.S Nath, Cyber Tech Publications, 2012.*
2. **Macroeconomics**— *S.K Chakravarty, Himalaya Publishing House, 2010.*
3. **Macroeconomics: Economic Growth, Fluctuations and Policies**— *Robert E. Hall and David H. Paipal, Vaina Books, 2010.*
4. **Macroeconomics: Ajay end Policies**—*H.L. Ahuja, S. Chand Publishers, 2010.*

Unit–12

Notes

IS-LM Analysis

Structure

12.1. Objectives

After studying this unit, students will be able to:

- Explain the derivation of IS Curve.
- Know the derivation of LM Curve.

12.2. Introduction

Now we'll analyse the simultaneous determination of equilibrium GDP interest rate. Besides equilibrium interest rate, equilibrium GDP presents a partial approach of complex economy equilibrium. Interest rate affects the investment level so to actual GDP level also. Similarly, GDP level affects the interest rate in the economy by the demand of money. When interest rate is increasing then on special rise in investment, an economy can't make a rise the at GDP level till diversified range. Similarly, interest rate can't be reduced till the limit of extent of increase in money supply because increase in money supply (by low interest rate and high investment) and high GDP make an increment in supply of money, which means the increment in interest rate. Therefore, the traditional/classical view is that interest rate is a real phenomenon and is determined by savings and investment only. And **J. M. Keynes** views is that it is only a monetary phenomenon and it is determined by supply and demand of money, both of these views are challenged. **J. R. Hicks** and **Hensen** have established a new approach by IS-LM Analysis, which integrates the real and monetary phenomenon both. The simultaneous determination of interest rate and actual GDP and the alternative derivation of AD curve is the corner stone of IS-LM Analysis. In the determination of Actual GDP and Interest rate, because J. R. Hicks and Hensen synthesise both the

real and monetary phenomenon, so their approach is called as **Hicks-Hensen Synthesis**. The equilibrium of IS-LM curves means the determination on the equilibrium level of actual GDP and equilibrium interest rate by equality between investment and saving and equality between supply and demand of money. This approach of interest determination is called as the Modern Theory of interest rate determination. Current unit explains how the IS and LM Curves are derived and how the balanced actual GDP and interest rate are determined. Besides it we also derive the aggregate demand curve from IS-LM analysis and will concentrate on the thing that how the shift in IS or LM brings the shift in aggregate demand curve.

Notes	Interest rate affects the investment level.

12.3. IS Curve and Its Derivation (Product Market Equilibrium)

The IS Curve shows that coincidence of interest rate and actual GDP which establishes the equality between saving (S) and investment (I). According to, **Lipsey** and **Chrystal "The IS Curve is the focus of interest rate and actual GDP that are consistent with equality between desired spending and output, or what is the same thing, injection and leakages. It is drawn for given value of the government expenditure, exports, and automatic consumption as well as forgiven tax rates and a given price level."** Therefore, the IS Curve or IS function indicates the commodity market equilibrium.

Two situations arise in derivation of IS Curve. In first situation, the relation between investment and interest rate is established by investment demand function and in second situation; we'll explain how the change in investment spending affects the actual GDP. On combining the interest rate and actual GDP, we'll establish the equilibrium in commodity market.

I. The Investment Demand Function

Relationship Between r and I

It means that there is an inverse relationship between investment and interest rate. The desired rate of investment will be low on the high interest rate, and will be high on the low interest rate. The working relationship between investment and interest rate can be written as following-

$$I = I_a - br, b > 0$$

[Here I: Investment; I_a: autonomous investment; r: interest rate; b: the responsiveness of investment spending from interest rate.]

The above investment function shows that the means of low interest rate is high investment or vice-versa.

In Fig. 12.1, II_1 is the investment demand curve, which shows the negative relationship between investment and interest rate. On the low interest rate 'Or_1', investment spending is 'OI_0' and on high interest rate 'Or', it is 'OI'. If there is any change in the autonomous component 'I_a' of investment, then

Notes

there is a shift in investment demand. Rise in 'I_a', rise in II_1 Rise in 'I_a' will shift the II_1 Curve towards right and the reduction in it (I_a) will shift the II_1 towards left.

Did You Know?	The change in investment spending affects the actual GDP by the change in investment spending.

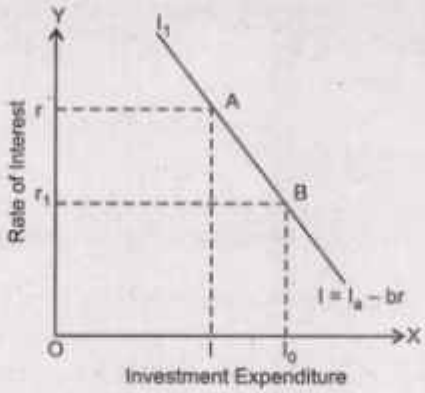

Fig. 12.1

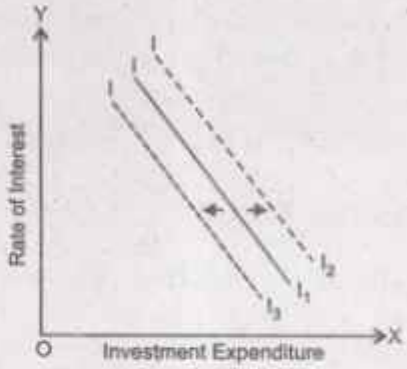

Fig. 12.2

Figure 12.2 shows that on the change in autonomous investment there is a shift in investment demand function. The rise in autonomous investment will convert the investment curve II_1 into II_2 on making a shift in it and the reduction in autonomous investment will convert the investment curve II_1 into II_3 on making a shift in it.

II. How Investment Affects Aggregate Expenditure and the Level of GDP when 'r' Changes?

Because of change in investment spending, there happens a change till the diversified range in total expenditure. According to Investment Multiplier Theory, if the interest rate remains constant then the change in I can become the cause of the change in Total Spending (AE) and GDP. But if interest rate (r) doesn't remain constant (As in IS-LM Model) then the process of investment multiplier would not be as easier. It is shown in Fig. 12.3 how the interest rate 'r' impacts on I and so impacts on total spending AE and the level of GDP.

The parts (A) and (B) of Fig. 12.3 show the relationship between equilibrium actual GDP and investment spending with the change in interest rate. Initial equilibrium is on point E where the rising in investment expenditure from I I to I_1I_1, the total expenditure in part A becomes AE_1 on shifting from AE in AE = Y (Part A) and S = I (Part B). According to it, new balanced GDP should be OY_1 where $AE_1 = Y$ and $S = I_1I_1$. But the rise in level of GDP increases the demand of money and so becomes a rise in 'r' in the situation of rise in interest rate, investment expenditure becomes low and so investment curve shifts from I_1I_1 to I_2I_2 towards backside. According to it, in part A, actual total expenditure on rising becomes AE_2 instead of AE_1. Actual GDP becomes OY_2 instead of OY_1. The high interest rate decreases the investment expenditure, which further decreases the total expenditure.

If interest rate falls then there will be an opposite reaction. Therefore, the change in interest rate, by the change in investment expenditure, affects actual GDP.

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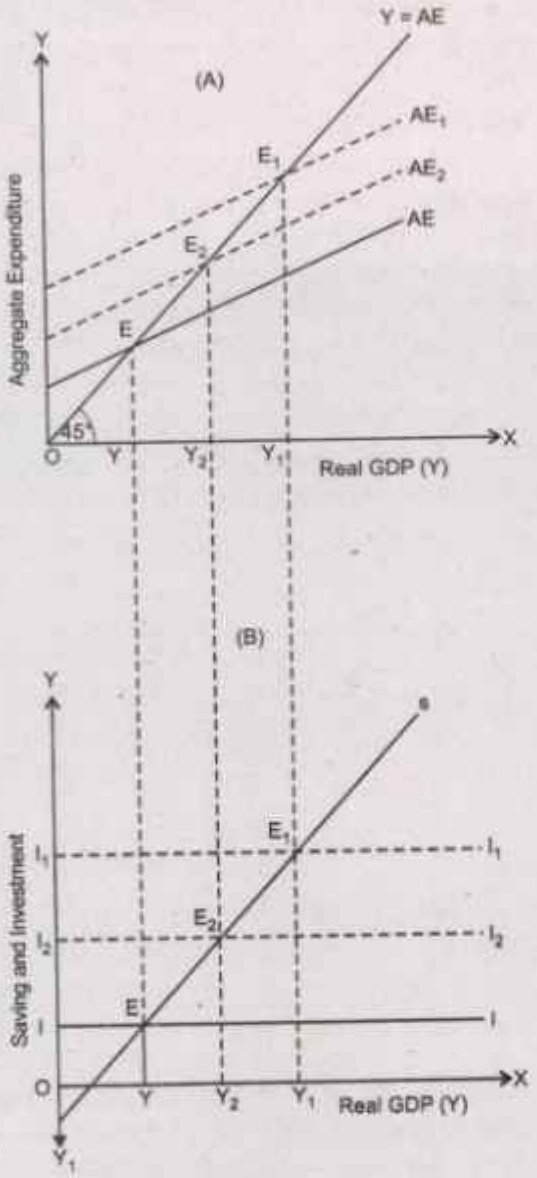

Fig. 12.3

Self Assessment

Fill in the blanks:

1. We also derive the ..... demand curve from IS-LM Curve.
2. Because of change in investment spending, there happens the ..... till the diversified range in total expenditure.

III. Relationship Between Different Levels of r and GDP on the One Hand and the Quality Between S and I on the Other: IS Curve

We see that the balanced level of GDP is analogous to every level of 'r' that tells the homogeneous equality as similar to saving (S) and investment (I).

Notes

You should be determinant that the work of high level of 'r' is the lower level of GDP and saving (S) and investment (I) is the analogous equality. On the other hand, the mean of the lower level of 'r' is the high level of GDP (Which happens by the high level of AE and I) and being the analogous equality between S and I.

In Fig. 12.4, the IS curve is shown which is derived from Fig. 12.4 (A). The IS curve shows that combination of actual GDP and interest rate where the desired expenditures of economy are equal to total product. On the interest rate 'Or' given in Part-B, balanced actual GDP level is OY which is determined on making the line AE in part A and aggregate product line equal. This combination (OY, Or) of actual GDP and interest rate is shown by point A in part B. similarly point B is the combination of OY_1 actual GDP level and Or_1 interest rate in part B. The actual GDP level on Or_2 interest rate is OY_2, which is shown by point C in part B. We get the IS Curve on joining all these combination points (as A, B, C) of actual GDP and interest rate. There every point on IS Curve shows the equilibrium in commodity market.

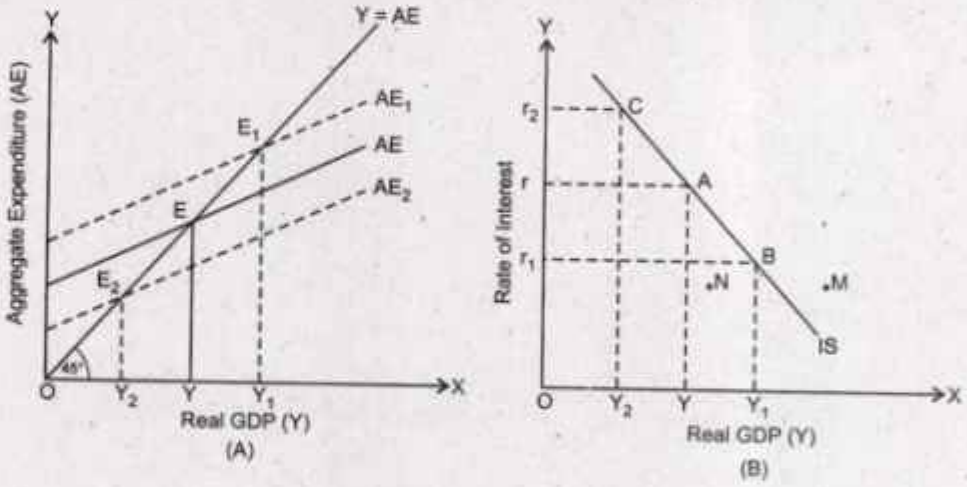

Fig. 12.4

The points situated on the right or left of IS curve, show the imbalance in commodity market. If we take point M (In Fig. 12.4B) it is right from IS curve. It is known from this point that there is imbalance between AE and Y in part A. So total production is greater than total expenditure or the saving is greater than investment ($Y > AE, \Rightarrow S > I$). Similarly, any point on left of IS Curve, as point N, indicates that combination of GDP and Interest rate where total expenditure is greater than total production and investment greater than saving ($AE > Y, \Rightarrow I > S$).

Slope of IS Curve

The IS Curve is derived from the combination of actual GDP level and interest rate. Its slope is downward from left to right. It means that high interest rate decreases the actual GDP because of less investment expenditure and low interest rate increases the actual GDP because of high investment expenditure. Being the flatter or steeper IS Curve depends on this thing how

sensitive investment from the change in interest rate and how much is the price of multiplier. If investment is more sensitive from specified change of interest rate then the IS Curve will be flatter. And if investment is less sensitive from a specified change of interest rate then the IS Curve will be steeper. The price of multiplier also determines to be steeper or flatter of IS Curve. In the situation of high multiplier price, because of an specified change in investment, the senstivity is larger (on a given interest rate). Because of this AE Curve is flatter which is responsible for being the IS Curve flatter. In the situation of being this multiplier price lesser, the AE Curve is steeper because of which the IS Curve is also respectively steeper.

In Fig. 12.5, the IS Curve is shown as negative sloped. The IS Curve is flatter for the high price of multiplier or interest rate sensitive investment as IS_1. The IS Curve is steeper for the low price of multiplier or insensitive investment as IS_2.

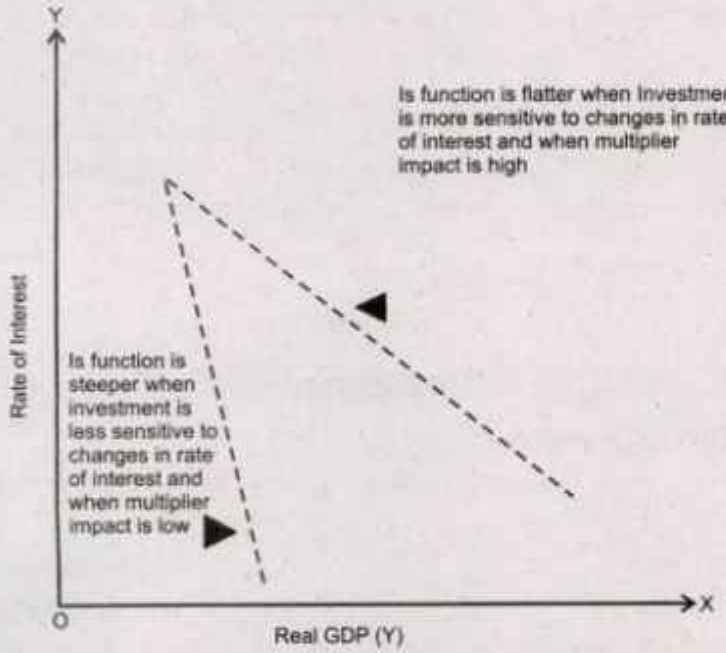

Fig. 12.5

Two parameters impacting slope of IS Curve

(*i*) **Sensitivity of I to r :** The senstivity of I to r is as higher i.e., the responsiveness of investment towards the change in interest rate the IS Curve will be as flatter and vice-versa.

(*ii*) **Value of Multiplier :** The value of multiplier is as higher i.e., because of rise in investment there is as rise in Aggregate Expenditure.

Shift in IS Curve

The shift in IS Curve happens because of the change in any analogous component of total expenditure. In two sided economy, it can happen because of change in analogous consumption expenditure and analogous investment expenditure. The rise in analogous investment expenditure shifts the IS Curve

Notes

towards left. Its cause is easy. The rise in analogous investment expenditure shifts the AE Curve parallely upward. The upward shift of AE Curve shifts the IS Curve towards right.

Part B of Fig. 12.6 shows that IS Curve becomes IS_1 and IS_2 on shifting from IS. The rise in exogenous expenditure (the analogous investment given by the government) shifts line AE (in part A) upward on AE_1. Consequently, (On the constant interest rate Or) the IS Curve becomes IS_1 on being shifted from IS (in part B). On reducing the analogous expenditure, the AE Curve becomes AE_2 on being shifted downward from AE (in part A). Consequently, the IS Curve becomes IS_2 on being shifted backward from IS (in part B).

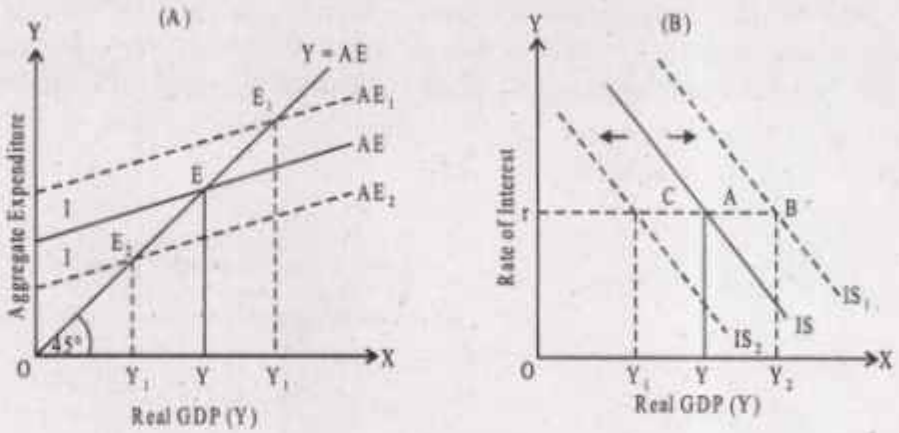

Fig. 12.6

Self Assessment

Multiple Choice Questions:

3. If there is a change in analogous component Ia of investment, then there will be a/an ..... in investment demand curve.
   (*a*) shift (*b*) inclination
   (*c*) change (*d*) none of these
4. When investment impacts Aggregate Expenditure and the level of ..... then 'r' happens to change.
   (*a*) PGP (*b*) GDP
   (*c*) ADP (*d*) Nome of these
5. If interest rate (r) doesn't remain constant (As in IS-LM Model) then the process of investment multiplier would not be as ..... .
   (*a*) easier (*b*) harder
   (*c*) variable (*d*) none of these
6. The IS Curve is ..... from the combination of actual GDP level and interest rate.
   (*a*) born (*b*) derived
   (*c*) established (*d*) none of these

12.4. LM Curve and Its Derivation (Money Market Equilibrium)

Notes

The LM Curve shows the different combinations of actual GDP (Y) and interest rate (r) which establishes the equality between supply and demand of money. Hence, it shows the relationship between actual GDP and market rate of interest. According to **Lipsey** and **Chrystal. "The LM Curve plots combinations of GDP and the interest rate, for a given money supply and given price level, that are consistant with the equality of money demand and money supply."**

The derivation of LM Curve makes the study of all three relationships mandatory: (*i*) We establish the relationship between money demand and interest rate. (*ii*) We explain this thing how the change in GDP by the change in demand of money impacts the interest rate. (*iii*) On one hand, we establish the relationship between the different values of 'r' and GDP and on the other hand, establish the equality between demand of money and supply of money.

Demand for money and interest rate: The purport from demand for money is the demand of real balance by the people. Real balances mean money balance or normal balance which are combined with the changes occurring in the prices. So when price level becomes double then people keep the money in double quantity with themselves firstly so that their real balances (or purchasing power) remain constant. The demand of real balances in economy depends on two facts: (*i*) The GDP level and (*ii*) Interest rate. The GDP level is the clear determinor of real balances, because people keep the money to themselves for purchasing the goods and services. The high level of GDP means the high demand of real balances and *vice-versa*. The meaning of interest rate is the opportunity cost of keeping the money with oneself. Because when you keep a fixed amount of money in cash form then you have to be deprived from that income got in interest form which you could get if you had invested this money in bonds purchase. In other words, the demand of cash balances is inversely related to interest rate (r) on a fixed GDP level.

The impact of 'r' and GDP in the reference of real balances is shown in Fig. 12.7.

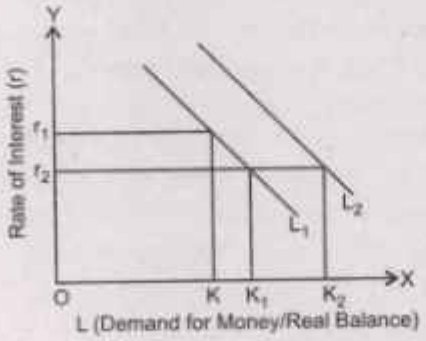

Fig. 12.7

The line L_1 shows that demand of money is inversely related to 'r'. On a fixed GDP level the high 'r' means the low demand of money (and vice-versa). Therefore when r = Or_1 then the demand of money = OK and when

Notes

'r' becomes Or_2 on reducing then the demand of money becomes OK_1 on increasing. When 'r' remains constant, and there is a rise in GDP, then L_1 – line becomes L_2 on being shifted, it means that the rise in demand of money on a fixed level of 'r'. So though 'r' = Or_2 then also demand of money becomes OK_2 on increasing from OK_1 then GDP increases as shown by the shift of line L from L_1 to L_2.

(I) Impact of GDP Changes on Interest Rates

Now we have known that the changes in actual GDP that are the determination of interest rate done by the demand and supply of money. The fact is that GDP level impacts on the demand of money and demand of money affects the interest rate, the contained GDP of all these is the found of situation of inter-relation between interest rate and demand of money. In figure 12.8, the working of this inter-relation is shown.

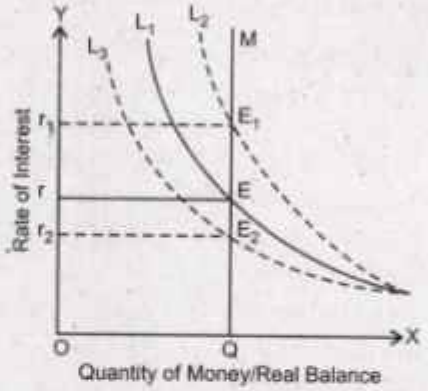

Fig. 12.8

Note: The supply of money (Line M) is shown constant because its determination is independently done by monetary officials. It shows the real balances in an economy. It is based on this recognition that price level remains constant.

The balanced interest rate (Or) is determined on a fixed demand of money (L) and supply of money (M) on that point where L = M.

The demand rises with the rise in GDP, consequently, the demand of money curve becomes L_2 on being shifted from L_1. Consequently, the interest rate becomes Or_1 on incresing from Or. Similarly, if there is reduction in GDP, then there will also reduction in demand of money, because of which the demand of money curve bacomes L_3 on being shifted backward from L_1. Consequently, the interest rate becomes Or_2 on decreasing from Or. So the change in GDP, becomes the cause of change in interest rate by the change in demand of money.

Here the considerable thing is that the impact of change in GDP occurs only on the transaction demand of money not on speculative demand of money. We know that there is not any direct relationship between transaction demand of money and 'r'; then why 'r' is being affected from the change in GDP? The fact for this is so: when transaction demand of money rises (because

of rise in GDP) then from where does the money come from? Because it is our recognition that supply of money remains constant (as shown in the vertical straight line in the figure). The pressure of transaction demand of money makes a pressure on speculative investment of money. To fulfil the increasing transaction demand people sell their assets/bonds. The rise in sale of bonds falls their prices, the interest rate rises accordingly. So rise in GDP – **rise in the demand of money for transaction - the pressure of selling assets/bonds, so that the cash balances could be increased for transaction purpose – fall in price of bonds – rise in interest rate.**

(II) Relationship Between Different Levels of r and GDP on the One Hand and Equality Between L and M on the Other: LM Curve

Because of change in real GDP there occurs a change in demand of money and interest rate, for each level of GDP the interest rate should be such which brings the equality in demand of money and supply of money, on considering that price level and wealth level remain constant. On joining the different combinations of interest rate and actual GDP, we get the LM Curve. Figure 12.9 shows the derivation/getting of LM curve from money market balance.

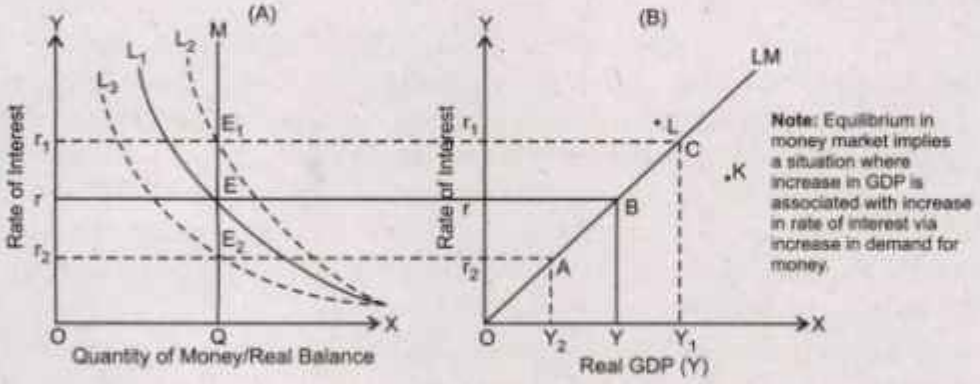

Fig. 12.9

Part (A) of Fig. 12.9 shows the money market balance of different levels of GDP. The high level of L (demand of money) is analogous to high level of GDP. Part (B) joins the different GDP levels and interest rates which keeps the equality between demand of money and supply of money. Part (A) of Fig. 12.9 shows the money market balance of different levels of GDP. The high level of Md is because of high level of GDP. Part (B) joins the different GDP levels and interest rate and gives LM Curve. On OY level of GDP (in part B), the interest rate is Or where $L_1 = M$ (Part A). The combination of OY level of GDP and Or interest rate gives the point B in part B. In part B, as the GDP level rises from OY to OY_1, there is rise in demand of money which increases money curve upward from L_1 to L_2 and the rate of similar interest (in part A) becomes Or_1 on increasing from Or. The combination of actual GDP OY_1 and interest rate Or_1 gives point C in part B. Similarly, as the actual GDP level falls from OY to OY_2, then the shifting downward of money curve

Notes

i.e., on being L_1 to L_2, the interest rate becomes Or_2 on reducing from Or. The actual GDP OY_2 and interest rate Or_2 give point A in part B. On joining the A, B, C etc. actual GDP and these combinations of interest we (in part B) get the LM Curve. Therefore, this curve shows the combination of GDP and interest rates which makes the demand of money and supply of money equal with each other. Its implication is the balance in money market.

The money market will be imbalanced when demand of money is not equal to supply of money. Such points are situated either the right or left to LM Curve. For example, in Fig. 12.9 (B), point K shows that combination of actual GDP and interest rate where the demand of money is greater than supply of money, (L > M). Similarly, in Fig. 12.9 (A), point L which is situated on the left of LM Curve, shows that combination of actual GDP and interest rate where the supply of money is greater than demand of money, (M > L). Therefore, any point on right of LM Curve shows the imbalance in that money market where demand of money, is greater than supply of money and any point on left of LM Curve shows the imbalance in that money market where demand of money, is greater than supply of money and any point on left of LM Curve shows the imbalance in that money market where supply of money, is greater than demand of money.

Slope of LM Curve

The slope of LM Curve is upward from left to right which shows the positive relationship between actual GDP and interest rate. The meaning of high level of actual GDP is the high interest rate and the meaning of low level of actual GDP is the low interest rate. As the GDP level rises demand of money increases. On given supply of money, the high demand GDP money means the high interest rate. With the fall of actual GDP, interest rate falls. Low GDP means low demand of money. If supply of money is given, then the low demand of money means low interest rate.

The steepness and flatness of LM Curve depends on the senstivity of money demand from the change of actual GDP and the senstivity of interest rate because of change in demand of money. If the proportion of demand of money is greater than the change in actual GDP, then LM Curve should be steeper, and if the proportion of demand of money is less than the change in actual GDP, then LM Curve should be flatter. If the interest rate responsiveness is less than change in demand of money, then LM Curve should be steeper and if is greater then LM Curve should be flatter.

In Fig. 12.10, the related steepness and flatness of LM Curve is shown. LM_1 Curve is comparatively steeper in comparison to LM_2 Curve and LM_2 Curve is comparatively flatter. In the case of LM_1 Curve, money demand is very sensitive from change in actual GDP and the interest rate is less sensitive from the change in demand of money. In the case of LM_2 Curve, money demand is less sensitive from change in actual GDP and is more sensitive from the change in interest rate.

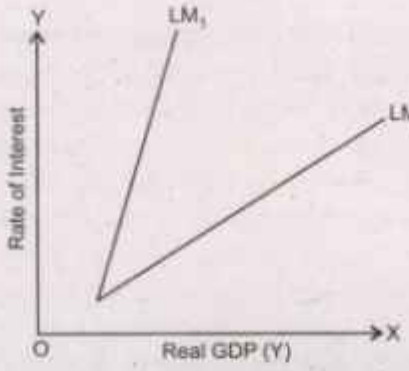

Fig. 12.10

Task	Express your view about IS Curve and its derivation.

Shift in LM Curve

It is considered while tracing the LM Curve that price level and supply remain constant. If any one of these consideration is removed then there will be a shift in LM Curve. We concentrate on supply of money. We'll want to see how LM Curve shifts on the rise or fall in supply of money. It is shown in Fig. 12.11 (A and B).

Two parameters affecting slope of LM Curve

1. **The sensitivity of money demand for the change in GDP:** The sensitivity of money demand for the change in GDP will be as higher; LM line will be as steeper and *vice-versa*. Because the meaning of more sensitivity of money demand for the change in GDP is the more shift of L Curve towards right. Its mean is the steepness of LM line and the more rise in r because of a definite change in GDP.

Note: Here the implication of more sensitivity for the changes in GDP is the situation of Marginal Propensity to Consume – MPC, because the demand of money rises for the deals of transaction on the rising in GDP not for speculative purpose.

2. **The sensitivity of money–demand for changes in 'r':** The sensitivity of money demand for changes in 'r' means the slope of L curve. Clearly, the slope of L Curve affects the slope of LM Curve. The sensitivity of money demand for changes in 'r' is as larger the L Curve will be as flatter. L-Curve is as much flatter as low change in 'r' is there; for any horizontal shift of L curve. (Because of changes in GDP, no doubt, as low changes in 'r' LM Curve will be as flatter.) In brief, as higher will be the sensitivity of money demand for changes in 'r' the LM Curve will be as flatter and *vice versa*.

Note: About the slope of L curve money demand is the demand of money for speculative purpose because only for speculative purpose the demand of money is directly related to r, not for the deals of transaction demands.

Notes

In part (A) of Fig. 12.11, the initial balance of money market is on point E, where the supply of real balances is equal to demand of real balances. Point E* similar to point E in part (A), shows the balance of money market which is from a fixed level of the balanced interest rate r_1 and GDP ($= y_1$). When supply of money raises then line M shifts from M_1 to M_2. On being other things constant it means the fall of the balanced interest rate from r_1 to r_2. It is such situation where the low balanced interest rate is found and which is similar as that level of GDP. The part B is shown by point E in this situation. Accordingly, LM Curve shifts towards right (LM_1 to LM_2) so that could pass through point E. The rise in money supply **creates such situation where, on each level of GDP, lower interest rate is circulated in the market which is shown as the right shift of LM Curve.** Similarly, when there is a fall in money supply and line M shifts towards left, then the interest rate should be increased according to each level of GDP, i.e., the left shift of LM Curve.

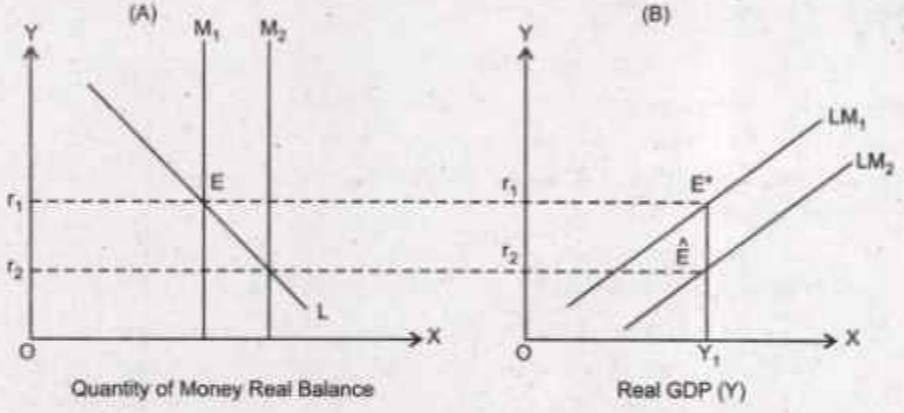

Fig. 12.11

Self Assessment

State whether the following sentences are True or False:

7. We establish the relationship between money demand and interest rate.
8. The changes in actual GDP impact on the demand of money.
9. The demand of money rises on rise in GDP.
10. There becomes no change in demand of money and interest rate because of change in GDP.

12.5. Summary

- Current unit explains how the IS and LM Curves are derived and how the balanced actual GDP and interest rate are determined. Beside it we also derive the Aggregate Demand Curve from IS-LM Analysis and will concentrate on the thing that how the shift in IS or LM brings the shift in Aggregate Demand Curve.

12.6. Keywords

- **Derivation:** origin and growth.
- **Equilibrium:** Communize, Balance.

Notes

12.7. Review Questions

1. Describe the IS Curve and its Derivation.
2. Define the LM Curve and its Derivation.

Answers: Self Assessment

1. aggregate	2. change	3. (a)	4. (b)
5. (a)	6. (b)	7. True	8. True
9. True	10. False.		

12.8. Further Readings

1. **Macroeconomics**— *S.K. Chakravarti, Himalaya Publishing House, 2010.*
2. **Macroeconomics: Theory and Policy**— *H. L. Ahuja, S. Chand Publishers, 2010.*
3. **Macroeconomics**— *Mohan Srivastava, DND Publications, 2010.*

Unit–13

Notes

Simultaneous Equilibrium in Product and Money Market

Structure

13.1. Objectives

After studying this unit, students will be able to:

- Know the Simultaneous Equilibrium in Product and Money Market.
- Study 'How would equilibrium be achieved'.

13.2. Introduction

An economy can come in equilibrium from non-equilibrium by **Automatic Adjustment Process.** Adjustment process can bring the change in actual GDP or interest rate or in both. There can be either excess demand for goods or excess demand for money or excess supply for goods or excess supply for money or excess for both on any imbalance point.

13.3. Simultaneous Equilibrium in Product and Money Market

On equalizing the IS and LM functions, the simultaneous equilibrium in both the product and money market is found. According to the equilibrium in product market, the IS function shows the different coincidences of actual GDP and interest rate (r). According to the equilibrium in money market, the LM function shows the different coincidences of actual GDP and interest rate (r). The Simultaneous Equilibrium in both the product and money market is found on point E in Fig. 13.1 where IS Curve is intersecting the LM Curve. In other words, the equality between the IS and LM Curves show that one coincidence of actual GDP and interest rate which clear both the product market and money. OY income and Or interest rate is that coincidence which

divide the IS and LM functions. The equilibrium between IS and LM curves shows the simultaneous equilibrium in product and money market.

Notes	On equalizing the IS and LM functions, we can get the simultaneous equilibrium in both the product and money market.

13.3.1 Disequilibrium

Except point E, not any point shows the equilibrium in product market or money market or both. All the points like A, B (except point E where IS = LM) on IS curve in Fig. 13.2 show the equilibrium in product market but disequilibrium in money market. All the points as A, B show those different coincidences of interest rates and actual GDP which equalize the total expenditure and total product or saving and investment. Similarly, the points as M, N (except point E where IS = LM) on LM curve in Fig. 13.2 show the equilibrium in money market but disequilibrium in product market. All the points on LM curve show those different coincidences of interest rates and actual GDP which equalize the demand for money and supply of money. Which are neither situated on LM Curve nor on IS Curve, they indicate the disequilibrium in both the product and money market.

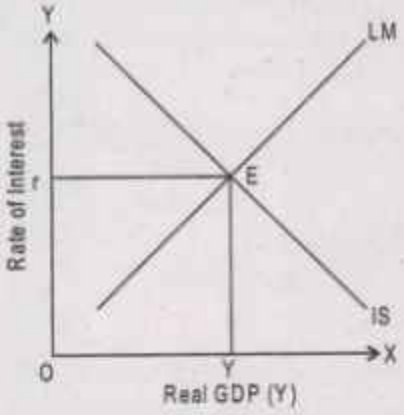

Fig. 13.1

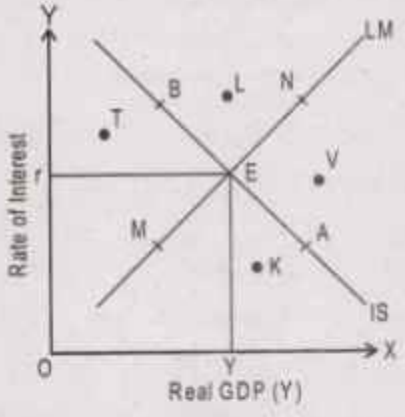

Fig. 13.2

Assume, if we take point T, which is situated on the left of IS curve, this point T shows that one coincidence of actual GDP and interest rate in which total expenditure is more than total product, which means that the investment is more than saving (AE > Y, I > S). Therefore, any point on left of IS curve shows that AE > Y and I > S. The point on right of IS curve (as V) shows those coincidences of actual GDP and interest rate where total production is more that total expenditure or more than investment (Y > AE, ⇒ S > I). Therefore, any point on right of LM curve (as K) shows those coincidences of actual GDP and interest rate where money demand is more than money supply (L > M). Similarly, any point on left of LM Curve (as L) shows those coincidences of actual GDP and interest rate where money supply is more than demand (M > L). Therefore, all those points which are not situated on IS or LM Curve, show the disequilibrium in either product market or money market or both.

Did You Know?	An economy can come in equilibrium from non-equilibrium by Automatic Adjustment Process.

Notes

Self Assessment

Fill in the blanks:

1. Adjustment process can bring the ..... in actual GDP or interest rate or in both.
2. Investment expenditure will decrease which means that the many times ..... in level.

13.4. How would Equilibrium be Achieved?

An economy can come in equilibrium from non-equilibrium by **Automatic Adjustment Process**. Adjustment process can bring the change in actual GDP or interest rate or in both. There can be either excess demand for goods or excess demand for money or excess supply for goods or excess supply for money or excess for both on any imbalance point. The excess demand for product increases the GDP level and deficient demand reduces the GDP. Similarly, the excess demand for money increases the interest rate and deficient demand for money reduces the interest rate. The effect of the change in interest rate on actual GDP brings the economy back from disequilibrium in equilibrium.

Self Assessment

Multiple Choice Questions:

3. The ..... will increase because of investment multiplier.
   (*a*) income (*b*) expenditure
   (*c*) profit (*d*) loss
4. The high level of income means high ..... .
   (*a*) demand (*b*) money demand
   (*c*) money (*d*) profit
5. The excess demand of product increases the ..... .
   (*a*) GDP level (*b*) PDP level
   (*c*) ADP level (*d*) CD level
6. The equilibrium between IS and LM curves shows the simultaneous ..... in Product and Money Market.
   (*a*) equilibrium (*b*) disequilibrium
   (*c*) profit (*d*) loss

In Fig. 13.3, the simultaneous equilibrium is shown on point E_1 where the money market and product market meet at this point. Assume that current income is Y_1 instead of Y_2. Its meaning is such a situation in which demand of money has reduced and the balanced interest (r_2) rate in money market is on lower level which is similar to point E_2 on LM Curve. Now as interest

rate has reduced the plan to more investment in an economy will be made. There will be rise in income because of the process of investment multiplier. Now economy will be shifted to E_3 and income will be Y_3 on increasing. But the high level of income means the high money demand and accordingly the found of high balanced interest rate in money market. Accordingly, investment expenditure will reduce which means many times fall in this level. This process of arrangement will be go on until the economy doesn't reach till its initial equilibrium point E_1, where product market and money market are balanced simultaneously i.e., the equilibrium level of r_1 interest rate and that of Y_2 income.

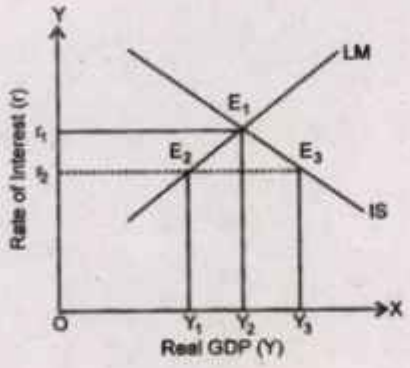

Fig. 13.3

13.4.1 Shift in the IS and LM Curve and Change in Equilibrium

The change in equilibrium of real and monetary fields will then happen when there will be a shift in IS Curve or LM Curve or both. As we have shown previously that the IS Curve shifts towards right because of rise in autonomous components of total expenditure. The IS Curve shifts towards left because of fall in autonomous components of total expenditure. If LM Curve is given, then high equilibrium comes from the coincidence of actual GDP and interest rate because of right shift of IS curve. The low equilibrium comes from the coincidence of actual GDP and interest rate because of left shift of IS Curve. The LM Curve shifts towards right because of rise in money supply and towards left because of reduction in money supply. Because of right shift of LM curve on given IS Curve, the actual GDP rises and interest rate decreases and because of left shift of LM Curve, the actual GDP reduces and interest rate rises. Figure 13.4 (A) shows that the actual GDP and interest rate change because of shift in IS curve. Initial Equilibrium is shown on point E where IS = LM. As the investment expenditure increases, IS Curve becomes IS_1 on shifting. New equilibrium point is on E_1. Similar to the equilibrium point E_1, the actual GDP and interest rates are OY_1 and Or_1 respectively which are more than initial actual GDP and interest rate. On being the autonomous investment low IS Curve becomes IS_2 from IS on shifting. Equilibrium also becomes E_2 on being shifted from E. Similar to this, the actual GDP level and interest rates are OY_2 and Or_2 respectively which are less than initial actual GDP and interest rate.

Task	Express your views on 'simultaneous equilibrium in product and money'.

Notes

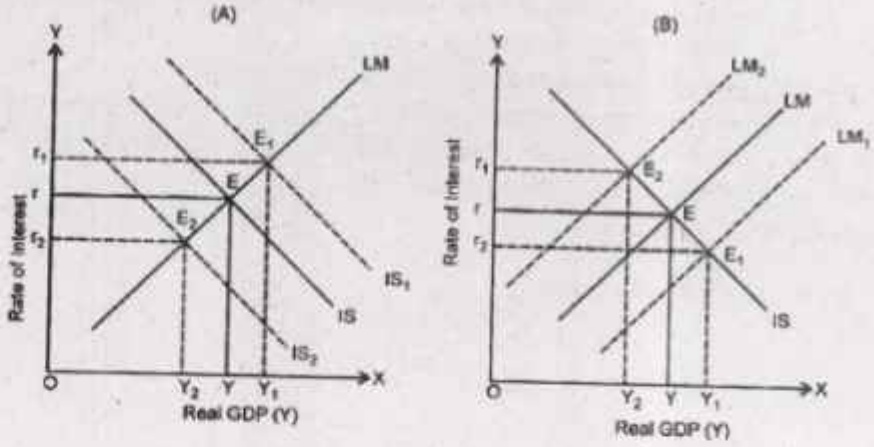

Fig. 13.4

Figure 13.4 (B) shows that how the shift in LM Curve affects the actual GDP and interest rate. Initial equilibrium is on point E. On rising in the money supply; LM Curve becomes LM_1 on shifting. New equilibrium point is E_1 which shows the high level of GDP and low level of interest rate equal to OY_1 and Or_2 respectively. On being money supply lesser; LM Curve becomes LM_2 on shifting. Equilibrium point comes on E_2 on shifting which shows the lower level of GDP and high level of interest rate equal to OY_2 and Or_1 respectively.

Self Assessment

State whether the following statements are True or False:

7. If LM curve is given, then high equilibrium comes from the coincidence of actual GDP and interest rate because of right shift of IS Curve.
8. Because of right shift of LM Curve on given IS Curve, the actual GDP rise.
9. An economy can come in equilibrium from disequilibrium by Automatic Adjustment Process.
10. Adjustment process can bring the change in actual GDP or interest rate or in both.

13.5. Summary

- The change in equilibrium of real and monetary fields will then happen when there will be a shift in IS Curve or LM Curve or in both. As we have shown previously that the IS Curve shifts towards right because of rise in autonomous components of total expenditure. The IS curve shifts towards left because of fall in autonomous components of total expenditure.

13.6. Keywords

- **Excess Supply:** More Supply.
- **Excess Demand:** More of Demand.

13.7. Review Questions

1. Discuss the Simultaneous Equilibrium in Product and Money Market.
2. Write a comment on 'How would equilibrium be achieved?'.

Answers: Self Assessment

1. change	2. fall	3. (a)	4. (b)
5. (a)	6. (a)	7. True	8. True
9. True	10. True		

13.8. Further Readings

1. **Macroeconomics**— *S.K. Chakravarti, Himalaya Publishing House, 2010.*
2. **Macroeconomics: Economic Growth, Fluctuations and Policy**— *Robert E. Hall and David H. paipal, Vaina Books 2010.*
3. **Macroeconomics: Theory and Policy**— *H. L. Ahuja, S. Chand Publishers, 2010.*
4. **Necessity of Macroeconomics**— *H. S. Nath, Cyber Tech Publications, 2012.*

Unit–14

Notes

Effect of Monetary Policies under Different Cases in IS-LM Framework

Structure

14.1. Objectives

After studying this unit, students will be able to:

- Know the Derivation of Aggregate Demand Curve from IS-LM Model.
- Study the change in Price Level.

14.2. Introduction

On the given equilibrium between IS and LM, if there is rise in price level, LM Curve shifts towards left and there is fall in price level, LM Curve shifts towards right. Its reason is that real money supply decreases from the rise in price level. Due to decrease in money supply, LM Curve shifts towards left. On shifting the LM Curve towards left, there comes a barrier in the initial equilibrium of real and monetary fields.

14.3. Derivation of Aggregate Demand Curve from IS-LM Model

We had told in previous unit that the Aggregate Demand Curve is found from the joining of coincidences of actual GDP and price level. Its slope is downward which means that the inverse relationship between price level and actual GDP. The IS-LM Model presents an alternative technique of derivation of AD Curve. It becomes possible only then if we allow the effect of change in price level on LM Curve. On the given equilibrium between IS and LM, if there is rise in price level, LM Curve shifts towards left and if there is fall in price level, LM Curve shifts towards right. Its reason is that real money

supply decreases from the rise in price level. Due to decrease in money supply, LM Curve shifts towards left. On shifting the LM Curve towards left, there comes a barrier in the initial equilibrium of real and monetary fields. A new equilibrium is found from the lower level of GDP and higher level of interest rate. Similarly, because of right side shifting of LM Curve from the fall in price level, with the higher level of GDP and lower interest rate, a new equilibrium is established. If we combine the different price levels and actual GDP then we get the AD Curve. The AD curve derived from IS-LM Equilibrium is shown in Fig. 14.1

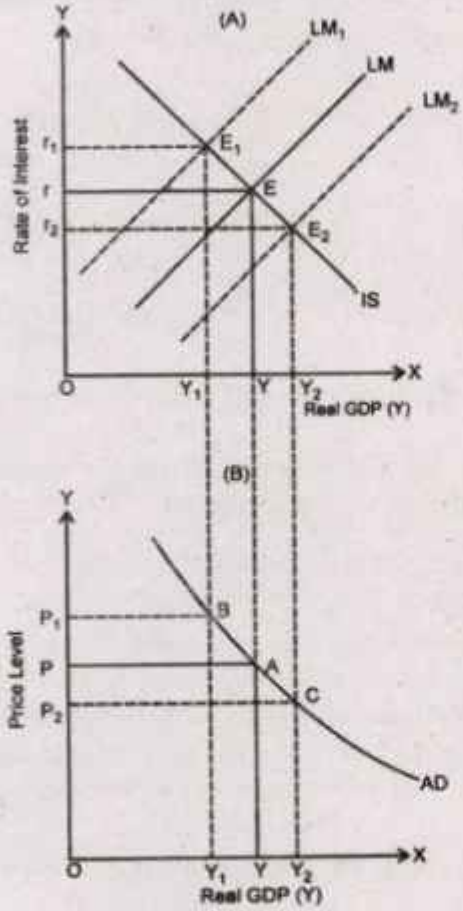

Fig. 14.1

Notes	The Aggregate Demand Curve is found from the joining of coincidences of actual GDP and Price level.

In Fig. 14.1 (A), the initial equilibrium in money and product market is shown on point E where IS curve intersects the LM Curve. According to it, the balanced actual GDP level is OY and interest rate is Or. According to OY actual GDP the price level is OP which is shown in part (B) of Fig. 14.1 by point A. As there is a rise in price level, LM Curve becomes LM_1 on being shifted. New equilibrium point is E_1 where IS curve cuts LM Curve. According to new equilibrium lower actual GDP is equal to OY_1 and higher

Notes

interest rate is equal to Or_1. Lower GDP (= OY_1) and higher price level OP_1 are shown by point B in the part (B) in figure. With the reduction in price level, LM Curve becomes LM_2 on being shifted according to which higher actual GDP is equal to OY_2 and interest rate is equal to Or_2. The coincidence of higher actual GDP (= OY_2) and lower price level OP_2 is shown by point C in the part (B) in figure. On joining A, B and C points, we get the AD Curve, which is downward sloped, and is inverse related to price level.

The slope of AD Curve depends on the slopes of IS and LM Curves which further depends on the interest rate, the sensitivity of investment from the change in interest rate, coefficient multiplier and the sensitivity of money demand from the change in actual GDP.

Did You Know?	A new equilibrium is found from the lower level of GDP and higher level of interest rate.

Self Assessment

Fill in the blanks:

1. Due to decrease in money supply low, LM Curve shifts towards ..... .
2. The IS-LM Model presents an ..... of derivation of A.D. curve.

14.4. What Happens if there is Autonomous Change in Money Supply, Independent of Change in Price Level?

The purpose with autonomous change in independent money supply from the change in price level is from that situation in which supply of money increases or decreases on the circulated price level. In such a situation, according to increase or decrease in money supply, LM Curve will shift towards right or left respectively. But price level remains constant, AD will shift on shifting of LM Curve: AD will shift towards right on right shifting of LM Curve (because of rise in money supply, on price level remaining constant): AD will shift towards left on left shifting of LM Curve (because of fall in money supply, on price level remaining constant). These situations are shown in Fig. 14.2.

Self Assessment

Multiple Choice Questions:

3. If different price levels and actual GDP are joined, then we get the ..... .
   (*a*) AD Curve (*b*) GDP Curve
   (*c*) CD Curve (*d*) None of these
4. A/An ..... is found from the joining of lower level of actual GDP and the higher level of interest rate.
   (*a*) equilibrium (*b*) new equilibrium
   (*c*) eisequilibrium (*d*) none of these

5. On shifting the LM curve towards left, there comes a/an ..... in the initial equilibrium of real and monetary fields.
   (*a*) barrier (*b*) interest
   (*c*) price (*d*) none of these
6. The ..... is found from the joining of coincidences of actual GDP and price level.
   (*a*) curve
   (*b*) aggregate demand curve
   (*c*) demand curve
   (*d*) none of these

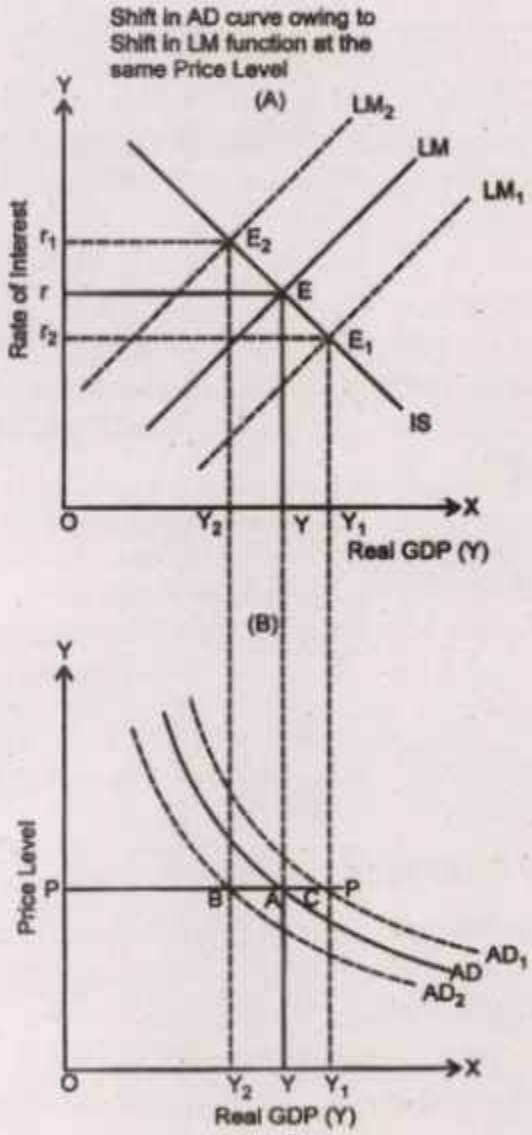

Fig. 14.2

Notes	Express your views about derivation of Aggregate Demand Curve from IS-LM Model.

Notes

From the initial equilibrium point E, the shifting of LM curve to LM_1 (because of the rise in the money supply on circulated price level) converts the balanced GDP by changing from Y to Y_1 (in Fig. 14.2A). Similar to it (in Fig. 14.2B) point A becomes point C on being shifted, which shows the rise in actual GDP or AD, while the price level remains constant on point P. Therefore, the AD curve becomes AD_1 on being shifted, which means the high level of aggregate demand on circulated price level. Similarly, the shifting of LM curve to LM_2 (because of the reduction in the money supply on circulated price level) converts the balanced GDP by reducing from Y to Y_2 (in Fig. 14.2 A) which is intended from the similar shift from point A to point B. The Fig. 14.2 B i.e., the reduction in actual GDP or AD, while price level remains constant on P. Therefore, AD Curve becomes AD_2 on being shifted.

Self Assessment

State whether the following statements are True or False:

7. Because of right side shifting of LM curve from the fall in price level, with the higher level of GDP and lower interest rate, a new equilibrium is established.
8. The reduction in actual GDP or AD, while price level remains variable on P.
9. The slope of AD curve depends on the slopes of IS and LM curves.
10. As the price level rises, the LM curve becomes AM_1 on being shifted.

14.5. Summary

- The slope of AD Curve depends on the slopes of IS and LM Curve which further depends on the interest rate, the sensitivity of investment from the change in interest rate, coefficient multiplier and the sensitivity of money demand from the change in actual GDP.

14.6. Keywords

- **Aggregate:** Total.
- **Curve:** Sinuous.

14.7. Review Questions

1. Describe the derivation of Aggregate Demand Curve from IS-LM Model.
2. What happens if there is autonomous change in money supply, independent of change in Price Level?

Answers: Self Assessment

1. left side	2. alternate technique		3. (a)
4. (b)	5. (a)	6. (b)	7. True
8. False	9. True	10. False	

14.8. Further Readings

1. **Macroeconomics: Theory and Policy**— *H. L. Ahuja, S. Chand Publishers, 2010.*
2. **Macroeconomics:** *S.K. Chakravarti, Himalaya Publishing House, 2010.*
3. **Necessity of Macroeconomics**— *H. S. Nath, Cyber Tech Publications, 2012.*

Unit–15

Notes

Effects of Fiscal Policies under Different Cases in IS-LM Framework

Structure

15.1. Objectives

After studying this unit, students will be able to:

- Know the Monetary and Fiscal Policy.
- Explain the Monetary Policy and AD.
- Discuss the Monetary Policy and Shift in the AD Curve.

15.2. Introduction

We study such situation in which Monetary Authorities, in the form of equipment of monetary policy determine the rate of interest (instead of money supply). When interest rate is reduced then it is the indication of expansionary monetary policy and when interest rate is increased then it is the indication of contractionary monetary policy. We have known from IS-LM Model that the rise in 'r' is related to the reduction in money supply while the reduction in 'r' is related to the rise in money supply. Therefore, when 'r' is increased then it indicates the contraction in money supply in an economy when 'r' is reduced then it indicates the expansion in money supply.

15.3. Monetary and Fiscal Policy

The IS-LM Model can be used in the study of the effect of Monetary and Fiscal Policy. To get economic stability, we'll interpret the thing how Monetary and Fiscal Policy affect the level of AD (in the reference of IS-LM Model).

Self Assessment

Fill in the blanks:

1. Monetary Authorities, in the form of equipment of monetary policy ..... the rate of interest.
2. From the rise in money supply, LM curve shifts towards ..... .

15.4. Monetary Policy and AD

We study such situation in which Monetary Authorities, in the form of equipment of monetary policy determine the rate of interest (instead of money supply). When interest rate is reduced then it is the indication of expansionary monetary policy and when interest rate is increased then it is the indication of contractionary monetary policy. We have known from IS-LM Model that the rise in 'r' is related to the reduction in money supply while the reduction in 'r' is related to the rise in money supply. Therefore, when 'r' is increased then it indicates the contraction in money supply in economy when 'r' is reduced then it indicates the expansion in money supply. From the rise in money supply, LM Curve shifts towards right side and it shifts the AD Curve towards right side on the definite price level. Similarly, the reduction in money supply shifts LM Curve towards left side and it shifts the AD curve towards left side on the definite price level. Undoubtedly, when AD shifts towards right then there is rise in actual GDP and when AD shifts towards left, then there is reduction in actual GDP.

Notes	With the rise in money supply, LM Curve shifts towards right side and it shifts the AD curve towards right side on the definite price level.

Self Assessment

Multiple Choice Questions:

3. When AD shifts towards left then there is ..... in actual GDP.
   (*a*) reduction (*b*) excess
   (*c*) rise (*d*) none of these
4. In Contractionary Fiscal Policy, the IS Curve shifts ..... .
   (*a*) backward (*b*) forward
   (*c*) upward (*d*) downward
5. The purpose with the investment demand function is from the ..... relationship between investment and interest rate.
   (*a*) favorable (*b*) inverse
   (*c*) deep (*d*) none of these
6. The IS Curve ..... with the change in any of the autonomous components of total expenditure.
   (*a*) faces a barrier (*b*) shifts
   (*c*) leakage (*d*) none of these

Notes

15.5. Monetary Policy and Shift in the AD Curve

The reduction in interest rate from Or to Or_2 shifts LM Curve to LM_1 (Part A of Fig. 15.1). From the shift of LM Curve on definite IS Curve, AD Curve is shifted left from AD to AD_1 while price level OP remains constant (Part B). Similarly, the rise in interest rate shifts LM Curve to LM_2, which further shifts the AD Curve from AD to AD_2. Therefore, the AD Curve is shifted on the change in interest rate and is helpful to bring the stability.

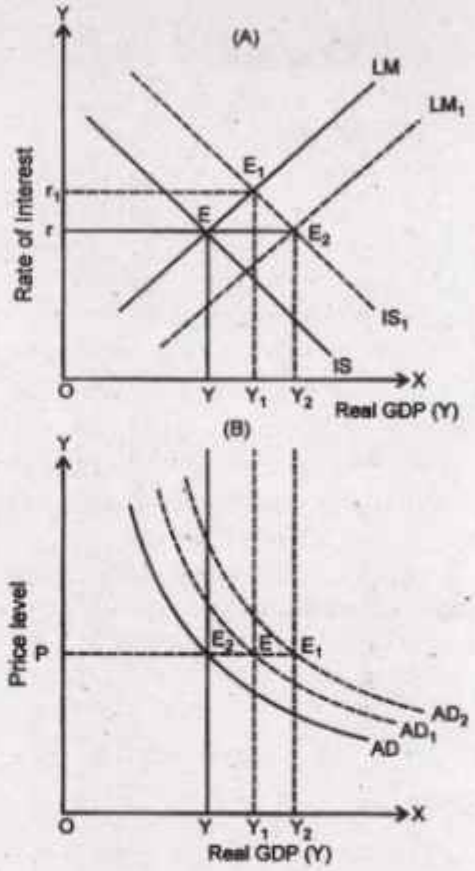

Fig. 15.1

Did You Know?	The shift occurs in AD Curve due to the change in Fiscal policy of Government also.

15.6. Fiscal Policy and Shift in the AD Curve

The shift occurs in AD Curve with the change in Fiscal Policy of government (Government policy related to tax, expenditure and loan). Expansionary Fiscal policy (To reduce the tax rate and increase the social expenditure) shifts the IS Curve towards right side which further shifts the AD Curve (By the increase in actual GDP) towards right on the circulated price level. Similarly, in Contractionary Fiscal policy (High tax rate and low social expenditure), the IS Curve is shifted backward which further shifts the

AD Curve towards left. Figure 15.1 explains these situations. In the part B of Fig. 15.1, initial equilibrium is shown by the point E where IS = LM. From the Expansionary Fiscal policy of government, the IS Curve becomes IS_1 on being shifted. New equilibrium actual GDP level is OY_1. While AD becomes AD_1 on being shifted on the circulated price level and constant money supply. Undoubtedly, interest rate becomes Or_1 on increment, which is against the government adopted Expansionary Fiscal policy. In such situation, Monetary Authority can permit to rise in money supply after which the LM Curve becomes LM_1 on being shifted and the interest rate, on returning, stays on its initial level Or. The mean of shift of LM Curve is the becoming of AD Curve into AD_2 on shift. According to initial interest rate Or, the IS-LM equilibrium is established on E_2 and the level of AD is shown by E_1 which is similar to circulated price level OP. The actual GDP becomes OY_2 after increasing. So if Monetary Authority increases the money supply for keeping the interest rate on its initial level (Before the increment in government expenditure what it does in the form of full attempt of its expansionary fiscal policy). Then there will higher AD and actual GDP be found in the economy with the condition that the interest rate should be left as it was and if the government has to adopt the contractionary fiscal policy then *vice-versa*.

Task	Express your views about the Monetary and Fiscal Policy.

Key Points

- **IS Curve:** It shows the coincidence of interest rate and actual GDP which brings the equality between saving and investment or total expenditure and total production.
- **Steps to derive the IS Curve:** (*i*) The relationship between investment and interest rate, (*ii*) The relationship between investment expenditure and actual GDP.
- **Investment Demand Function:** The purpose with it is from the inverse relationship between investment and interest rate.
- **Slope of IS Curve:** The slope of IS Curve is downward which shows the negative relationship between interest rate and actual GDP. It is measured on taking the ratio of change in the interest rate to change in GDP.
- **Shift in the IS Curve:** The IS Curve shifts from the change in any of the autonomous components of total expenditure.
- **LM Curve:** It shows those different coincidences of actual GDP and interest rate which bring the equality between demand of money and supply of money.
- **Steps to derive the LM Curve:** (*i*) The relationship among money supply, interest rate and actual GDP, (*ii*) The equality between demand and supply of money.
- **Slope of LM Curve:** This curve bends toward upside which indicates negative impact between GDP and rate of interest. This is calculated by difference in rate of interest and ratio of difference in real GDP.

Notes

- **Shift in LM Curve:** The shift in LM Curve happens because of the change in demand of money or in supply of money.
- **Simultaneous Equilibrium in Product and Money Market:** The Simultaneous Equilibrium in Product and Money Market occurs on that point where the IS and LM Curves cut each other. It shows the coincidence of actual GDP and interest rate, which equalize the demand and supply of product and the demand, and supply of money.
- **Derivation of AD:** The IS-LM Model is helpful in derivation of AD Curve. The real money supply decreases after the rise in price level, which means the backward shift of LM Curve, and accordingly the lower level of balanced actual GDP, which means the lower level of AD. Therefore, the derivation of AD is the result of inverse relationship between price level and actual GDP.
- **Monetary Policy and AD:** The LM Curve shifts towards right because of Expansionary Monetary Policy. It is intended to forward shift of AD on the circulated price level.
- **Fiscal Policy and AD:** The IS Curve shifts towards right because of Expansionary Fiscal Policy. It is intended to forward shift of AD on the circulated price level.

Self Assessment

State whether the following statements are True or False:

7. The IS-LM Model is helpful in derivation of AD Curve.
8. The Real money supply decreases after the rise in price level.
9. The derivation of AD is the result of inverse relationship between price level and actual GDP.
10. The LM Curve shifts towards left because of Expansionary Monetary Policy.

15.7. Summary

- The reduction in money supply shifts LM Curve towards left side and it shifts the AD Curve towards left side on the definite price level. Undoubtedly, when AD shifts towards right then there is rise in actual GDP and when AD shifts towards left, then there is reduction in actual GDP.

15.8. Keywords

- **Fiscal Policy:** Financial Policy.
- **Monetary:** Related to money.

15.9. Review Questions

1. Define the Monetary and Fiscal Policy.
2. Explain the Monetary Policy and AD (Aggregate Demand).

3. What do you mean from the Monetary Policy and shift Curve?
4. What do you mean from the Fiscal Policy and shift in the AD Curve?

Answers: Self Assessment

1. determines	2. right	3. (a)	4. (a)
5. (b)	6. (b)	7. True	8. True
9. True	10. False		

Notes

15.10. Further Readings

1. **Macroeconomics**— *Mohan Srivastava, DND Publications, 2010.*
2. **Macroeconomics**— *S.K. Chakravarti, Himalaya Publishing House, 2010.*
3. **Macroeconomics: Economic Growth, Fluctuations and Policy**— *Robert E. Hall and David H. Paipal, Vaina Books, 2010.*

Unit–16

Notes

Mundell Model

Structure

16.1. Objectives

After studying this unit, students will be able to:

- Know the Objectives of Mundell.
- Understand the criticisms of Mundell Model.

16.2. Introduction

In the objective of external balance allotment of monetary policy and in the objective of internal balance, allotment of fiscal policy must be done. But allotment rule works only when monetary and fiscal policies without any long lag are continuous and well accommodated, before their impacts become visual. This is the "Mundell rule" of successful use of monetary and fiscal policy for internal and external stability, as per which, an instrument must be combined with that target only on which it has the maximum relative influence. He calls it the Principle of Effective Market Classification.

16.3. Fiscal Monetary Policy for Internal and External Balance: The Mundellian Model

Mundell has discussed the relation between two instruments and two targets. Two instruments are monetary policy expressed through interest rate and fiscal policy expressed through the government expenditure. The two targets are full employment (internal balance) and balance of payment balance (external balance). Allotment rule is of monetary policy for the objective of external balance and for internal balance is doing of fiscal policy. Allotment of these instruments in the targets is shown in Fig. 16.1.

Notes	Mundell has discussed the relation between two instruments and two targets.

Notes

In the figure, horizontal axis measures the rate of interest (monetary policy) and vertical axis measures the savings budget (Fiscal Policy). FF' is the internal balance line and XX' is the external balance line. Line FF' expresses full employment. Its slope is negative because for maintaining full employment cut in the savings budget has to be definitely balanced by increase in interest rate. Inflation is below this line FF' (in Zone III and IV) and above it (Zone I and II) is recession. On the other side, line XX' gives all the points of balance in balance of payment. Its slope is also negative because by cutting savings budget imports increase, for stopping which it is necessary to improve capital account by increasing the interest rate. Below this line (in Zone I and IV) there is loss in balance of payment and above this line (in zone II and III), there is surplus. In comparison to line FF', slope of line XX' is much straight because when interest rates increase for balancing the expanding fiscal Policy (increase in budget deficit or cut in savings budget); it motivates an undercurrent flow of short-term capital for external balance. Towards interest rate changes as much relative will be capital momentums that much more will be line FF' and XX' of straight slope. By this monetary policy becomes comparatively more effective in maintaining external balance.

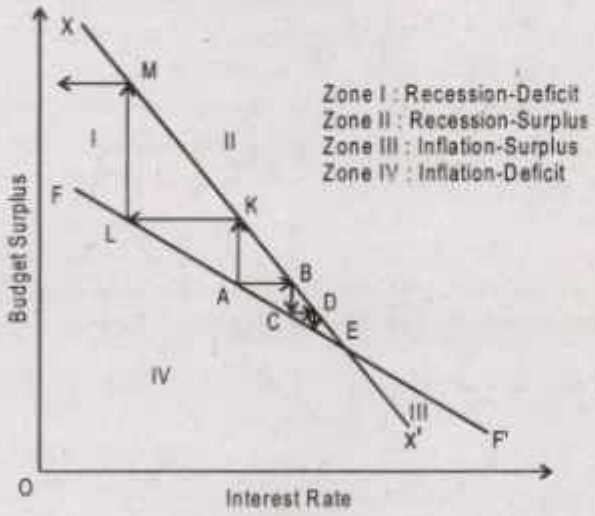

Fig. 16.1

Figure 16.1 shows the internal and external balance and tells that in maintaining balance between these two what job monetary and fiscal policy do. Assume that in zone I, economy is at point A where there is full employment in the economy and deficit in balance of payment. For ending the deficit in balance of payment monetary officer first makes an increase of AB in interest rates so that the supply of money may be reduced. By reducing money supply, demand for goods will decrease and by it imports will decrease further and at point B balance will be established at balance of payment. At this point there will be recession and unemployment in the economy. For correcting it and for bringing internal balance, reduction of the amount BC

Notes

will have to be done, but at point C again there is loss in balance of payment, that is why it is important that for reducing money supply, further increase of CD is done in interest rate. At point D, internal balance is again disturbed because of which there is further cut in savings budget. After decrease of money supply, by this process of decrease in savings, at the end economy reaches point E where there is internal and external balance simultaneously.

Self Assessment

Fill in the blanks:

1. Monetary and fiscal policies ..... under definite practical constraints.
2. Prescribed policy mix cannot be ..... in correcting the current account deficit.

At the other side, if for removing the deficit in balance of payment savings budget is brought in use and for ending unemployment and recession, monetary policy is adopted, then neither there will be internal balance nor external balance. If we move from point A then, by an increase in savings budget economy will move to K where though external balance is available, but there is unemployment and recession in the economy. For removing it, interest rate is reduced by KL for increasing money supply. But at point L, in balance of payment, deficit increases from its previous level. For it still LM more savings budget will be necessary. For it, it will become necessary that further cut is made in the interest rates so that recession and unemployment are removed. Like this economy will keep moving farther from point E and internal and external balance will never happen together. In such a situation allotment rule brings an explosive instability because both policies have been coordinated badly.

Did You Know?	Allotment rule is of monetary policy for the objective of external balance and for internal balance is doing of fiscal policy.

In reality, Mundell contends for a rational mix of monetary and fiscal policy. In zone II and IV there is no disproportion in joint use of monetary and fiscal policy. In zone II both policies must be restrictive and in zone IV, both policies must be expansive. In rest of the two zones monetary and fiscal policies must be definitely mixed for achieving both the targets together. According to Mundell, when monetary policy is combined with objectives of external balance and Fiscal policy is combined with objective of internal balance, and then both the objectives are met.

Self Assessment

Multiple Choice Questions:

3. In objective of external balance allotment of monetary policy and in objective of internal balance allotment of ..... must be done
   (*a*) fiscal policy (*b*) money
   (*c*) principles (*d*) none of these

4. In reality, Mundel ..... for a rational mix of monetary and fiscal policy.
   (a) sophistry (b) contends
   (c) meaning (d) none of these
5. Monetary-Fiscal mixture is not a true adjustment ..... .
   (a) mechanism (b) payment
   (c) policy (d) capital
6. When interest rate is increased by the medium of monetary policy then it brings ..... in domestic investment.
   (a) decline (b) increase
   (c) stability (d) none of these

Notes

Criticism of Mundell's Model

But there are some shortcomings of this analysis:

1. **Unrealistic Assumptions:** This model assumes that officers know the limit at which economy is far from both the internal and external balances so that appropriate monetary and fiscal policies may be used. This is also assumed beforehand that they know quantitative results which are possible by the use of each policy. But these assumptions are far from reality, because it is not possible to correctly judge the category of imbalance. Hence, changing the policy may not be appropriate for such type of imbalance.
2. **Overlook of Unemployment and Inflation:** This analysis overlooks unemployment and inflation. It is unreal, because this concept which is known by the name of stagflation is often found in all developed countries.
3. **Neglect of other Factors:** This analysis only thinks over difference in interest rates a reason for capital momentum and ignores other factors such as exchange rate changes. Other than this it is not possible that continuous deficit is financed by capital momentum.
4. **Practical Constraints of Monetary and Fiscal Policies:** Monetary and fiscal policies work under a definite practical constraints of political reasons, some governments are not able to follow restrictive fiscal policy and monetary policy with high interest rates. Though such policies may be started, but they cannot be successful, because capital flow cannot be interest sensitive.
5. **Unsuccessful Prescribed Policy Mix:** Prescribed policy mix cannot be successful in correcting current account deficit because policy mix influences both– capital flow and imports, that is why it only ensures that negative business balance is compensated by positive capital flow and also *vice versa*.

Task	Expresses your thoughts in relation to the Mundell's Model.

Notes

6. **Not True Adjustment Mechanism:** Monetary-Fiscal mixture is not a true adjustment mechanism. It does not adjust balance of payment but only makes it stable. Capital flow, leaving the prices and income unchanged, only completes the gap between the sovereign demand and supply of foreign exchange.
7. **No Consideration on the Debt-Servicing Requirements:** This analysis does not make consideration on debt-servicing requirements because, when domestic interest rates are increased then, continuous capital flow will happen on the current account of balance of payment.
8. **Decrease in investments at home:** When interest rates are increased by the medium of monetary policy, it will bring a decrease in domestic investment. It should definitely be accompanied by either a decline in government expenditure or tax cut or by any composition of the two. Such monetary-fiscal policy mixture misuse the savings of the economy by turning them towards debt financed government expenditure, which stops capital building. According to Johnson, "It creates the problem of 'ineptitude vs proficiency' in use of domestic savings possibility."
9. **Conflicts between Prescribed Policy Mixes:** There is a possibility of inter-conflict between the prescribed policy mixes of governments of various countries. Johnson has said, "In all countries together reach the right combination of monetary and fiscal policies, particularly if adjustment of policies is done by examination and defects relating to order, then it will be a complex process and under some circumstances instead of taking in the direction of balance, it may take far from it."

Self Assessment

State whether the following statements are True or False:

7. In the objective of external balance allotment of monetary policy and in the objective of internal balance allotment of fiscal policy must be done.
8. It is possible to finance continuous deficit by capital momentum.
9. Prescribed policy mixture cannot be successful in correcting current account deficit.
10. There is a possibility of inter-conflict between the prescribed policy mixes of governments of various countries.

16.4. Summary

- In reality, Mundell contends for a rational mix of monetary and Fiscal policy. In zone II and IV there is no disproportion in joint use of monetary and fiscal policy. In zone II both policies must be restrictive and in zone IV, both policies must be expansive. In rest of the two zones monetary and fiscal policies must be definitely mixed

for achieving both the targets together. According to Mundell, when monetary policy is combined with objectives of external balance and fiscal policy is combined with objective of internal balance, and then both the objectives are met.

Notes

16.5. Keywords

- **Surplus:** Excess.
- **Conflict:** Internal struggle.

16.6. Review Questions

1. What do you understand by "Mundell's Model"?
2. Describe Fiscal-Monetary policy for internal and external balance.

Answers: Self Assessment

1. work	2. successful	3. (a)	4. (b)
5. (a)	6. (a)	7. True	8. False
9. True	10. True		

16.7. Further Readings

1. **Macroeconomics: Theory and Policy**— *H.L Ahuja, S. Chand Publishers, 2010.*
2. **Macroeconomics: Economic Growth, Fluctuations and Policy**— *Robert E. Hall and David H. Paipal, Vaina books, 2010.*
3. **Macroeconomics**— *S.K. Chakravarty, Himalaya Publishing House, 2010.*

Unit–17

Notes

Swan Model

Structure

17.1. Objectives

After studying this unit, students will be able to:

- Know the policies for internal and external balance,
- Understand expenditure switching and expenditure reducing.

17.2. Introduction

Monetary fiscal policies have definite objectives which may be obtained by use of policy equipment. These are— full employment, economic progress, price stability, and equilibrium of balance of payment. These objectives are often mutually opposite. Monetary and fiscal policies study about nature of these oppositions and about the appropriate resources between them or about establishing inter-relation between them. Analysis of these problems has centred mainly around internal and external objectives. Internal balance is related to income and full employment and external balance is related to the equilibrium of balance of payment.

Theory of economic (monetary or fiscal) policy has centred around two separate problems. First, relation between number of policy objectives and number of policy equipment; and second, allotment of policy equipment for achieving the objectives.

John Tinbergen was the first economist who had said that number of policy equipment should be equal to number of objectives. If as compared to policy equipment, numbers of objectives are more then, it means that requisite tools are not there for fulfilment of policy objectives. At the other side, if as compared to number of objectives, numbers of policy equipment

are more, then it means that there is not one composition by which problem will be solved, no one knows how many combinations are there. In this manner, it is important for the success of economic policy that number of policy equipment is equal to number of objectives. It came to be known as Tinbergen rule or fixed target approach.

Notes

The second problem arises when the number of policy equipment and policy objectives is same then, how the equipment should be allotted among the targets for achieving the given objectives. In the absence of coordination, correct value of objectives can be achieved by the rendering of distribution problem.

Notes	Monetary fiscal policies have definite objectives which may be obtained by use of policy equipment.

17.3. Policies for Internal and External Balance: Expenditure Switching and Expenditure Reducing

Johnson only has pointed towards policy equipment for bringing both internal and external balance. He named them expenditure reducing or internal policy and expenditure switching or external policy.

Deficit in balance of payment means excess of expenditure over income. For correcting it, similarity should be brought in income and expenditure. Objective of expenditure reducing policies is to reduce all demand by the medium of more taxes and interest rates, by which expense and production reduce. Further, fall in income and expenditure reduce domestic price level. By this there is a change in expenditure on domestic goods from foreign goods. As a result imports of the country reduce. Objective of expenditure switching policies is to increase the demand for domestic goods and to switch the expenditure from imported goods to domestic goods. Such an expenditure switching increases domestic production. Until the extreme tendency of spending is less than the unity, it will improve the equilibrium of payment balance of the country.

For simultaneously achieving objectives of both internal and external, a judicious combination of expenditure reducing and expenditure switching equipment is necessary. For example, if economy is at full employment level then because of the policy of devaluation there may be inflation in the economy. That is why for maintaining balance of payment equilibrium and full employment along with the expenditure switching policy of devaluation, there must be more expenditure reducing policies of monetary and fiscal control.

Relation between policy equipment for simultaneously obtaining both objectives of internal and external balance has been analysed in form of Trevor–Swan model as described in Fig. 17.1.

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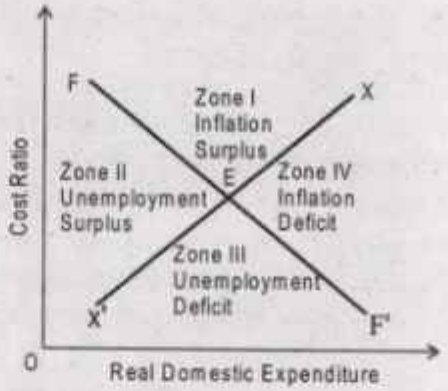

Fig. 17.1

Self Assessment

Fill in the blanks:

1. Fall in Production and expenditure reduces ..... price level.
2. Deficit in balance of payment means excess of ..... over income.

The Swan Model

Swan discusses appropriate combinations of expenditure reducing and expenditure switching policies for achieving internal and external balance.

Did You Know?	Deficit in balance of payment means excess of expenditure over income.

Assumptions

This model is based on these assumptions that (*a*) Trade restrictions do not exist (*b*) capitalist do not exist and; (*c*) productivity, terms of trade and other financial transfers are given. In Fig. 17.1, horizontal axis measures the real domestic expenditure and vertical axis expresses the cost ratio which is the indicator of relative costs and shows the competitiveness of the economy. Any movement towards left (towards 0) on the horizontal axis means use of expenditure reducing policy and any upward movement on vertical axis means use of expenditure switching policy. FF' is the internal balance curve which expresses the situation of full employment. It shows various combinations of cost ratio and real domestic expense. A given level of employment can be obtained by either a level lower than a very favourable relative form of cost ratio and domestic expenditure or by a level upper than a less favourable relative form of cost ratio and domestic expenditure. In this way curve FF' bends towards the right. Clearly, part towards the right of curve FF' (upper) is related to inflation of situation of more than full employment and part towards the left of curve (lower) expresses recession or unemployment.

Self Assessment

Multiple Choice Questions:

3. Objective of expenditure reducing policies is to ..... all demand by the medium of more taxes and interest rates.
   (*a*) reduce (*b*) add
   (*c*) increase (*d*) none of these
4. It is important for the success of economic policy that the number of policy equipment is equal to ..... .
   (*a*) number of policy objectives (*b*) objectives
   (*c*) policy (*d*) equipments
5. If economy is at full employment level, then because of the policy of devaluation there may be ..... in the economy.
   (*a*) deflation (*b*) inflation
   (*c*) loss (*d*) decrease
6. Theory of economic (monetary or fiscal) policy has ..... around two separate problems.
   (*a*) collected (*b*) centred
   (*c*) discreet (*d*) none of these.

Notes

Curve XX' shows the external balance where in lack of capitalists, export is equal to import. That is why, external balance happens when net exports become zero. This curve grows from left to right side which means that for economy to stay in external balance should definitely equilibrium devaluation by increase in domestic expenditure (Devaluation, by encouraging export and discouraging import will improve the trade balance of the country and increase in real domestic expense will increase the import of the country in sufficient quantity). Clearly, part above the curve XX' is related to saving and the part below it shows the deficit of balance of payment.

That point where curve FF' intersects the curve XX', expresses the Bliss point, where economy is in internal and external balance simultaneously. In Fig. 17.1 E is such a point, where there exchange rate and real domestic expenditure are in balance. If economy is not at point E, then it is in imbalance. According to Swan, "Both curves of internal balance and external balance divide the situation in four zones of economic misfortune." Four zones of imbalance are:

Zone I: Inflation and payment balance surplus

Zone II: Unemployment and payment balance surplus

Zone III: Unemployment and payment balance deficit

Zone IV: Inflation and payment balance deficit.

Task	Express your views about internal and external balance policies.

Notes

Policy Measures

For description of types of policy measures, which are important for simultaneously obtaining internal and external balance, we will take it in eight possible conditions of imbalance in Fig. 17.2. For these conditions, various combinations of policy measures are important.

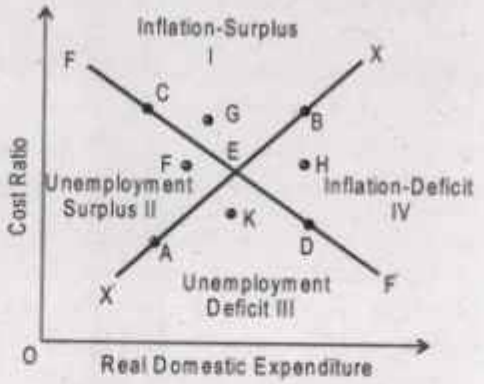

Fig. 17.2

Many countries are in equilibrium at point A of curve XX' in payment balance and unemployment (or recession). For such a situation there is need for extension of domestic economy through increase in domestic expense. It will reduce net exports. For making this tendency ineffective devaluation should be added to increase in domestic expenditure.

If deficit moves along in unemployment and payment balance, as happens in Zone III at point K, then there should be an increase in domestic expenditure. Policies increasing Internal demand by the medium of expansive measures also increase domestic employment. But this policy increases the deficit in balance of payment. It is described in form of "dilemma zone" because instead of expansive policy, devaluation is preferred policy.

In balance of payment, if economy adds full employment with deficit, as happens at point D of curve FF', the devaluation is its only solution. This huge pre-defined will create surplus and extra foreign demand will bring inflation in domestic economy. For stopping these tendencies, little devaluation will have to be added to cut in domestic expenditure.

Take point H in Zone IV where domestic inflation is added to deficit in balance of payment. Inflation should be stopped by a cut in domestic expenditure which will also reduce deficit in balance of payment and finally will take the economy towards balanced situation E.

If there is equilibrium of balance of payment and inflation as on point B then it should increase its rate of exchange and reduce the domestic expenditure.

Take point G in Zone I where surplus in balance of payment is added to inflation. In such a situation, for correcting the surplus of balance of payment, exchange rate should be increased and for stopping inflation expenditure should be reduced. But cut in expenditure will increase the surplus. It again expresses the "Dilemma Zone".

If the country in the situation of full employment and excess in balance of payment at point C of curve FF' then it should increase its rate of exchange. But increase in rate of exchange will create unemployment. In order to be saved from it, domestic expense must be increased.

At the end, let's move to point F of Zone II where surplus in balance of payment is added to unemployment. Here increase in domestic expenditure will be appropriate for both, internal and external balance. Such a policy will increase employment and for reducing the size of surplus, will also induce increase in import.

Above mentioned analysis presents that if economy is neither at curve FF' (internal balance) nor at XX' curve (external balance), then it is in any one of the four zones.

When for achieving one objective (say, internal balance), economy follows only one policy or both expenditure switching and reducing domestic expenditure policies together, then it moves from the other objective (say, external balance). This problem arises not only in "Dilemma zones" I and III but also in "uncomplicated areas" II and IV. For example, if we take point F in Zone II where surplus in balance of payment is added to unemployment, then expansive policy will reduce unemployment and will also reduce surplus. But for taking the economy to full equilibrium point E then, price increase or price decrease of exchange rate will have to be accepted which will remove the economy from one objective or the other objective.

Self Assessment

State whether the following statements are True or False:

7. Policies increasing Internal demand by the medium of expansive measures also increase domestic employment.
8. External balance happens when net export become zero.
9. Both curves of internal balance and external balance divide the situation in four zones of economic misfortune.
10. Deficit in balance of payment means deficit of expenditure over income.

17.4. Summary

- Theory of economic (monetary or fiscal) policy has centred around two separate problems. First, relation between number of policy objectives and number of policy equipment; and second, allotment of policy equipment for achieving the objectives.

17.5. Keywords

- **External balance:** Outer balance.
- **Internal balance:** Balance of inside.

Notes

17.6. Review Questions

1. What did Johnson do to bring both, internal and external balance?
2. What is Swan Model? Clarify.

Answers: Self Assessment

1. domestic	2. expenditure	3. (a)	4. (a)
5. (b)	6. (b)	7. True	8. True
9. True	10. False		

17.7. Further Readings

1. **Macroeconomics: Economic Growth, Fluctuations and Policy**— *Robert E. Hall and David H. PaiPal, Vaina Books, 2010.*
2. **Macroeconomics: Theory and Policy**— *H. L. Ahuja, S. Chand Publishers, 2010.*
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BBA-301

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