Centre for Distance & Online Education (CDOE)

BACHELOR OF COMMERCE

BCOM 202

MACRO ECONOMICS

Guru Jambheshwar University of Science & Technology, Hisar - 125001

CONTENTS

Subject: Macro Economics	Author: Ms. Chand Kiran
Subject Code: BCOM 202	Vetter: Prof. Anil Kumar

LESSON-1

Introduction to Macroeconomics

STRUCTURE

1.0 Learning Objectives

After reading this chapter you will be able to understand the concept of macroeconomics, its importance and areas in which macroeconomics works. Through this lesson knowledge will be imparted to you about the interrelationship of microeconomics and macroeconomics. This lesson will be helpful for you to understand the needs to study macroeconomics.

1.1 Introduction to Macroeconomics

Macroeconomics is formed with the help of two words i.e. **Macro**plus **Economics.** The term Macro is taken from a Greek word 'Uakpo' which means large and Economics refers to branch of social science concerned with the production, consumption and distribution of goods and services. So, macroeconomics is concerned with total production, total consumption and total distribution at large. Macroeconomics is concerned with economy as a whole. Adam Smith, the father of modern economics, suggested that if every buyer and seller start thinking about their self-interest only rather than the whole economy then there will be no need to think about the wealth, national income and welfare of a country or economy. At the early stage economists thinks that market did not exists in the economy. Then, it is believed that market exists but equilibrium cannot be determined through demand and supply of the products. Later, at the end economist think that there is effect of microeconomic variables on the whole society and country and it is necessary to study the whole economy. Macroeconomics coined in the 16^{th} and the 17^{th}centuries with the Mercantilists. After that many economists like Cassel, Marshall, Pigou and Hayek developed theory of money and general prices. Later on Keynes developed a book on general theory of Income, Output and employment at the time of great depression. Thus, Keynes provides a new direction to the macroeconomics through the development of general theory in 1936. After this, due to depression in the economy, demand for goods and services starts declining in the economy. These prevailing situations in the economy lead to unemployment and low GDP rate. Thus, it becomes necessary for economists to think about functioning of the economy in a new direction. Keynes tries to explain all these facts in his book and explain these concepts very well for the economy as a whole. The theory provided by Keynes is also termed as thoughts of Keynes. After this many other economics tries to explain macroeconomics in different sense of economics.

Macroeconomics study all the factors related with economic aggregates like output, employment, National income and prices in the economy. Macroeconomics does not study the individual activities like a firm, a household or an industry.

Definitions of Macroeconomics,

According to R.G.D. Allen,"The term Macroeconomics applies to the study of relations between broad economics aggregates."

According to Edward Shapiro, "The major task of macroeconomics is the explanation of what determines the economy's aggregate output of goods and services. It deals with the functioning of the economy as a whole".

According to Ackley Gardner, "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 price level"

1.1.1 Scope of Macroeconomics

I. **Theory of National Income**

Macroeconomics studies the measurement and methods of calculating national income. This measurement involves aggregate saving, aggregate consumption and aggregate investment.

II. **Theory of International Trade**

International trade refers to the exchange of goods and services among different countries which affect the whole economy. Thus, international trade is studied under macroeconomics.

III. **Theory of Employment**

Study of employment level, types of unemployment and cause behind unemployment is studied under the scope of macroeconomics.

IV. **Theory of General Price Level**

General Price level is affected through the business cycles. Inflation and deflation are two major factors studied for general price level in macroeconomics.

V. **Theory of Money**

In macroeconomics, various theories of money, role of money, effect of government expenditure and effect of government income in the economy are discussed.

VI. Theory of Trade Cycles

Trade cycle represents the ups and downs in the market. These ups and downs may be positive or negative. Study of trade cycle is included in macroeconomics as this is based on the whole economy.

VII. **Theory of Economic Growth**

Macroeconomics theories are studied and applied for balanced economic growth. It is the major objective behind any economic policy formulation.

1.1.2 Importance of Macroeconomics

I. Helpful in formulation of economic policies

Macroeconomics deals with the economy as a whole. It includes aggregates of all economic factors. Economic policies of the government are related with the whole economy. For example during depression, it is necessary to analyze the cause behind depression and unemployment in economy. At that time macroeconomics helps to understand these causes and provide guidance for policy formulation. Thus, macroeconomics helps to study the economic factors and formulation of economic policies.

II. Helpful in understanding the functioning of an economy

Macroeconomic study the problems related with behaviour of total output, income, employment and general price level. It is necessary to have proper and adequate knowledge to understand the behaviour of the aggregate variables. Every country wants proper working on these problems for the smooth running of that country. Through macroeconomics these complex problems can be understood and solved. Thus, Macroeconomics is helpful to understand the functioning of an economy.

III. Useful for determining National Income

The concept of National income is studied under the scope of macroeconomics. As overall performance of any nation can only be determined through its national income. For solving the problems related with overproduction and unemployment it is necessary to prepare data on national income. These data on national income are helpful in forecasting the level of economic activity and to understand the distribution of income among different sectors of the economy.

IV. Important for Economic growth

As we had discussed earlier that macroeconomics helps in formulation of economic policies, these policies are formed for the future growth of an economy. These policies form basis for the stable and long run growth of an economy. There are various theories on unemployment, general prices and national income in macroeconomics which are helpful to solve the problems related with these issues. Thus, macroeconomics is helpful for the economic growth.

V. Useful for the development of Micro economics

Macroeconomic is helpful to understand microeconomics. Without proper understanding of aggregates of facts no microeconomics law can be formed. For example behaviour of single firm cannot form the behaviour pattern for all firms. As behaviour of single firm can be used for single entity but it is not useful in case of economy as a whole. The theory was formed after considering the behaviour pattern of aggregate firms. Thus, macroeconomics is helpful for the development of microeconomics.

VI. Helpful in Economic planning

Economic planning is formed for balanced economic development and economic solution to different problems. Economics planning requires special knowledge and skills as future of a nation is somewhere based in its economic planning. Formulation of economic plans require necessary knowledge about macroeconomics concepts like mutual dependence of different sectors, composition of national income, level of employment, etc. Thus, macroeconomics is helpful in economic planning.

VII. Helpful to study Trade cycles

Trade cycles indicate the economic fluctuations in the economy. These fluctuations can be understood and analyzed with the help of macroeconomics. The factors like boom, depression and recovery cannot be studied without the adequate knowledge about macroeconomics. To understand the trade cycles it is important to study the aggregate demand, aggregate consumption and aggregate production which are studied through macroeconomics. Thus, macroeconomics is helpful to provide the solutions to these fluctuations in the trade. It has been possible to form policies for controlling the effect of inflation and deflation on business through detailed study of macroeconomics.

VIII. Helpful to understand monetary problems

Macroeconomics includes the concept like money, theories of money, banking and credit system in a country. Macroeconomics provides the direction to economists to understand these concepts and provide remedies to the monetary problems. Regular changes in the monetary system of a country effect adversely and this adverse effect can be counteracted by adopting the monetary measures with the help of macroeconomics. Thus, macroeconomics helps to understand the monetary problems.

IX. Useful to analysis Unemployment

Unemployment is a major problem in developing countries. At the time of depression in the economy it becomes necessary to understand the need and requirement of the labour. To understand this concept economists develop general theory of employment. Macroeconomics provides the knowledge and understanding about this concept through Keynesian theory of employment. This concept can be studied through aggregate demand, aggregate supply of labour. Thus, macroeconomics provides knowledge about the cause, effect and remedies of general employment.

1.1.3 Types of Macroeconomics

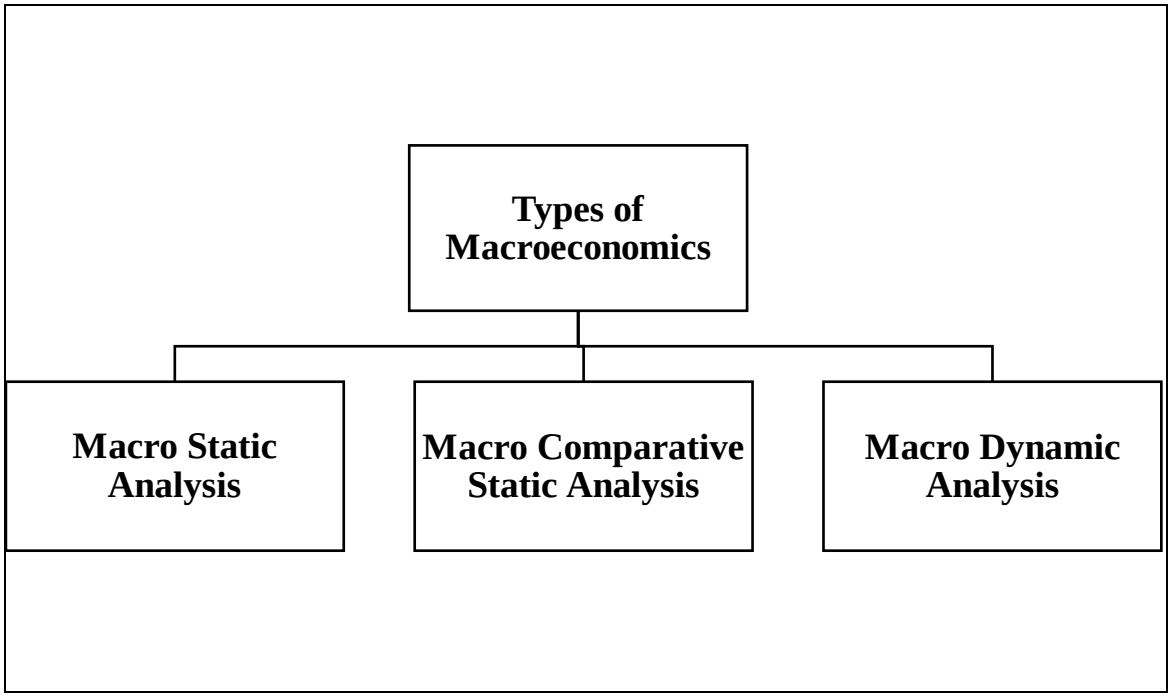

Figure 1-Types of Macroeconomics

I. Macro static analysis

Meaning of static is different in different subject of study. In Economics, static refers to a state of movement at a particular level without any change. According to Clark, "It is a state where five kinds of changes are conspicuous by their absence. The size of population, the supply of capital, methods of production, forms of business organization and wants of the people remain constant, but the economy continues to work at a steady pace". There is certainty in static state as the other variables are constant. Macro static is best explained by Prof. Kurihara as they present macro static as a still picture of economy. Macro static represents the static equilibrium position of the economy. Whenever an economy is working at equilibrium point E and it is producing at a constant rate without any change in the other variables, it is known as static state of economy at a point of time.

This equilibrium is shown through a timeless identity equation without any adjusting mechanism:

$$Y=C+I$$

Here, Y= Total Income

C= Total Consumption

I= Total Investment

According to static Keynesian model, the interaction of aggregate supply function and the aggregate demand function are helpful to determine the level of National Income.

This model includes the above identity equation to represent the equilibrium in the economy. This model is shown in figure 2 as under:

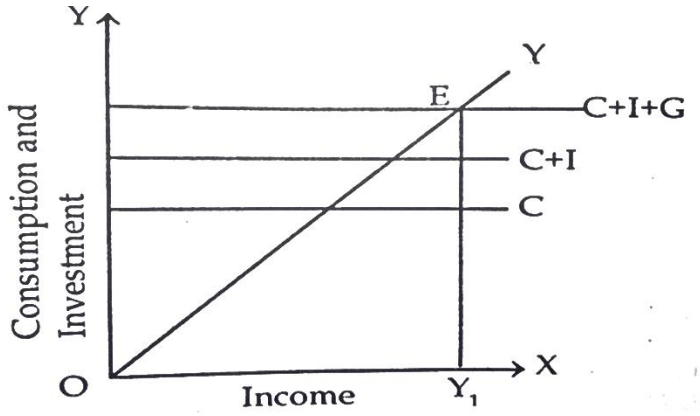

Figure-2

Here, 45^0 line represents the aggregate supply function,

C+I+G line represent the aggregate demand function

E the intersection point represents point of effective demand through which level of National income (OY) is shown.

Thus, macro static refers to timeless economy. It cannot be formed or destroyed. This is an equilibrium situation. This situation cannot be changed whether the previous position and subsequent position of the economy change or not.

II. Macro dynamic analysis

Macro dynamic analysis studies the cause of change in two equilibrium points. It analyses the process of change which continues over a period of time. An economy may change over a period of time in two major ways:

(a) Without changing its pattern

(b) By changing its pattern

Macro dynamic analysis is related with second type of change. This change in pattern occurs due to change in population, capital, techniques of production, forms of business organization and taste of the people. Macro dynamic analysis explains the forces which brought these change in the economy.It is based on time lags, rate of change, past and expected values of the variables. In the words of Kurihara, "Macro-dynamics treats discrete movements or rates of change of macro-variables. It enables one to see a 'motion-picture' of the functioning of the economy as a progressive whole." The following diagram shows the operation of analysis:

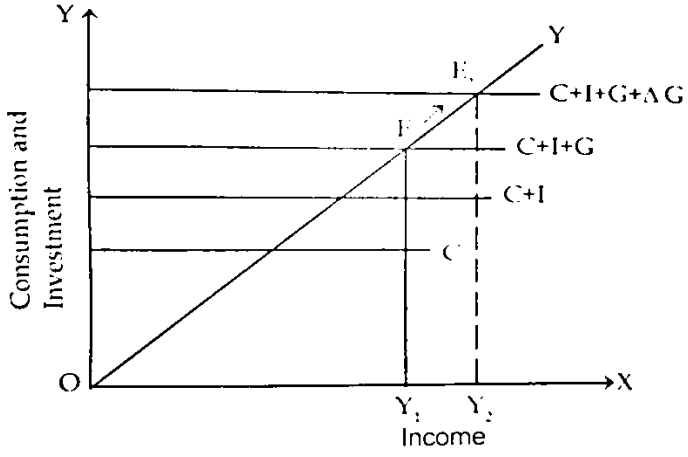

Figure-3

This diagram represents the change of equilibrium from point E to E_1 which shows change in government expenditure. This is not a sudden change but it has been arise by a process and time-lag. This process can be understood as the government increase investment which might have result in more employment, high productivity and high level of income. Thus, macro dynamic analysis is a method to describe the causes behind the change in economy due to change in other variables over a period of time.

III. Macro comparative static analysis

Macro comparative static analysis was first used by a German Economist F. Oppenheimer, in 1916. It is a method of economic analysis. According to Schumpeter, "Wheneverwe deal with disturbance of a given state by trying to indicate the static relations obtaining before a given disturbance impinged upon the system and after it, had time to work it out. This method of procedure is known as Comparative statics". It means comparative statics analysis is a method where different equilibrium situation are compared. Under Macro Static analysis, equilibrium is shown at a point E and it remains constant at a point of time. In Macro Dynamic analysis, the point of equilibrium shift from point E to point to E_1. Macro Comparative Static studies the variations in the positions of equilibrium from point E to E_1 due to some specific changes in other variables. Detailed analysis of macro comparative analysis is shown through a figure as under:

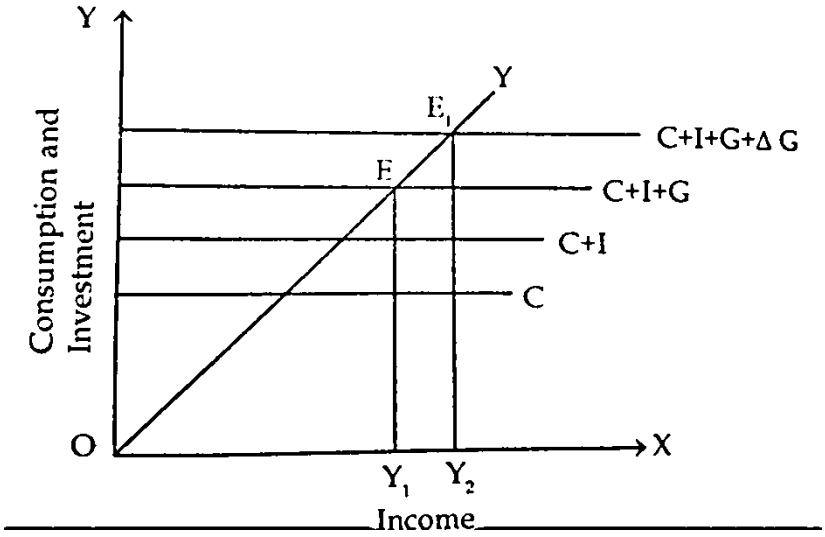

Figure-4

The initial point of equilibrium is at point E where Y (Total income) and C+I+G (total consumption, total investment and government expenditure) intersect each other. But after the inducement of government expenditure the equilibrium point shift from E to E_1. New equilibrium point E_1 is situated at the intersection of Y and C+I+G+ΔG. At this level total income shifts from OY_1 to OY_2. Thus, the study between two equilibrium points is known as Macro Comparative Static Analysis.

Macro comparative static analysis has some drawbacks also. These are discussed as under:

(a) It ignores the problems related with economic fluctuations.

(b) This method explains only the process of change from one position to another position of equilibrium. Complete reasons behind this change are not cleared under this method.

(c) This method neglects the transitional period.

1.1.4 Variables of Macroeconomics

I. Aggregate Demand

Demand refers to that quantity of goods and services for which consumer is ready to pay and have willingness to purchase that goods and services at different price level over a period of time. But, Aggregate demand refers to the total expenditure incurred on the purchase of all the finished goods and services in the economy during the period of an accounting year. It can be defined as the total monetary expenditure incurred on the purchase of goods and services at a specified price level on a point of time.

II. Aggregate Supply

Supply refers to production of that goods and services which a producer is willing to sell at different prices during a period of time, when all the other factors remain constant. Aggregate supply is the total supply or total production of goods and services in the economy during an accounting period.

III. Aggregate Consumption

Total consumption of all goods and services in the economy during an accounting period is known as aggregate consumption.

IV. Aggregate Investment

Investment refers to that asset which results into appreciation of income over a period of time. In economics, it can be defined as expenditure incurred by producers to purchase raw material

so that this can be add to their capital in that year. And aggregate investment refers to the total expenditure incurred by all the producers for purchasing raw material in the economy to add their capital during that year.

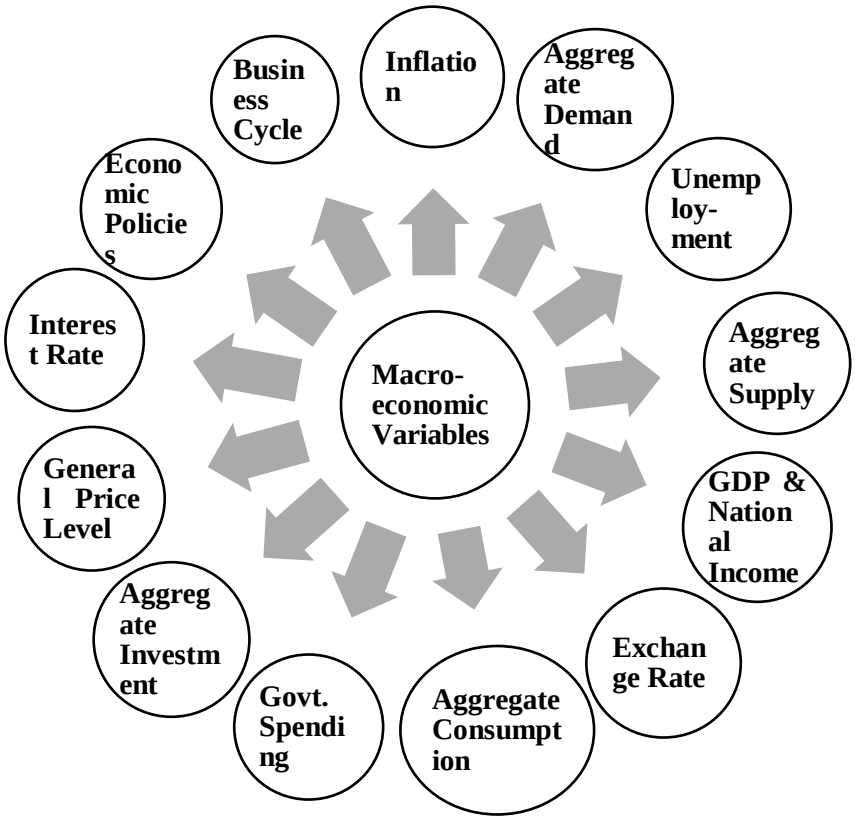

Figure-5

V. Unemployment

Unemployment occurs when a person wants to do job but he is unable to find a job. Unemployment can be computed on the basis of unemployment rate. It is the rate through which the percentage of the current unemployed labour force and actively seeking employment can be measured. High rate of unemployment leads to unfavorable indicators of macroeconomics. High rate of unemployment leads to maximum number of workforce who is not engaged in any work and job. This represents negative signs for an economy.

VI. General Price level

General Price level refers to index of prices of all goods and services in the economy at the end of a specified period of time.

VII. Exchange Rate

Exchange rate is an important macroeconomic variable as it is helpful for international trade. Import and export among different countries is possible due to exchange rate, as this becomes consideration for exchange of goods and services. Exchange rate refers to that rate at which currency of one country is exchange with the currency of other country. It can provide answer to the question that for one unit of a currency of country A how many units of currency of country B can be obtained.

VIII. Interest Rate

Interest rate refers the cost of borrowed money. This rate is defined by monetary authorities by using various regulations and interventions in the money market. Interest rate is the rate which interest is paid by the borrower for use of money to lender. There is various interest rates prevails in the economy. Interest rates can vary according to variation in the degree of risk.

IX. Government Spending

Government spending refers to the government consumption, government investment and transfer payments. Government spending describes the size of the public sectors in the economy. Government spending can also be described as the expenditure incurred by public sectors in education sector, health sector, transportation, social protection, defense, etc. This spending is based on major two factors i.e. tax collection and borrowing from public.

X. GDP & National Income

Gross domestic product is the total monetary value of the final goods and services produced within national boundaries of a country during an accounting year. GDP is a macroeconomic indicator of health of an economy. High GDP represents the increase in output and this will leads to economic growth. Generally, GDP is also known as measurement of national income. National income provides an idea of purchasing power of people of a country.

XI. Inflation

Inflation refers to hike in general price level of goods and services in an economy over a period of time. Inflation results into loss to value of money as hike in general prices leads to pay more units of money for purchasing goods and services. When demand for goods and services increases consequently their prices also rise and this will leads to inflation. It means consumer is willing to pay high prices for purchasing goods and services they want. Inflation is an important macroeconomic variable as it is interlinked with the other variables of the

macroeconomics. Like high rate of unemployment leads to low rate of economic growth which ultimately results into risk of high inflation.

XII. Economic Policies

Economic policies are also defined as the macroeconomic indicators. There are two major economic policies i.e. monetary policy and fiscal policy. Monetary policy is the policy which is formed to control money supply in the economy. Fiscal policy is the policy of government expenditure and government revenue. These policies are formed by monetary authority and government of the country.

XIII. Business Cycle

Business cycle refers to the upward and downward movements in the gross domestic product. Business cycle defines the fluctuations in the aggregate production, trade and activity in an economy. Business cycles involve the situation of recession and depression. Recession means that period during which aggregate output declines. A prolonged and deep recession is termed as depression. Thus, business cycle is an important indicator of macroeconomics.

1.1.5 Difference between Macroeconomics and Microeconomics

Economics refers to the branch of knowledge concerned with production, consumption and transfer of wealth. Economics can be further classified into two parts: microeconomics and macroeconomics. Microeconomics is concerned with individual and business decision making while macroeconomics is concerned with the decisions of government and business. Although in next section we will discussed that both microeconomics and macroeconomics depends on each other and it is not possible to study one without the knowledge of other. Still there exists some different among microeconomics and macroeconomics. These differences among microeconomics and macroeconomics are not rigid because parts affect the whole economy and whole economy affects the parts in the economy. These are discussed as follows:

Table No. 1- Difference between microeconomics and macroeconomics

Sr. No.	Microeconomics	Macroeconomics
1.	Microeconomics deals with the individual units of an economy.	Macroeconomics deals with the aggregate of individual units or the whole economy.
2.	It includes individual price, individual	It includes general prices, aggregate demand,

	demand, individual income, etc.	National income, etc.
3.	Price determination and allocation of resources are the major problem studied under microeconomics.	Determination of income and unemployment are the major problem studied under macroeconomics.
4.	Two major tools i.e. demand and supply of a particular commodity is used in microeconomics.	Two major tools i.e. aggregate demand (AD) and aggregate supply (AS) of a particular commodity is used in macroeconomics.
5.	Microeconomics solves the central problem of what to produce, how to produce and for whom to produce.	Macroeconomics solves the central problem of full employment of resources in the economy.
6.	It is concerned with the equilibrium of a consumer, a producer and an industry.	It is concerned with the equilibrium of level of income and employment in an economy.
7.	Microeconomics uses bottom-top approach for analyzing the economy.	Macroeconomics uses top-bottom approach for analyzing the economy.
8.	It assumes that all macroeconomic variables like aggregate demand, national income and price are constant.	It assumes that all microeconomic variables like individual demand, individual income, etc. are constant.
9.	It is also known as price theory.	It is also known as income theory or employment theory.
10.	It believes in Laissez-faire economy.	It believes in command economy.
11.	It is simple to study microeconomics.	It is complex process to understand macroeconomic due to inclusion of large numbers.

1.1.6 Interdependence of Macroeconomics and Microeconomics Theory

Both macroeconomics and microeconomics are dependent on each other. As a small change in microeconomic leads to change in macroeconomics and a little change in macroeconomics leads to change in macroeconomics. For instance, when aggregate demand rises it leads to an increase in individual demand for product. This increase in demand may be due to a macroeconomic factor i.e.

interest rate. Whenever there is reduction in interest rate people borrow money from financial institutions and this increased supply of money results into increase in demand for individual product. Due to increase in demand for product, demand for labour in particular industry also increases consequently wage rate also increases for a particular industry. This increased wage rate can be made possible only when there are increased profits. Again it will be ultimately duty to increase in demand. Thus, a macroeconomic change becomes cause for change in microeconomic variables. This represents that there is dependence of microeconomics theory on macroeconomics theory. Some other examples for explaining dependence of microeconomics on macroeconomics:

a. Payment made for means of production cannot be decided by an individual firm rather than these are dependent on the demand for means of production in the whole economy.
b. Sale of an individual firm is based on the purchasing power of consumer in the whole society.
c. For determining the demand for a product in an individual firm, it is necessary to study the demand of society, income and employment level in the economy.

Not only microeconomics theory is dependent on macroeconomics theory but macroeconomics theory is also dependent on microeconomics theory. Macroeconomics is the aggregate of the entire microeconomics variable. It means macroeconomics is formed from the different parts of microeconomics. National income is made up of income of individuals, firms, households and industries. Every indicator of macroeconomic aggregate consumption, aggregate investment, aggregate saving is made from microeconomic variables consumption, investment and saving. Thus, aggregate of macroeconomics is formed by averages of the individual quantities of microeconomic variables. For example, if an economy concentrates all its resources for production of capital goods only, then total output of the economy will decline. After this other sectors of the economy starts declining. Due to this activity total output, total income and employment will be affected adversely. This adverse effect results into unequal distribution of income. As a result, unemployment will increase and all of these factor cause depression in the economy. Thus, any change in microeconomic variable will results into change in macroeconomic variables.

Some other examples for explaining dependence of macroeconomics on microeconomics:

a. National income is computed with the help of individual expenditure obtained from microeconomics.
b. Aggregate demand in the economy is computed with the help of demand of an individual firm.

According to Gardner Ackley, "Actually, the line between macroeconomics and micro economics theory cannot be precisely drawn. A true general theory of the economy would clearly embrace both. It would explain individual behavior, individual I outputs, incomes and prices and the sums or averages of individual results I would constitute the aggregates which macroeconomics is concerned".

The same thing is suggested by Samuelson that "There is really no opposition between Micro and Macro Economics. Both are absolutely vital and you are only half-educated if you understand the one while being ignored or the other". Thus, we can conclude that both micro and macro approaches are interrelated and interdependent on each other. Both approaches are helpful to analyze the economy.

1.1.7 Limitations of the Macroeconomics

I. Macroeconomics is based on the aggregate of facts or aggregate behaviour but an individual behaviour is may not be true for the whole economy. For example, increase in total saving may leads to depression if these savings are not invested. Same can be seen in case of deposits in a bank. If all the depositors withdraw money simultaneously then this will adversely affect the banking system in the economy.

II. Macroeconomics considers all the aggregates homogenous under aggregation. But, all the aggregates cannot be homogenous. For example, aggregate wages are computed with the help of wages in all the occupations. If wages of teachers' increases and wages of clerks decreases then aggregate wages will remain unchanged. Thus, this increase and decrease cannot be measured due to homogeneity of aggregates.

III. Sometimes aggregate variables are not taken as important in macroeconomics. National income is calculated with the help aggregate of individual income. But, increase in National income does not mean that income of every individual person increase. Sometimes, income of rich person may increase and this affects the national income. Thus, this type of increase in income has little significance in the economy.

IV. Uncritical use of macroeconomics also becomes problem for the real word as the same theory cannot be applied on different situations. For instance, if a policy is formed to achieve full employment in the economy by applying structural unemployment in individual firm and

industry, then it is irrelevant for the whole economy. This can be results into misleading information.

V. It is difficult to compute macroeconomics variables by using statistical methods. Macroeconomics is aggregate of microeconomic variables. So, first of all microeconomic variables are computed statistically, then these are converted into microeconomic variables through average. This conversion is very difficult and complex process. The conversion of results into one macroeconomic variable may be dangerous and faulty. Thus, measurement of macroeconomics variable is a very difficult and tough process.

VI. Macroeconomics also ignores the welfare of individual. If aggregate saving is increased at the cost of individual welfare then it is not considered as wise decision regarding the individual.

VII. One major problem is with macroeconomic models. These models are designed only for developed countries of the world. Developing countries cannot take benefit of macroeconomic models due to some difficulties.

1.2 Evolution of Macroeconomics

Macroeconomics is not formed in only one day rather it takes many years for development. Different economists provide their own different views in their own analysis basis. These schools of thoughts may be defined as under:

I. Adam Smith, Ricardo and J.C.B. are well known economists for classical or tradition thoughts. These economists try to study the economic problems for the whole economy. Thus, they are in favour of macroeconomics. Classical thoughts were based on Say's Law of Market and Flexibility of Wages, Rate of Interest and Prices. According to classical thoughts full employment prevails in the economy and if there is any situation of unemployment it prevails for short term only. At last, tradition thoughts concerned with the auto adjustment of macroeconomics variables in the economy.

II. After classical thoughts, a book "The General Theory of Employment, Interest and Money" was written by the famous economist Keynes in 1936. Keynes point out the limitations of classical thoughts and worked on modern thoughts of macroeconomics. Keynes was against the say's law as they did not believe that supply automatically adjusts demand and unemployment prevails only for short term. Keynes suggested that aggregate demand is the

main cause behind unemployment and it can be reduced through increase in aggregate demand.

III. Then, Keynes thoughts were opposed by famous economist Milton Friedman. He came with the new-classical thoughts of macroeconomics. This school of thought suggested that unemployment cannot be reduced by government intervention or fiscal policy. New-classical thoughts were based on monetary measures thus it is also known as monetarism. Friedman believed that full employment can be achieved through variations in money supply. Supply of money directly affects the demand for product and increase in demand leads to full employment in the economy.

IV. After this many other economists works for changes in macroeconomic thoughts. After 1960 a new theory named as Rational Expectation Theory was propounded by Prof. Muth, Prof. Lucas and some other economists. Onward this many other changes were also propounded in macroeconomics thoughts.

1.3 Check Your Progress

1. _____ is father of modern economics.
2. Concept of National Income is studied under_____ Economics.
3. Macroeconomics deals with_____.
4. Microeconomics concentrates on _____.
5. _____ wrote the book "General Theory of Employment, Interest and Money".

1.4 Summary

Microeconomics deals with aggregates of microeconomics variables. It is concerned with economy as a whole. Although both macroeconomics and microeconomics depends on each other still there are various differences among both. Major difference of microeconomics and macroeconomics is that former is based on the study of individuals and firms decisions making regarding scarce resources and the latter is based on study of aggregate of microeconomics variables. Macroeconomics is further divided into three parts i.e. Macro static analysis, macro comparative analysis and macro dynamic analysis. There are various variables of macroeconomics which affect the whole economy. Study of macroeconomics is as important as microeconomics. Scope of macroeconomics is very wide as it included theory of money, theory of employment, theory of national income, etc. In the last section of

some schools of thoughts of macroeconomics are also described. These schools of thoughts represent the evaluation and changes in macroeconomics analysis from time to time. Macroeconomics has also limited applications due to its limitations but still it is a powerful source of knowledge to understand economy. Thus, one can conclude that macroeconomics study is an important aspect to know the whole economy. Without macroeconomics it is not possible to measure the national income, growth rate in the economy, unemployment rate, etc.

1.5 Keywords

Microeconomics: Microeconomics refers to that branch of economics which studies the behaviour of individuals and firms for decision making regarding allocation of scarce resources.

Macroeconomics: Macroeconomics refers to that branch of economics which study the economy as a whole. It is concerned with the study of aggregates of microeconomics.

National Income: National income refers to the total value of goods and services produced in an accounting year within the boundaries of a country.

Aggregate Demand: Aggregate demand refers to average of the total demand by consumers for all the goods and services in a country within a year.

Aggregate Supply: Aggregate supply refers to the average of the total production of all the goods and services produced within a year in a country.

Trade Cycles: Trade cycles are also known as business cycles. A trade cycle refers to the fluctuation in the Gross Domestic Product of an economy. These fluctuations may be upward or downward according to the prevailing conditions in the economy.

Aggregate Consumption: Aggregate consumption refers to the total spending of individuals and firms in the economy. It is directly related with aggregate saving because aggregate saving is total of that portion of income which is not consumed.

Aggregate Expenditure: Aggregate expenditure refers to the sum of total consumption, total investment, total government expenditure and total difference among exports and imports in the economy. It can be shown as AE= C+I+G+ (E-I).

Unemployment: Unemployment refers to a situation where able people want to do job but are not able to get work or job.

1.6 Self-assessment Test

Q.1 What do you mean by macroeconomics? How it is different from microeconomics?

Q.2 Explain the scope and importance of macroeconomics in detail.

Q.3 Define macroeconomics. Why do we need macroeconomics?

Q.4 Explain the role of macroeconomics in real world. Is macroeconomics can really be a solution to economic problems in the economy?

Q.5 How macroeconomics is different from microeconomics? Is there any relationship exists among these two concepts?

Q.6 Explain the different types of macroeconomics in detail.

Q.7 Explain the different macroeconomics variables affecting the economy. Also explain the importance of macro analysis in detail.

Q.8 Explain the major issues macroeconomic issues. What are major issues arising in the study of macroeconomics?

Q.9 How can you say that macroeconomics and microeconomics are dependent on each other? What are the major forces behind this dependence?

Q.10 How does macro static analysis is different from macro dynamic analysis? How does Macro comparative analysis is related with static analysis and dynamic analysis?

1.7 Answer to Check Your Progress

1. Adam Smith
2. Macroeconomics
3. Aggregate Economic Activity
4. Individual Economic Activity
5. Prof. J. M. Keynes

1.8 References/Suggested Readings

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Subject: Macro Economics	Author: Ms. Chand Kiran
Subject Code: BCOM 202	Vetter: Prof. Anil Kumar

LESSON-2

National Income: Concept, Measurement and Circular Flow of Income

Structure

2.0 Learning Objectives

After reading this chapter you will be able to understand the concept on National Income. You will find different methods of measurement of National income. You will learn about the circular flow of

National Income in the economy. At the end you will also find difficulties to measure National Income. All these concepts will be useful for you to understand the role of National Income in an economy.

2.1 Introduction

In previous chapter, we have discussed about macroeconomics; National Income is a major concept which is studied under macroeconomics. National income and wealth of England was estimated by Sir William Petty in 1665 for the first time. Then, Gregory King also tries to estimate national income in 1696. And Gregory King is also known as Father of Modern National Income Accounting. During First World War Prof. Bowley and Sir Joshia Stamp collected data for national income. After this, many economists like Prof. Stone, Meade, Gilbert and Kuznets also worked in this direction. In India, National Income Committee was formed to collect data for National Income in 1949. After 1952, this work was allotted to Central Statistical Organisation (CSO) and currently this organisation published data on national income in National Accounting Statistics.

National income may be defined as the total sum of factor incomes earned by normal residents of a country during an accounting year. National income involves two major terms i.e. Factor income and Normal residents of a country. Factor income refers to the income earned by households from factor of production (land, labour, capital, entrepreneurship. Normal resident of a country may be defined as the resident who normally resides in the country and his economic interest lies in that country. National Income can be defined as the total value of goods and services produced within a country during an accounting year. We can also conclude that national income is the total outcome of all the economic activity of a country in an accounting year.

Traditional definitions of National Income

According to Marshall, "The labour and capital of a country, acting on its natural resources, produce annually a certain net aggregate of commodities, material and immaterial including services of all kinds… This is the true net annual income or revenue of the country or national dividend."

According to A.C. Pigou, "National income is that part of the objective income of the community, including, of course, income derived from abroad which can be measured in money."

Modern definitions of National Income

Profs Lipsey and Chrystral defined National Income as, "the value of the nation's total output and the value of the income generated by the production of that output."

Gardner Ackley defines "National income is the sum of all (a) wages, salaries, commissions, bonuses and other form of incomes, (b) net income from rentals and royalties, (c) interest, (d) profit."

So, we a large number of definition of national income and we can use the one which is easy to understand and included every aspect of national income. In practical life, we can use any definition because we will get same results if we use correct values and measures for calculating national income.

2.2 Concepts or Aggregates of National Income

National income is not just a term rather than it is a complete conception which is further classified into different concepts. National income is formed with help of many concepts which are discussed below:

I. Gross Domestic Product

Gross domestic product (GDP) is the monetary value of total sum of all goods and services produced within domestic territory of a country in an accounting period. It is also known as GDP at market price because it is calculated on market price. It is a monetary measure. Dernberg defines GDP at market price as **"the market value of the output of final goods and services produced in the domestic territory of a country during an accounting year." Gross Domestic Product is shown as GDP_{MP} and depreciation is included in it.**

GDP = Market value of goods and services produced in the country + incomes earned in the country by foreigners – incomes received by resident nationals from abroad

GDP at market price is calculated on market price of goods and services which includes the indirect taxes like sales tax and excise duty. The grants or subsidy received from government also reduce the market price.

II. Gross Domestic Product at Factor Cost

GDP can be computed at both market prices as well as factor cost. It is shown as GDP_{FC}. GDP_{FC} refers to total value of goods and services produced during an accounting year at the cost of production. GDP_{FC} is dependent on gross domestic product at market price. So, first of all we have to calculate GDP at market price then indirect taxes are deduced and subsidies are added into GDP at market price.

GDP_{FC}= GDP_{MP} – Indirect Taxes + Subsidies

OR

GDP_{FC}= Factor Income (Rent + Compensation + Interest + Profit) + Depreciation (due to consumption of fixed capital)

GDP at factor cost may be defined as sum total of factor incomes generated in an accounting year within the domestic territory of a country.

III. Net Domestic Product

Gross domestic product includes depreciation charges incurred due to consumption of fixed capital. When these charges depreciation are deducted from GDP, it becomes Net Domestic Product or NDP. It is also known as net output of a country in an accounting year. It can be calculated as follows:

NDP = GDP – Depreciation; it is also calculated on both market price and factor cost.

NDP_{MP} = GDP_{MP} – Depreciation

NDP_{FC} = NDP_{MP} – Indirect taxes + Subsidies

IV. Nominal and Real Gross Domestic Product

GDP can be calculated on the basis of two type of prices i.e. current price and fixed price. When GDP is calculated on current price, it is known as nominal GDP and when GDP is calculated on fixed price in some year, it is known as real GDP. In case of nominal GDP it becomes very difficult to compare one year GDP with another year GDP because prices fluctuates over a period of time. And one more thing about rupee is that it is not a stable measure of purchasing power. Due to these problems GDP may raise or fall without growth in the economy. Thus, actual GDP cannot be determined. These are major reasons which force us to use real GDP because here we use constant price to calculate GDP. For this purpose, price of a base year is selected where prices are general; means these are neither high nor low. It can be calculated as follows:

Nominal GDP = Quantity of final goods and services produced during an accounting year × Current prices prevailing during the accounting year

$$\textbf{Real GDP} = \text{GDP for the current year} \times \frac{\textbf{Base Year}}{\textbf{Current Year Index}}$$

V. Gross Domestic Product Deflator

GDP inflator is a price index which shows price changes of goods and services included in GDP. It can be calculated as follows:

$$\textbf{GDP Deflator} = \frac{Nominal\ GDP}{Real\ GDP} \times 100$$

VI. Gross National Product

GNP refers to the gross national product which is total value of goods and services produced by normal residents and non-residents in the domestic territory of a country. Net income from abroad is the major difference among GDP and GNP because GDP does not include factor income from abroad. This can be calculated as follows:

GNP = GDP + Net factor income from abroad

OR

GNP = money value of goods and services + Income earned by national residents from abroad – Income earned locally but accruing to foreigners

GNP is also calculated at factor cost and market price.

$\textbf{GNP}_{\textbf{MP}}$ = GDP_{MP} + Net factor income from abroad

$\textbf{GNP}_{\textbf{FC}}$ = GNP_{MP} – Indirect Taxes + Subsidies

VII. Net National Product

Net National Product is the total value of goods and services produced in the domestic territory of a country in an accounting year after deducting depreciation and by adding net income from abroad. It is calculated through following equation:

NNP = GNP – Depreciation

$\textbf{NNP}_{\textbf{MP}}$ = GNP_{MP} – Depreciation

$\textbf{NNP}_{\textbf{FC}}$ = NNP_{MP} – Indirect Taxes + Subsidies

VIII. Domestic Income

Domestic income is the total factor income generated by producing goods and services in the domestic territory of a country in an accounting year. This income is generated with the help of own resources of a country. Domestic income includes rent, wages, interest, dividend, direct taxes and undistributed profits. Domestic income does not include the income generated from abroad. If we add income from abroad into domestic income then domestic income will become national income. Net income from abroad may be positive or negative as it is the

difference among exports and imports. If exports exceed imports then net income from abroad will be positive or vice-versa.

Domestic Income = National Income – Net Income from Abroad

IX. Private Income

Private may be defined as the income which is generated by private sector from any source; which may be productive or other. It also includes retained earnings of the corporations. According to **Central Statistical Organisation**, private income is total factor income from all sources and the current transfers from the government and the rest of the world accruing to private sector.

Private Income = Income from Net Domestic Product accruing to the Private Sector + Net Factor Income from Abroad + Net Transfer Payments from the Government + Net Current Transfer Payments from Rest of the World + Interest on National Debt

X. Personal Income

Personal income refers to the total income received by households from all sources in the form of current transfer payments and factor incomes in an accounting year. It includes wages, salaries, fees, commission, bonus, dividends and earnings from self- employment. Other transfer incomes like pension, social security benefits, sickness allowances, etc. are also included in personal income. Personal income can never be equal to national income because personal income includes transfer payments also.

Personal Income = Private Income – Undistributed Profits – Corporate Taxes

XI. Personal Disposable Income

Personal Disposal Income is that part of income which is obtained after deducting direct taxes, fines and fees to the government from personal income. This income can be used by individual for any purpose which may be saving or consumption.

Personal Disposable Income = Personal Income – Personal Taxes

OR

Personal Disposable Income = Consumption + Saving

XII. Real Income

It can be defined as the national income which is calculated on the basis of general price level in a particular year where general price is taken from that base year. It is calculated on general prices because current prices do not provide a real estimation of national income.

Real Income = $NNP\ for\ the\ current\ Year \times \frac{Base\ Year\ Index}{Current\ Year\ Index}$

XIII. Per Capita Income

Per capita income refers to average income of the people of a country in a particular year. It can be also known as measurement of national income at current prices and constant prices. Per capita income can be computed as follows:

Per capita income = $\frac{National\ Income}{Population}$

Per capita income indicates the average availability of goods and services per individual during an accounting year.

2.2.1 Circular Flow of Income

Everyday economic transactions and exchange take place in the economy. These transactions go through a particular path. First of all, producer produces the goods and services and consumer purchase these products. Money is used for this exchange. Earlier there was barter system which has many drawbacks, but money reduces all these difficulties and become basis for exchange. Economy runs in a particular manner as consumer provides factor of productions to producer and producer produces goods and services for the customers. Then, customer exchange through money and this process goes on. Money changes hands and thus this formed a circle known as circular flow of income. Circular flow of income increases over a period of time due to growth of population and higher level of production-distribution-expenditure. Income and expenditure are in opposite direction in the circular flow. This flow of income and expenditure can be shown in different sectors. These sectors are defined as follows:

2.2.1.1 Two Sector Model of Circular Flow of Income

Two sector model consist major two sector i.e. Household Sector and Government Sector. This model is based on some assumptions discussed as follows:

(a) Government Expenditure does not exists in the economy
(b) Foreign Trade does not exists in the economy
(c) Taxes do not exist in the economy.
(d) Households saving do not exist in the economy.

Figure.1 Two Sector Model of Circular Flow of Income

Although this model is unrealistic but it can provides us a basic idea about circular flow of income. This model defines that households are the owners of factor of productions (Land, Labour, Capital, and Entrepreneurship) and they provides these factor of production to producer as shown in the figure. Producer offers factor payments (Rent, Wages, Interest and Profit) for use of these factors of production. After this producer produces goods and services and rendered these products to consumer in exchange with money. When goods are transferred from producer to consumer, it is known as real flow. This real flow is shown through the upper circle of the diagram. The inner circle of the diagram presents the money flow from producer to consumer and consumer to producer. Real flow and money flow are in opposite direction. One part of diagram is known as factor market in which factor of production are exchanged with factor payments. And another part of diagram is known as commodity market where goods and services are supplied to consumer in exchange for money. Factor of production get payment as rent for land, wages for labour, interest for capital and profit for entrepreneurship. Due to this payment system under each head, there will be no chance for undistributed profits. Total output of the producer will be equal to total income of households. Here, gross income will be equal to total disposable income and there will be equilibrium situation in the economy. This situation does not prevail in the real economy because in real life, households save money and invest it into capital market which

is again invested for production. Through circulation of saving and investment, equilibrium can be situated again in the economy.

2.2.1.2 Three Sector Model of Circular Flow of Income

This model is more realistic than two sector model. Here, we have three sectors i.e. Household sector, Production sector and Government sector. This model involves the government intervention in the economy but still it is based on closed economy. Closed economy means there is non-involvement of foreign trade in the economy. This model discard a major limitation of taxes of two sector model which means taxes exists in three sector model. Major three variables are included here:

(a) Direct Taxes
(b) Government Expenditure
(c) Transfer payment

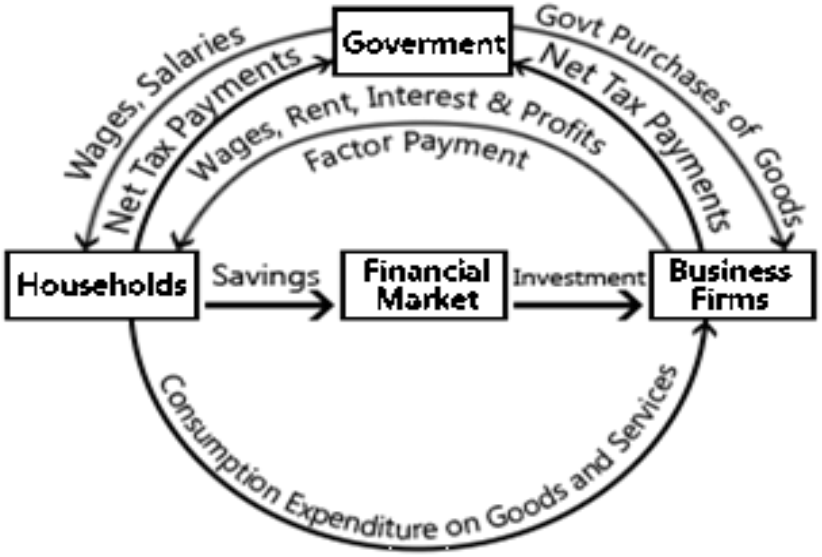

Figure.2 Three Sector Model of Circular Flow of Income

Direct tax reduces personal disposable income which results into reduction of consumption expenditure as well as savings. Then, the second variable government expenditure provides an inducement to purchasing power of households and this will increase demand for goods and services. This increase in demand leads to more production from producer sector. Further the next variable, transfer payments by the government are also work as injections in the circular flow of income in three sector model. In two

sector model government sector was absent and money flow was among business sector and producer sector. Due to government sector money flow from household gets reduced. Household sector has to pay direct taxes to government sector and producer sector has to corporate taxes to government sector. This amount of taxes is used for providing transfer payment to households, for purchasing goods and services from firms and for providing subsidies. Ultimately, these will results into circular flow because firm and household pay taxes to government and government provide these taxes in the form of subsidies and financial aid. This situation is possible when government has a balanced budget. If government has some deficit then it takes loans from capital market and in case of surplus with government then it will be invested in capital market.

2.2.1.3 Four Sector Model of Circular Flow of Income

It is an advanced form of three sector model as it included foreign trade as well as the other three sectors. Every economy is dependent on the other economy for some or the other products. This is also known as open economy as the economy is opened for the rest of the world. Four sectors are as follows:

(a) Household sector
(b) Producing sector
(c) Government sector
(d) Rest of the World

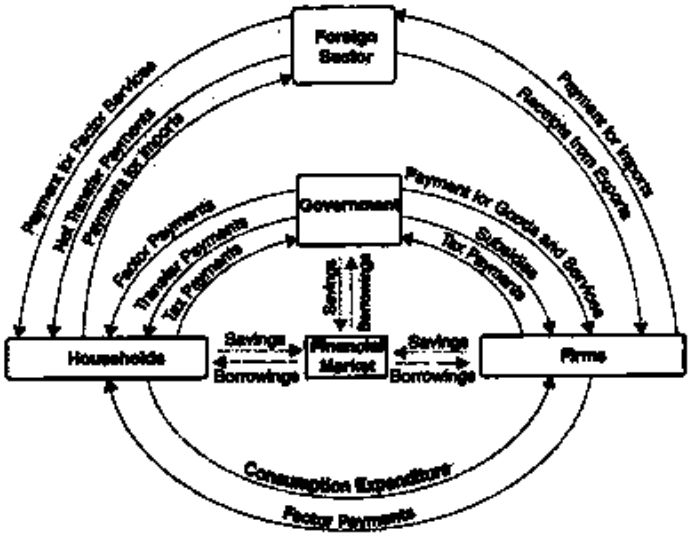

Figure.3 Four Sector Model of Circular Flow of Income

Household sector provide factor of production to firms, pay taxes to government sector and import payment to rest of the world. Household sector obtain factor payment from firms, export receipts and transfer payments from government. Similarly government receives taxes from households and firms and borrowing from capital market in case of deficit. Firms have to pay taxes to government, factor payment to household and import payment to rest of the world. Firms obtain subsidies from government, factor of production from households and export receipts from rest of the world.

Capital market got savings from producing sector, government sector and household sector. It provides borrowings producing sector and government sector. Thus, four sector model is provides a complete circular flow of income and expenditure.

2.2.2 Importance of National Income Analysis

National income analysis is very important for a Nation. It gives answer to various economic questions and problems. Every country faces some problem regarding their economy and these problems are identified through national income analysis. It is a macroeconomic factor which study the Net National Income. Importance of national income analysis is discussed in detail as under:

I. National income is an important indicator for economic planning in a country. National income gives estimation about the health of an economy and economic planning the different ways to improve economic health of a country. So, national income is helpful for the development of economic planning.

II. Economic planning is based on the estimation of national income and economic policy is based on economic planning. Economic policies are formed for the development of a nation. National income provides information about the various indicators affecting any nation. These indicators are helpful for economic decisions and formation of economic policies. Thus, national income is helpful in formation of Economic policies.

III. National income is also helpful to provide information about the major economic problems. As national income analysis indicates what to produce, how to produce and for whom to produce. Thus, one can find the solutions for these problems in order to achieve economic development.

IV. National income also involves contribution of different sectors of production. It includes primary sector, secondary sector and territory sector. Thus, national income provides us knowledge about all the sector of production.

V. Inflation and Deflation are the two major indicators of national health of a country. Both these situations are unfavorable for a country and every country tries to balance this situation. Solution to these problems can be obtained after knowledge of these indicators. Thus, national income analysis is important as Inflation and Deflation are depicted through national income analysis.

VI. Every country wants to balance their country through various measures. For this purpose budgetary policies are also formed. Every nation wants to stay away from the fluctuations of business cycles. These fluctuations are controlled through various budgetary policies. Thus, national income is helpful for creation of budgetary policies.

VII. National income is also helpful to provide knowledge about national expenditure. In calculation of national income we segregate the total expenditure in consumption expenditure and government expenditure. One important fact i.e. depreciation is also studied under national income analysis. This analysis also express that liberal policy may be dangerous for any economy.

VIII. Through calculation of national income, we came to know about the government aids i.e. subsidies. National income analysis is helpful to balance the distribution of these subsidies in the economy.

IX. National income analysis is also helpful for comparison among different nations. This comparison is based on Gross Domestic Product. Thus, it also becomes basis for comparison of standard of living of different countries.

X. National income analysis also includes exports and imports with other countries. We also calculate foreign aids, receipts, payments and quota from other countries. It also includes contribution of IMF, WTO, UNO, etc. Thus, national income analysis provides knowledge about international sphere.

XI. National income analysis is also helpful to distribute the total Gross National Product in consumer goods and defence products. If GNP is high then more income may be used for development and defence products and rest of the consumer products will not suffer.

XII. National income analysis includes income of both public and private sector. If more contribution is done by public sector then there is dominance of public sector in the economy and vice-versa.

XIII. Data on national income are important for any economy. These data calculated on national income are called social accounts. Here, we calculate net national income and net national expenditure.

XIV. All the short-run economic models and long-run economic models formed by economists are based on national income data. Thus, national income analysis is helpful for the development of economic models.

XV. Economists try to find new theories and models in economics for development in existing literature and national development. These researches are based on national income data and analysis. Researchers also use various economic data about consumption, investment, production, etc. in their research for the development of new models and theories.

2.2.3 Measurement of National Income

National income can be measured as addition of value of goods and services produced in an accounting year OR it can be expressed as total of income generated through producing goods and services during an accounting year OR it may also be calculated as the sum of expenditure incurred on producing goods and services in the economy. There are three major methods to calculate national income i.e. Value added method, Income method and Expenditure method. Thus, measurement of national income can be calculated using three different methods. These are as follows:

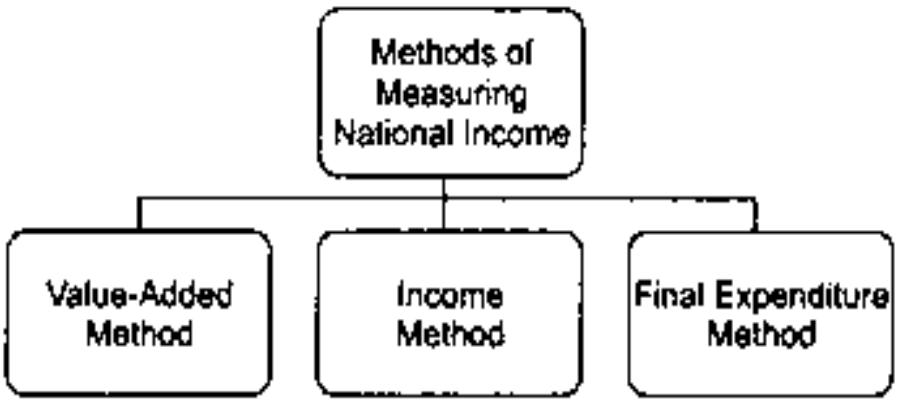

Figure.4 Four Sector Model of Circular Flow of Income

I. Product Method

Product method defines national income as total value of goods and services produced during an accounting year by all the firms in an economy. This value will also include products work-in-progress and production for personal use by producer. This method as also known as output method or value added method because it is addition of value to intermediate goods at different stages of production. Total value addition by each firm is calculated by the total output of firm minus value of the intermediate goods obtained from other firm as input for final product.

This method can be understood with the help of an example. Like farmer sell wheat for ₹ 400, it is final output for farmer. Then, producer of wheat flour take wheat as an input and flour as final product. After this, flour is purchased by bakers for ₹ 800as raw material for preparing bread. Then, the bread is sold by baker for ₹1000 to customer. Hence, total output for baker is ₹1000. If we count total output it will be calculated as 400 + 800 + 1000 = 2200. But, this calculation is wrong in case of calculation of GDP. Here, we can see that total output for baker includes the total output of wheat flour. This becomes the reason for double counting. In case of calculation of GDP this problem of double counting is avoided.

$$GDP_{MP} = \Sigma\ GVA_{MP}$$

GDP_{MP} is calculated by adding up value addition by all the producers in the economy.

Value added = ₹400 + ₹(800-400) 400 + ₹(1000-800) 200 = ₹1000

National Income can be calculated as:

GDP_{MP} - Net Indirect Taxes = GDP_{FC}

GDP_{FC} – Depreciation = NDP_{FC}

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

Precautions used in Expenditure method:

(i) Value of final goods and services is included in National Income.

(ii) Any product supplied at free of cost or at discount rate or sold at a profit margin, and then it will be included in it.

(iii) Value of goods for self-consumption and imputed rent of self-occupied building is also included in National Income.

(iv) Value obtained from leisure time or illegal activity is excluded from National Income.

(v) Service of housewives for their home and any voluntary work are not included in calculation of National Income.

II. Income Method

Income method refers to that method where national income is calculated from total factor income arising from different factors of production used in producing the national income. It is also known as Factor Share Method, Distributed Share Method and Factor Payment Method. In this method, the value of production should be equal to the value of income claims arising by that production. Factor Income from those households is included who are normal resident of a country. Factor Income refers to that income which is incurred by a person as a reward rendering factor services. Factor income includes rent for land, wages for labour, interest for capital and profit for entrepreneurs.

National Income = Compensation to employees + Operating surplus + Mixed Income + Net Factor Income from Abroad

Here,

Compensation of employees = wages & salaries in cash + Payments in Kind + Employers' contribution to social security + Pension on Retirement

Operating Surplus = Rent + Interest + Profit (Dividend + Corporate Profit Tax + Undistributed Profit)

Mixed Income = Mixed income refers to income earned by using own land, labour, capital and entrepreneurship. It includes rent, interest, wages and profit earned through own factors.

NDP_{FC} = Compensation to employees + Operating surplus + Mixed Income

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

Precautions used in Expenditure method:

(i) Income earned from sale of second hand goods is not included in calculation of National Income.

(ii) Any type of wealth tax, gift tax and estate duties are excluded from the National Income.

(iii) Illegal incomes are not included in calculation of National Income.

(iv) Any transfer payment is not included in National Income.

(v) Value of production for self-consumption and imputed rent on self-occupied building is included in it.

III. Expenditure Method

According to Expenditure method, National income refers to total expenditure incurred on purchase of final goods and services produced in an economy during an accounting year. This method is also known as Consumption and Investment Method or Income Disposal Method. National Income can be computed as follows:

National Income = Final Consumption Expenditure + Gross Domestic Capital Formation + Net Exports - Depreciation – Net Indirect Taxes + Net Factor Income from Abroad

Here, **Final Consumption Expenditure** = Private Final consumption expenditure + Government final consumption expenditure

Gross Domestic Capital Formation = Gross Domestic Fixed Capital Formation + the Expenditure on Change in Stock or Inventory

Net Exports = Exports – Imports

Precautions used in Expenditure method:

(i) Expenditure on final goods is included and expenditure on intermediate goods or semi-finished goods is excluded.

(ii) Expenditure on obtaining finance capital is not included in it.

(iii) Any government expenditure on old age pension, scholarship, unemployment allowances, etc. is not included in this method.

Thus, we can conclude that there are three major methods to calculate national income. These three methods include different factors and attributes. One method describes items related with value addition in final products; other method includes items related with income and the last method includes items related with expenditure. So, these methods provide the complete knowledge of all the variables related with National Income. Estimation of National Income can be shown as follows through a diagram:

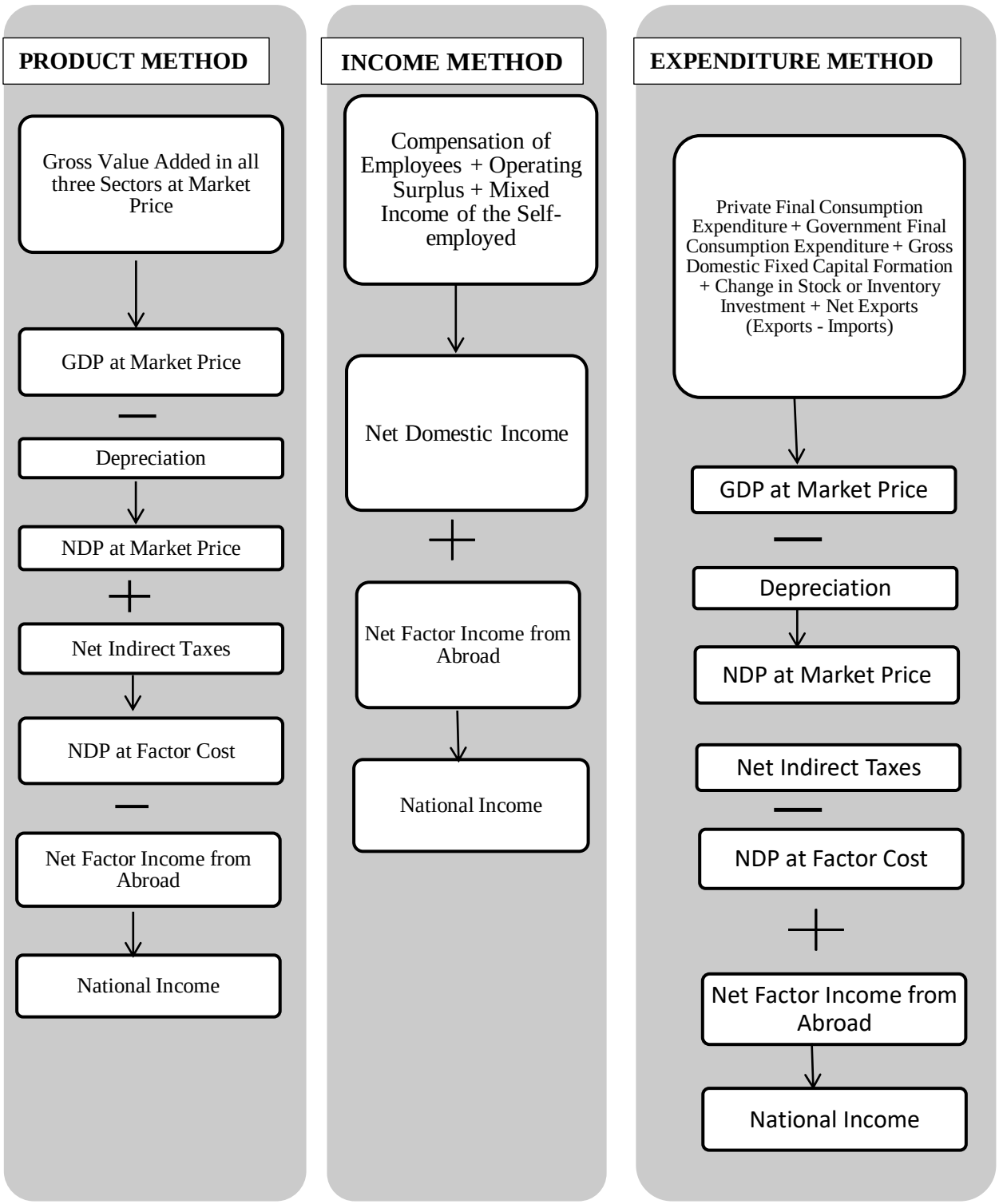

Figure.5 Four Sector Model of Circular Flow of Income

2.2.4 Difficulties in measurement of National Income

There are various difficulties in calculation of national income. Some of these are related with concepts and some of these are related with statistics. These are described as:

I. While measuring national income we exclude non-monetary transactions in the economy. Services of housewives and farm output used at home are not included in calculation of national income. Sometimes, services of housewives are excluded and farm output used at home is included in national income but this creates anomalies.

II. Another major problem arises when foreign income is generated by a foreign firm in a country. It creates problems of inclusion of that income. This income may be included in national income of that country where the firm is situated or this will be included in national income of foreign country. Thus, foreign income is also creates problem in calculation of national income.

III. It is difficult to determine the final goods and services included under calculation of national income because it creates problem of double counting. Thus, it is difficult to clear the difference of final goods and semi-finished goods.

IV. National income calculation is based on national income data which may be false. Calculation of national income requires proper accounts and data on production, investment, consumption, etc.

V. When accounts are prepared, prices are different and when national income is calculated prices changes. This change in price creates problem in calculation of national income.

2.3 Some practical questions on National Income:

Q.1 From the following data calculate National Income: Items (in crore)

(i) Private income 1,200 (ii) National debt interest 40 (iii) Current transfers from the government administrative departments 40 (iv) Other current transfers from rest of the world 12 (v) Income from property and entrepreneurship accruing to government departments 16 (vi) Savings of government departmental enterprises 8.

Sol. National Income = Private income – National debt interest – Current transfers from the government administrative departments – Other current transfers from rest of the world + Income from property and entrepreneurship accruing to government departments + Savings of government departmental enterprises

National Income = 1,200 crore – 40 crore – 40 crore – 12 crore + 16 crore + 8 crore = 1,132 crore = 1,132 crore.

Q.2 Calculate GDP_{MP} and NDP_{MP} with the help of expenditure method from the data give below: Items (in crore)

(i) Personal disposable income 8,600 (ii) Personal savings 1,500 (iii) Fixed capital formation 3,000 (iv) Net exports (–)300 (v) Net factor income from abroad (–)500 (vi) Net indirect taxes 600 (vii) Government final consumption expenditure 2,200 (viii) Change in stock 800 (ix) Consumption of fixed capital 450

Sol. GDP_{MP} = Personal disposable income – Personal savings + Net exports + Fixed capital formation + Change in stock + Government final consumption expenditure

GDP_{MP}= 8,600 crore – 1,500 crore + (–) 300 crore + 3,000 crore + 800 crore + 2,200 crore GDP_{MP} = 12,800 crore

NDP_{MP} = GDP_{MP} – Consumption of fixed capital

NDP_{MP}= 12,800 crore – 450 crore

NDP_{MP}= 12,350 crore

Q.3 From the following data, calculate National Income by (a) income method, and (b) expenditure method: Items (in crore)

(i) Private final consumption expenditure 2,000 (ii) Net capital formation 400 (iii) Change in stock 50 (iv) Compensation of employees 1,900 (v) Rent 200 (vi) Interest 150 (vii) Operating surplus 720 (viii) Net indirect tax 400 (ix) Employers' contribution to social security schemes 100 (x) Net exports 20 (xi) Net factor income from abroad (-)20 (xii) Government final consumption expenditure 600 (xiii) Consumption of fixed capital 100

Sol. (a) Income Method:

National Income = Compensation of employees + Operating surplus + Net factor Income from abroad

National Income = 1,900 crore + 720 crore + (–) 20 crore = 2,600 crore

(b) Expenditure Method:

National Income = Private final consumption expenditure + Government final consumption expenditure + Net capital formation + Net exports + Net factor income from abroad - Net indirect taxes

National Income = 2,000 crore + 600 crore + 400 crore + 20 crore + (-) 20 crore - 400 crore = 2,600 crore

Q.4 Calculate from the following data:

(a) Private Income, (b) Personal Disposable Income, and (c) Net National Disposable Income: Items (in crore)

(i) National income 3,000 (ii) Savings of private corporate sector 30 (iii) Corporation tax 80 (iv) Current transfers from government administrative departments 60 (v) Income from property and entrepreneurship accruing to government administrative departments 150 (vi) Current transfers from rest of the world 50 (vii) Savings of non-departmental governments enterprises 40 Introductory Macroeconomics (iii) Economics–XII (viii) Net indirect taxes 250 (ix) Direct taxes paid by households 100 (x) Net factor income from abroad (–)10

Sol.(a) Private Income = National income + Current transfers from government administrative departments + Current transfers from rest of the world – Income from property and entrepreneurship accruing to government administrative departments – Saving of non-departmental governments enterprises

PI = 3,000 crore + 60 crore + 50 crore – 150 crore – 40 crore = 2,920 crore

(b) Personal Disposable Income = Private income – Savings of private corporate sector – Corporation tax – Direct taxes paid by households

Personal Disposable Income = 2,920 crore – 30 crore – 80 crore – 100 crore

= 2,710 crore

(c) Net National Disposable Income = National income + Net indirect taxes + Current transfers from the rest of the world

Net National Disposable Income = 3,000 crore + 250 crore + 50 crore

= 3,300 crore

2.4 Check Your Progress

1. _____is known as National Income.
2. Product method of calculating National Income is also known as _____.
3. Four factors of products are _____.
4. There are _____ methods to measure National Income.
5. GDP stands for _____.

2.5 Summary

National income is not only a term rather than it includes various concepts related to national income. National income is an indicator of economic health of a country. National income is calculated with the help of three methods i.e. Income Method, Product Method and Expenditure Method. Every method is important in its own way and includes different terms under each method. National income analysis is very important for every country because it becomes a basis for comparison among different nations. No doubt national income analysis plays an important role in the economy. Still this analysis has many drawbacks which create problems in calculation of national income. But, National income is an estimation of Net National Income, so these problems can be removed and ignored through some measures.

2.6 Keywords

National Income- National income may be defined as the total sum of factor incomes earned by normal residents of a country during an accounting year.

Gross Domestic Product- Gross domestic product (GDP) is the monetary value of total sum of all goods and services produced within domestic territory of a country in an accounting period.

Double Counting- Double counting arises when total output of the entire producer is added up without considering that output of one producer may be input for the other producer.

Product Method- Product method defines national income as total value of goods and services produced during an accounting year by all the firms in an economy.

Income Method- Income method refers to that method where national income is calculated from total factor income arising from different factors of production used in producing the national income.

Expenditure Method- According to Expenditure method, National income refers to total expenditure incurred on purchase of final goods and services produced in an economy during an accounting year.

2.7 Self-assessment Test

Q.1 Explain the following concepts:

(a) Domestic Income

(b) GDP

(c) GDP deflator

(d) Private Income

Q.2 What do you mean by NNP_{MP}? How does it can be calculated from GDP?

Q.3 Distinguish domestic income and national income with the help of suitable example.

Q.4 Explain the different methods of measuring National Income in detail.

Q.5 What do you mean by National Income Analysis? Explain the major importance of National Income Analysis.

Q.6 Differentiate between product method and expenditure method of calculating national income.

Q.7 Elaborate income method of measuring national income. Also explain the various precautions taken under income method.

Q.8 You are given the following information about an economy:

Gross Investment = 40, Govt. purchases of goods & service = 30, GNP = 200, X – M = - 20, Personal Tax = 60, Govt. transfer = 25, Interest payments from the Govt. to domestic Pvt. Sector = 15, Factor income received from the rest of the world = 7, Factor payment made to rest of would = 9.

Calculate: a) Consumption b) GDP c) Net factor payment from abroad

d) Pvt. Saving e) Public Saving.

Q.9 The following is the information from the national income accounts for a hypothetical country:

GNP = 5000.00, Personal Disposable Income = 4100.00, Consumption = 3800.00, X- M = 50.00, Govt. Budget Deficit = 200.00,

Calculate Gross Investment and Government Expenditure.

Q.10 What is the difference between gross domestic product and gross national product? Which of these two is best measure of income and why?

2.8 Answers to Check Your Progress

1. Total income earned in producing the national product
2. Value Added Method
3. Wages, Rent, Interest, Profit
4. Three
5. GDP

2.9 References/Suggested Readings

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Subject: Macro Economics	Author: Kapil Singh
Subject Code: BCOM 202	Vetter: Prof. Anil Kumar

LESSON-3
PRINCIPLES OF EFFECTIVE DEMAND

STRUCTURE

3.0 Learning Objectives

After reading this chapter, you will be able to understand the concept of effective demand and its determinants i.e., aggregate demand and aggregate supply. Through this lesson knowledge will be imparted to you about the determination of effective demand. This lesson will be helpful for you to understand the needs to study effective demand and its criticism.

3.1 Introduction to Effective Demand

"Effective demand is a fundamental concept in economics that plays a crucial role in understanding the dynamics of a market economy. It refers to the willingness and ability of consumers to purchase goods and services at a given price level in the economy. In other words, it represents the total demand for goods and services that is actually backed by purchasing power, and not just the desire to buy. Effective demand is a key factor in determining the level of economic activity and output in an economy. It influences the decisions of producers to produce goods and services, as they are motivated to meet the demands of consumers to maximize profits. When effective demand is high, producers are encouraged to expand production and invest in new ventures. Conversely, when effective demand is low, producers may cut back on production and investment. The concept of effective demand is closely related to the idea of aggregate demand, which represents the total demand for goods and services in an entire economy. In a well-functioning market economy, effective demand and aggregate demand tend to align, leading to stable economic growth. Economists and policymakers closely monitor effective demand to gauge the health of an economy and implement appropriate measures to stimulate demand during economic downturns or control inflation during periods of excessive demand. By understanding effective demand, economists can better comprehend consumer behavior and make more informed decisions to promote overall economic stability and prosperity."

3.1.1 Meaning and Definition of Effective Demand

"Effective demand is the willingness and ability of consumers/customer to buy goods and services at a given price level within an economy." It is a concept used in macroeconomics to describe the aggregate demand in an economy. Effective demand takes into account not only consumers' desires and preferences for goods and services but also their purchasing power or ability to pay for them.

In simpler terms, effective demand represents the total demand for goods and services that can be backed by the ability to pay. It considers both the desire or need for a product and the financial resources available to fulfill that desire or need. It is important to note that effective demand is not just the desire for a product; it requires the purchasing power to make the demand effective in the market.

The concept of effective demand is closely related to the overall level of economic activity and plays a significant role in determining production levels and economic growth. When effective demand is high, indicating strong consumer purchasing power, it generally leads to increased production and economic expansion. Conversely, when effective demand is low, indicating weak consumer purchasing power, it can result in reduced production and economic contraction.

In summary, effective demand refers to the combined willingness and ability of consumers to purchase goods and services, taking into account their desire for the products as well as their financial capacity to make those purchases.

Definition

In **J.M. Keynes's** words, "The value of Aggregate Demand at the point of Aggregate Demand function, where it is intersected by the Aggregate Supply function, will be called the effective demand."

According to **Stonier and Hague**, "Effective demand is the aggregate demand price which becomes effective, because it is equal to aggregate supply price and thus represents a position of short run equilibrium."

In the words of **D. Dillard**, "The adjective 'effective' is used to designate the point on aggregate demand curve where it is intersected by the aggregate supply curve."

3.1.2 Concept of Effective Demand

"The concept of effective demand is a fundamental principle in economics that plays a crucial role in understanding how markets function and the level of economic activity in an economy. Effective demand refers to the total amount of goods and services that consumers are willing and able to purchase at a given price level, considering their real income and purchasing power." To fully grasp the concept of effective demand, it's essential to distinguish it from mere "desire" or "wants." Desire, in economic terms, represents the wish or aspiration to possess a good or service. However, for this desire to be translated into actual demand, consumers must have the financial means or

purchasing power to back it up. This is where effective demand comes into play it represents the practical manifestation of consumers' desires. The concept of effective demand is explained with Figure 3.1

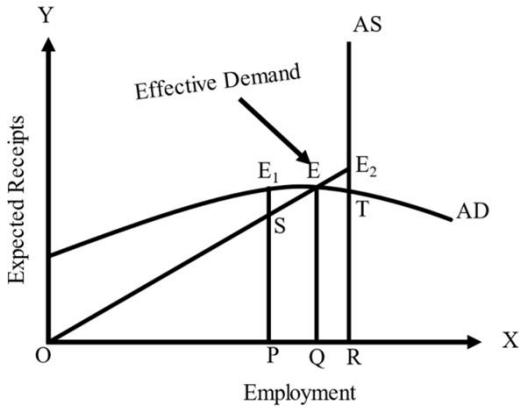

Figure 3.1

In figure, on X-Axis employment and on Y- Axis Expected Receipts. Aggregate Supply curve is denoted by AS and Aggregate Demand curve by AD. On point E, AD and AS intersect each other, so this point called the equilibrium of Aggregate Demand and Aggregate Supply i.e., effective demand. At this point the level of employment is OQ. If aggregate supply is SP then OP number of workers will gets employment. E_1 P will be aggregate demand on OP level of employment. E_1 S is the surplus in this situation. Entrepreneur will produce more and demand more workers to reach the point E. Up to point E, there will be increasing level of employment. On the other hand, if they will reach at OR level of employment then AD will be less than AS, in this situation all production couldn't be sold. So here level of employment will be down at up to OQ. In short, effective demand is important in determination of level of employment.

3.1.3 Determinants of Effective Demand

The main determinants of Effective demand are as follows:

- Aggregate Demand (AD)
- Aggregate Supply (AS)

3.1.3.1 Aggregate Demand

To Study the concept of effective demand in details we need to know the two elements: Aggregate Demand Price and Aggregate Demand Schedule. Before it lets discuss components of aggregate demand.

"Aggregate demand is the total demand for goods and services within an economy over a given period. It consists of four main components: consumption (C), investment (I), government spending (G), and net exports (NX)." These components represent different sources of demand within the economy and provide a framework for understanding and analyzing overall demand levels.

Consumption (C): "Consumption refers to the spending by households on goods and services. It includes purchases of necessities, such as food and housing, as well as discretionary spending on items like entertainment and vacations. Consumption is influenced by factors such as disposable income, consumer confidence, interest rates, and wealth levels."

Investment (I): "Investment represents spending by businesses on capital goods, such as machinery, equipment, and buildings, to expand production capacity or improve efficiency. It also includes business investments in research and development (R&D) and inventories. Investment is influenced by factors like interest rates, business confidence, technological advancements, and expected returns on investment."

Government spending (G): "Government spending refers to expenditures by the government on public goods and services, such as infrastructure, defense, education, and healthcare. It also includes transfer payments, such as social security and welfare benefits. Government spending is determined by fiscal policy decisions and can be used to stimulate or dampen economic activity."

Net exports (NX): "Net exports represent the difference between exports (goods and services sold to other countries) and imports (goods and services purchased from other countries). Positive net exports (exports > imports) contribute to aggregate demand, while negative net exports (imports > exports) detract from aggregate demand. Net exports are influenced by factors such as exchange rates, trade policies, global economic conditions, and competitiveness of domestic industries."

These four components together determine the level of aggregate demand in an economy. Changes in any of these components can have significant effects on overall demand levels, leading to shifts in economic activity, output, and employment. Analyzing the components of aggregate demand helps

policymakers and economists understand the drivers of economic growth and implement appropriate measures to stabilize or stimulate the economy when needed.

- **Aggregate Demand Price:** "The aggregate demand price for the output of any given amount of employment is the total sum of money or proceeds, which is expected from the sale of the output produced when that amount of labor is employed." Aggregate demand price refers to the total amount of money that buyers in an economy are willing to spend on goods and services at a given price level. It represents the sum of all individual demand for goods and services in an economy. The concept of aggregate demand price is often used in the context of macroeconomics to understand the overall level of demand in an economy and its implications for output, employment, and inflation. In an economy, aggregate demand is determined by several factors, including:
  - Consumer spending: The amount consumers are willing to spend on goods and services based on their income, preferences, and expectations.
  - Investment spending: The amount businesses are willing to invest in capital goods and other productive assets.
  - Government spending: The amount the government spends on public goods and services.
  - Net exports: The difference between exports (goods and services sold to other countries) and imports (goods and services purchased from other countries).

  The aggregate demand price is influenced by various factors, such as changes in consumer confidence, interest rates, fiscal policies, and exchange rates. It is an essential concept in macroeconomic analysis as it helps policymakers and economists understand the overall demand conditions in an economy and make informed decisions to stabilize and promote economic growth.
- **Aggregate Demand Schedule:** "The aggregate demand schedule is a table or graph that shows the relationship between the overall level of output or real GDP (gross domestic product) and the corresponding aggregate demand at different price levels in an economy. It represents the total quantity of goods and services that all buyers in the economy are willing to purchase at various price levels."

The aggregate demand schedule typically has a negative slope, which means that as the price level decreases, the quantity of goods and services demanded increases, and vice versa. This negative relationship between price level and quantity demanded is known as the aggregate demand curve.

The aggregate demand schedule is an essential tool for understanding the overall demand conditions in an economy and can help policymakers and economists analyze the effects of changes in government policies, interest rates, consumer spending, investment, and international trade on the overall level of economic activity. It is a fundamental concept in macroeconomics and is used to study business cycles, inflation, unemployment, and other key economic phenomena. Have a look on table 3.1

Table 3.1 Aggregate Demand Schedule

Sr. no.	Employment (in Lac)	Aggregate Demand (in Crores)	Sr. no.	Employment (in Lac)	Aggregate Demand (in Crores)
1.	10	100	5.	30	300
2.	15	150	6.	35	350
3.	20	200	7.	40	400
4.	25	250			

- **Aggregate Demand Curve:** It represents relationship between aggregate demand price and employment. It can be depicted in below figures.

  In figure X-axis represent the employment and Y-axis expected receipts or aggregate demand price. AD line is Aggregate demand line. Its slop is upward from left to right, which conclude that aggregate demand is increasing with the increasing level of employment. It is clearly visible that aggregate demand curve starts slightly above from O point in figure 3.2, it tells us that on zero level of employment there can be some consumption expenditure i.e., level of consumption is independent to expected receipts. On the other hand, consumption expenditure depends on

expected receipts i.e., if expected receipt is zero then consumption expenditure will be also zero. In this situation AD curve will starts from O point as shown in above figure 3.3.

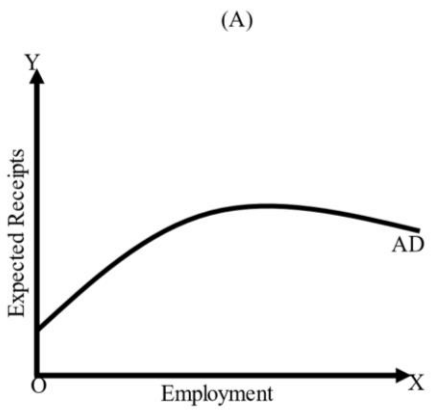

Figure 3.2

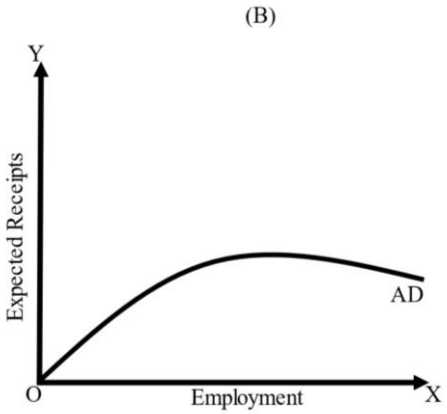

Figure 3.3

- **Determinants of Aggregate demand**

According to Keynes there are two main determinant factors: Consumption Expenditure and Investment Expenditure.

"Aggregate Demand (AD) = Consumption Expenditure (C) + Investment (I)"

As per Keynes's supporters,

"Aggregate Demand (AD) = Consumption Expenditure (C) + Investment (I)+ Govt. Expenditure (G) + Net Exports (X – M)"

are the determinants of aggregate demand.

3.1.3.2 Factors Affects Aggregate Demand

Several factors influence aggregate demand in an economy. Changes in these factors can cause shifts in the aggregate demand curve, indicating higher or lower levels of overall demand. Here are some key factors that affect aggregate demand:

Consumer Spending: It is a significant determinant of aggregate demand. Many factors such as household income, wealth, consumer confidence, and availability of credit can impact consumer spending patterns. When consumers have more disposable income and feel confident about the future, they tend to increase their spending, leading to higher aggregate demand.

Investment: Business investment in capital goods, research and development, and inventories also affects aggregate demand. Factors that influence investment decisions include interest rates, business expectations, technological advancements, and government policies. Higher levels of business investment contribute to increased aggregate demand.

Government Spending: Government spending on goods, services, infrastructure projects, and transfer payments influences aggregate demand. When it increases aggregate demand also increases, as the government is a significant purchaser of goods and services in the economy.

Net Exports: It is the difference between exports and imports. It has also an impact on aggregate demand. Changes in exchange rates, trade policies, global economic conditions, and competitiveness of domestic industries affect the level of net exports. A rise in net exports contributes to higher aggregate demand, while a decline reduces aggregate demand.

Fiscal Policy: Government fiscal policies, such as changes in taxation and government spending, can directly influence aggregate demand. Tax cuts, for example, can increase disposable income and stimulate consumer spending, leading to higher aggregate demand. Conversely, fiscal austerity measures, such as tax hikes or reduced government spending, can decrease aggregate demand.

Monetary Policy: Monetary policy decisions by the central bank, such as changes in interest rates or money supply, can affect aggregate demand. Lower interest rates make borrowing cheaper, encouraging consumer and business spending, while higher interest rates can dampen borrowing and spending. Changes in the money supply can also influence spending and investment decisions.

Expectations: Consumer and business expectations about future economic conditions can impact aggregate demand. If individuals and businesses anticipate favorable economic conditions, they are more likely to spend and invest, boosting aggregate demand. Conversely, if expectations turn pessimistic, it can lead to reduced spending and lower aggregate demand.

Economists and policymakers closely monitor these factors to understand and manage changes in aggregate demand to promote stable economic growth.

3.1.3.3 Aggregate Supply: To Study the concept of effective demand in details we need to know the two elements: Aggregate Supply Price and Aggregate Supply Schedule.

- **Aggregate Supply Price:** "The term aggregate supply price is not commonly used in economics. However, it may refer to the price level associated with aggregate supply. Aggregate supply price refers to the total cost of producing goods and services in an economy at different levels of output or real GDP (gross domestic product). It represents the total amount of money that producers are willing to accept for supplying goods and services at various levels of production. The aggregate supply price is influenced by several factors, including the prices of inputs (such as labor, raw materials, and capital), technology, government regulations, and productivity levels. As the cost of inputs rises, the aggregate supply price increases, leading to a higher overall price level for goods and services. Like the aggregate demand schedule, the aggregate supply price is typically represented by a schedule or curve, but unlike the aggregate demand curve, it usually has a positive slope. This positive relationship between the price level and the quantity of goods and services that producers are willing to supply is often referred to as the short-run aggregate supply curve."
- **Aggregate Supply Schedule: "**The aggregate supply schedule is a table or graph that shows the relationship between the overall level of output or real GDP (gross domestic product) and the corresponding aggregate supply at different price levels in an economy. It represents the total quantity of goods and services that all producers in the economy are willing to supply at various price levels. The aggregate supply schedule typically has a positive slope, indicating that as the price level increases, the quantity of goods and services supplied also increases, and vice versa. This positive relationship between price level and quantity supplied is often referred to as the short-run aggregate supply curve. The aggregate supply schedule is influenced by various factors, including the cost of production, technology, availability of inputs (such as labor and raw materials), business taxes, and government regulations. As the cost of production rises, producers are willing to supply a greater quantity of goods and services at higher price levels to cover their increased expenses. In the long run, the aggregate supply curve may become more elastic, indicating that the quantity supplied can respond more substantially to changes in price levels. This long-run aggregate supply curve is affected by factors like technological progress, changes in the labor force, and productivity improvements." Have a look on table 3.2

Table 3.2 Aggregate Supply Schedule

Sr. no.	Employment (in Lakhs)	Aggregate Supply (in Rs. Crores)	Sr. no.	Employment (in Lakhs)	Aggregate Supply (in Rs. Crores)
1.	10	150	5.	50	240
2.	20	170	6.	50	245
3.	30	190	7.	50	260
4.	40	215			

- **Aggregate Supply Curve**: Aggregate supply curve represents the relationship between aggregate supply and employment. Figure 3.4, AS representing the aggregate supply curve. This curve is sloping upward up to F point then it is parallel to Y-axis. F represent the full employment. In economy before full employment, both aggregate supply price and employment increases up to a level of full employment i.e., F. As the economy gets full employment position then AS will be parallel to Y-axis.

  Keynes's supporters have established the relationship between real income and total receipts by aggregate supply curve. They present income on X-axis instead employment, because they believed that in economy both aggregate supply and income are equal. In figure 3.5 income is presented on X-axis and receipts on Y-axis. AS is aggregate supply line. This line is right middle between Y and X axis and present the same value of Income and Receipts on every point. For example, on point B income Rs. 200 crores and receipts are also Rs. 200 crores.

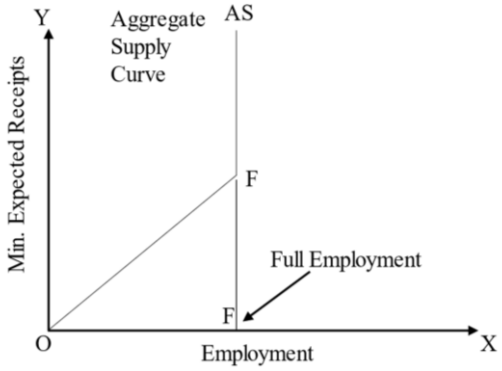

Figure 3.4

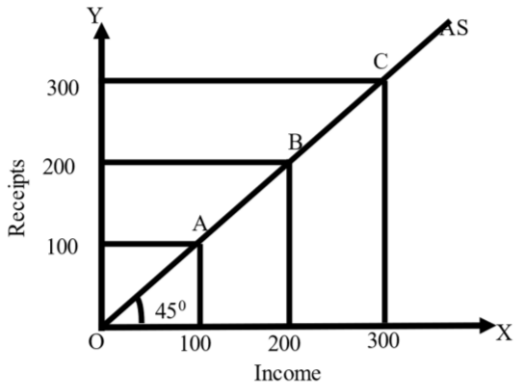

Figure 3.5

- **3.1.3.4 Economic Conditions and Aggregate Demand:** Economic conditions play a significant role in determining the level of aggregate demand in an economy. Various factors within the economic environment can influence the overall spending patterns of consumers, businesses, government, and net exports, thereby affecting aggregate demand. Here are some key economic conditions that impact aggregate demand:

  Economic Growth: The overall level of economic growth has a direct impact on aggregate demand. When an economy experiences robust growth, incomes rise, consumer confidence improves, and businesses expand. These factors contribute to increased consumer spending, business investment, and overall aggregate demand. Conversely, during periods of economic contraction or recession, aggregate demand tends to decline as incomes decrease, consumer and business confidence weakens, and spending is reduced.

  Employment and Wages: The labor market conditions, including employment levels, wages, and income distribution, influence aggregate demand. When employment levels are high and wages are increasing, individuals have more disposable income, leading to higher consumer spending. Conversely, high unemployment and stagnant wages can dampen consumer spending and reduce aggregate demand.

  Interest Rates and Credit Availability: The cost of borrowing and credit availability impacts both consumer spending and business investment. Lower interest rates make borrowing cheaper, stimulating consumer spending on big-ticket items such as homes and cars. Additionally, businesses

are more likely to invest in new projects or expand their operations when borrowing costs are low. Conversely, higher interest rates can discourage borrowing and reduce both consumer spending and business investment, leading to lower aggregate demand.

Inflation: Inflation, or the rate at which prices rise, can affect aggregate demand. Moderate inflation can stimulate consumer spending as individuals may prefer to spend money before prices increase further. However, high inflation erodes purchasing power, reduces real incomes, and can lead to reduced consumer spending and lower aggregate demand.

Government Policies: Fiscal and monetary policies implemented by the government and central bank have significant effects on aggregate demand. Expansionary fiscal policies stimulate aggregate demand, such as cutting tax tares or increased government spending. Similarly, expansionary monetary policies, such as lowering interest rates or increasing the money supply, encourage borrowing and spending. Conversely, contractionary fiscal or monetary policies are aimed at reducing inflationary pressures but can also dampen aggregate demand.

Global Economic Conditions: The state of the global economy and international trade can impact aggregate demand through net exports. When global economic conditions are favorable, international demand for a country's exports may increase, contributing to higher net exports and aggregate demand. Conversely, if global economic conditions deteriorate, exports may decline, negatively impacting net exports and aggregate demand.

These economic conditions interact and influence aggregate demand in complex ways. Understanding their dynamics and their impact on aggregate demand is crucial for policymakers, businesses, and economists to manage and stimulate economic growth effectively.

3.1.3.5 Aggregate Demand vs. Aggregate Supply

Aggregate demand and aggregate supply are two fundamental concepts in macroeconomics that help us understand the overall performance and stability of an economy. Here are the key differences between them:

Sr. no.	Basis of Difference	Aggregate Demand	Aggregate Supply
1	**Definition**	"It refers to the total amount of goods and services that all buyers (consumers, businesses,	"It refers to the total amount of goods and services that all producers in an economy are

		government, and foreign buyers) in an economy are willing to purchase at various price levels during a given period of time."	willing to supply at various price levels during a given period of time."
2	**Focus**	"It focuses on the demand side of the economy. It shows the overall level of spending in an economy and represents the total demand for goods and services at different price levels."	"It focuses on the supply side of the economy. It shows the overall level of production in an economy and represents the total supply of goods and services at different price levels."
3	**Slope of the curve**	"The aggregate demand curve typically slopes downward from left to right, indicating an inverse relationship between the price level and the quantity of goods and services demanded. As the price level decreases, the quantity demanded increases, and vice versa."	"The short-run aggregate supply curve typically slopes upward from left to right, indicating a positive relationship between the price level and the quantity of goods and services supplied. As the price level increases, producers are willing to supply more goods and services."
4	**Factors affecting each curve**	"It is influenced by factors such as changes in consumer spending, business investment, government spending, and net exports (exports minus imports)."	"It is influenced by factors such as the cost of production, technology, availability of inputs (labor and raw materials), business taxes, and government regulations."

5	**Economic implications**	"Changes in aggregate demand can lead to fluctuations in economic output, employment, and inflation. It plays a crucial role in determining short-term economic fluctuations, known as business cycles."	"Changes in aggregate supply can impact the price level and overall output in the economy. Supply-side shocks, such as changes in oil prices or productivity, can affect the economy's long-term growth potential."

In summary, aggregate demand represents the total demand for goods and services in an economy, while aggregate supply represents the total supply of goods and services. These two concepts are vital for understanding the interactions between demand and supply forces in an economy and their effects on economic performance and stability.

3.1.4 Determination of Effective Demand

The followings are the main determinants of effective demand:

Consumer Income and Wealth: Consumer income and wealth levels significantly impact effective demand. Higher incomes and increased wealth generally lead to higher spending and demand for goods and services. When consumers have more disposable income, they are more likely to make purchases and contribute to effective demand. Similarly, changes in consumer wealth, such as changes in asset prices (e.g., housing, stock market), can influence consumer spending patterns and, subsequently, effective demand.

Consumer Expectations and Confidence: Consumer expectations and confidence about future economic conditions play a crucial role in determining effective demand. When consumers are optimistic about the future and have confidence in the economy, they are more likely to spend and contribute to effective demand. On the other hand, if consumers have pessimistic expectations or lack confidence, they may reduce their spending, leading to lower effective demand.

Borrowing and Credit Conditions: The availability of credit and borrowing conditions affects effective demand, particularly for big-ticket purchases like homes and cars. When borrowing is accessible and affordable, consumers can increase their purchasing power, leading to higher effective demand. Changes in interest rates, credit availability, and lending standards can influence consumers' ability and willingness to borrow, thus impacting effective demand.

Business Expectations and Investment: Business expectations about future economic conditions and their investment decisions also influence effective demand. When businesses are optimistic about future demand, they will definitely expand their working to meet the expected demands. Increased business investment stimulates effective demand by creating jobs, increasing incomes, and supporting consumer spending.

Government Policies: Various Government policies like fiscal policy, monetary policy etc. have a significant impact on effective demand. Changes in taxation or government spending, can directly influence effective demand. For example, tax cuts can increase consumers' disposable income and boost spending, while increased government spending can stimulate demand. Monetary policies, such as changes in interest rates or money supply, also affect effective demand by influencing borrowing costs and credit availability.

External Factors: External factors, including global economic conditions, exchange rates, and international trade, can influence effective demand through their impact on exports and imports. Changes in foreign demand, exchange rate fluctuations etc. can influence export competitiveness and impact effective demand.

Table 3. 3 Determination of Effective Demand

Sr. No.	Employment (in Lakhs)	Aggregate Supply (Rs. In crores)	Aggregate Demand (Rs. In crores)	Equilibrium
1.	0	0	100	Un-Equilibrium
2.	10	120	360	AD > AS
3.	20	240	420	AD > AS
4.	30	360	480	AD > AS
5.	40	480	540	AD > AS
6.	**50**	**600**	**600**	**Effective Demand**
7.	50	720	640	AD < AS

It is clear from Table 3.3 that when the aggregate demand price is more than aggregate supply price, then it is profitable for the businessmen to give employment to more and more workers i.e., entrepreneur can increase the supply of workers. But when the aggregate demand and supply

reaches at Rs. 600 crores then on this point there is effective demand. After this point their will be no change in the level of employment.

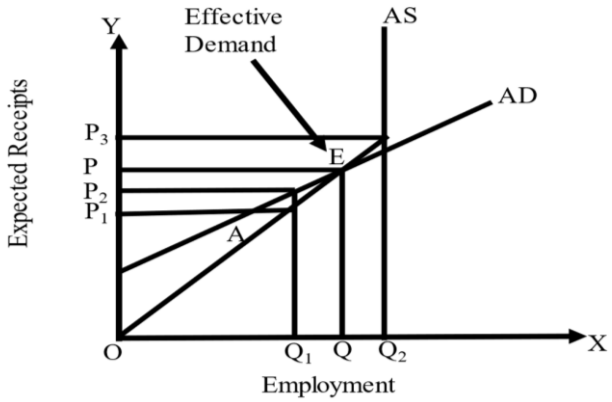

Figure 3.6

In figure 3.6, Employment is presented on X-axis and Expected Receipts is presented on Y-axis. AD is aggregate demand curve and AS is aggregate supply curve. These two curves intersect on E point i.e., equilibrium point. Aggregate demand on E point called "effective demand". On this point aggregate demand convert into aggregate effective demand. On E point total receipts is OP and level of employment is OQ. If the level of employment is less then OQ i.e., OQ_1, then it increases again at OQ level because on OQ_1 level of employment aggregate demand price (OP_2) is more than aggregate supply price (OP_1), consequently entrepreneurs will increase production and level of employment will also arise.

On the other hand, If the level of employment is OQ_2, then aggregate demand price is less than aggregate supply price. Entrepreneur will not get production cost, consequently entrepreneurs will decrease production and level of employment will also down. So, the level of employment will be shift from OQ_2 to OQ. Here it can be concluded that when aggregate demand and aggregate supply will be equal then the point of equilibrium i.e., effective demand can be determined.

3.1.4.1 Equilibrium not Necessarily on full Employment

Now it is clear from the above discussion that equilibrium will be determined when aggregate demand curve and aggregate demand supply curve intersect with each other. But it not necessarily that full employment will be in the situation of equilibrium. It can be in case of under employment. It is elaborated in figure 3.7. In the figure aggregate supply curve denoted by AS and aggregate demand curves by AD, AD_1, AD_2. When demand curve is AD then equilibrium is on E. On this point

underemployment equilibrium exist in economy, as both curves intersect each other's at the OQ level of employment. Here OQ_1 labor still unemployed i.e., in this situation resources are not optimally utilized.

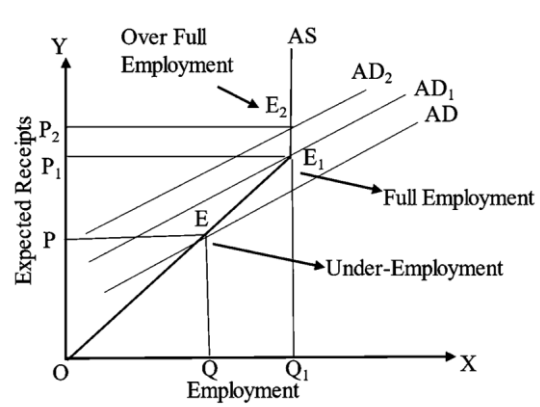

Figure 3.7

Economy will get full employment equilibrium, when OQ_1 labor work in economy and this will be possible when aggregate demand curve cuts aggregate supply curve on E_1. Here, on point E_1, full employment level will be established on OQ_1. On this point labor and resources are fully utilized. If aggregate demand curve shift to AD_2 then equilibrium will be on E_2, this is called Over Full Employment Equilibrium. Here level of employment and production level will not increase. Due to inflation aggregate supply price will hike. In short in can be concluded that it not necessarily that full employment will be in the situation of equilibrium it can be in other cases also.

3.2 Importance or Significance of Theory of Effective Demand

The following are the main significance of theory of effective demand:

Understanding Aggregate Demand: The theory of effective demand helps economists and policymakers understand the factors that determine the level of aggregate demand in an economy. By considering both consumers' desire for goods and services and their ability to purchase them, the theory provides insights into the dynamics of consumer spending and overall economic activity.

Macroeconomic Stability: Effective demand is crucial for maintaining macroeconomic stability. Fluctuations in aggregate demand can lead to business cycles, with periods of economic expansion and contraction. Understanding the determinants of effective demand allows policymakers to implement appropriate measures to stabilize the economy, such as fiscal and monetary policies aimed at stimulating or restraining aggregate demand.

Production and Resource Allocation: Effective demand influences production levels and resource allocation in an economy. If there is strong effective demand, indicating high consumer purchasing power, businesses are motivated to increase production to meet the demand. On the other hand, weak effective demand can result in reduced production and underutilization of resources. Understanding effective demand helps ensure efficient allocation of resources and optimal production levels.

Employment and Income: The theory of effective demand provides insights into the relationship between aggregate demand and employment. When effective demand is high, businesses expand production and employment levels tend to increase. Conversely, weak effective demand can lead to lower production, reduced demand for labor, and potentially higher unemployment rates. By managing and stimulating effective demand, policymakers can support job creation and income growth.

Business Investment: Effective demand affects business investment decisions. When businesses perceive strong effective demand, they are more likely to produce more, expand operations, and undertake R&D activities. A robust theory of effective demand helps businesses assess market conditions, plan investments, and make informed decisions about future growth prospects.

Price and Inflation Dynamics: The theory of effective demand contributes to understanding price and inflation dynamics. Changes in effective demand can influence the balance between aggregate demand and aggregate supply, affecting price levels. Inflationary pressures can arise when effective demand exceeds productive capacity, leading to upward pressure on prices. Conversely, weak effective demand can contribute to deflationary tendencies. Understanding the relationship between effective demand and prices is crucial for managing inflation and maintaining price stability.

In summary, the theory of effective demand plays a vital role in macroeconomic analysis and policymaking. It helps economists and policymakers understand the determinants of aggregate demand, supports macroeconomic stability, guides resource allocation and production decisions, influences employment and income levels, and sheds light on price dynamics and inflation. By studying and managing effective demand, policymakers can make informed decisions to promote economic growth, stability, and welfare.

3.3 Criticism of Keynes' Principle of Effective Demand

Followings are the main criticism of Keyne's principle of effective demand:

Assumption of Sticky Wages and Prices: Critics argue that Keynes' principle of effective demand relies on the assumption of sticky wages and prices, where it is assumed that wages and prices do not adjust quickly in response to changes in demand. This assumption is seen as unrealistic by some economists, as wages and prices can adjust relatively quickly in the real world due to market forces. Critics argue that this undermines the accuracy and applicability of the principle in explaining real-world economic dynamics.

Neglect of Supply-Side Factors: Some economists argue that Keynes' principle of effective demand places too much emphasis on demand-side factors while neglecting the importance of supply-side factors in driving economic outcomes. Critics argue that factors such as productivity, technological advancements, and supply-side constraints can significantly impact economic growth and employment, and should be given more attention in economic analysis.

Simplistic View of Investment: Keynesian theory emphasizes the importance of investment in driving effective demand. However, critics argue that Keynes' view of investment is too simplistic, focusing mainly on business expectations and interest rates. They argue that investment decisions are influenced by a range of complex factors, including technological progress, industry-specific dynamics, government policies, and global economic conditions, which Keynes' theory does not adequately account for.

Lack of Dynamic Analysis: Critics contend that Keynes' principle of effective demand does not provide a comprehensive framework for analyzing dynamic economic processes. They argue that the theory does not adequately consider the long-term effects of policy interventions, the impact of structural changes, and the potential for self-correction in markets over time. This criticism suggests that Keynes' theory may be more suitable for short-run analysis rather than long-run economic dynamics.

Inadequate Treatment of Expectations: Some economists argue that Keynes' theory does not sufficiently address the role of expectations in shaping economic outcomes. They contend that expectations play a crucial role in determining investment, consumption, and saving decisions, and therefore, a more robust treatment of expectations is necessary for a comprehensive understanding of effective demand.

Lack of Microeconomic Foundations: Critics argue that Keynes' theory of effective demand lacks a solid microeconomic foundation, which undermines its analytical rigor and empirical applicability.

They contend that a more rigorous microeconomic analysis is necessary to fully understand the mechanisms driving effective demand and its impact on economic outcomes.

These criticisms highlight some of the debates and challenges associated with Keynes' principle of effective demand. While the theory has been influential in shaping macroeconomic thinking and policy, it is subject to ongoing scrutiny and refinement as economists seek to better understand and explain the complexities of economic behavior and outcomes.

3.4 Check Your Progress

1. Which one of the following is correct in case of aggregate demand….
   (a) AD = C + I
   (b) AD = C + I + G + (X – M)
   (c) Both a & b
   (d) None of the above
2. Which one is determinant of effective demand?
   (a) Aggregate Demand
   (b) Aggregate Supply
   (c) Aggregate Expenditure
   (d) Both a & b
3. Which one of the following is supporter of effective demand?
   (a) Malthus
   (b) Wicksell
   (c) Dillard
   (d) All of the above
4. Effective demand is…...?
   (a) When, aggregate demand is equal to aggregate supply
   (b) When, aggregate demand is not equal to aggregate supply
   (c) When, aggregate demand is less then aggregate supply
   (d) None of the above
5. Which one of the following is importance of effective demand?
   (a) Determinants of Employment

(b) Importance of Investment

(c) Invalidates Pigou's Wage Cut Policy

(d) All of the above

6. Which one of the following is limitation of effective demand?

(a) It is merely expected

(b) Effective by definition only

(c) Narrow concept

(d) All of the above

7. In which book effective demand concept has been used?

(a) The General Theory of Employment, Interest and Money

(b) The Principles of Scientific Management

(c) General Theory

(d) None of the above

3.5 Summary

Effective demand plays a crucial role in understanding the dynamics of a market economy. It represents the total demand for goods and services that is actually backed by purchasing power, and not just the desire to buy. Effective demand is a key factor in determining the level of economic activity and output in an economy. It influences the decisions of producers to produce goods and services, as they are motivated to meet the demands of consumers to maximize profits. When effective demand is high, producers are encouraged to expand production and invest in new ventures. In a well-functioning market economy, effective demand and aggregate demand tend to align, leading to stable economic growth. By understanding effective demand, economists can better comprehend consumer behavior and make more informed decisions to promote overall economic stability and prosperity. Several factors influence aggregate demand in an economy. Changes in these factors can cause shifts in the aggregate demand curve, indicating higher or lower levels of overall demand. The theory of effective demand plays a vital role in macroeconomic analysis and policymaking. It helps economists and policymakers understand the determinants of aggregate demand, supports macroeconomic stability, guides resource allocation and production decisions, influences employment and income levels, and sheds light on price dynamics and inflation. By

studying and managing effective demand, policymakers can make informed decisions to promote economic growth, stability, and welfare. Keynes' principle of effective demand had been criticised on many grounds. These criticisms highlight some of the debates and challenges associated with Keynes' principle of effective demand. While the theory has been influential in shaping macroeconomic thinking and policy, it is subject to ongoing scrutiny and refinement as economists seek to better understand and explain the complexities of economic behavior and outcomes.

3.6 Keywords

Effective Demand: The value of Aggregate Demand at the point of Aggregate Demand function, where it is intersected by the Aggregate Supply function, will be called the effective demand.

Aggregate Demand: Aggregate demand refers to average of the total demand by consumers for all the goods and services in a country within a year.

Aggregate Supply: Aggregate supply refers to the average of the total production of all the goods and services produced within a year in a country.

Aggregate Demand Schedule: A statement showing the various aggregate demand prices at different levels of employment is called the aggregate demand price schedule or aggregate demand function.

Aggregate Consumption: Aggregate consumption refers to the total spending of individuals and firms in the economy. It is directly related with aggregate saving because aggregate saving is total of that portion of income which is not consumed.

Aggregate Expenditure: Aggregate expenditure refers to the sum of total consumption, total investment, total government expenditure and total difference among exports and imports in the economy.

National Income: National income refers to the total value of goods and services produced in an accounting year within the boundaries of a country.

Supply Curve: Aggregate supply curve represents the relationship between aggregate supply and employment.

Unemployment: Unemployment refers to a situation where able people want to do job but are not able to get work or job.

3.7 Self-assessment Test

Q.1 What is the meaning of effective demand? Explain how we can determine level of employment.

Q.2 Define effective demand. Prepare a hypothetical schedule of aggregate demand.

Q.3 "Keynesian theory of effective demand is heart of modern macroeconomics analysis". Discuss.

Q.4 Explain the concept of aggregate demand function and aggregate supply function. Explain the three levels of equilibrium.

Q.5 What is effective demand? What are its determinants?

Q.6 Critically examine the role of effective demand in an economy.

3.8 Answer to Check Your Progress

- 1(c), 2 (d), 3(d), 4 (a), 5(d), 6 (d), 7 (c)

3.9 References/Suggested Readings

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Subject: Macro Economics	Author: Kapil Singh
Subject Code: BCOM 202	Vetter: Prof. Anil Kumar

LESSON-4
INCOME DETERMINATION IN OPEN AND CLOSED ECONOMY

STRUCTURE

4.0 Learning Objectives

After reading this chapter, you will be able to understand the concept of open and closed economy, types of economies. Through this lesson knowledge will be imparted to you about the income determination in closed economy with two and three sector model and in open economy with saving and investment, taxation, imports and exports etc.

4.1 Evolution of Concept of Open Economy & Closed Economy

The concept of open and closed economies has evolved over time, reflecting changes in economic theories, globalization, and the increasing interdependence of economies worldwide. Here's a brief overview of the evolution of the concept:

Early Economic Thought: In the early stages of economic thought, during the mercantilist era, economies tended to be more closed. Nations focused on protecting domestic industries, accumulating wealth through exports, and imposing restrictions on imports. The emphasis was on self-sufficiency and building strong domestic economies.

Classical Economics: Classical economists, such as Adam Smith and David Ricardo, played a significant role in shaping the understanding of open and closed economies. They argued in favor of free trade and the benefits of specialization and comparative advantage. According to their theories, countries should engage in international trade to maximize efficiency and overall welfare.

Protectionism and the Great Depression: Following the Great Depression in the 1930s, many countries turned toward protectionist measures to shield domestic industries and preserve employment. This period witnessed a shift toward closed economies, with increased tariffs, trade barriers, and restrictions on capital flows. The focus was on safeguarding domestic industries and reducing dependence on international markets.

Post-World War II Era and the Bretton Woods System: After World War II, there was a push toward rebuilding economies and fostering global economic cooperation. The Bretton Woods System, established in 1944, aimed to promote stable exchange rates and facilitate international trade and investment. This period saw a resurgence of openness and a move toward more open economies.

Globalization and Liberalization: The latter half of the 20th century and the beginning of the 21st century witnessed a rapid expansion of globalization, driven by advancements in technology,

transportation, and communication. Many countries embraced trade liberalization, deregulation, and the opening up of their economies to international markets. This led to a significant increase in global trade, foreign direct investment, and integration into global supply chains.

Regional Integration and Free Trade Agreements: In recent decades, there has been a rise in regional integration and the formation of free trade agreements (FTAs) to deepen economic integration, remove trade barriers, and foster closer economic ties among countries. Examples include the European Union, NAFTA, and CPTPP.

Contemporary Issues and Debates: Today, the concept of open and closed economies remains relevant and continues to be debated. The rise of populist movements, concerns about job displacement, and discussions around income inequality have sparked debates on the appropriate level of openness and the impact of globalization on domestic economies. Countries are grappling with balancing the benefits of openness with the need to address domestic economic challenges and safeguard national interests.

Overall, the concept of open and closed economies has evolved in response to changing economic theories, geopolitical shifts, and the realities of globalization. While openness to international trade and capital flows has generally been associated with economic growth and development, the approach to openness varies among countries and is influenced by domestic circumstances and policy choices.

4.1.1 Introduction to Open Economy and Closed Economy

There are different types of economic systems, which describe the relationship of an economy with other economies. Open and closed economy are common among them. Here's an introduction to both concepts:

4.1.1.1 Closed Economy: In a closed economy, there is limited or no interaction with the international economy. It means that the economy operates in isolation from foreign trade, capital flows, and international financial markets. In a closed economy, all economic activities, such as production, consumption, and investment, are confined within the borders of the country.

Key features of a closed economy include:

- **Lack of international trade**: There are restrictions or minimal trade with other countries. Imports and exports are limited.
- **Domestic focus**: Economic policies and measures mainly target domestic economic issues

and goals.

- **Independent monetary and fiscal policies**: Monetary policy (control of money supply and interest rates) and fiscal policy (government spending and taxation) are primarily aimed at domestic stabilization and economic development.
- **Limited capital flows**: There are restrictions or minimal flows of capital between countries.

Examples

Examples of closed economies can be found in countries or regions that have limited or no interaction with the international economy. In closed economies, trade with other countries is restricted, and economic activities, including production, consumption, and investment, are primarily confined within the borders of the country. Here are a few examples:

North Korea: North Korea is often cited as an example of a closed economy. The country maintains strict control over its borders, limiting international trade and foreign investment. North Korea's economic activities are largely directed by the state, with limited private sector participation. The government implements policies aimed at self-sufficiency and domestic production.

Cuba: Cuba has historically operated as a closed economy, particularly during the period of economic isolation following the Cuban Revolution. The country-imposed restrictions on foreign trade and investment, with the government controlling most economic activities. While Cuba has made some efforts to open up its economy in recent years, it still exhibits characteristics of a closed economy.

Former Soviet Union (USSR): During the era of the Soviet Union, the economies of the member countries, including Russia, Ukraine, and others, were largely closed. Trade was predominantly conducted within the Soviet bloc, and the government controlled major industries and economic planning. Limited interaction with the international economy characterized the closed nature of these economies.

Bhutan: Bhutan, a small Himalayan kingdom, has maintained a policy of limited economic interaction with the international community. The country focuses on preserving its cultural heritage and prioritizes policies that promote happiness and sustainable development. Bhutan

restricts foreign investment and trade, maintaining a more closed economy compared to many other countries.

It's worth noting that the degree of openness or closedness of an economy can vary over time and can be influenced by changes in political, social, and economic circumstances. Many countries that were once considered closed economies have gradually opened up to international trade and investment in recent years.

4.1.1.2 Advantages of a Closed Economy

A closed economy, where there is limited or no interaction with the international economy, can have certain advantages and disadvantages. Here are some key advantages and disadvantages associated with a closed economy:

Protection of Domestic Industries: A closed economy allows for the protection of domestic industries from foreign competition. By imposing trade barriers and restrictions on imports, a closed economy can shield domestic industries, preserve jobs, and promote self-sufficiency in key sectors.

Control over Economic Policies: In a closed economy, policymakers have more control over economic policies and can design strategies tailored to domestic needs and priorities. They can implement trade policies, fiscal policies, and monetary policies with greater autonomy, without external influences.

Preservation of National Identity: A closed economy can contribute to the preservation of national identity and culture. By protecting domestic industries and promoting locally-produced goods and services, a closed economy may help maintain traditional industries and cultural heritage.

Reduced Vulnerability to External Shocks: Closed economies may be less susceptible to external shocks arising from global economic fluctuations or crises in other countries. The limited exposure to international markets and capital flows can provide some insulation from external disturbances.

4.1.1.3 Disadvantages of a Closed Economy

Limited Market Access: In closed economies limited number of products & services are available to consumers as it has limited access with rest of world. Reduced market access may limit consumer

choices, hinder technological advancements, and restrict opportunities for businesses to expand beyond domestic borders.

Inefficiency and Lack of Competition: A closed economy can lead to inefficiencies and lack of competition. Without exposure to international competition, domestic industries may face less pressure to innovate, improve efficiency, and offer competitive prices and quality. This can hinder economic growth and productivity.

Missed Opportunities for Economic Growth: Closed economies may miss out on the potential benefits of international trade and investment. Engaging in international trade allows countries to benefit from specialization, comparative advantage, and economies of scale, which can drive economic growth and higher living standards.

Lack of Access to Foreign Capital: Closed economies can face challenges in accessing foreign capital for investment and development. Limited capital flows and investment opportunities from abroad may constrain domestic investment, hindering economic growth and infrastructure development.

Reduced Influence in International Affairs: A closed economy may result in reduced influence in global economic affairs and less ability to shape international trade rules and agreements. Engaging in international trade allows countries to participate in global economic decision-making and influence the evolution of international economic systems.

It's important to note that the advantages and disadvantages of a closed economy can vary depending on specific circumstances, policy choices, and the overall global economic environment. Most economies today fall somewhere between being completely closed or completely open, aiming to strike a balance between domestic priorities and the benefits of international integration.

4.1.1.4 Open Economy: In contrast, an open economy actively engages in international trade and has significant interaction with the global economy. “It involves the exchange of goods, services, capital, and financial assets across national borders. Open economies are characterized by free trade policies, liberalized capital flows, and integration into global financial markets”.

Key features of an open economy include:

- **International trade**: There is extensive trade with other countries, involving the import and

export of goods and services. Open economies benefit from a broader range of consumer choices and opportunities for businesses to access larger markets.

- **Capital flows**: Open economies allow the free movement of capital, including foreign investment and borrowing from international financial markets. This facilitates investment, stimulates economic growth, and enables capital accumulation.
- **Exchange rates**: Open economies typically have floating exchange rates, which fluctuate based on supply and demand in the foreign exchange market.
- **Global influences**: Open economies are exposed to global economic trends, such as changes in global demand, commodity prices, and financial market conditions. Economic policies need to consider external factors and respond to global shocks.

Open economies can benefit from increased market access, specialization based on comparative advantage, and the potential for higher economic growth. However, they also face risks and challenges associated with international competition, exchange rate volatility, and exposure to global economic fluctuations. It's important to note that the terms "open" and "closed" represent endpoints on a spectrum, and most economies fall somewhere in between, exhibiting varying degrees of openness to international trade and capital flows. The level of openness can have profound implications for economic development, policy choices, and the overall functioning of an economy.

Examples

In open economies, there is a significant flow of goods, services, capital, and information across national borders. Here are a few examples:

United States: The United States is one of the world's most prominent open economies. It has a large and diverse economy that engages in extensive trade with countries around the world. The United States has a liberal trade policy, and its businesses have a strong presence in global markets. It attracts foreign investment and encourages international trade through various free trade agreements.

Germany: Germany is known for its highly open economy. It is one of the world's largest exporters and actively participates in global trade. German industries, such as automotive manufacturing, machinery, and chemicals, are globally competitive and heavily reliant on international markets.

Germany also attracts foreign investment and has a well-integrated supply chain with other European countries.

Singapore: Singapore is a small city-state that has embraced openness as a key driver of its economic success. It is one of the most open economies in the world, with a strong focus on international trade and investment. Singapore has positioned itself as a global trade hub, attracting businesses and serving as a gateway to Southeast Asia and other markets.

Netherlands: The Netherlands, known for its favorable business climate and strategic location, has an open economy. It serves as a major European trading hub and has a highly developed logistics and transportation infrastructure. The Netherlands is a leading exporter of agricultural products, machinery, and chemicals, and it attracts foreign investment due to its favorable tax policies.

Australia: Australia is an open economy that heavily relies on international trade, particularly in natural resources and agricultural products. The country is a major exporter of minerals, energy resources, and agricultural commodities.

These examples highlight countries that have embraced economic globalization, actively participate in international trade and investment, and have integrated into the global supply chains. Open economies benefit from access to larger markets, technological advancements, increased competitiveness, and opportunities for economic growth

4.1.1.5 Advantages of an Open Economy

An open economy, characterized by significant engagement in international trade, capital flows, and integration into the global economy, offers several advantages and disadvantages. The key advantages are as follows:

Access to Larger Markets: An open economy allows businesses to access larger international markets for their goods and services. This expands the customer base, increases sales potential, and provides opportunities for growth. Access to global markets can drive economies of scale and enhance competitiveness.

Increased Efficiency and Productivity: Open economies benefit from specialization and comparative advantage. Countries can achieve their targets i.e., higher productivity, high economic growth by focusing on their strengths.

Technological Advancements and Innovation: Open economies tend to have greater exposure to international technologies, knowledge, and best practices. Through trade and international

collaboration, countries can adopt and adapt technological advancements, fostering innovation, and improving productivity.

Foreign Direct Investment (FDI): An open economy attracts foreign direct investment, which can bring capital, technology, and managerial expertise. FDI can stimulate economic growth, create jobs, and contribute to infrastructure development. It also helps integrate the domestic economy into global value chains.

Diversification of Risk: An open economy is less reliant on a single domestic market, reducing vulnerability to economic fluctuations and shocks. By engaging in international trade and diversifying export markets, countries can spread risk and mitigate the impact of domestic economic downturns.

4.1.1.6 Disadvantages of an Open Economy

Followings are the main disadvantages of an Open Economy:

Vulnerability to External Shocks: Open economies are more exposed to external economic shocks, such as global recessions, financial crises, or fluctuations in commodity prices. These external factors can have a significant impact on the domestic economy, affecting employment, incomes, and overall economic stability.

Competition and Market Disruptions: An open economy involves exposure to global competition. Domestic industries may face increased competition from foreign firms, leading to job losses, industry restructuring, and potential economic dislocations. Certain sectors may struggle to compete with lower-cost imports.

Dependency on External Factors: Open economies are influenced by global economic trends and policies. Changes in global demand, trade barriers imposed by other countries, or fluctuations in exchange rates can have profound effects on the domestic economy. Countries may have limited control over these external factors.

Unequal Distribution of Gains: The benefits of an open economy may not be evenly distributed among all segments of society. Certain industries or regions may experience more significant gains, while others may face challenges or decline. Income inequality and regional disparities can emerge as a result of economic openness.

Loss of Policy Autonomy: In an open economy, policymakers have to consider external factors and conform to global trade rules and agreements. Domestic policy choices may be constrained by

international obligations, limiting the ability to implement certain protective measures or industry-specific policies.

It's important to note that the advantages and disadvantages of an open economy can vary depending on specific circumstances, policy choices, and the overall global economic environment. Each country must carefully consider the costs and benefits of economic openness, adopt appropriate policies, and manage potential risks to ensure sustainable and inclusive economic growth.

4.1.2 Difference between Open and Closed economy

The followings are the differences between open and closed economy:

Table No. 1- Difference between open and closed economy

Parameters	Open Economy	Closed Economy
International Relationships	"Under an open economy, a country allows the import and export of goods and services."	"When running a closed economy, a country has no exposure to the external sector. There is no export or import."
Dependence	It is dependent on rest of economies.	It is Self-dependent economy.
Trade Relation	It can borrow and lends internationally.	It does not borrow or lend internationally.
Foreign Aid	It takes and gives foreign aid/loans.	It neither takes nor gives foreign aid/loans.
Degree of Competition	High degree of competition is found in open economy.	Low degree of competition is found in closed economy.
Factors of Production	"Interaction with the external sector also involves production factors (capital and labor), technology transfer, and	There is no international movement/interaction of factors of production.

	intellectual property."	
Example	USA, India, Singapore etc.	None
Socio-economic relationship	It has socio-economic relations with rest of the world.	It has no socio-economic relations with rest of the world.
Governing factor	It is governed by market economic system.	Central Government.
Flexibility	It is liberal, open and flexible economy.	It is rigid economy.
Economic Sectors	In an open economy, four sectors participated in the economic undertakings.	In a closed economy two or three sectors works.
Theoretical vs realistic	This is realistic.	It is a hypothetical concept.

4.2 Determination of Income in a Closed Economy

Now we will discuss in detail the income determination in a closed economy using suitable graphs for the two-sector, three-sector and four sector models.

4.2.1 Two-Sector Model

In the two-sector model, we consider the interaction between households (consumers) and firms (producers). We assume that all income earned by households is spent on consumption, and all production by firms is sold to households.

Graphical Analysis

To depict income determination in the two-sector model, we'll use a simple graph called the Keynesian cross diagram. On the vertical axis, we measure aggregate expenditure (AE) or aggregate demand. On the horizontal axis, we measure national income (Y) or output.

Step-by-Step Analysis

Consumption Function: We start by determining the consumption function, which describes the relationship between expenditure on consumption (C) and disposable income (Yd). Let's assume a linear consumption function:

$$C = c0 + c1(Yd)$$

(Here, c0 represents autonomous consumption (consumption when income is zero), and c1 represents the marginal propensity to consume (MPC), which is the fraction of each additional unit of income that households spend on consumption.)

Investment and Aggregate Expenditure (AE): In the two-sector model, aggregate expenditure (AE) consists of only consumption (C) and investment (I). We assume investment to be exogenous and fixed, so

$$AE = C + I.$$

Equilibrium Condition: Equilibrium occurs when aggregate expenditure (AE) equals national income (Y).

Mathematically, $AE = Y$.

Graphically, we represent the equilibrium condition as the 45-degree line, which starts at the origin and has a slope of 1.

Equilibrium Income Determination: To determine the equilibrium level of income, we plot the aggregate expenditure function ($AE = C + I$) and the 45-degree line on the Keynesian cross diagram. The intersection of these two lines gives us the equilibrium level of income (Y).

If the AE function lies below the 45-degree line, it implies that aggregate expenditure is less than income. In this case, there is a surplus of production, and firms reduce output and employment. The economy moves towards equilibrium.

If the AE function lies above the 45-degree line, it implies that aggregate expenditure exceeds income. In this case, there is excess demand, and firms increase output and employment to meet the demand. The economy moves towards equilibrium.

The equilibrium level of income (Y) is reached when AE intersects the 45-degree line. It is denoted as Y on the graph.

Graphical representation: Here is an example of the two-sector model with an upward-sloping consumption function and fixed investment:

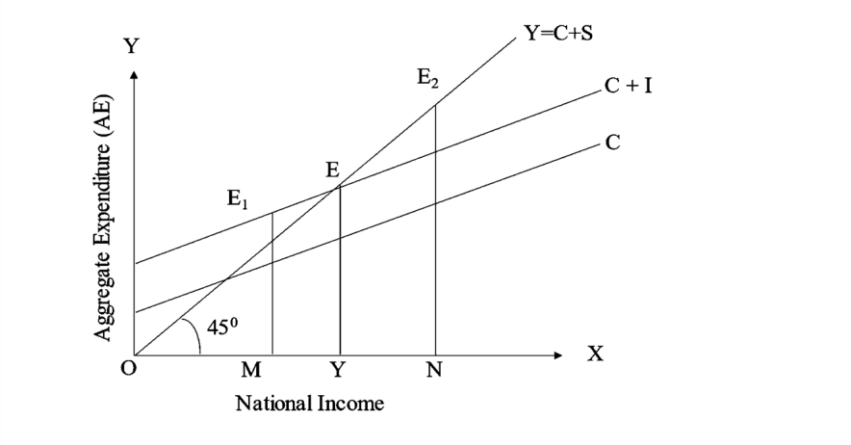

Figure 1

(Graph Description: The graph shows the Keynesian cross diagram with aggregate expenditure (AE) on the vertical axis and national income (Y) on the horizontal axis. The AE function (C + I) is represented as a line, and the 45-degree line represents the equality between AE and Y. The intersection of these two lines determines the equilibrium level of income (Y).)

4.2.2 Three-Sector Model

In the three-sector model, we include the government sector in addition to households and firms. This model recognizes that the government plays a role in income determination through taxation, government spending, and transfer payments.

Graphical Analysis

Similar to the two-sector model, we can use the Keynesian cross diagram to analyze income determination in the three-sector model. On the vertical axis, we measure aggregate expenditure (AE). On the horizontal axis, we measure national income (Y).

Step-by-Step Analysis

In the three-sector model, "aggregate expenditure (AE) consists of consumption (C), investment (I), and government spending (G)". It has assumption that investment and government spending are fixed. So,

Aggregate Expenditure = (Consumption C) + (Investment I) + (Government Expenditure G).

Equilibrium Condition: "Equilibrium occurs when aggregate expenditure (AE) equals national income (Y)."

Mathematically, AE = Y.

Graphically, we represent the equilibrium condition as the 45-degree line.

Equilibrium Income Determination: To determine the equilibrium level of income, aggregate expenditure (AE) has been plotted on OY axis and National Income on OX axis. The intersection of these two lines gives us the equilibrium level of income on E_1 and E.

Graphical representation: Here is an example of the three-sector model with an upward-sloping consumption function, fixed investment and government spending:

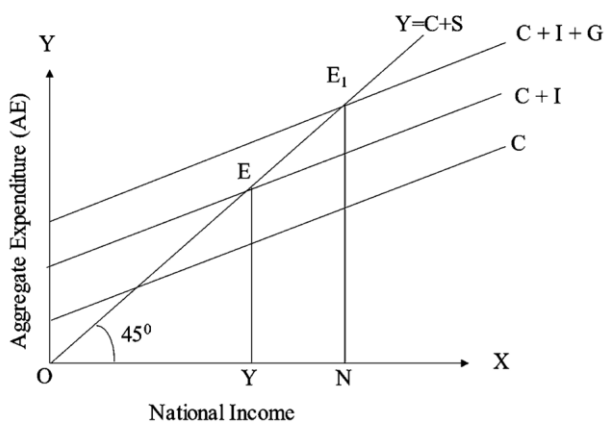

Figure 2

(Graph Description: The graph shows the Keynesian cross diagram with aggregate expenditure (AE) on the vertical axis and national income (Y) on the horizontal axis. The AE function (C + I + G) is represented as a line, and the 45-degree line represents the equality between AE and Y. The intersection of these two lines determines the equilibrium level of income (Y).)

4.2.3 Four Sector Model

The interaction between households, firms, the government, and the foreign sector is considered in a four-sector model. This model takes into account the impact of government expenditure and taxation, as well as net exports on income determination in a closed economy.

Graphical Analysis

To depict "income determination in a four-sector model, we'll use a graph called the aggregate expenditure (AE) - output (Y) diagram. This diagram shows the relationship between aggregate expenditure and national income. On the vertical axis, we measure aggregate expenditure (AE) or aggregate demand. On the horizontal axis, we measure national income (Y) or output."

Step-by-Step Analysis

Consumption Function: We start by determining the consumption function, which describes the relationship between expenditure on consumption (C) and disposable income (Yd). The consumption function can be expressed as:

$$\mathbf{C = c0 + c1(Yd)}$$

c0 represents autonomous consumption, which is the level of consumption when income is zero.

c1 represents the marginal propensity to consume (MPC), which is the fraction of each additional unit of income that households spend on consumption.

Investment and Government Expenditure: In addition to consumption, other components like investment (I), Government Expenditure and Net Exports (NX) also contribute to aggregate expenditure.

Aggregate Expenditure (AE): Aggregate expenditure (AE) is the sum total of consumption (C), investment (I), government expenditure (G), and net exports (NX).

Mathematically, "$\mathbf{AE = C + I + G + NX}$."

Equilibrium Condition: Equilibrium occurs when aggregate expenditure (AE) equals national income (Y).

Mathematically, $\mathbf{AE = Y}$.

Graphically, we represent the equilibrium condition as a 45-degree line, which starts at the origin and has a slope of 1.

Equilibrium Income Determination: "To determine the equilibrium level of income, aggregate expenditure has been plotted on OY axis and National Income on OX axis. The intersection of these two lines gives us the equilibrium level of income on E and E_1 points in the graphs.

If the AE function lies below the 45-degree line, it implies that aggregate expenditure is less than income. In this case, there is a surplus of production, and firms reduce output and employment. The economy moves towards equilibrium. If the AE function lies above the 45-degree line, it implies that aggregate expenditure exceeds income. In this case, there is excess demand, and firms increase output and employment to meet the demand. The economy moves towards equilibrium. The equilibrium level of income (Y) is reached when AE intersects the 45-degree line. It is denoted as Y on the graph."

Graphical representation: Here is an example of the four-sector model with an upward-sloping consumption function, fixed investment and government expenditure, and net exports:

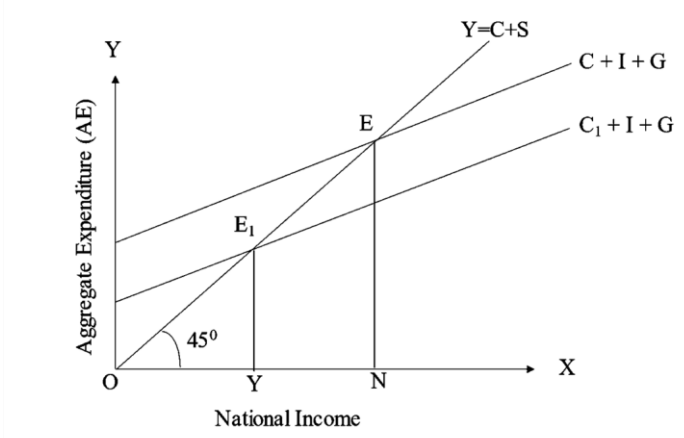

Figure 3

(Graph Description: The graph shows the AE-Y diagram with aggregate expenditure (AE) on the vertical axis and national income (Y) on the horizontal axis. The AE function (C + I + G + NX) is represented as a line, and the 45-degree line represents the equality between AE and Y. The intersection of these two lines determines the equilibrium level of income (Y).)

It's important to note that the graphs represent simplified models and make certain assumptions. In reality, economic dynamics are more complex, and additional factors, such as net exports, saving, and taxes, need to be considered for a comprehensive analysis of income determination. However, the Keynesian cross diagram provides a visual representation of these models, helping us understand the interaction between components and the determination of equilibrium income.

4.3 Income Determination in Open Economy

In an open economy, the level of equilibrium refers to the equilibrium level of national income or output where aggregate expenditure equals aggregate output. This equilibrium level is determined by the interaction between domestic expenditure (consumption, investment, and government spending) and net exports (exports minus imports).

To understand the level of equilibrium in an open economy, we need to consider two key components: domestic expenditure and net exports. Let's explore these components and their impact on equilibrium in more detail:

Domestic Expenditure: "The sum total of Consumption (C), investment (I) and Government Expenditure is known as domestic expenditure. It represents the total spending on domestically produced goods and services."

Consumption (C): "It includes household spending on goods and services. Consumption is influenced by disposable income, wealth, consumer confidence, interest rates, and other factors."

Investment (I): "It represents spending on capital goods, such as machinery, equipment, and structures, by firms. Investment is influenced by factors like interest rates, business confidence, expectations of future profitability, and government policies."

Government Spending (G): "It includes government expenditures on goods and services, such as infrastructure projects, defense, education, and healthcare. Government spending is influenced by fiscal policies, political priorities, and economic conditions."

The total domestic expenditure is given by the equation:

$$\mathbf{AE = C + I + G}.$$

Net Exports: Net exports (NX) is the difference between exports (X) and imports (M).

Exports (X): It represents the value of goods and services produced domestically and sold to foreign countries.

Imports (M): It represents the value of goods and services purchased from foreign countries and consumed domestically.

Net exports (NX) = X - M.

Equilibrium Condition: In an open economy, equilibrium is reached when total domestic expenditure (AE) plus net exports (NX) is equal to the total output or income (Y). Mathematically,

AE + NX = Y.

Graphically, we represent the "equilibrium condition using the AE-Y diagram. The AE function (C + I + G) is represented by a line, and the 45-degree line represents the equality between AE + NX and Y. To determine equilibrium level of income in an open economy, we analyze the intersection of the aggregate expenditure function (AE + NX) and the 45-degree line on the AE-Y diagram. The intersection point gives us the equilibrium level of income (Y).

If the aggregate expenditure function lies below the 45-degree line, it implies that aggregate expenditure plus net exports is less than income. In this case, there is a surplus of production, and firms reduce output and employment. The economy moves towards equilibrium.

If the aggregate expenditure function lies above the 45-degree line, it implies that aggregate expenditure plus net exports exceeds income. In this case, there is excess demand, and firms increase output and employment to meet the demand. The economy moves towards equilibrium.

The equilibrium level of income (Y) is reached when the aggregate expenditure function plus net exports intersects the 45-degree line. It is denoted as Y on the graph."

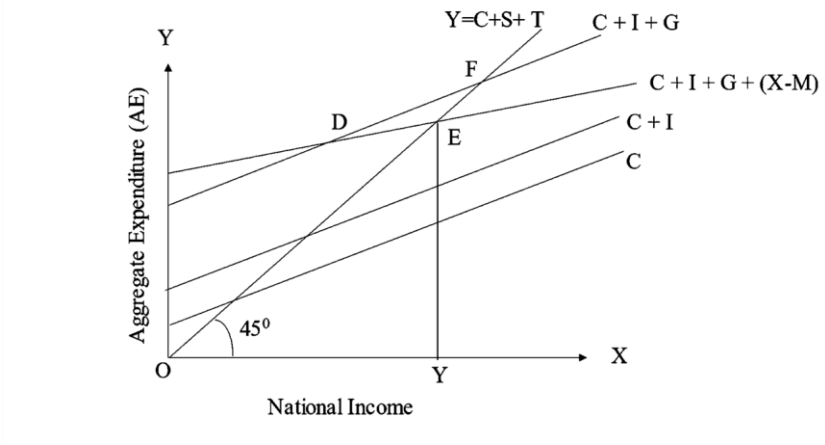

Figure 4

It's important to note that the equilibrium level of income in an open economy is influenced by various factors, including domestic expenditure components (C, I, G), net exports (X - M), exchange rates, international competitiveness, and global economic conditions. These factors can affect the level of equilibrium income and impact the overall economic performance of an open economy.

4.4 Check Your Progress

1. Features of closed economies are…….
    (a) Lack of international trade
    (b) Domestic focus
    (c) Limited capital flows
    (d) All of the above
2. Which one is a feature of open economy?
    (a) International Trade
    (b) Capital flows
    (c) Exchange rates
    (d) All of the above
3. Which one of the following is open economy?
    (a) US
    (b) Singapore
    (c) Germany

(d) All of the above

4. Which one is the disadvantage of closed economy...?
   (a) Limited growth
   (b) Fewer product variations
   (c) Both a & b
   (d) None of the above
5. Which one of the following is element of two sector economy?
   (a) Domestic
   (b) Business
   (c) Both a & b
   (d) None of the above
6. In which situation the income can be determined in a closed economy?
   (a) Two sector economy
   (b) Three sector economy
   (c) Four Sector economy
   (d) All of the above
7. Which one of the following is the assumption of an open economy?
   (a) Exchange rates are fixed.
   (b) There are no tariffs, trade and exchange restrictions.
   (c) Gross exports are determined by external factors.
   (d) All of the above

4.5 Summary

"Most economies in their initial stages of development follow relatively closed economy policy as their fear that the competition from MNCs may crush their nascent domestic industries. Such policies were followed by India, USA etc. in their initials stages of development. Thus, the self-reliance was a major objective behind the closed economic policies. Once their domestic industries developed to take the might of MNCs, they adopted the open economic policies. Many economists held that domestic industries must be protected in the initial stages of development but once the domestic industries gathered strength, country must adopt the open economic policy.

An open economy has a greater chance of adjusting itself with the changes taking place in world economy. Though it is true that an open economy is vulnerable to the global risks like slowdown but it is true that open economy is also a partner in the faster, vibrant global growth. Despite of inherent risks with the open economy, it is worth to be followed because of the immense direct and indirect benefits associated with it.

The determination of equilibrium level of income in closed economy can be determined by two sectors, three sector and four sector model economy. In two sector economy, interaction between aggregate expenditure (total of consumption and investment) and a 45^0 - degree line on diagram determines the equilibrium level of income. In three sector economy, interaction between aggregate expenditure (total of consumption, investment and Government expenditure) and a 45^0 - degree line on diagram determines the equilibrium level of income. In four sector economy, interaction between aggregate expenditure (total of consumption, investment, Government expenditure and net exports) and a 45^0 - degree line on diagram determines the equilibrium level of income.

In an open economy, the level of equilibrium refers to the equilibrium level of national income or output where aggregate expenditure equals aggregate output. This equilibrium level is determined by the interaction between domestic expenditure (consumption, investment, and government spending) and net exports (exports minus imports)."

4.6 Keywords

"Open Economy: An open economy is one in which product exchange involves not only domestic factors but also entities from other countries (goods and services). Managerial interchange, technology transfers, and all kinds of products and services are examples of open economy trade.

Closed Economy: In terms of products and services, a closed economy does not import or export them from other governments. The supply of goods and services is limited when a country is "closed" to trade, as in a closed economy.

Two-Sector Model: In a two-sector model we consist the interaction between households (consumers) and producers.

Three-Sector Model: In a three-sector model we consist the interaction between consumption, investment and Government expenditure.

Four-Sector Model: In a four-sector model we consist the interaction between consumption, investment, Government expenditure and net exports.

Saving: Saving, process of setting aside a portion of current income for future use, or the flow of resources accumulated in this way over a given period of time.

Investment: Investment is the dedication of money to purchase of an asset to attain an increase in value over a period of time.

Aggregate Expenditure: It is the sum total of consumption, investments, Government expenditure and net exports in the economy.

Government Expenditure: It refers to expenditure of Government in the form of government consumption, transfer payments and interest.

Imports: Buying goods & services from another countries which we are lacking is known as imports.

Exports: Selling or transferring goods & services to rest of the economies is known as exports. These goods & services are in abandon in our country. "

4.7 Self-assessment Test

Q.1 What do you mean by a closed economy? Explain the income determination in two and three sector closed economy.

Q.2 What do you mean by an open economy? Explain the income determination in open economy.

Q.3 Explain the concept of open and closed economies. What are the advantages and disadvantages of these economies? Also differentiate the same.

Q.4 Explain how equilibrium GDP is determined in a closed economy.

Q.5 How do exports and imports influence the domestic income?

4.8 Answer to Check Your Progress

- 1(d), 2 (d), 3(d), 4 (c), 5(c), 6 (d), 7 (d).

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Subject: Macro Economics	Author: Ms. Chand Kiran
Subject Code: BCOM 202	Updated By: Mr. Kapil Singh

LESSON-5

Classical Theory of Output and Employment

Structure

5.0 LEARNING OBJECTIVES

In this chapter, we will discuss about the macroeconomics theories i.e., theory of output and employment. We will study about two major theories for determination of output and employment. In the first part of this lesson, we will describe the classical theory and in the. These theories will be helpful for you to understand about the equilibrium level of national income. Further, you will be able to understand the significance and criticism of classical theories. An attempt is made to aware you about the major differences among classical theory and Keynesian theory, so that you can easily understand about these theories.

5.1 INTRODUCTION

Classical economists had written on various macroeconomics concepts before the book "The General Theory of Employment, Interest and Money" by Keynes in 1936. Classical theories are integrated thought of different classical economists who contribute on different macroeconomic issues. The classical economists include David Ricardo, J.B. Say, Karl Marx, Adam Smith, etc. and neo-classical economists include A.C. Pigou, Alfred Marshall, etc. Almost all the classical economists have expressed same views on the determination of equilibrium level of income and employment in the economy. Classical economists assume that unemployment exists only for short period in the economy and it will be vanished automatically. Further, it is also assumed that full employment in the economy will be achieved only if there is free play of market forces. According to classical economists' equilibrium level of income and output can be determined through the free play of demand and supply forces. The classical economists believed in the existence of full employment in the economy. To them, full employment was a normal situation and any deviation from this regarded as something abnormal. According to Pigou, the tendency of the economic system is to automatically provide full employment in the labor market when the demand and supply of labor are equal. Unemployment results from the rigidity in the wage structure and interference in the working of free market system in the form of trade union legislation, minimum wage legislation etc. Full employment exists "when everybody who at the running rate of wages wishes to be employed." Those who are not prepared to work at the existing wage rate are not unemployed because they are voluntarily unemployed. Thus, full employment is a situation where there is no possibility of involuntary unemployment in the sense that people are prepared to work at the current wage rate but they do not find work. The basis of the classical theory is Say's Law of Markets which was carried forward by classical economists like Marshall and Pigou. They explained

the determination of output and employment divided into individual markets for labor, goods and money. Each market involves a built-in equilibrium mechanism to ensure full employment in the economy.

The classical theory of output and employment is based on the following assumptions:

- There is the existence of full employment without inflation.
- There is a laissez-faire capitalist economy without government interference.
- It is a closed economy without foreign trade.
- There is perfect competition in labor and product markets.
- The quantity of money is given and money is only the medium of exchange.
- Wages and prices are perfectly flexible.
- There is perfect information on the part of all market participants.
- Money wages and real wages are directly related and proportional.
- Savings are automatically invested and equality between the two is brought about by the rate of interest
- Capital stock and technical knowledge are given.
- The law of diminishing returns operates in production.
- It assumes long run.
- Labor is homogeneous.
- Total output of the economy is divided between consumption and investment expenditures.

If there is general overproduction in the economy, then some laborers may be asked to leave their jobs. The problem of unemployment arises in the economy in the short run. In the long run, the economy will automatically tend toward full employment when the demand and supply of goods become equal. When a producer produces goods and pays wages to workers, the workers, in turn, buy those goods in the market. Thus, the very act of supplying (producing) goods implies a demand for them. It is in this way that supply creates its own demand.

5.2 DETERMINATION OF OUTPUT AND EMPLOYMENT

In the classical theory, output and employment are determined by the production function and the demand for labor and the supply of labor in the economy. Given the capital stock, technical knowledge and other factors, a precise relation exists between total output and amount of

employment, i.e., number of workers. This is shown in the form of the following production function:

$Q=f(K, T, N)$

where total output (Q) is a function (f) of capital stock (K), technical knowledge (T), and the number of workers (N)

Given K and T, the production function becomes Q = f (AO which shows that output is a function of the number of workers. Output is an increasing function of the number of workers, output increases as the employment of labor rises. But after a point when more workers are employed, diminishing marginal returns to labor start. This is shown in Fig. 1 where the curve Q = f (N) is the production function and the total output OQ_1 corresponds to the full employment level N_F. But when more workers N_fN_2 are employed beyond the full employment level of output OQ_1, the increase in output Q_1Q_2 is less than the increase in employment N_1N_2.

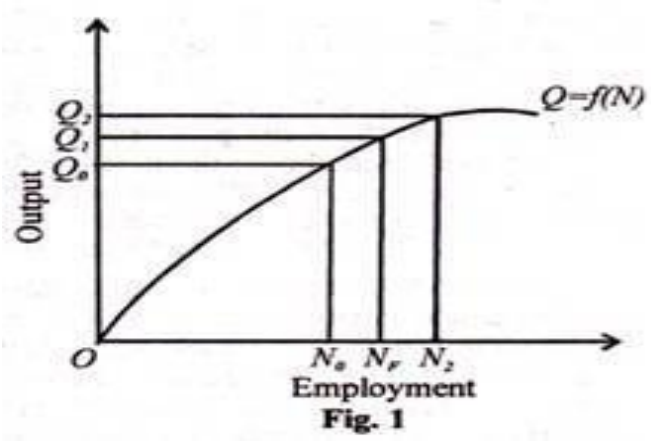

Fig. 1

5.2.1 Labor Market Equilibrium

In the labor market, the demand for labor and the supply of labor determines the level of output and employment. The classical economists regard the demand for labor as the function of the real wage rate:

$D_N = f(W/P)$

Where D_N = demand for labor, W = wage rate and P = price level. Dividing wage rate (W) by price level (P), we get the real wage rate (W/P).

The demand for labor is a decreasing function of the real wage rate, as shown by the downward sloping D_N curve in Fig. 2. It is by reducing the real wage rate that more workers can be employed.

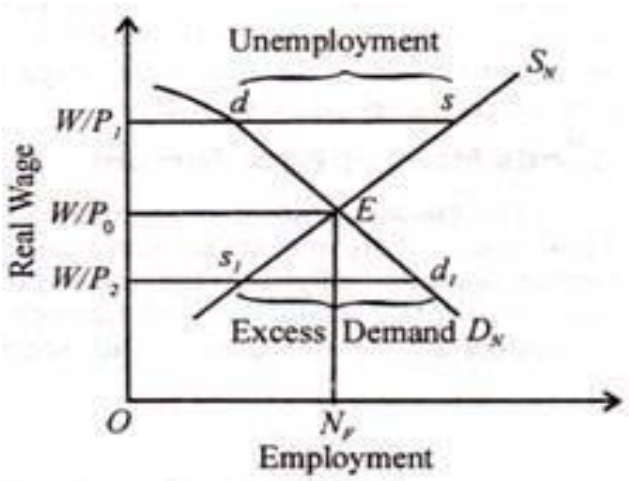

Fig. 2

The supply of labor also depends on the real wage rate: $S_N = f(W/P)$, where S_N is the supply of labor. But it is an increasing function of the real wage rate, as shown by the upward sloping S_N curve in Fig. 2. It is by increasing the real wage rate that more workers can be employed.

When the D_N and S_N curves intersect at point E, the full employment level N_F is determined at the equilibrium real wage rate W/P_0. If the wage rate rises from WP_0 to WP_1 the supply of labor will be more than its demand by ds.

Now at W/P_1 wage rate, ds workers will be involuntary unemployed because the demand for labor (W/P_1-d) is less than their supply (W/P_1-s). With competition among workers for work, they will be willing to accept a lower wage rate. Consequently, the wage rate will fall from W/P_1 to W/P_0.

The supply of labor will fall and the demand for labor will rise and the equilibrium point E will be restored along with the full employment level N_r On the contrary, if the wage rate falls from W/P_0 to WP_2 the demand for labor (W/P_2-d_1) will be more than its supply (W/P_2-s_1). Competition by employers for workers will raise the wage rate from W/P_2 to W/P_0 and the equilibrium point E will be restored along with the full employment level N_F.

5.2.2 Wage Price Flexibility

The classical economists believed that there was always full employment in the economy. In case of unemployment, a general cut in money wages would take the economy to the full employment level. This argument is based on the assumption that there is a direct and proportional relation between money wages and real wages.

When money wages are reduced, they lead to reduction in cost of production and consequently to the

lower prices of products. When prices fall, demand for products will increase and sales will be pushed up. Increased sales will necessitate the employment of more labor and ultimately full employment will be attained.

Pigou explains the entire proposition in the equation: N = qY/W. In this equation, N is the number of workers employed, q is the fraction of income earned as wages, Y is the national income and W is the money wage rate. N can be increased by a reduction in W. Thus, the key to full employment is a reduction in money wage. When prices fall with the reduction of money wage, real wage is also reduced in the same proportion.

As explained above, the demand for labor is a decreasing function of the real wage rate. If W is the money wage rate, P is the price of the product, and MP_N is the marginal product of labor, we have $W=P \times MP_N$ or $W/P = MP_N$

Since MP_N declines as employment increases, it follows that the level of employment increases as the real wage (W/P) declines. This is explained in Figure 3. In Panel (A), S_N is the supply curve of labor and D_N is the demand curve for labor. The intersection of the two curves at E shows the level of full employment N_F and the real wage W/P_0.

If the real wage rises to W/P_1, supply exceeds the demand for labor by sd and N_1N_2 workers are unemployed. It is only when the wage is reduced to W/P_0 that unemployment disappears and the level of full employment is attained.

This is shown in Panel (B), where MP_N is the marginal product of labor curve which slopes downward as more labor is employed. Since every worker is paid wages equal to his marginal product, therefore the full employment level N_F is reached when the wage rate falls from W/P_1 to W/P_0.

Contrariwise, with the fall in the wage from W/P_0 to W/P_2, the demand for labor increases more than its supply by s_1d_1, the workers demand higher wage. This leads to the rise in the wage from W/P_2 to W/P_0 and the full employment level N_F is attained.

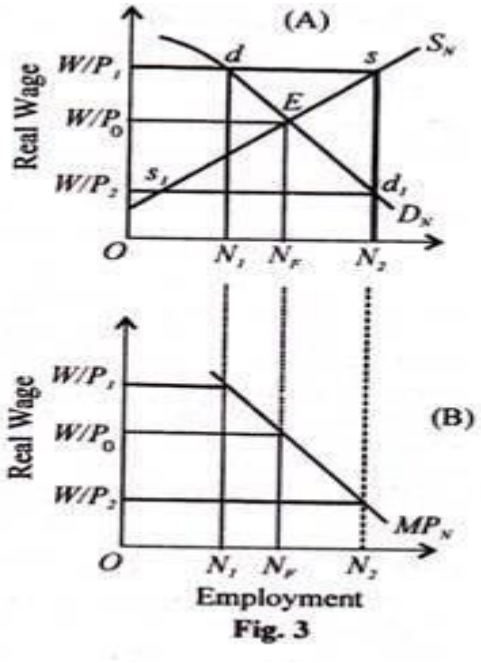

Fig. 3

5.2.3 Goods Market Equilibrium

The goods market is in equilibrium when saving equals investment. At that point of time, total demand equals total supply and the economy is in a state of full employment. According to the classicists, what is not spent is automatically invested.

Thus, saving must equal investment. If there is any divergence between the two, the equality is maintained through the mechanism of the rate of interest. To them, both saving and investment are the functions of the interest rate.

$$S = f(r) \ldots (1)$$

$$I = f(r) \ldots . (2)$$

$$S = I$$

Where S = saving, I = investment, and r = interest rate.

To the classicists, interest is a reward for saving. The higher the rate of interest, the higher the saving, and lower the investment. On the contrary, the lower the rate of interest, the higher the demand for investment funds, and lowers the saving. If at any given period, investment exceeds saving, (I > S) the rate of interest will rise.

Saving will increase and investment will decline till the two are equal at the full employment level.

This is because saving is regarded as an increasing function of the interest rate and investment as a decreasing function of the rate of interest.

Assuming interest rates are perfectly elastic, the mechanism of the equality between saving and investment is shown in Figure 4 where S is the saving curve and I is the investment curve. Both intersect at E which is the full employment level where at Or interest rate S = I. If the interest rate rises to Or1 saving is more than investment by ha which will lead to unemployment in the economy. Since S > I, the investment demand for capital being less than its supply, the interest rate will fall to Or, investment will increase and saving will decline. Consequently, S = I equilibrium will be re-established at point E.

On the contrary, with a fall in the interest rate from Or to Or_2 investment will be more than saving (I > S) by cd, the demand for capital will be more than its supply. The interest rate will rise, saving will increase and investment will decline. Ultimately, S = I equilibrium will be restored at the full employment level E.

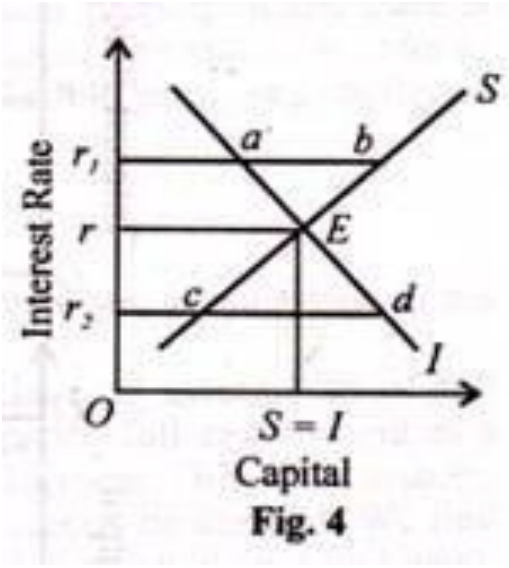

Fig. 4

5.2.4 Money Market Equilibrium

The money market equilibrium in the classical theory is based on the Quantity Theory of Money which states that the general price level (P) in the economy depends on the supply of money (M). The equation is MV= PT, where M = supply of money, V= velocity of circulation of M, P = Price level, and T = volume of transaction or total output.

The equation tells that the total money supply MV equals the total value of output PT in the economy.

Assuming V and T to be constant, a change in the supply of money (M) causes a proportional change in the price level (P). Thus, the price level is a function of the money supply: P = f (M).

The relation between quantity of money, total output and price level is depicted in Figure 5 where the price level is taken on the horizontal axis and the total output on the vertical axis. MV is the money supply curve which is a rectangular hyperbola.

This is because the equation MV = PT holds on all points of this curve. Given the output level OQ, there would be only one price level OP consistent with the quantity of money, as shown by point M on the MV curve. If the quantity of money increases, the MV curve will shift to the right as M_1V curve. As a result, the price level would rise from OP to OP_1 given the same level of output OQ. This rise in the price level is exactly proportional to the rise in the quantity of money, i.e., $PP_1 = MM_1$ when the full employment level of output remains OQ.

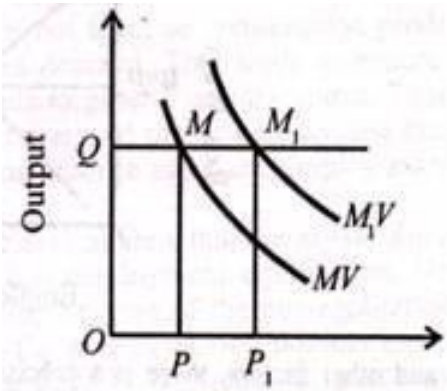

Fig. 5.

5.3 CLASSICAL MODEL

The classical theory of employment was based on the assumption of full employment where full employment was a normal situation and any deviation from this was regarded as an abnormal situation. This was based on Say's Law of Market.

According to this, supply creates its own demand and the problem of overproduction and unemployment does not arise. Thus, there is always full employment in the economy. If there is overproduction and unemployment, the automatic forces of demand and supply in the market will bring back the full employment level.

In the classical theory, the determination of output and employment takes place in labor, goods and money markets of the economy, as shown in Fig. 6. The forces of demand and supply in these markets

will ultimately bring full employment in the economy.

In the classical analysis, output and employment in the economy are determined by the aggregate production function, demand for labor and supply of labor. Given the stock of capital, technical knowledge and other factors, there is a precise relation between total output and employment (number of workers).

This is expressed as Q = f (K, T, N). In other words, total output (Q) is a function (f) of capital stock (K), technical knowledge T, and number of workers (TV). Given K and T, total output (Q) is an increasing function of the number of workers (N): Q=f (N) as shown in Panel (B). At point E, ONF workers produce OQ output. But beyond point E, as more workers are employed, diminishing marginal returns start.

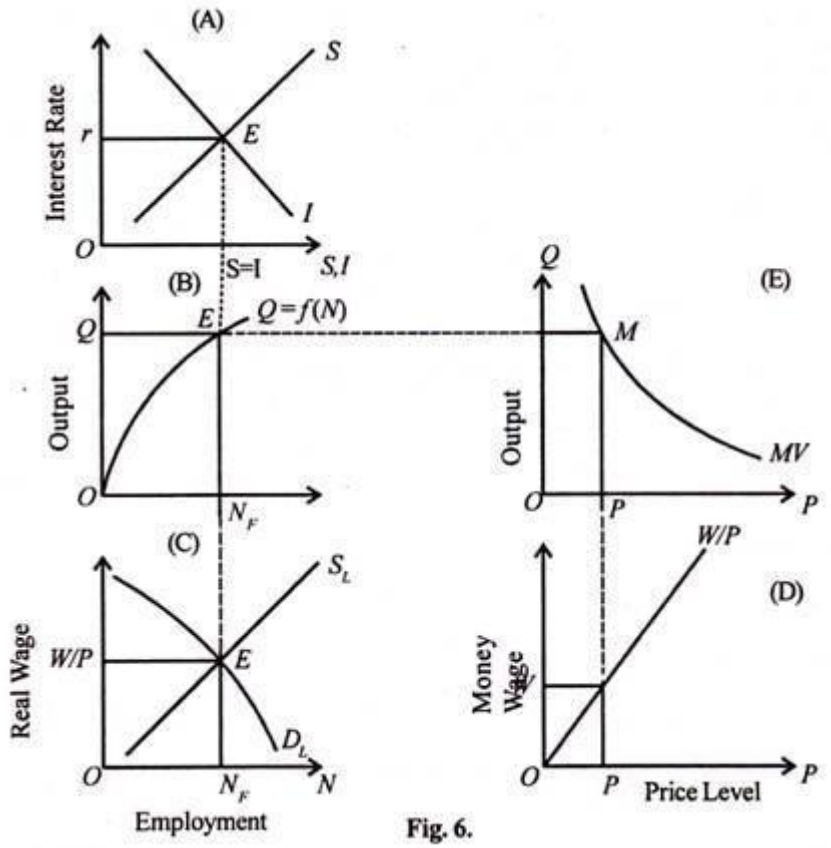

Fig. 6.

5.3.1 Labor Market Equilibrium

In the labor market, the demand for and supply of labor determine output and employment in the economy. The demand for labor depends on total output. As production increases, the demand for labor

also increases.

The demand for labor, in turn, depends on the marginal productivity (MP) of labor which declines as more workers are employed. The supply of labor depends on the wage rate, $S_L = f(W/P)$, and is an increasing function of the wage rate.

The demand for labor also depends on the wage rate, $D_L = f(W/P)$, and is a decreasing function of the wage rate. Thus, both the demand for and supply of labor are the functions of real wage rate (W/P). The intersection point E of D_L and S_L curves at W/ P wage rate in Panel (C) of the figure determines the full employment level ON_F.

5.3.2 Goods Market Equilibrium

In the classical analysis, the goods market is in equilibrium when saving and investment are in equilibrium (S=I). This equality is brought about by the mechanism of interest rate at the full employment level of output so that the quantity of goods demanded is equal to the quantity of goods supplied. This is shown in Panel (A) of the figure where S=I at point E when the interest rate is Or.

5.3.3 Money Market Equilibrium

The money market is in equilibrium when the demand for money equals the supply of money. This is explained by the Quantity Theory of Money which states that the quantity of money is a function of the price level, P=f (MV). Changes in the general price level are proportional to the quantity of money.

The equilibrium in the money market is shown by the equation MV = PT where MV is the supply of money and PT is the demand for money. The equilibrium of the money market explains the price level corresponding to the full employment level of output which relates Panel (E) and Panel (B) with MQ line.

The price level OP is determined by total output (Q) and the quantity of money (MV), as shown in Panel (E). Then the real wage corresponding with the money wage is determined by the (W/P) curve, as shown in Panel (D). When the money wage increases, the real wage also increases in the same proportion and there is no effect on the level of output and employment. It follows that the money wage should be reduced in order to attain the full employment level in the economy. Thus, the classicists favored a flexible price-wage policy to maintain full employment.

5.3.4 Keynes's Criticism of Classical Theory

Keynes vehemently criticized the classical theory of employment for its unrealistic assumptions in his General Theory. He attacked the classical theory on the following counts:

- **Underemployment Equilibrium**

  Keynes rejected the fundamental classical assumption of full employment equilibrium in the economy. He considered it as unrealistic. He regarded full employment as a special situation. The general situation in a capitalist economy is one of underemployment.

  This is because the capitalist society does not function according to Say's law, and supply always exceeds its demand. We find millions of workers are prepared to work at the current wage rate, and even below it, but they do not find work.

  Thus, the existence of involuntary unemployment in capitalist economies (entirely ruled out by the classicists) proves that underemployment equilibrium is a normal situation and full employment equilibrium is abnormal and accidental.

- **Refutation of Say's Law**

  Keynes refuted Say's Law of markets that supply always created its own demand. He maintained that all income earned by the factor owners would not be spent in buying products which they helped to produce.

  A part of the earned income is saved and is not automatically invested because saving and investment are distinct functions. So when all earned income is not spent on consumption goods and a portion of it is saved, there results in a deficiency of aggregate demand.

  This leads to general overproduction because all that is produced is not sold. This, in turn, leads to general unemployment. Thus, Keynes rejected Say's Law that supply created its own demand. Instead, he argued that it was demand that created supply. When aggregate demand rises, to meet that demand, firms produce more and employ more people.

- **Self-adjustment not Possible**

  Keynes did not agree with the classical view that the laissez-faire policy was essential for an automatic and self-adjusting process of full employment equilibrium. He pointed out that the capitalist system was not automatic and self-adjusting because of the non-egalitarian structure of its society. There are two principal classes, the rich and the poor.

  The rich possess much wealth but they do not spend the whole of it on consumption. The poor lack money to purchase consumption goods. Thus, there is general deficiency of aggregate demand in relation to aggregate supply which leads to overproduction and unemployment in the economy. This, in fact, led to the Great Depression.

Had the capitalist system been automatic and self-adjusting, this would not have occurred. Keynes, therefore, advocated state intervention for adjusting supply and demand within the economy through fiscal and monetary measures.

- **Equality of Saving and Investment through Income Changes**

  The classicists believed that saving and investment were equal at the full employment level and in case of any divergence the equality was brought about by the mechanism of rate of interest. Keynes held that the level of saving depended upon the level of income and not on the rate of interest.

  Similarly, investment is determined not only by rate of interest but by the marginal efficiency of capital. A low rate of interest cannot increase investment if business expectations are low. If saving exceeds investment, it means people are spending less on consumption.

  As a result, demand declines. There is overproduction and fall in investment, income, employment and output. It will lead to reduction in saving and ultimately the equality between saving and investment will be attained at a lower level of income. Thus, it is variations in income rather than in interest rate that bring the equality between saving and investment.

- **Importance of Speculative Demand for Money**

  The classical economists believed that money was demanded for transactions and precautionary purposes. They did not recognize the speculative demand for money because money held for speculative purposes related to idle balances.

  But Keynes did not agree with this view. He emphasized the importance of speculative demand for money. He pointed out that the earning of interest from assets meant for transactions and precautionary purposes may be very small at a low rate of interest.

  But the speculative demand for money would be infinitely large at a low rate of interest. Thus, the rate of interest will not fall below a certain minimum level, and the speculative demand for money would become perfectly interest elastic. This is Keynes 'liquidity trap' which the classicists failed to analyze.

- **Rejection of Quantity Theory of Money**

  Keynes rejected the classical Quantity Theory of Money on the ground that increase in money supply will not necessarily lead to rise in prices. It is not essential that people may spend all extra money. They may deposit it in the bank or save.

So, the velocity of circulation of money (V) may slow down and not remain constant. Thus, V in the equation MV = PT may vary. Moreover, an increase in money supply, may lead to increase in investment, employment and output if there are idle resources in the economy and the price level (P) may not be affected.

- **Money not Neutral**

  The classical economists regarded money as neutral. Therefore, they excluded the theory of output, employment and interest rate from monetary theory. According to them, the level of output and employment and the equilibrium rate of interest were determined by real forces.

  Keynes criticized the classical view that monetary theory was separate from value theory. He integrated monetary theory with value theory, and brought the theory of interest in the domain of monetary theory by regarding the interest rate as a monetary phenomenon. He integrated the value theory and the monetary theory through the theory of output.

  This he did by forging a link between the quantity of money and the price level via the rate of interest. For instance, when the quantity of money increases, the rate of interest falls, investment increases, income and output increase, demand increases, factor costs and wages increase, relative prices increase, and ultimately the general price level rises. Thus, Keynes integrated monetary and real sectors of the economy.

- **Refutation of Wage-Cut**

  Keynes refuted the Pigovian formulation that a cut in money wage could achieve full employment in the economy. The greatest fallacy in Pigou's analysis was that he extended the argument to the economy which was applicable to a particular industry.

  Reduction in wage rate can increase employment in an industry by reducing costs and increasing demand. But the adoption of such a policy for the economy leads to a reduction in employment.

  When there is a general wage-cut, the income of the workers is reduced. As a result, aggregate demand falls leading to a decline in employment.

  From the practical view point also, Keynes never favored a wage cut policy. In modern times, workers have formed strong trade unions which resist a cut in money wage. They would resort to strikes. The consequent unrest in the economy would bring a decline in output and income. Moreover, social justice demands that wages should not be cut if profits are left untouched.

- **No Direct and Proportionate Relation between Money and Real Wages**

Keynes also did not accept the classical view that there was a direct and proportionate relationship between money wages and real wages. According to him, there is an inverse relation between the two. When money wages fall, real wages rise and vice versa.

Therefore, a reduction in the money wage would not reduce the real wage, as the classicists believed, rather it would increase it. This is because the money wage cut will reduce cost of production and prices by more than the former.

Thus, the classical view that fall in real wages will increase employment breaks down. Keynes, however, believed that employment could be increased more easily through monetary and fiscal measures rather than by reduction in money wage. Moreover, institutional resistances to wage and price reductions are so strong that it is not possible to implement such a policy administratively.

- **State Intervention Essential**

  Keynes did not agree with Pigou that "frictional maladjustments alone account for failure to utilize fully our productive power." The capitalist system is such that left to itself it is incapable of using productive powerfully. Therefore, state intervention is necessary.

  The state may directly invest to raise the level of economic activity or to supplement private investment. It may pass legislation recognizing trade unions, fixing minimum wages and providing relief to workers through social security measures.

  "Therefore", as observed by Dillard, "it is bad politics even if it should be considered good economics to object to labor unions and to liberal labor legislation." So, Keynes favored state action to utilize fully the resources of the economy for attaining full employment.

- **Long-Run Analysis Unrealistic**

  The classicists believed in the long-run full employment equilibrium through a self-adjusting process. Keynes had no patience to wait for the long period for he believed that "In the long-run we are all dead". As pointed by Schumpeter, "His philosophy of life was essentially a short-term philosophy." His analysis is confined to short-run phenomena. Unlike the classicists, he assumes tastes, habits, techniques of production, supply of labor, etc. to be constant during the short period and so neglects long-run influences on demand. Assuming consumption demand to be constant, he lays emphasis on increasing investment to remove unemployment. But the equilibrium level so reached is one of underemployment rather than of full employment. Thus,

the classical theory of employment is unrealistic and is incapable of solving the present-day economic problems of the capitalist world.

5.4 CHECK YOUR PROGRESS

1. "Classical Economist have same views on determination of income and employments." Is it correct?
   a) Yes
   b) No
   c) None of above
   d) All of the above

2. Marshall and Pigou have explained the determination of output and employment divided into individual markets for……...?
   a) Labor
   b) Goods
   c) Money
   d) All of the above

3. Which one of the following is assumption of classical theory of output and employment?
   a) It is a closed economy without foreign trade.
   b) There is the existence of full employment without inflation.
   c) There is a laissez-faire capitalist economy without government interference.
   d) All of the above

4. In the classical theory, output and employment are determined by...?
   a) Production function
   b) Labor
   c) Supply of labor
   d) All of the above

5. Who proposed the equation N = qY/W?
   a) Marshall
   b) Pigou
   c) Both a & b

d) None of the above

6. When the goods market is in equilibrium?

a) S = I

b) S < I

c) S > I

d) None of the above

7. Which one of the following is the criticism of assumption of classical theory by Keynes?

a) Underemployment Equilibrium

b) Refutation of Say's Law

c) Self-adjustment not Possible

d) All of the above

5.5 Summary

The classical economists include David Ricardo, J.B. Say, Karl Marx, Adam Smith, etc. and neo-classical economists include A.C. Pigou, Alfred Marshall, etc. Almost all the classical economists have expressed same views on the determination of equilibrium level of income and employment in the economy. Classical economists assume that unemployment exists only for short period in the economy and it will be vanished automatically. Further, it is also assumed that full employment in the economy will be achieved only if there is free play of market forces. According to classical economists' equilibrium level of income and output can be determined through the free play of demand and supply forces. In the classical theory, output and employment are determined by the production function and the demand for labor and the supply of labor in the economy. Given the capital stock, technical knowledge and other factors, a precise relation exists between total output and amount of employment, i.e., number of workers. This is shown in the form of the following production function: Q=f (K, T, N) In the labor market, the demand for labor and the supply of labor determines the level of output and employment. The classical economists regard the demand for labor as the function of the real wage rate: DN =f (W/P). The classical economists believed that there was always full employment in the economy. In case of unemployment, a general cut in money wages would take the economy to the full employment level. This argument is based on the assumption that there is a direct and proportional relation between money wages and real wages. The goods market is in equilibrium when saving equals investment. At that point of time, total demand equals total supply and the economy is in a state of full

employment. According to the classicists, what is not spent is automatically invested. The classical theory of employment was based on the assumption of full employment where full employment was a normal situation and any deviation from this was regarded as an abnormal situation. This was based on Say's Law of Market. According to this, supply creates its own demand and the problem of overproduction and unemployment does not arise. Thus, there is always full employment in the economy. If there is overproduction and unemployment, the automatic forces of demand and supply in the market will bring back the full employment level.

5.6 KEYWORDS

Income- The amount of money which is received regularly for providing services to others or interest on money which is saved by a person is known as income.

Employment- It is a contract between employer and employee where the employee will provide certain services for the reward.

Money Market: Money markets include markets for such instruments as bank accounts, including term certificates of deposit; interbank loans (loans between banks); money market mutual funds; commercial paper; Treasury bills; and securities lending and repurchase agreements (repos).

Laissez-faire capitalist economy: Laissez-faire is an economic philosophy of free-market capitalism that opposes government intervention. The theory of laissez-faire was developed by the French Physiocrats during the 18th century.

Law of diminishing returns: The law of diminishing marginal returns is a theory in economics that predicts that after some optimal level of capacity is reached, adding an additional factor of production will actually result in smaller increases in output.

Speculative Demand: The speculative or asset demand for money is the demand for highly liquid financial assets domestic money or foreign currency that is not dictated by real transactions such as trade or consumption expenditure. Speculative demand arises from the perception that money is optimally part of a portfolio of assets being held as investments.

Closed Economy- It is a self-sufficient economy which has no imports from rest of the world and no exports outside the domestic territory of that country.

Aggregate Expenditure- Aggregate expenditure is the expenditure which people wish to spend during in an accounting year.

Consumption Expenditure- It is the desired or planned expenditure on consumption of goods and

services by the households.

Investment Expenditure- It is the planned expenditure on production of goods and services.

5.7 SELF-ASSESSMENT TEST

Q.1 Explain the role of classical economists in the economic analysis. Do you agree with classical economists? Provide reasons for your answers.

Q.2 Explain the classical theory of income and employment. What are the major criticisms of classical theory?

Q.3 Define classical theory of output and employment. What are the main assumptions of this theory?

Q.4 What mechanism in classical theory of output and employment is used for ensuring equality between saving and investment in full employment?

5.8 ANSWERS TO CHECK YOUR PROGRESS

- 1. (a), 2. (d), 3. (d), 4. (d), 5. (b), 6. (a), 7. (d)

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Subject: Macro Economics	Author: Ms. Chand Kiran
Subject Code: BCOM 202	Updated By: Kapil Singh

LESSON-6

Keynes Model of Income Determination

Structure

6.0 LEARNING OBJECTIVES

In this chapter, we will discuss about the Keynesian model of income and output is explained. This model will be helpful for you to understand about the equilibrium level of national income. Further, you will be able to understand the significance and criticism of both the model. An attempt is made to aware you about the major differences among classical theory and Keynesian theory, so that you can easily understand about both concepts.

6.1 INTRODUCTION

Classical economists had written on various macroeconomics concepts before the book "The General Theory of Employment, Interest and Money" by Keynes in 1936. Classical theories are integrated thought of different classical economists who contribute on different macroeconomic issues. The classical economists include David Ricardo, J.B. Say, Karl Marx, Adam Smith, etc. and neo-classical economists include A.C. Pigou, Alfred Marshall, etc. Almost all the classical economists have expressed same views on the determination of equilibrium level of income and employment in the economy. Classical economists assume that unemployment exists only for short period in the economy and it will be vanished automatically. Further, it is also assumed that full employment in the economy will be achieved only if there is free play of market forces. According to classical economists' equilibrium level of income and output can be determined through the free play of demand and supply forces.

In the further part of this lesson Keynesian model of income and employment has explained. Keynesian model can be studied in three different models i.e. simple model or two sector model, closed economy model or three-sector model and open economy model or four-sector model. We will study about three-sector model in closed economy which includes households, firms and the government. One thing is taken as common in all the three models i.e. assumption of constant price even if aggregate demand and aggregate supply changes.

6.2 KEYNESIAN MODEL OF INCOME AND EMPLOYMENT

Keynesian theory of income and employment is studied with reference to two sector economy where all the economic decisions are taken by the household sector and the producing sector without any interference of government. Keynesian theory is an improvement over the classical theory of income and employment. This theory is also based on various assumptions which are discussed as follows:

I. Keynesian theory is studied under short time period.
II. There exists perfect competition in the market.
III. Keynesian theory assumed that there is closed economy.
IV. All the factors of production are assumed constant except labour which is only variable factor.
V. Further, technology is also assumed as constant and money is considered as a store of value.
VI. Keynes assumes, people have an illusion that value of money remains constants and saving and investment equilibrium are based on level of income.

Keynesian theory of income and output is discussed in detailed as under. Further, equilibrium is also determined through different factors.

6.2.1 Variables of the Model

The variables used by Keynes in his theory can be broadly divided into three groups:

1. **Given Elements**: First there are variables which have been assumed as given because they change so slowly that their effects in short run can be ignored. They are- (a) the quality and quantity of labour and capital stock; (b) techniques of production; (c) degree of competition; (d) consumer tastes; (e) the structure of the society.

2. **Independent Variables (or causes)**: Independent variables are the behavior patterns of the society. In other words, they represent the basic functions or relationships.

There are four independent variables:

(i) The consumption function;

(ii) The investment function or the marginal efficiency of investment schedule;

(iii) The liquidity preference function;

(iv) The quantity of money fixed by the monetary authority.

All these variables are stated in wage units.

3. **Dependent Variables (or Effects):** The dependent variables of the Keynesian system are- (a) the level of employment, output and income, and (b) the rate of interest. Keynes makes rate of interest an independent variable.

But, according to Hansen, rate of interest is a determinate, and not a determinant. Rate of interest along with national income together are mutually determined by the above mentioned four independent variables.

6.2.2 Features of Keynesian Model

- **Demand Creates its Supply**: Just opposite to the classical view, Keynes proposed that demand for a product encourages producers to come up with products demanded. If there is idle capacity in the economy, output will increase if aggregate demand increases.
- **Rigidities in Prices and Wage Rate**: Prices and wage rate are not flexible as suggested by classical economists. Suppliers have monopoly power; perfectly competitive markets do not exist. As we receive our wages and salaries in nominal terms, we resist downward movements in wages and salaries. There are several contracts which do not allow immediate revision in prices and wages. Moreover, adjustments in prices and wage rate are staggered over a period of time; adjustments are not instantaneous.
- **Unemployment in Economy**: Classical economists ruled out the possibility of unemployment in the economy. According to Keynes, unemployment is normal for an economy. Periodic fluctuations in unemployment can be neutralized by government intervention.
- **Government Intervention**: If aggregate demand is falling short of aggregate supply, in Keynesian system the government should increase its spending. Thus, in the Keynesian system government has an active and important role in the economy. If there is large scale unemployment in the economy, government should create jobs through investments in productive activities. If inflation is high, government should adhere to restrictive policies to reduce the level of aggregate demand.
- **Aggregate Supply Curve**: According to classical economists, aggregate supply curve is vertical. The classical economists however were referring to the long run situations. According to Keynes, short run is also important. In the short run the aggregate supply curve is horizontal, if the available resources in the economy are under-utilized. An implication of the above is that increase in aggregate demand will result in increase in output, without increasing prices.

- **The Short-run Nature of Keynesian economics**: Short-run refers to that period of time in which production cannot be influenced by making any new investment in the form of new plants or new machines or by changing technique production. Keynesian Economics is not concerned with long-run. Keynes stresses the study of those problems, which are felt intensely under existing circumstances. J.A. Schumpeter has right said, "Keynes' philosophy of life was short-run." Short-run character of his theory can be explained as follows: (i) In the short-run, the quantity and quality of labor, the amount of capital, the existing technique, the extent of competition, the degree of monopoly, tastes of the people and extensive social structure, all remain constant. These do not undergo any material change. Keynesian theory of employment also treats them as constant. (ii) Although employment can be increased by increasing both consumption and investment, yet Keynes has given more importance to investment than consumption. It is so because, in the short-run, people's consumption habits remain constant, while investment can be changed. (iii) Keynes considered national output or aggregate supply also constant in the short-run. Labor alone is the variable factor of production in the short-run; hence, production can be increased by increasing the level of employment. In other words, production and employment change in the same proportion.
- **Keynesian Economics is Macro in Character**: There are two approaches to the study of economics: (i) Microeconomic Analysis and (ii) Macroeconomic Analysis. Microeconomics deals with the income of an individual, price of a commodity and the production of a firm. Classical economists have mainly analyzed microeconomics. On the contrary, Keynesian economic analysis is a macroeconomic analysis. Even prior to Keynes, Mercantilists had laid emphasis on macroeconomic analysis. However, the development and popularity of macroeconomic analysis is the outcome of Keynes' 'General Theory.' Macroeconomic analysis is the study of an entire economy. It is mainly concerned with aggregate income or aggregate product, aggregate consumption and investment. Keynes has proved that an economic principle that applies to an individual need not be applicable to the entire economy. For instance, to save is an individual virtue but a social vice. If money-wage is reduced in an industry then employment can increase in that particular industry. If, however, money-wage is reduced throughout the economy, there will be reduction in the employment. It explains why Keynes laid emphasis on the significance of macro-economic analysis to study macroeconomic problems. This analysis is based on the concept of General Equilibrium while microeconomic analysis is based on the concept of Partial Equilibrium.

- **Keynesian Economics - A Systematized and Comprehensive Body of Thought**: Keynesian economics is a comprehensive study of all conditions. Its study embraces, inflation and deflation, boom and depression. It will not be correct to say that Keynesian economics is an economic analysis of depression, as alleged by Hicks and Schumpeter. Keynesian economics is referred to as economics of depression alone because "The General Theory" undertakes a comprehensive study of depression and unemployment as it was written after the Great Depression of 1930. But it does not mean that Keynes did not focus his attention on other economic problems like, inflation and full employment, over-employment etc. According to Keynes deflation is caused by the deficiency of effective demand and increase in it leads to inflation. Keynes has prescribed his remedies for both these problems. In the words of Prof. Harris, "His models clarify both inflationary and deflationary episodes, prosperous and depressed economies." According to L.R. Klein, "Not only in the recent war and post-war period but also the years to come will see the fruitful applications of new methods." As a matter of fact, main problem of Keynesian economics is Effective Demand. Any deficiency in it, causes depression and unemployment, and any excess of it leads to more employment and inflation. Hence, Keynesian Theory is quite comprehensive.
- **Keynesian Economics Reformed Capitalism or New Liberalism**: Keynes' objective was to reform and not to destroy the capitalism. In his opinion, capitalism of the pre-war period was irrelevant under the changed circumstances. Keynes was very much in favor of the various institutions of capitalism such as, private property, freedom of choice, profit motive, and price mechanism. However, he did not subscribe to the view of the capitalism that the government should not interfere with the economic activities and that there is automatic adjustment in the economic forces. Keynes has strongly supported government intervention in economic sphere. According to Prof. Harris, "As a matter-of-fact Keynes was essentially defender of capitalism. His motive was to save capitalism and not to destroy it." Keynes had suggested socialism of investment, public works programmes and cheap money policy. Keynes was not a supporter of communism and collectivism. Rather, he was their critic. He suggested government interference in economic sector so that private enterprises may run successfully. John Eaton is of the view, "For Keynes capitalism is fine. It merely needs adjustment."
- **Keynesian Economics a Monetary Economics**: Classical economists gave more importance to real factors than to monetary factors in economic analysis. Because, according to them, main function of

money was to serve as a medium of exchange. As such, money was merely a veil, it had no effect of its own on the determination of economic activities. Keynes however did not subscribe to this view. He acknowledged the influence of money in the determination of income and employment. According to him, rate of interest is determined by demand for and supply of money. Increased supply of money lowers the rate of interest which in its turn induces more results into more output and employment.

- **Keynesian Analysis Mainly Institutional**: Another characteristic of Keynesian economics is that it is institutional. We can't comprehend Keynesian theory unless we examine psychological and institutional factors that influence such economic factors as rate of interest, saving, investment, supply of money, consumption function. That is why, "The General Theory" is more real and pragmatic. It serves as guide to all over the world. Study of institutional and psychological factors has rendered Keynesian Theory simple. The entire structure of Keynesian Theory will undergo a transformation if the institutional factors undergo a change that is why Keynesian economics is helpful in tackling the problems of developed countries alone. Its applicability to underdeveloped countries is limited.
- **Importance of State Intervention**: Keynesian economics has attached great importance to state interference in economic sphere. He considered state intervention inevitable to make up the deficiency of private investment. State is a kind of balancing factor. It is not to supplant private enterprise but to supplement it. According to Keynes while increase in government, activities will appear to be a dangerous interference with the individualism of the 19th century economists, it is recommended for the success of the private initiative. State plays an important role in increasing the propensity to consume by distributing the wealth equitably. By lowering the rate of interest, state encourages the entrepreneurs to increase investment. Keynes supported the policy of Public Works and Deficit Financing in order to remove unemployment. In the words of Benjamin Higgins, "The analysis of the General Theory conferred a new importance and respectability on public investment policy. It has been elevated from the rank of the last line of defense to major offensive."
- **The Crucial Role of Investment**: Keynes has given much importance to the role of investment in his Theory of Employment. By investment he meant increase in the stocks of goods and addition made to the capital assets. In the words of Dillard, "His theory reduced to its simplest, states that employment depends upon the amount of investment." It is so because change in employment

depends upon change in effective demand. Effective demand depends upon consumption demand and investment demand. In the short-run, consumption does not increase at the same rate as income does. It results into a gap between consumption and income. Consequently, there is fall in demand and rise in the rate of unemployment. In order to reduce this gap and increase the rate of employment, increase in investment becomes necessary. Dillard has, therefore, rightly observed, "Employment fluctuates primarily because, investment fluctuates. Unemployment results primarily from an inadequacy of investment." Keynes considered it necessary to increase both private and public investment in order to accelerate the rate of employment.

- **Comparative Static Analysis**: In the context of economic analysis, there are three widely prevalent concepts, namely (i) Static (ii) Comparative Static and (iii) Dynamic. Static analysis studies that equilibrium which takes place due to definite economic variables. In this analysis most of the variables are taken as constant. Comparative static analysis involves a comparison of the new Keynesian Theory of Income Determination equilibrium position with the original equilibrium position due to the change in some economic variable. How economic analysis of Keynes be identified is a moot question with the economists. Some economists like Schumpeter and Harrod treat Keynesian economics as static analysis because Keynes has assumed a definite relationship between employment and output. He has not discussed rate of growth, acceleration etc. However, Prof. Hansen regards Keynesian analysis as Comparative Static because, it compares positions of equilibrium of different times. On the other end, Prof. Hicks rakes it as Dynamic analysis. According to him, Keynes by taking into account Expectations has made his economic analysis to qualify as being Dynamic. These expectations do effect investment, liquid money, multiplier etc. In short, it can be said that Keynesian economics has the elements of both static and dynamic analysis. Prof. Hicks has also coceded, “The General Theory of Employment is neither the beginning nor the end of Dynamic Economics."
- **A Theory of Shifting Equilibrium**: Prior to Keynes, classical economists believed that equilibrium is possible only when there is full employment in the economy. Classical theory is therefore, a theory of Stationary Equilibrium. On the contrary, according to Keynes, position of equilibrium refers to the position of equality between aggregate demand and aggregate supply and this equality is possible under all the three situations, namely full employment, less than full employment and over-full employment. Thus, Keynesian Theory is a theory of Shifting Equilibrium. Keynes was the

first economist to point out that under-employment equilibrium was more realistic phenomenon than full employment. According to Haberler, "Underemployment equilibrium is the most notable contribution of Keynesian Theory." Two prominent features of this Theory are: (i) classical economists are wrong to believe that full employment situation can be achieved by reducing the money wage and (ii) under-employment equilibrium is the result of fall in private investment. Deficiency in private investment can be made up by increasing public investment.

- **The Role of Expectations in Economy**: In Keynesian economics great emphasis has been laid on the role of expectations in economy. Investment, multiplier, liquidity preference etc. These are greatly influenced by expectations. By expectations, is meant expected profit in future. As we know, investment depends on marginal efficiency of capital (MEC) and this efficiency of capital depends on expected profitability in future. If the entrepreneur is optimistic about future he will go in for investment, otherwise not. Likewise, the concept of liquidity preference also depends on expectations. How much of their wealth people would like to hold in liquid (cash) form depends on future rate of interest. Thus, we find that in Keynesian economic analysis, expectations play a revolutionary role. Because of this reason, Keynesian economics is regarded more dynamic than classical economics. In this context, Hicks has rightly said that the use of the technique of expectations is perhaps the greatest revolutionary contribution of the General Theory. These expectations influence both investment and employment.
- **Role of Consumption**: Consumption expenditure and Psychological Law Consumption have been assigned great importance in The General Theory. According to Keynes, the role of consumption is no less important than the role of production in the determination of the level of employment. Consumption gives rise to demand and hence, to production, bringing thereby change in employment. Classical economists did not bother much about consumption. They attached importance to production alone. Say's Law of Markets was based on the assumption that whatever is produced will be consumed in toto. However, Keynes in his Psychological Law of Consumption asserted that consumption increases less than increase in production. It mainly accounts for deficiency in aggregate demand and consequently rise in unemployment. In this context Harris has aptly said, "Consumption function is one of the cornerstones of the Keynesian structure regarding employment." This concept is helpful in the solution of many economic problems viz., over-production, diminishing marginal efficiency of capital, secular stagnation and trade cycles etc.

- **Role of National Income**: Keynes in his General Theory has laid much stress on the study of national income. Economists prior to Keynes believed that by changing the quantity of money and rate of interest, economic activities could be controlled. They did not attach much significance to the study of national income. But, according to Keynes without the help of national income problems like national output and employment cannot be studied. In chapter sixth of his book 'General Theory,' Keynes has made an extensive study of national income. By putting forth the concepts of "User Cost" and "Supplementary Cost," Keynes has rendered the study of national income more useful. By its study, we come across useful statistics relating to consumption, saving employment, investment etc. According to Kurihara, it is on account of Keynes' analytical contribution that we got national income analysis.

6.2.3 An overview of Keynesian Model of Employment

As per the Keynesian Theory, in a capitalist economy in short period, total output or national income depends on the level of employment because in the short period other factors of production like, capital, technique, etc., are remain constant. Level of employment depends on effective demand. Effective demand refers to the equilibrium between aggregate demand and aggregate supply. It means that only that level of aggregate demand which is equal to aggregate supply in the country, is called effective demand. In the functional notation, it can be stated in the following manner:

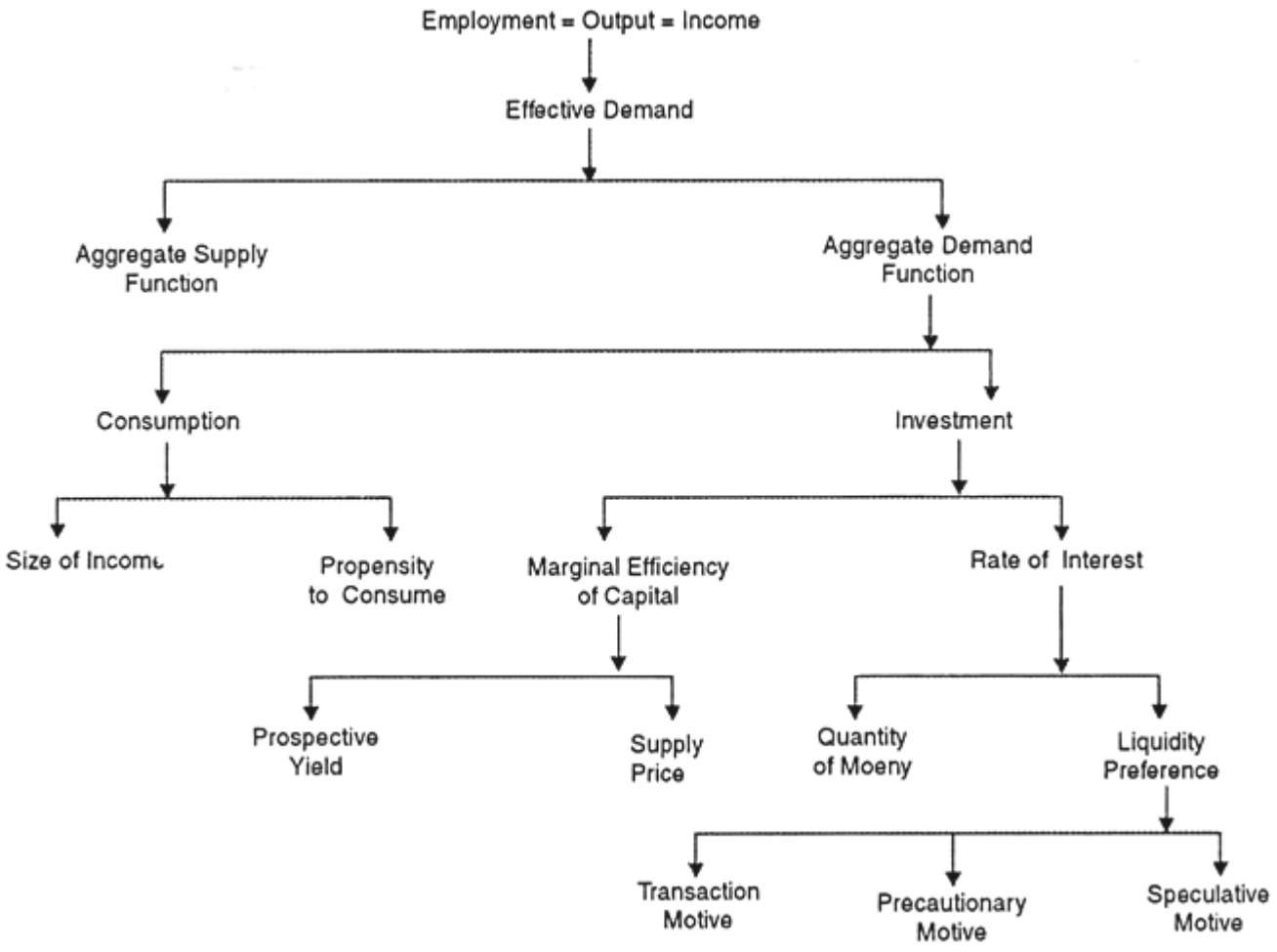
Y=f (N)

National income or output (Y) is a function (f) of level of employment (N).

N = f (ED)

Level of employment (N) is a function (f) of effective demand (ED).

ED can be expresses equality between (AD =AS) aggregate demand and aggregate supply.



Explanation:

- Employment, Output, and Income are intricately related. Output and income increase as employment increases.
- Volume of employment depends upon effective demand which in turn is determined by aggregate supply function and aggregate demand function. Keynes assumed aggregate supply function to be given in the short period.
- Aggregate demand function is governed by consumption expenditure and investment expenditure.
- Consumption expenditure depends upon size of income and propensity to consume. As propensity to consume does not change quickly, consumption expenditure is fairly stable in the short period. Rich people have low marginal propensity to consume.

- Investment expenditure is governed by marginal efficiency of capital (profitability of capital) and the rate of interest. It is highly unstable as subjectivity governs both the interest rate and marginal efficiency of capital.
- The marginal efficiency of capital is governed by the supply price of capital assets on the one hand and the prospective yield on the other. Prospective yield, in turn, depends upon future expectations. This explains why marginal efficiency of capital and hence investment expenditure fluctuates.
- Rate of interest is a monetary phenomenon and is determined by the demand for money (liquidity preference) and the quantity of money. Liquidity preference depends upon three motives: transaction motive, precautionary motive and speculative motive.

6.3 EQUILIBRIUM GDP DETERMINATION

Keynes describes two interrelated approaches for the determination of equilibrium GDP in the economy. Both approaches provide the same results of equilibrium GDP. Equilibrium refers to a state of balance or state of no change. Equilibrium in GDP refers to a level of national income which remains constant for a particular period. It is a stage where there is constant income or output prevails in a particular time period. These are discussed as under:

I. Aggregate Expenditure = Aggregate Output

In two sector economy, government does not interfere and economy is closed for the rest of the world. There are only two elements for determination of national income i.e. consumption and investment. Further, an economy is in equilibrium when aggregate expenditure and aggregate output in the economy equals in the economy. Here, aggregate expenditure is the total of consumption expenditure and investment expenditure. It can be shown as; AE = C + I,

AE = Aggregate Expenditure, C = Consumption Expenditure, I = Investment Expenditure

Aggregate expenditure is the expenditure which people wish to spend during in an accounting year. Similarly, C is the desired or planned expenditure on consumption of goods and services by the households and I is the planned expenditure on production of goods and services.

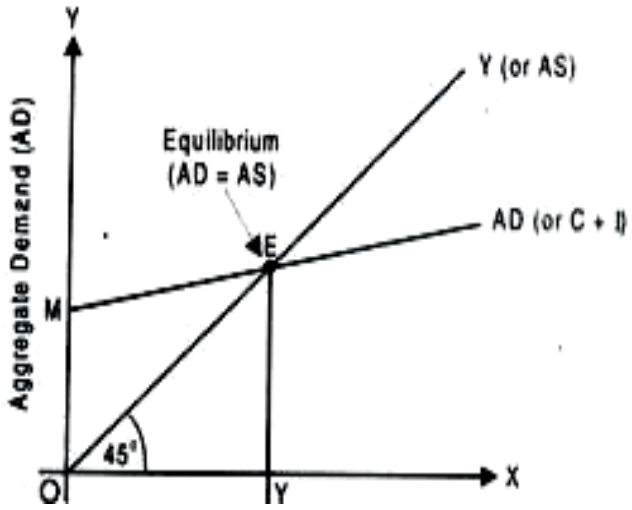


Fig. 6.4 Equilibrium GDP

Fig. 6.4 represents equilibrium level at point E where OM is the aggregate demand and OY is the output level in the economy. Point of equilibrium E is the intersection among aggregate demand for goods and services and aggregate supply of goods and services. Here, aggregate demand is represented through combination of planned consumption and planned investment. There may be two situations other than equilibrium or planned output = planned expenditure.

The point below E represents the situation of planned output less than planned expenditure. This is a situation of excess demand over aggregate supply which means a firm has to expand the output and thus, production would reach at the level of equilibrium GDP. The point above E represents the situation of planned output more than planned expenditure. This is a situation of excess stock of goods with the firm and this will compel the firm to reduce output level so that equilibrium can be achieved.

II. Saving (S) = Investment (I)

Another approach to equilibrium is known as saving and investment approach which is based on the withdrawals from and injections into the circular flow of income. This approach is helpful to determine the equilibrium GDP in the economy. Here, withdrawals means savings and injections means investments. Equilibrium GDP can be obtained where planned savings and planned investments are equal to each other. We know that,

AE = C + I and Y = C + S,

So we can say that,

C + I = C + S.

Hence, S = I, which means savings equals to investments. This can be represented through a figure:

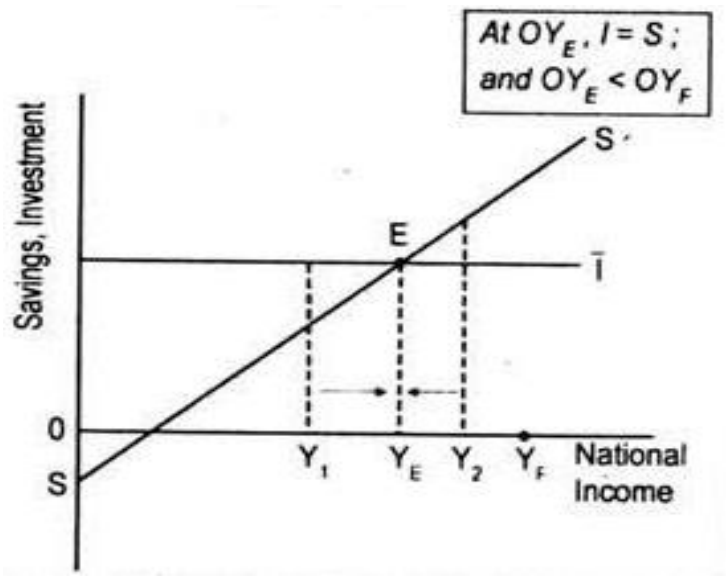


Fig. 6.5 Equilibrium GDP: Saving and Investment

E is the equilibrium point where investment and saving are equals to each other and OY_E represents level of income, S represents savings and I represents investment. OY_E Level is the stable equilibrium level in the income. OY_1 level of income shows that investments are more than savings which results into unplanned reduction of output to meet the excess demand in the market. Hence, output will increase until the planned investment and planned saving are equal.

At OY_2 level of income, savings exceeds an investment which means aggregate demand falls and excess supply of commodities will leads to unplanned accumulation of output. Thus, output will decline until it shifts towards point E where OY_E equilibrium level of national income is determined.

6.3.1 Significance of Keynesian Model of Income and Employment

Keynes was primarily concerned with the problems of economically advanced countries. The General Theory is not general in the sense that itis applicable in all places and at all times. Economists Harris, Schumpeter etc. were also of the view that neither Keynesian problems, nor Keynesian theory, nor

Keynesian policy has relevance to the conditions prevailing in the underdeveloped countries. Keynes was concerned with the problem of unemployment of developed countries. In those countries the nature of the problem of unemployment is quite different from that of developing countries. In the advanced countries, unemployment is due to the deficiency of effective demand. As income and output increase, consumption expenditure does not increase at the same rate because of low marginal propensity to consume (MPC) and high Marginal Propensity to Save (MPS). Investment is also inadequate and uncertain because of its dependence on future expectations.

In underdeveloped economies, the problem of unemployment is not due to deficiency of demand (as that of developed countries), but is due to inadequate supply. In these countries, millions of people live below poverty line and these people are unable to satisfy even the bare necessaries of life. Thus, there is a state of chronic unemployment which is due to very low level of income and low capacity to produce. As a result, these countries enter into the vicious circle of poverty. Thus, the problems before underdeveloped countries are:

- to raise the economy from low level of income and not of maintaining it at a higher level
- to give employment to increase the supply of goods and not just to increase expenditure
- to increase capacity to produce and not to utilize the existing excess capacity

Keynesian theory provides a complete framework for the determination of income and employment. It is significant in both the practical way as well as theoritical way. Thus, significance of Keynesian theory can be studied as under:

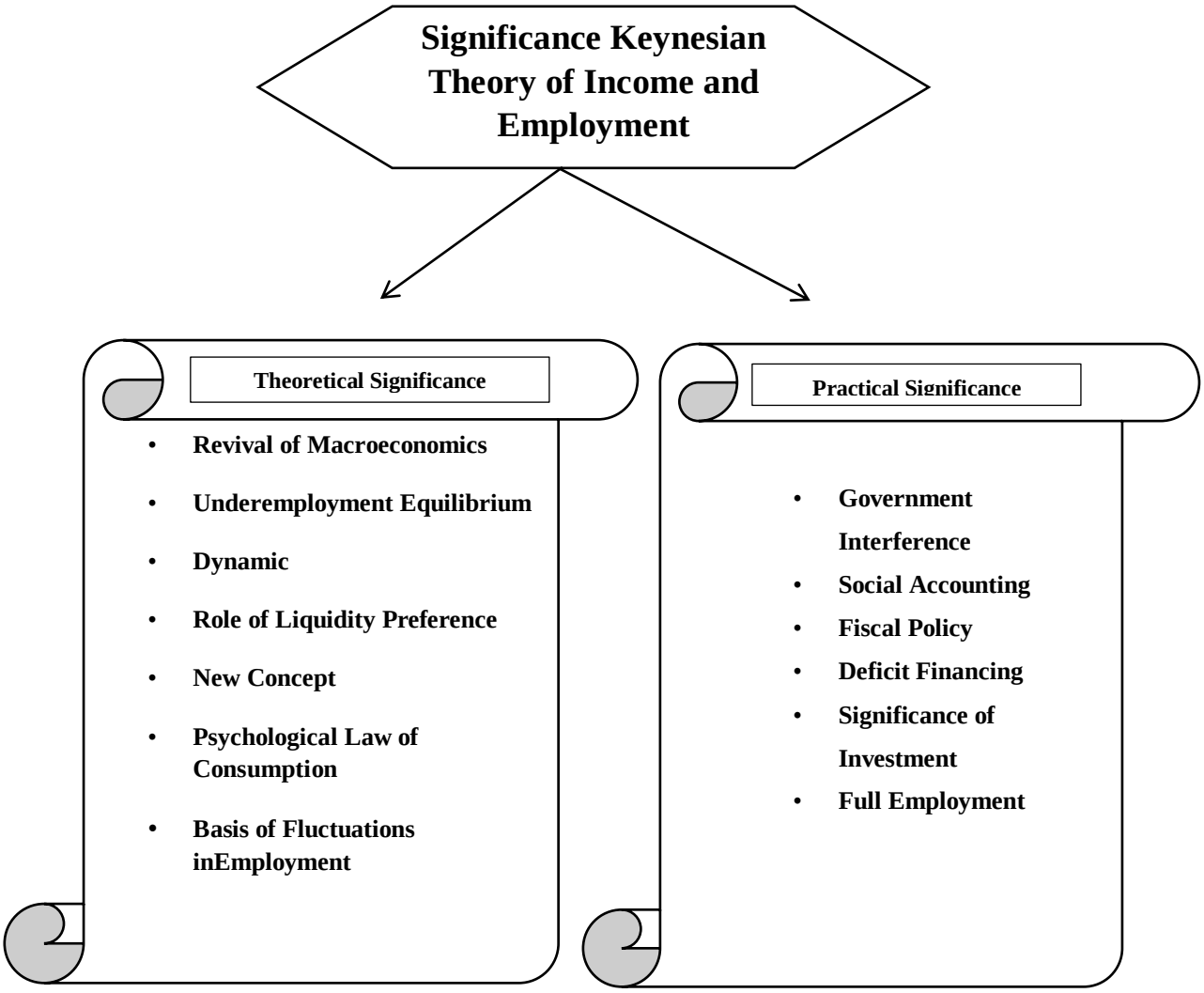


Fig. 6.6 Significance of Keynesian Theory of Income and Employment

I. Theoritical Significance

(a) Keynes can be known for revival of macroeconomics as discussed by mercantilists and macroeconomics is concerned with the economic aggregates like national income, aggregate consumption, aggregate demand, total investment, etc. Prior to the introduction of Lord Keynes "General Theory" in 1936, classical economists gave priority to microeconomics only. Microeconomics was considered as the solution for any problem at macroeconomics level. Thus, Keynes revived the concept of Macroeconomics.

(b) Keynes also contributed to understand the concept of Underemployment equilibrium which states that equilibrium can be possible under less than full employment situation in the peace time.

Before introduction of macroeconomics equilibrium is considered only when there is full employment in the economy. Thus, Keynes provides a new direction towards underemployment equilibrium.

(c) According to Keynes, Dynamic form is considered as important to invest in economic analysis. Keynes focused on expectations which helped in rendering economic dynamic. Many concepts of Keynes like liquidity preference, multiplier, etc. are influenced by the expectations. For example, liquidity preference is dependent on future expectations and investment are also dependent on the future expectations of earnings.

(d) According to Keynes, money which is used for speculation motive is a function of rate of interest. As higher liquidity preference leads to high rate of interest and high rate of interest cause fall in investment and unemployment will increase. Classical economists considered interest as a reward for parting saving but Keynes consider interest as a reward for parting liquidity.

(e) Keynes introduced various new concepts like multiplier, propensity to save, propensity to consume, marginal efficiency of capital etc. wich are helpful for economic analysis. Thus, Keynes provides a number of concepts which are used as effective tools for economic analysis.

(f) Psychological Law of Consumption is known as most notable theoritical contribution of Keynes for economic analysis. This law states that increase in income leads to increase in consumption but this consumption will be less than increase in income.

(g) Keynes also described the portion in which level of income and employment changes due to change in investment level in the economy. It means a little change in the investment level will cause change in income level as well as employment level. Thus, employment fluctuations are also studied by Keynes in a theoritical context.

II. Practical Significance

(a) According to Keynes, government interference is considered as an important element for full employment in the economy. Keynes believed that government interference is necessary in the economic sector for the benefit of people and economy. Under capitalistic economy, full employment is not possible if government does not pressure to form policies that may increase demand and investment. Thus, Keynes provides a service of practical significance.

(b) Social accounting is an accounting of income and expenditure of a country and government formulates various policies which are based on social accounting. Keynes has laid stress on social accounting as he discussed national income, national consumption, national saving and national investment. These are considered as practical significance in almost all the countries of the world.

(c) Fiscal policy is also considered as important element with reference to full employment in the economy. According to Keynes, government programmes for public welfare are helpful for reduction of unemployment and poverty. Further, various programmes under fiscal policy are also considered as beneficial for the economy.

(d) Deficit financing is a situation where budgetary deficit exist either due to borrowing from bank or by printing new currency in the economy. Keynes believed that balanced budget is not possible during depression and employment. These problems can be solved through deficit budgeting and it should be kept in a limit otherwise it will leads to inflationary gap.

(e) According to Keynes, full employment in the economy can be achieved with the help of investment. He believed that in short run consumption expenditure remains stable and thus, aggregate demand can be enhanced by introducing investments. Thus, Keynes laid stress on private investments and public investment which should be encouraged by government during the time of depression and unemployment in the economy.

(f) Full employment policy becomes a major policy due to Keynesian Economic approach. Any developed and under-developed economies laid stress on the objective of full employment. Keynes believed that employment can be achieved through raising the aggregate demand in the market which is a practical significance of Keynesian theory.

Thus, we can conclude that Keynesian Theory of Income and Employment is significant in both theoretical and practical context. This theory is a complete revolution that has deep impact on the entire economist. According to Harris, no economist can escape Keynes' venom.

6.3.2 Criticism of Keynesian Model of Income and Employment

I. The concept of equilibrium in under-employment situation is self-contradictory because many economists criticized this concept. Further, equilibrium is possible only when there is full employment in the economy.

II. Keynesian economics is static because he only focuses on the equilibrium but did not clarify the movement of equilibrium position from one point to another.

III. Keynes theory is a short term economic analysis and it ignored long period equilibrium.

IV. There is an unrealistic assumption of perfect competition in the market which is not possible in real economic world.

V. Keynesian theory is not a general theory and it is applicable in all the situation of employment which is not correct.

VI. Keynesian theory is based on the assumption of closed economy which is unrealistic assumption.

VII. Keynesian analysis is not so empirical and not succeeds in the modern times.

VIII. There is another unrealistic assumption i.e., all the labour units are homogeneous but labour units are diverse in real world.

IX. Multiplier is not applicable in every situation.

X. There is lack of acceleration principle in Keynesian theory of employment and income.

XI. Further, Keynes study only about depression and unemployment but he did not study the situation of boom and inflation.

XII. Keynes described demand-pull inflation but he ignored cost push inflation.

6.3.3 Differences between Keynesian Model and Classical Theory of Employment

Main differences between Keynesian and Classical views are as follows:

- **Concept of Unemployment**: According to classical economists, an involuntary unemployed person is one who is willing to work at the existing rate of money wage but, does not get work. On the contrary, according to Keynes, an involuntary unemployed person is one who is willing to ·work at less than existing rate of real wage. Thus, there are millions of unemployed persons who are not covered by the classical concept of involuntary unemployment.
- **Concept of Equilibrium**: According to classical economists, equilibrium refers to that situation in which demand for a commodity is equal to its total supply. Thus, under the situation of equilibrium there is full employment in the economy. On the contrary, according to Keynes, equilibrium refers to a situation having no tendency to change. Itis not necessary that there should be full employment when the economy is in equilibrium. For instance, according to Keynes, labor market will be in equilibrium if there is no tendency to make any change in wage rate and level of employment, even though at the existing real wage rate, demand for labor is less than its supply. Hence, according to Keynes, equilibrium can be possible even when there is under-employment in the economy.

- **Relative Importance of Demand and Supply**: The classical economists laid relatively more stress on aggregate supply in the determination of income and employment. According to them, supply creates its own demand to maintain the level of equilibrium in economy. On the other hand, Keynes laid relatively more stress on aggregate demand in the determination of income and employment and treated aggregate supply to be fixed.
- **Function of Money**: As per classical theory, "the function of money is to serve as a medium of exchange. "On the contrary, according to Keynes, in addition to being a medium of exchange, money also serves as "a store of value. "People demand money in order to hold it in liquid form. People prefer this liquidity because of three motives: (i) Transaction motive, (ii) Precautionary motive and (iii) Speculative motive.
- **Rate of Interest**: Classical economists asserted that rate of interest is determined by real factors. On the contrary, Keynes held the view that it is determined by monetary factors. Further, Classical economists believed that rate of interest is determined at the level where saving and investment are equal. On the contrary, Keynes maintained that rate of interest is determined at that level where demand for money (liquidity preference) is equal to supply of money. Classical economists believed that rate of interest could rise or fall to any extent, but Keynes maintained that rate of interest could not fall below a given limit called liquidity trap.
- **Saving and Investment**: According to classical economists, saving and investment are governed by the rate of interest; i.e.,

  $$\mathbf{S = f(r)}$$

  It means, saving (S) is a function of rate of interest (r).

  $$\mathbf{I = f(r)}$$

  It means, investment (I) is a function of rate of interest (r).

  $$\mathbf{\therefore S = I}$$

  Equality between saving and investment can be established by changing the rate of interest.

  On the contrary, according to Keynes, saving depends on income and investment on rate of interest i.e.,

  $$\mathbf{S = f(Y)}$$

  It means, saving (S) is a function of income (Y).

  $$\mathbf{I = f(r)}$$

It means, investment (I) is a function of rate of interest (r).

According to Keynes, equality between saving and investment can be brought about by changing the level of income.

- **Price Level and Output**: Classical economists assumed that under full employment situation, aggregate supply curve will be parallel to OY-axis, i.e., it will be a vertical line and aggregate demand curve will be a rectangular hyperbola. Equilibrium will be established at the point where both these curves intersect each other. If aggregate demand increases in the economy, it will not stimulate more production. In that case price level alone will rise. On the contrary, Keynes was of the opinion that aggregate supply curve will be an upward rising curve till full employment level is attained, whereas demand curve will be a downward sloping curve. Hence, with increase in aggregate demand there will be increase both in output and price level till full employment is reached.
- **Theory of Money**: Classical economists believed in Quantity Theory of Money which asserts direct and proportional relation between quantity of money and price level. The price level increases in the same proportion as the quantity of money does and vice versa. On the contrary, Keynes, believed that there was no direct and proportional relation between quantity of money and price level. There is an indirect relation between the two.
- **Adjustment of Price and Output**: Classical economists held that as a result of change in aggregate demand, change in price will be quicker than change in output. It is because, full employment is the normal situation of the economy. On the contrary, Keynes asserted that due to change in aggregate demand, change in output will be quicker than change in price. The reason being that less than full employment is the normal condition of the economy.
- **Cut in Money Wages**: Classical economists like Prof. Pigou held the view that full employment could be achieved by lowering the money wage. Keynes, however, believed that any money wage was likely to cause fall in effective demand. This in turn will lead to fall in employment rather than increasing it. Keynes prescribed cut in real wage in lieu of cut in money wage as the remedy to remove unemployment. In order to reduce real wage, price level must be raised.
- **Necessity of State Interference**: According to classical economists, free market economy is automatic. Government should not interfere in the economic affairs. However, Keynes did not share

this view. According to him, economy is not automatic. Its proper functioning requires government interference.

- **Saving is a Social Vice**: Classical economists treated saving as a private and social virtue. According to them, saving was the basis of capital formation. However, Keynes treated Saving as a social vice. With a view to increasing employment, spending should be given more importance than saving. If everybody indulged in more saving there will be a fall in effective demand causing corresponding fall in employment.
- **Integration between the Theory of Money and Theory of Value**: Classical economists were unable to integrate the theory of money and the theory of value. They divided the study of real and monetary sectors into two parts, called Classical Dichotomy. However, Keynes made a significant integration of the theory of money and the theory of value. According to him, supply of money has a great impact on the prices and output of the commodities. Hence, according to Keynes there is a mutual dependence between real and monetary sectors.
- **Dynamic**: Classical economic analysis is static. It has no significance for the study of expectations. However, Keynes has accorded special importance to the study of expectations. These expectations play an important role in the determination of marginal efficiency of capital (MEC) and marginal efficiency of capital, in its turn, determines the level of employment. Hence, expectations render Keynesian Theory, dynamic to some extent.
- **Practical**: Classical economics has contributed very little in solving the practical problems, but, Keynesian theories are more pragmatic. While formulating its economic policies, government seeks lot of guidance from Keynesian economic theories. According to Schumpeter, the importance of Keynesian economics lies in the fact that it helps in finding out solutions to the existing economic problems. Robinson is of the view that the greatest success of Keynes lies in relating academic economics to state economics.

6.4 CHECK YOUR PROGRESS

1. As per Keynes' Model at equilibrium….
   (a) AD=AS
   (b) S=I
   (c) Both a & b
   (d) None of the above

2. Aggregate demand refers to…...?
    a) Demand for goods & services by an individual
    b) Demand for goods & services by government
    c) Sum of demand of all individual in the economy
    d) None of the above
3. Keynes had presented the income determination model in which time….?
    (a) Great Depression
    (b) First world war
    (c) Global economic crisis
    (d) None of the above
4. Effective demand is…...?
    a) The demand where aggregate demand and aggregate supply is equal
    b) The demand where aggregate demand is more than aggregate supply
    c) The demand where aggregate demand is less than aggregate supply
    d) None of the above
5. Which one of the following is assumption of Keynesian Model?
    (a) Keynesian theory is studied under short time period.
    (b) There exists perfect competition in the market.
    (c) Keynesian theory assumed that there is closed economy.
    (d) All of the above
6. Which one of the following is independent variable of Keynes Model?
    a) The consumption function;
    b) The investment function or the marginal efficiency of investment schedule;
    c) The liquidity preference function;
    d) All of the above
7. Which one of the following is feature of Keynes Model?
    a) Short run
    b) Macro level
    c) Monetary
    d) All of the above

6.5 SUMMARY

Income determination can be done theory major two theories i.e. Classical theory and Keynesian theory. Both the theories have their own importance and drawbacks. Classical theory can be studied under three different situations which are, with saving and investment, without saving and money and with role of money and prices. Whereas Keynesian theory gives emphasis on two major dimensions i.e. first, aggregate expenditure and aggregate output, second is saving and investment. These theories are important to determine the equilibrium level of income and output in the economy. These theories are very beneficial for the economy but these are based on some assumptions which become drawbacks at later stage. At last, effect of government spending and taxation effect is described in detail with diagram. Further, role of injections as well as leakages are also studied for better understanding of equilibrium in the economy. Thus, we can conclude that income can be determined through both of the above said theories. Moreover, Keynes contributed a lot in macroeconomics and he introduced many concepts of macroeconomics like multiplier, investment, aggregate demand, aggregate investment, etc. However, Keynes described income determination under short time period and not in long time period. Thus, Keynes was unable to remove all the drawbacks but still his theories are used for determination of income and employment level in different economies of the world. As per the Keynesian Theory, in a capitalist economy in short period, total output or national income depends on the level of employment because in the short period other factors of production like, capital, technique, etc., are remain constant. Level of employment depends on effective demand. Effective demand refers to the equilibrium between aggregate demand and aggregate supply. It means that only that level of aggregate demand which is equal to aggregate supply in the country, is called effective demand. Keynes describes two interrelated approaches for the determination of equilibrium GDP in the economy. Both approaches provide the same results of equilibrium GDP. Equilibrium refers to a state of balance or state of no change. Equilibrium in GDP refers to a level of national income which remains constant for a particular period. It is a stage where there is constant income or output prevails in a particular time period. Keynes was primarily concerned with the problems of economically advanced countries. The General Theory is not general in the sense that itis applicable in all places and at all times. Economists Harris, Schumpeter etc. were also of the view that neither Keynesian problems, nor Keynesian theory, nor Keynesian policy has relevance to the conditions prevailing in the underdeveloped countries. Keynes was concerned with the problem of unemployment of developed countries. In those countries the nature of the problem of

unemployment is quite different from that of developing countries. In the advanced countries, unemployment is due to the deficiency of effective demand.

6.6 KEYWORDS

Income- The amount of money which is received regularly for providing services to others or interest on money which is saved by a person is known as income.

Employment- It is a contract between employer and employee where the employee will provide certain services for the reward.

Keynesian Theory-As per Keynesian theory, in a capitalist economy, in short run, national income is depending on the level of employment.

Closed Economy- It is a self-sufficient economy which has no imports from rest of the world and no exports outside the domestic territory of that country.

Aggregate Expenditure- Aggregate expenditure is the expenditure which people wish to spend during in an accounting year.

Consumption Expenditure- It is the desired or planned expenditure on consumption of goods and services by the households.

Effective Demand: The value of Aggregate Demand at the point of Aggregate Demand function, where it is intersected by the Aggregate Supply function, will be called the effective demand.

Aggregate Demand: Aggregate demand refers to average of the total demand by consumers for all the goods and services in a country within a year.

Aggregate Supply: Aggregate supply refers to the average of the total production of all the goods and services produced within a year in a country.

Investment Expenditure- It is the planned expenditure on production of goods and services.

6.7 SELF-ASSESSMENT TEST

Q.1 What do you mean by Keynesian theory of income and employment? What are the salient features of this theory?

Q.2 How did GDP determination is done through Keynesian theory? What are the major differences between Classical theory and Keynesian theory of income and employment?

Q3. How did GDP determination is done through Keynesian theory? Explain the significance of Keynesian Model of income determination.

Q.4 Explain the two major approaches to determine equilibrium under Keynesian theory of income and employment.

Q.5 What are the major assumptions of Keynesian theory of income and employment? To what extent these are applicable in the real-world situations?

Q.6 Explain the role of Keynes in introducing new concepts of macroeconomics. Also critically discuss the Keynesian theory of employment.

6.8 ANSWERS TO CHECK YOUR PROGRESS

- 1. (c), 2. (c), 3. (a), 4. (a), 5. (d), 6. (d), 7. (d).

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Subject: Macro Economics	Author: Ms. Chand Kiran
Subject Code: BCOM 202	Vetter: Prof. Anil Kumar

LESSON-7

Consumption Function

Structure

7.0 LEARNING OBJECTIVE

After reading this chapter you will be able to understand the concept of consumption function, its importance and emergence as the topic of study under macroeconomics. Consumption function concepts will provide you knowledge about types of consumption function. You will also be able to realize different theories and determinants of consumption function. Propensity to consume and its measures are also important factor to know about consumption function and this can be understood by this chapter.

7.1 INTRODUCTION TO CONSUMPTION FUNCTION

In 1936, J. M. Keynes developed the term 'consumption function' to describe the relationship between household's planned consumption expenditure and total income. As we know that demand for a product is depend on price of that product, similarly consumption of a community depends on the level of income. Consumption refers to total amount of money spend by people on purchase of goods and services. Consumption function is related with income-consumption relationship. Consumption function may also be known as propensity to consume. Consumption function may be defined as functional relationship among total consumption and gross national income. This relationship may be represented as C = f (Y), where C is the total consumption, Y is the total Income and f represents the functional relationship of both the factors. Y is an independent variable and C is dependent variable which means consumption is dependent on national income. This relationship is based on a major assumption i.e. all the factors influencing consumption will be held constant. Whenever level of income increases in the community it will result into increase in consumption level. But how much consumption will increase it is measured through marginal propensity to consume.

Consumption function is different from amount of consumption. Consumption function shows through a schedule which represents consumption at various levels of income, whereas amount of consumption represents the amount consumed at a specific level of income. The table 3.1 represents the schedule of consumption function which shows the amount of consumption changes due to change in national income.

Table 3.1 Income and Consumption Level

Income	Consumption
1000	550
1200	600
1400	750
1800	1000
2000	1130
2300	1300
2600	1420

This table shows that at the level of income 1000 rupees, the total consumption is 550 rupees. As the national income increases to rupees 1400, the amount of consumption rises to rupees 750. Thus, we can say that whenever level of national income changes it cause change in consumption level. As national income increase consumption will also increase but this increase in consumption will not at same pace as increase in national income.

7.1.1 Properties of the Consumption Function

Consumption function is based on two major properties i.e. Average Propensity to Consume and Marginal propensity to consume. These two properties are also known as technical attributes of consumption function. Both properties are important to study for better understanding of consumption function. Propensity to consume refers to that portion of total income which consumers tend to spend on goods and services. These properties are discussed in detail here:

(I) Average Propensity to Consume

Average propensity to consume refers to the ration between total consumption expenditure to total income. Or this may be defined as the ratio of consumption expenditure to personal disposable income. It can be shown as:

$$\textbf{Average Propensity to consume} = \frac{\textit{Total Consumption Expenditure}}{\textit{Total Income}}$$

OR

$$\textbf{APC} = \frac{C}{Y}$$

For example, if total consumption expenditure is 8,000 rupee and personal disposable income is 20,000 rupee, then APC = $\frac{8000}{20000} = 0.4$ or 40%. It means 40% of the total income is used for consumption purpose in an economy. This can be calculated for individual consumer using personal disposable income. APC can be presented through Table No. 3.2.

This table represents that when income level is zero, consumption expenditure is 40 crores. This is due to expenditure on necessity goods even when national income is 0. When national income increases consumption expenditure will increase simultaneously. But APC starts declining from 1.20 to 0.90.

Table No. 7.2 Average Propensity to Consume

Income (Y) (₹ Crores)	Consumption (C) (₹ Crores)	APC = $\frac{C}{Y}$
0	40	—
100	120	1.20 $\left(=\frac{120}{100}\right)$
200	200	1 $\left(=\frac{200}{200}\right)$
300	280	0.933 $\left(=\frac{280}{300}\right)$
400	360	0.90 $\left(=\frac{360}{400}\right)$

Further this can presented through a diagram, where consumption is shown on OY axis and income is represented on OX axis. In Fig. 7.1, CC is the consumption curve. At ON consumption level and OY_1 income level, APC situated at point A which can be calculated by, APC = $\frac{ON}{OY1}$.

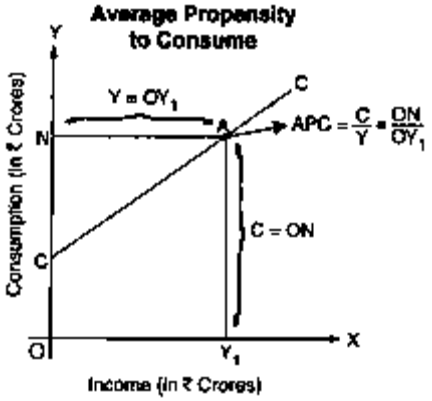

Fig. 7.1 Average Propensity to Consume

Some important points about APC:

(i) APC $>$ 1, when consumption is more than national income.

(ii) APC $<$ 1, when consumption is less than national income.

(iii) APC $=$ 1, when consumption is equal to national income.

(iv) APC $\neq$ 0, because consumption cannot be zero at any level of income.

(v) APC falls continuously with the increase in national income because the portion spent on consumption starts declining.

(II) Marginal Propensity to Consume

Marginal propensity to consume refers to measurement of change in total consumption and total income. It may be described as the ratio of change in consumption expenditure due to change in personal disposable income. It can be represented as,

Marginal Propensity to Consume = $\frac{\textbf{\textit{Change in Consumption Expenditure}}}{\textbf{\textit{Change in Total Income}}}$

OR

$$\textbf{MPC} = \frac{\Delta \boldsymbol{C}}{\Delta \boldsymbol{Y}}$$

For example, if total consumption expenditure increases from 8,000 to 10,000 rupee and personal disposable income increases 30,000 rupee, then MPC = $\frac{\textbf{10000}}{\textbf{30000}} = \textbf{0.33}$ or 33%. It means 33% of the total income is used for consumption purpose in an economy. This can be calculated as additional consumption out of additional income. MPC can be presented through Table No. 7.3.

Table No. 7.3 Marginal Propensity to Consume

Income (Y) Crores	ConsumptionCrores	Change in Income Crores(ΔY)	Change in Consumption Crores(ΔC)	Marginal Propensity to Consume = $\frac{\Delta C}{\Delta Y}$
0	40	-	-	-
100	120	100	80	MPS = $\frac{80}{100}$ = 0.80
200	200	100	80	MPS = $\frac{80}{100}$ = 0.80
300	280	100	80	MPS = $\frac{80}{100}$ = 0.80
400	360	100	80	MPS = $\frac{80}{100}$ = 0.80

Table No. 7.3 represents that when there is change in total income from 0 to 100 crores and consumption expenditure increases from 40 to 120 crores which lead to MPC at 0.80. Here, the consumption curve will be a straight line because MPC remains constant at different level of income and consumption.

Further this can be shown through a figure which represents change in income from OY_1 to OY_2 and change in consumption expenditure from OM to ON. MPC is situated at point A where change in consumption and change in income is measured.

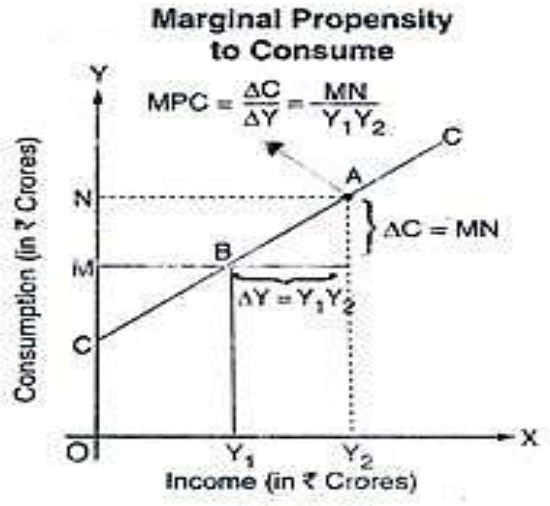

Fig. 7.2 Marginal Propensity to Consume

Some important points about MPC:

(i) MPC value ranges from 0 to 1. If all the additional income is consumed then MPC will be equal to 1 and when all the additional income is saved then MPC will be 0.

(ii) Marginal Propensity to Consume of poor people will be more than rich people because a greater percentage of their increased income on consumption. But rich people spend a smaller portion of their income on consumption because they already enjoy high standard of living.

(iii) MPC starts declining with successive increase in income.

7.1.2 Psychological Law of Consumption

Psychological law of consumption is propounded by economist Keynes which shows relationship among aggregate consumption and income. It is also known as Keynes' Fundamental Law of Consumption. Keynes stated that with the increase in income there will be increase in consumption expenditure but this increase in consumption is less than increase in income. Keynes stated that, **"The psychology of the community is such that when aggregate real income is increased, aggregate consumption is increased, but not by so much as income."**

Definition

According to Keynes, **"The fundamental psychological law, upon which we are entitled to depend with great confidence both a priori from our knowledge of human nature and from the detailed**

facts of experience, is that men are disposed, as a rule, and on the average, to increase their consumption as their income increases, but not by as much as the increase in their income." Further, it can be said that marginal propensity to consume is always positive but it is less than unity.

Assumptions of psychological law of consumption:

Keynes psychological law is based on certain assumptions which are explained below:

I. This law is related to short period so it assume that distribution of income, price level, population growth, fashion, taste, behaviour of consumer, spending habits, etc. will remain constant. Only one factor will affect the consumption i.e. Income.
II. Keynes assumes that there exist normal situation in the economy for applicability of this law. Normal condition means there is usual and ordinary conditions in the economy. There are no chances for the occurrence of war, revolution, hyperinflation, etc. in the economy.
III. One another assumption is about the free capitalistic economy exist in a country. Free capitalistic economy means the economy where the economy is free from government intervention in context of increase and decrease in income level. It is also known as laissez-faire capitalistic economy. Here, market is determined through demand and supply of goods and services.

Explanation of the law

This law can be explained with the help of a table and diagram:

Table No. 7.4 Psychological law of consumption

Income (Y)	Consumption (C)	Saving (S)
0	20	-20
50	60	-10
100	100	0
150	140	10
200	180	20

This table represents the relationship among income, saving and consumption. Table shows that there is increase in consumption with respect to increase in income but proportionate increase in consumption is less than proportionate increase in income. Further, income may be zero when there is no means of earning but consumption still exists because consumer can borrow money or used their past savings at this movement. At some point, income and consumption will equivalent to each other and saving will be zero. Onward this point, increase in income will leads to increase in consumption but total income is not used for consumption hence there will be increase in saving.

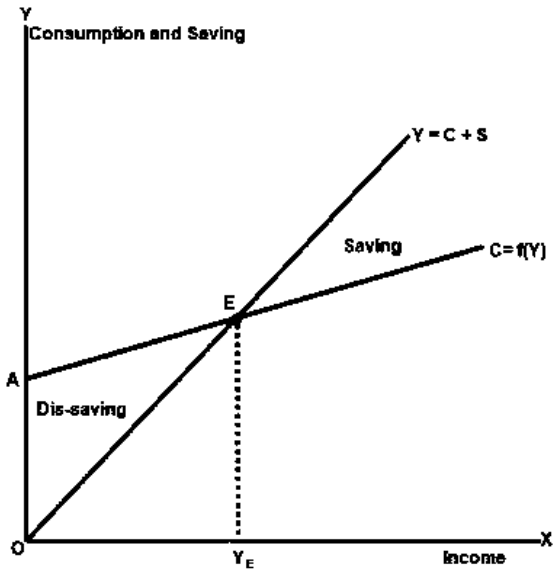

Fig. 7.3 Relationship of Income and Consumption and Saving

Similarly, this situation can be shown through fig. 7.3 which represents that from origin to OY_E there will be increase in consumption and there is dis-saving because either people are not earning from any source or their income is less than their consumption expenditure. At point E, consumption and income are equal to each other. Onward point E, there will be saving because proportionate increase in income is greater than proportionate increase in consumption.

According to Keynes Law, if this gap between income and consumption continuously rise then there will be deficiency of aggregate demand in context of aggregate supply at full employment level. This will leads to low level equilibrium in the economy and this will adversely affect the economy. Due to this situation effective demand will decrease and this will leads to unemployment in the economy.

7.1.3 Importance of Consumption Function

I. Consumption function is not just a concept of discussion rather it has its own theoretical and practical implications. Every nation depends on economic policies for the economic development. These policies are formed after studying microeconomic and macroeconomic factors of a nation. Consumption function is an important macroeconomic factor and important to study. Importance of consumption function is explained below:

II. Consumption function is an important macroeconomic factor given by Keynes. Consumption function is help to study about income and consumption expenditure.

III. It is also important to determine the link among investment and its resultant changes in the income of a country.

IV. Consumption function is an important tool to determine the demand and supply in the firm and industry.

V. Consumption function is also helpful to determine value of multiplier. Value of multiplier is equal to $\frac{1}{1-MPC}$. Here, MPC is marginal propensity to consume which is studied under consumption function.

VI. Consumption function also helps to invalidates Say's Law which states that supply creates its own demand. But, MPC in consumption function states that whole of the income is not spent for consumption. Due to this fact supply exceeds demand and creates surplus in the market which creates situation of overproduction and mass unemployment.

VII. Consumption function also explains the turning points of business cycle. MPC explains that consumption did not increase as there is increase in income. Business cycle takes downturn when MPC is less than 1 and business cycle is upturn when consumption is stable because people are unable to cut down their consumption to full extent of a decrease in income.

VIII. Consumption function is also important to describe the theory of employment in macroeconomics.

7.1.4 Theories of Consumption Function

There are several theories of consumption function which determine consumption in the society. Firstly, Keynes works in this direction to determine the level of consumption in the economy. Major four theories of consumption are described here as under:

I. Absolute Income Theory

This theory is propounded by Keynes for the determination of consumption level in the economy. Keynes stated that the level of consumption expenditure depends on the absolute level of current income and relationship of both the variables is non- proportionate. This theory clearly explained that the average propensity to consume starts declining because the level of absolutes income goes up. Firstly, this theory was given by Keynes in his General Theory. After this, further changes were made by James Tobin and Arthur Smithies which is called Drift Hypothesis.

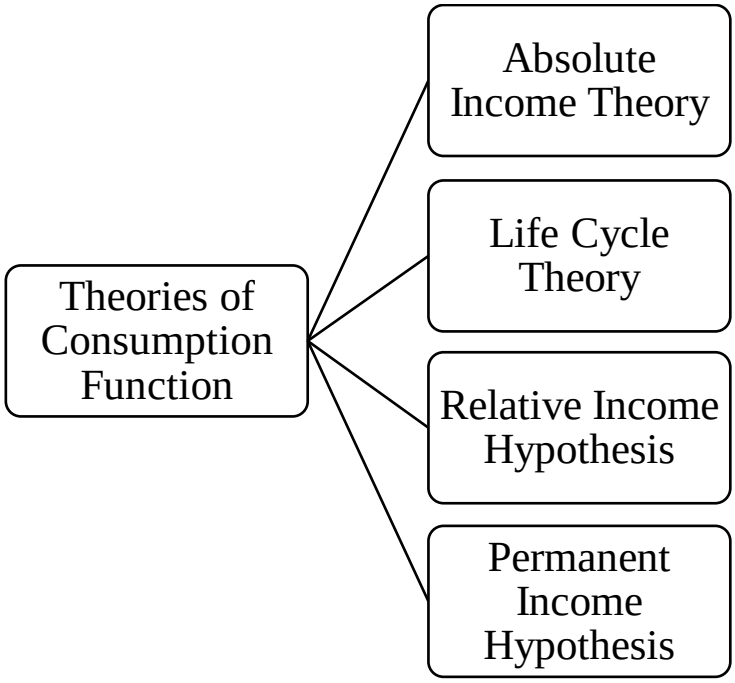

Fig. 7.3 Theories of Consumption Function

II. Life Cycle Theory

Life Cycle Theory was developed by Franco Modigliani, Albert Ando and later by Brumberg. This theory explains that household level of consumption expenditure is not just limited to current income of a person rather than it also depends on the income of whole life. This is based on the individual expectation for future earnings as well as wealth over their life time. Every individual prepare himself for the future contingencies and emergencies by keeping some money aside. Thus, consumption expenditure decision is not based on single factor i.e. current income.

Life cycle theory is more realistic than absolute income theory. According to this theory, consumer uses a planned pattern of consumption expenditure based on their current and expected future wealth. For planned consumption expenditure, individual prefer borrowings from others or spending the income of his parents in the early stages of consumption.

III. Relative Income Theory

Relative income theory was propounded by Dorothy Brady and Rose Friedman. This theory states that consumption expenditure does not depends on the level of current income but it depends on the consumption expenditure of an individual with same income level. Thus, consumption is dependent on the relative income hypothesis. Further this theory was additionally developed by Modigliani and James S. Duesenberry. It was stated that in case of any increase in the level of income, consumption expenditure of individuals will change if their relative position changes.

IV. Permanent Income Theory

Another American economist Milton Friedman argued that consumption expenditure is not based on current level of income but it is based on permanent income of household. This permanent income involves the human and non-human capital. Human capital refers to return on income derived from labour services and non-human capital refers to wealth related with tangible asset lie saved money, debentures, shares, etc. This theory includes importance of capital in determining consumption expenditure of households. This sows relationship among consumption and permanent income.

$C^P=kY^P$

Where,

Y^P is the permanent income

C^P is the permanent consumption

k is the proportion of permanent income that is consumed.

7.1.5 Determinants of Consumption Function/ Propensity to Consume

There are various factors which are responsible for determining consumption level or propensity to consume. There are two types of factors i.e. subjective factors and objectives factors. Propensity to consume is influenced by nature of people. If people are more aware about their safety and security, then they will focuses on emergencies and future contingencies. Due to this fact, the propensity to

consume would be less. But, there can be adverse situation. Propensity to consume is mainly based on income but other factors cannot be ignored. Thus, these are described in detail.

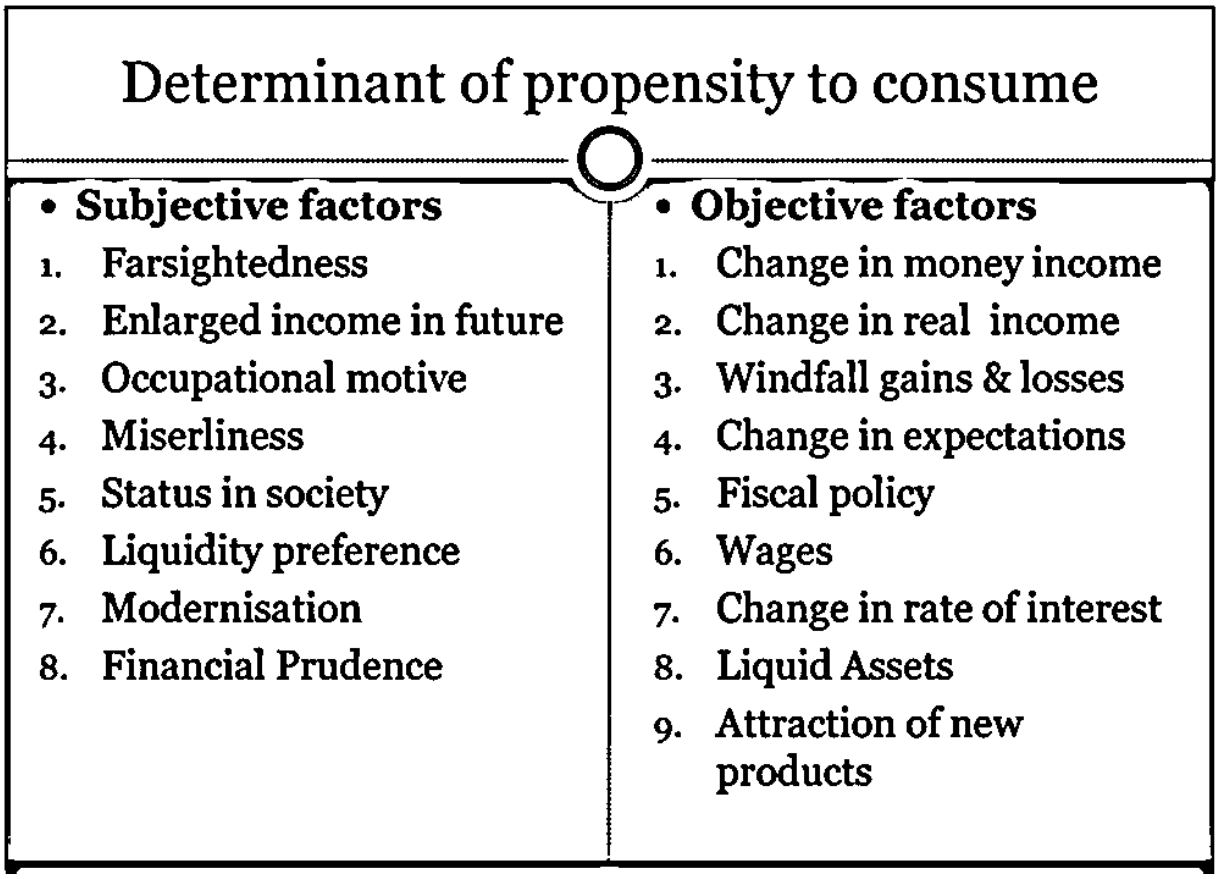

Fig. 7.4 Determinants of Consumption Function

I. Subjective Factors

Subjective factors are psychological factors which are related with human behaviour and social practices. These factors cannot be estimated. These factors are based on some circumstances with individual and firms when these institutions would consume less and save more. These factors are responsible for estimating consumption curve. These are explained below:

(i) Farsightedness

Consumer is always uncertain about his/her future. So, they have to think about their future in advance. Due to farsightedness, consumer always wants to save for future needs and

cutting down their present consumption. Consumer prefers reserves for unforeseen contingencies rather than present consumption.

(ii) Enlarged income in future

Everybody wants to enhance their wealth and property with the time and circumstances. Consumer prefers to consume less in present and save for different types of investment. Investments are preferred because it provide future income, interest and enlarge the earning of individuals. Thus, this factor is also responsible for determining consumption function.

(iii)Occupational Motive

Consumption can be determined through spending and saving. Most of the persons want to start their own business and for this they save more and spend less part of their income. Thus, occupational objective of a person also affects consumption function.

(iv)Miserliness

Some people had strong desire to save money or want avoid any type of risk, so they consume less and save more.

(v) Status in Society

Today, there is rat race to become rich and having more wealth. Wealth becomes a symbol of status. Every person wants to enlarge their wealth and status in the society. Thus, people want to save more and consume less.

(vi)Liquidity Preference

As we have already discussed that man is always uncertain about future and every person tends to hold some cash for future contingencies. Due to this cash position or liquidity, consumption expenditure goes down.

(vii) Modernization

Business requires funds time to time for modernization. Modernization involves purchase of capital assets or installation of new machinery. Thus, businessmen tend to save more and consume less. So, consumption function is depending on modernization decision of firm.

(viii) Financial Prudence

Every businessman wants to secure themselves from future risk, depreciation, obsolesces and discharge debts. Thus, businessman tends to save for these future urgencies rather than consuming that income. So, financial prudence also affect consumption function.

II. Objective Factors

Objective factors are quantifiable factors and also known as economic factors. These are economic factors because objectives factors changes in short-run. Changes due to objective factors are responsible for upward and downward movement of consumption curve. These factors are explained below:

(i) Change in Money Income

Income plays an important role in deciding consumption expenditure in a society. Whenever money income increases demand for products and services also increases in the society then consumption expenditure will also increase. Whenever money income goes down, demand for products and services go down. As a result consumption expenditure will also go down. Thus, consumption expenditure is also based on change in money income. However, the consumption expenditure increase less than money increase. This is due to the fact that people want to save after fulfilling their basic needs.

(ii) Change in Real Income

Real income means the purchasing power of a person to purchase goods and services. This income fluctuates with inflation in the economy. If inflation increases more than income in the society, then real income will also goes down. If inflation decreases with stable in income, then real income will goes up. Consequently, increase or decrease in the real income leads to increase or decrease in the consumption expenditure.

(iii)Windfall Gains and Losses

Consumption expenditure is also affected through sudden changes in the organisation as well as in household's daily life. Everything cannot be perfect and according to thinking of human being. Sometimes there occur some favorable and unfavorable situations in the society. Consumption expenditure also affected through whenever there is situation of boom and as a result windfall gains occurred. Keynes also suggested that consumption expenditure is not just affected by income but capital gain can be equally important.

(iv) Change in Expectations

Human behaviour and attitude cannot be static in every situation. Their expectations go on changing day by day. Expectations regarding future events had a great impact on consumption expenditure. If people feel that there will be shortage of goods and services in future then they will try to consume in current time. Thus, propensity to consume is affected through future expectations of the consumers.

(v) Fiscal Policy

Fiscal policy is known as government revenue and expenditure policy. Government earns revenue from taxation and public debt. Government makes expenditure on infrastructure and developmental activities of a country. Due to fiscal policy, there is highly progressive tax system in India which leads to equal distribution of income. This will results into shift of consumption function upwards. On the other hand, a regressive tax structure leads to downward movement of propensity to consume in the economy.

(vi) Wages

Wages had a great impact on propensity to consume. Classical economists viewed that wage cut leads to higher propensity to consume. As increase in wages leads to upward movement of consumption function and decrease in wages had unfavorable effect on consumption function. This is due the fact that increase or decrease in wages has direct impact on prices level in the society.

In some situations there will be negative effect of wages cut on consumption expenditure. Due to wage cuts, there will be unequal distribution of income and income changes hands from more consuming to more saving hands. Thus, it may lower the propensity to consume.

(vii) Change in Interest Rates

Interest rate can be favorable and unfavorable for propensity to consume. If the interest rate goes up then people will consume less and if interest rate goes down then people will consume more and save less. Moreover, a person always want to earn fixed in future will choose to save less at a higher interest than at a lower rate of interest. Propensity to consume is affected by change in rate of interest over a long period of time.

(viii) Liquid Assets

Liquid asset means the assets which can be easily converted into cash; like: Currency, Bank deposits, govt. bonds, etc. Thus, changes in liquid assets results into changes in propensity to consume. Pigou, a Neo-classical economist believed that when price decreases, there will be increase in liquid asset of the people having large amount of liquid assets. It has been seen that people having more amount of liquid assets show a tendency to spend more on consumption. This situation is created only when these assets are equally distributed. Thus, we can conclude that more liquid people are interested in more consumption.

(ix) Attraction in New Products

Sometimes availability of new products and goods also influences level of consumption. When a new product enters in the market people start to buy it in large quantity. It means when some new goods are introduced in the market then consumption expenditure will increase. On the other hand, whenever there is shortage of goods in the market then people are forced to save and propensity to consume goes upward.

Thus, we can conclude that both the objective and subjective factors are responsible for propensity to consume. Movement of propensity to consume is dependent on each and every factor of determining consumption function. So, it can be said that not only income is necessary but other factors are equally important.

7.2 MEASURES TO RAISE THE PROPENSITY TO CONSUME

I. Propensity to consume is affected by unequal distribution of income in the society. As poor class is more than rich class in the Indian society which is a major reason behind lower propensity to consume. If some practices are done for equal distribution or redistribution of income among poor and rich, then marginal propensity to consume will increase.

II. Every person want to save some money out of their total income for future needs, old-age, medical care during illness, etc. if they are provided some social security or benefits, old age pension and unemployment allowances by the government for future needs, then propensity to consume may be raised.

III. Credit facility is also an important factor which leads to increase and decrease in the consumption expenditure in the society. If people got some credit facility for purchasing

consumer durable goods like: LED, TV, Computer, etc., then margin propensity to consume will increase.

IV. An appropriate wage policy is must for increasing propensity to consume in the society. Wages can be studied for both the period i.e. short period and longer period. If wages increased for short period then it will leads to increase in consumption expenditure for short term but propensity to consume will remain constant. Here, propensity to consume will not increase because productivity of laborers will not increase in short period and due to this fact cost of production will increase, so an employer will cut down number of labours. On the other hand, if wages increased for longer period then marginal propensity to consume will also increase.

V. Propensity to consume is also affected through size of population. If population increases demand for products also increases and as a result of increase in demand there will be increased marginal propensity to consume.

VI. Demonstration effect is an important effect on propensity to consume because poor people want to use the same products as used by rich people. Thus, poor people spend more income and shows high propensity to consume.

VII. Urbanization is also an important factor to determine propensity to consume because urban people have higher propensity to consume than rural people. The main reason behind this is awareness about different products and services. Urban people have more awareness about different products and services than rural people.

VIII. Propensity to consume can be encouraged through advertisement and other form of media. If expenditure on advertisement is done in an organized way, then it will lead to increase in propensity to consume. Today businessmen are spending more and more income on advertising the product so that they can enhance the demand for products. Due to these advertisements consume got information about new products as well existing products. Thus, advertisement is an important tool for increasing propensity to consume.

IX. Then, transportation can also become a source for enhancing propensity to consume. Is cheap means of transportation are developed then goods can be easily moved from one place to another. This creates place utility and consumer can buy product from any place. Thus, easy availability of products leads to increase in propensity to consume.

Thus, we can conclude that there are factors affecting propensity to consume. Similarly we found a lot of ways to improve propensity to consume in the society. If these changes are made by individual as well as organisation then propensity to consume may be increased.

7.3 CRITICISM OF PROPENSITY TO CONSUME

I. Keynes used the meaning of word 'propensity' as part of income which is spent by consumer but propensity means tendency. Thus, use of this term is wrong here.

II. Some economists criticize the fact that poor have greater propensity to consume rather than rich people. Economists are of view that it is not a new thing which is focused too much.

III. This theory is also unrealistic because it states that with increase in income there will be increase in saving also but increase in saving is not always exists due to increase in income. Hazlitt economists prove this fact by using statistics of America for the period 1944-45.

IV. Assumptions of this law also restrict it because in short run the entire institutional and psychological factor may be constant but in long run there will be change.

7.4 CHECK YOUR PROGRESS

1. _____ is equal to ratio between consumption and income.
2. MPC + MPS = _____
3. Marginal consumption function is always _____ .
4. Consumption depends on _____.
5. _____ is the ratio of saving to income.

7.5 SUMMARY

At the end we can conclude that consumption function is an important parameter for the modern economics as well as for economic analysis. It has been clarified from consumption function that consumption expenditure is affected by income of consumer. Keynes is the economist who describes that proportionate increase in income is greater than proportionate increase in consumption expenditure. The consumption function is also used to study the fluctuations of business cycle in the economy. Further, study of consumption function will provide all the information regarding income, consumption expenditure and saving in the economy. Various theories are covered under consumption function

which describes the different aspects of consumption expenditure and income. Consumption function or propensity to consume is not based on single factor rather than it is determined through large number of subjective and objective factors in the economy. There are many problems regarding propensity to consume but these can be removed with taking some precautions. Thus, it can be said that consumption function is an important tool which is helpful for policy formulation in the economy.

7.6 KEYWORDS

Consumption- Consumption refers to using the utilities derived from a product or it can be defined satisfaction through using utilities.

Propensity to consume- Propensity to consume is that amount of money which is spent by consumer rather than saving.

Income- Income refers to the amount or money which a person receives from exchange of goods or by providing services to others.

Expenditure- Expenditure refers to the portion of income which is used or consumed for the purpose of purchasing goods and services from others.

Average propensity to consume- Average propensity to consume refers to the ration between total consumption expenditure to total income.

Marginal propensity to consume- Marginal propensity to consume refers to measurement of change in total consumption and total income.

7.7 SELF- ASSESSMENT TEST

Q.1 What do you mean by consumption function? Explain the different factors affecting consumption function.

Q.2 What are the major properties used under consumption function? Why there is requirement of consumption function?

Q.3 Explain the different theories of Consumption function.

Q.4 What is Psychological Law of Consumption? How does it work in the economy?

Q.5 Explain the difference among Marginal propensity to consume and Average propensity to consume with examples.

Q.6 Explain in detail about 'Life Cycle theory of Consumption' and 'Permanent Income theory of consumption'.

Q.7 What are the major importance of propensity to consume? Is there exists any measures to raise the propensity to consume?

Q.8 Explain the following:

(a) APC (b) MPC (c) Relative Income Hypothesis

Q.9 What are the major subjective and objective factors of determining Propensity to Consume?

Q.10 Critically examine the Keynes Law of Consumption.

7.8 ANSWERS TO CHECK YOUR PROGRESS

1. Propensity to consume
2. One
3. Less than one
4. Income
5. Propensity to save

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Subject: Macro Economics	Author: Ms. Chand Kiran
Subject Code: BCOM 202	Vetter: Prof. Anil Kumar

LESSON-8

Investment Function

Structure

8.0 LEARNING OBJECTIVES

After reading this chapter you will be able to understand the meaning of investment and investment expenditure. This chapter will provide you the knowledge about the different types of investment and how does different investment works in the economy. Further, we will discuss about the importance of investment and factors affecting investment decision.

8.1 INTRODUCTION TO INVESTMENT FUNCTION

Consumption function is discussed earlier in previous chapter; similarly investment function is an important component of aggregate demand. Before describing investment function, it is important to elaborate the term investment which has different meanings according to its uses. In finance, investment refers to buy shares, debentures, stocks, bonds and securities from stock market. In economics, investment refers to the expenditure made for acquiring the capital assets such as machinery, furniture, building, etc. So, we can understand investment as expenditure on adding the capital assets in the organisation which ultimately results into increase in income and production. Investment function represents the relationship between aggregate income and aggregate investment. Keynes defines investment as real investment which results into addition to capital equipment. He said that a person can invest his money in two major ways i.e. either he can buy shares and stocks or he can invest the money for buying new machinery, setting up of new office and promoting a company. Due to purchase of share and stock only ownership will transfer but it does not affect employment in the economy. This is beneficial only for individual as it is a financial transaction but not beneficial for the whole society. On the other hand, the use of money for setting of premises or purchase of machinery will leads to positive effect on employment as new employment opportunities for society. Investment may be further described as the expenditure on the purchase of such goods which leads to increase the overall production capacity in the economy.

Definition

According to Joan Robinson, "By investment is meant an addition to capital, such as occurs when a new house is built or a new factory is built. Investment means making an addition to the stock of goods in existence."

8.1.1 Classification of Investment Expenditure

Investment function is based on investment expenditure which may be incurred by household, businessmen, corporate house and government of a country. This investment expenditure may be classified into three major parts which are explained below:

(a) Business Fixed Investment

Business Fixed Investment represents the investments in the machines, tools and equipment which are used by businessmen for further production of goods and services. The stock of these machines, buildings, tools and plant equipment is known as fixed capital. Moreover, we can understand fixed investment as the expenditure made on machinery, plants, equipment, etc. which are continuously be used for production over the long period of time. Business fixed investment is an important component of aggregate demand and this fixed investment is also helpful for determination of national income and employment level in the economy. Moreover, business fixed investment also fluctuates over a period of time and these fluctuation will results into business cycles in the free market economy.

Fixed investment is determined by two factors i.e. real rate of interest and business expectations. Real rate of interest refers to the difference between money rate of interest and expected rate of inflation. Higher the real rate of interest will leads to lower desired investment expenditure on fixed assets, while lower the real rate of interest will leads to higher investment expenditure on fixed assets in the organization. Further, business expectations refers to the forecasting the future state of market by the entrepreneur. If entrepreneur expects growth in demand for their goods and services then they will invest more and on the other hand if entrepreneur expects poor demand for their goods and services then they will limit investment.

(b) Investment on Business Inventory

Every businessman holds some sort of inventory which may be in the form of raw material, finished goods, unfinished goods and material work-in-progress. Whenever there is change in the inventory position of an organisation, it will affect organisation. Further, desired investment expenditure on business inventory is known as investment on business inventory. There is volatility in investment decision regarding business inventory because investors invest according to their future expectations. This business inventory decision is taken for short period as this decision may fluctuate over the period of time. If investor expects recession in near future then they will tend to reduce the investment in business inventory and whenever investor

has good business expectation, it will leads to inducement of investment for business inventory. Expenditure on inventory also determined through real rate of interest as higher the real rate of interest leads to higher cost of holding stock then there will be low level of desired expenditure. On the other hand, a reduction in real rate of interest rate leads to inducement of desired expenditure.

(c) Investment Expenditure on Residential Construction

Another important type of desired investment expenditure is investment on residential construction which is incurred by households. Residential investment can be defined as expenditure made by households on construction of new house, building and other apartments for the purpose of residence or for renting out it to others. In India, residential investment ranges from 3 percent to 5 percent of the gross domestic product. Residential investments are determined by price of existing housing units in the society as higher the price of existing housing units will leads to higher investment for residential construction or for buying new house and vice-versa.

Further, government is also proving income tax rebates on the residential housing loan which encourages investor to borrow money from financial institutions. Due to increasing inflation rate, interest rate on housing loan also increasing and as a result of this expenditure on residential construction will be reduced. But, demand for new houses is so huge that investment expenditure and borrowing for residential construction cannot be reduced.

8.1.2 Types of Investment

As an investor we have a large number of options for investment and as a rational person, one have to choose where to invest out of the possible investment options and avenues. Investment and its types become basis for better understanding of investment function in economics. Different types of investments are discussed as under:

(a) Financial Investment

Financial investment refers to the amount of money invested for buying shares and stocks of existing companies. Or we can say that it is the expenditure made by investor on purchase of financial instruments. Financial investment leads to increase in total assets of an individual but it is not significant in economy as a whole unless it is undertaken by our residents in rest of the world.

According to **Stonier and Hague**, "By investment we do not mean the purchase of existing paper security, bonds, debentures or equity, but the purchase of new factories, machines and like.

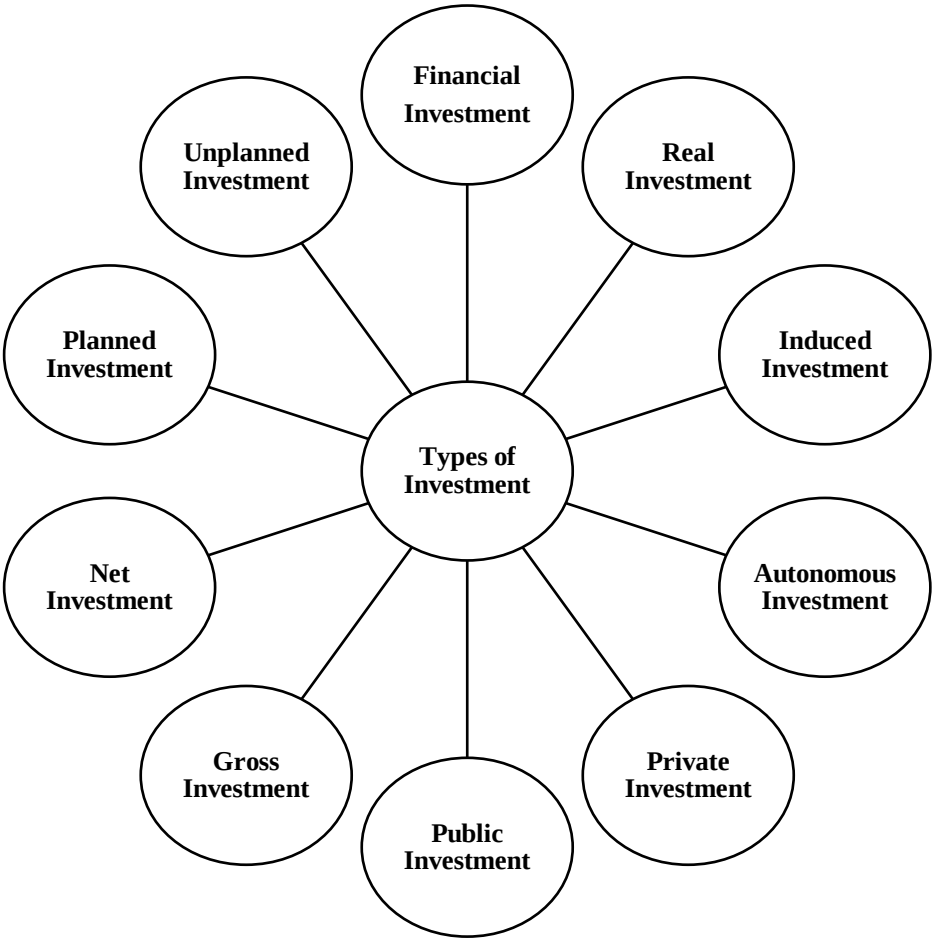

Fig. 8.1 Types of Investment

(b) Real Investment

Real investment refers to the total expenditure on the purchase of the goods which results into increase in overall production capacity in the economy. This expenditure involves purchase of new machinery, plant, buildings for business purpose or construction of residential house. Real investment is can be called as net capital formation because it has a direct impact on the production, employment and national growth.

According to **Mrs. Joan Robinson**, "By investment is meant an addition to capital, such as occurs when a new house is build or a new factory is built. Investment means making an addition to the stock of goods in existence."

(c) Induced Investment

Induce investment is based on two major factors i.e. income and profit and it is positively related with income level and profits. At high level of income and profit investors are induced to invest more and when income level and profits goes down, investment level also reduces. This type of investment may be known as profit or income elastic.

According to **Prof**. **Keiser**, "When an increase in investment is due to increase in current level of income and production, it is known as inducedinvestment".

(d) Autonomous Investment

Autonomous investment is the investment which is independent of the level of the income and output. It means this investment is not induced by level of income. It is the investment which is made by government to enhance the level of effective demand in the economy during the period of depression and unemployment. It may include expenditure on construction of houses, roads, buildings and other infrastructure by government.

According to Peterson, "The autonomous investment is generally associated with such factors as the introduction of new techniques or products, the development of new resources or the growth of population and labour force."

(e) Private Investment

Private investment refers to the investment made by private individual or private player of the market with the merely motive to earn profit. This type of investment is dependent on two major factors i.e. Marginal efficiency of capital and Rate of interest. If Marginal efficiency of capital is greater than rate of interest then there will more private investment in the economy. On the other hand, if marginal efficiency of capital is less than rate of interest then there will no private investment in the economy.

(f) Public Investment

Pubic investment refers to the investment made by central government, state government and local self-government of a country. This investment is not made for merely profits but it is

made for social welfare and economic development of a country. This type of investment is encouraged so that higher rate of growth is achieved in the economy.

(g) Gross Investment

Gross investment is the total investment made on capital goods at any given point of time in an economy. Moreover, it may be defined as the total amount of money spent on capital assets like plant and machinery, factory building, etc. Gross investment includes net investment and replacement investment. It may be shown as:

Gross Investment = Net Investment + Replacement Investment

Here, replacement investment is the cost incurred on the maintenance of depreciating capital assets in the business. Whenever gross investment is more than replacement investment then there will be increase in capital stock.

(h) Net Investment

Net investment refers to the investment which arises out of increasing capital stock in the business. According to Peterson, "Net investment is investment that enlarges economy's stock of real capital assets thereby, adding to productive capacity." Net investment can be shown as:

Net Investment = Gross Investment – Replacement Investment

(i) Planned Investment

When an entrepreneur make a plan for investment in a systematic manner with a particular objective, is known as planned investment. It is also known as intended investment or Ex – ante investment or voluntary investment. As per the term planned investment, we can describe it as voluntary investment made by investors for achieving particular objectives. It is affected by two major factors i.e. anticipated increase in demand and anticipated cut in the cost of production due to new technology. So, it can be termed as cost-oriented investment because of the cost reduction technique.

(j) Unplanned Investment

Unplanned investment refers to the investment which is made without any concrete plan or it may be random investment. Unplanned investment is involuntary investment made by investors. Sometimes, there is sudden fall in demand and stock of goods is accumulated in the business without any plan or objective. Thus, it is also known as unintended investment, Ex – post investment and involuntary investment.

8.1.3 Determinants of Induced Investment

As we have earlier discussed about the induced investment, which is affected by increase in income and profit in the organisation. Induced investment can be determined by two major determinants. According to Keynes, the decision regarding investment in new project depends on the two major determinants. These determinants are discussed as under:

(a) Marginal Efficiency of Capital

Marginal efficiency of capital may be defined as expected rate of return of a new project or investment in the business. Marginal efficiency of capital may be defined as the ratio between the potential return of supplementary capital and price of their supply.

According to **Dillard**, "the marginal efficiency of capital in general is the highest rate of return over cost expected from producing an additional or marginal unit of the most profitable of all types of capital assets."

Marginal efficiency of capital may be determined through two major factors i.e.

(i) Prospective Yield

Prospective yield of an asset may be defined as the aggregate of expected revenue from the sale of output produced during its life time but excluded variable cost. Here, variable cost refers to the cost of raw materials, wages, advertisement, transportation, etc. Marginal efficiency of capital depends on the long term expectations of the entrepreneurs' regarding the prospective yields of the capital assets. Inducement of investment depends on the profit and loss expectations of the entrepreneur. Whenever a new investment is made or a new project is decided then prospective yield from that project is considers first. Expected yield are difficult to compute as one can only estimate about the physical life of an asset but no one can predict about the economic life of that asset because of obsolesce or physical worn out. Thus, an entrepreneur has to critically examine all the factors while computation of flows of income or prospective yield from capital asset.

(ii) Supply Price

Supply price does mean the supply of an existing asset to others but it is the cost of producing a new asset in the business. Or whenever an entrepreneur wishes to buy the capital asset, then he have to pay some price for that asset, is known as supply price of the asset. Keynes has described supply price as the cost of acquisition or replacement cost of an

asset. Supply price may be extended to a number of years in case of services like construction, etc. Supply price is considered as fixed in short period.

(b) Rate of Interest

If we borrow money from others then we have to interest on that amount. Similarly, when we purchase government securities, bonds, etc. with own money then we will get interest from these securities. But, when we invest our money to purchase capital asset then we have to forgo this interest. According to Keynes rate of interest can be determined by supply of money and demand for money on two factor as basis i.e. liquidity and preference. In short run, supply for money is assumed to be constant and rate of interest is determined only through demand for money. Higher the interest rate will leads to lower down the liquidity on the part of people and lower the interest rate will leads greater preference for liquidity. On the other hand, liquidity preference has also its impact on the rate of interest. As greater the liquidity preference will results into higher rate of interest and smaller the liquidity preference will results into lower rate of interest. When other things being equal, rate of interest will be high or low due to less and more of supply of money.

8.1.4 Source of Autonomous Investment

Public investment is an important factor responsible for economic development of a country. Government of a country increases and decreases the investment level as and when it is required. Whenever there is situation of depression in the economy, private investment falls then public investment can be made on work activities like: hospital, schools, roads, etc. Due to public investment, there will be increase in income level as well as increase in the employment level in the country. Following are the sources of public investment:

(a) Taxation

Taxation is a major source of investment as a public investment which is collected from the public and spent again on public. Some of the people argue against that taxation policy does not encourage new investment but it just a transfer of purchasing power from public to government. There will be no effect of taxation policy on the new investment. Thus, taxation may be a source of investment but argument against it thinks that investment remain constant.

(b) Loans

Loans are considered as a better source than taxation policy because loans are helpful for circulation of inactive money with the public. Loans may be of two types i.e. Private loans and Public loans. People deposit their money into bank and banks have large surplus funds which are circulated through the way of loans to public at reasonable rate of interest. These loans will be helpful for economic development as it is a source of public investment. Such loans should be received before full employment is achieved in a country because public investment through loans after full employment may lead to inflation.

(c) Deficit Financing

Sometimes, it is assumed that the best method for financing public is printing of new currency in the economy, it is known as deficit financing. This is the easiest method of public investment but it leads to inflation in the economy. Keynes and his supports are of the view that if there is unemployment in the economy then new currency can be printed and inflation is created when full employment is achieved.

Public investment should be maintained in such a way that it does not affect the private investment in the economy. Otherwise, multiplier effect on public investment will leads to diminishing or disappear. Thus, government should induce public investment to stimulate private investment but it should not be done with the objective to compete with private investment.

8.1.5 Measures to Stimulate Private Investment

Private investment is equally important as public investment because a country cannot achieve their objective without one of these two investments. Government takes various measures to improve the level of investment in the economy. Measures to stimulate private investment are discussed as under:

(a) Reduction in taxes

It is assumed that if there are heavy tax burden on investors then investment will fall because of increase in tax burden adversely affects marginal efficiency of capital. Many economists like: Kurihara, Hansen, Klein, etc. are of the view that investor should not be burdened with taxes. They suggest that income tax and corporate tax should be reduced to encourage investment. Only those investors, who use their money for consumption and do not invest, should be burdened with more taxes. Due to this situation investment will be encouraged in the economy. Thus, it is important to notice that along with reduction in taxes, government revenue should be increased by the way of indirect taxes, taxes on luxury goods, etc.

(b) Pump priming

During the period of depression, private investment is at lowest level in the economy and for inducement of private investment an increase in public investment is necessary. This policy of stimulating private investment through public investment is known as pump priming. Kurihara defined pump priming as the expenditure made by government to dispose of depression. This policy is based on an assumption i.e. private investment has gone down for some time. Pump priming can be done through two ways: (i) when government borrows from banks to increase public investment and as a result of borrowing banks will create credit. (ii) Increase in public investment results into increase in aggregate income due to effect of multiplier. Thus, it will stimulate private investment.

(c) Decrease in the rate of interest

Many economists are of the view that private investment fluctuates with the fluctuations in interest rates or investment is interest elastic. If volume of investment falls then rate of interest will increase and vice-versa. In the general theory, Keynes has given secondary preference to rate of interest. According to Keynes investment is affected by income and not by rate of interest because interest rate cannot fall below a specific level and investment is affected by marginal efficiency of capital rather than rate of interest. Further, L.R. Klein said that lower rate of interest may stimulate investment in some sectors of the society. Thus, we can conclude that low rate of interest is conductive to investment.

(d) Wage cut policy

Wages policies are equally important to induce private investment as investment can be increased at low wage rate. Classical economists believed that wages should be reduced to stimulate investment because of reduction in cost of production in the economy. But, Keynes was against of this view and he was of opinion that reduction in money wages will not reduce the cost of production but it will lead to decrease in income of labourers. Overall, investment can be increased by reducing the real wages through rise in price level.

(e) Increase in government expenditure

Government expenditure is a major source to stimulate private investment in the economy. According to Kurihara and other economists government expenditure can be divided into three parts: (i) Government spends money on social security activities for welfare of the society like:

unemployment, education, insurance, health, etc. (ii) Government also spends on public work activities like: roads, buildings, hospitals, etc. (iii) Government may spend money on different projects like: irrigation project, power project, etc.

(f) Promotion of research

Some of the economists believed that expenditure on research is beneficial for stimulation of private investment. If government spends money on research and innovation then research on industrial and operation field will provide various methods for the inducement of investment.

(g) Price support policy

Fluctuations in the prices have adverse effect on the investment and it is necessary to stabilize the prices in the economy. Government tries to stabilize the prices through specific policy which is known as price support policy. This policy states that government starts buying and selling in the open market to stabilize prices in the economy. When prices of goods fall in the market falls then government should buy goods and stock it; this will restore the interest of the investors.

(h) Abolition of monopolistic tendencies

Every businessman wants to create their monopoly over the market to hold a predominance position. Keynes defined that monopolistic tendencies of big firms in the market should be abolished, so that investment can be stimulated in the economy. Due to increase in investment new firms will enter in the market and large number of firms will leads to further investment in the economy.

8.2 FACTORS AFFECTING INVESTMENT/ INVESTMENT FUNCTION

Investment function is the relationship among investment and its determinants. Investment decision is influenced by a large number of factors. These factors are explained below:

Sr. No.	Factor affecting Investment
1.	Technology Advancement and Innovation
2.	Discovery of Natural Resources
3.	Government Policies
4.	Foreign Trade

5.	Political Environment
6.	Expectations
7.	Rate of Population Growth
8.	Territorial Expansion
9.	The Price Level
10.	The Market Structure
11.	Availability of Finance
12.	Condition in the Labour Market
13.	The Present Stock of Capital Goods
14.	Aggregate Demand
15.	Factors Influencing Investment in Public Sector

Fig. 8.2 Factors affecting Investment

1) Technology Advancement and Innovation

As we had earlier discussed that investment is affected by technology and new research in the economy, same is supported by Prof. Norman F. Keiser. He believed that introduction of new labour-saving and capital-saving techniques leads to increase in investment in the agriculture as well as manufacturing industries. There are various changes occurred due to technology and investment which are proven beneficial to increase the volume of investment.

2) Discovery of Natural Resources

Invention of the natural resources like: petrol, oil, etc. will leads to increase in investment. Discovery of new sources of natural resources will attract investors to invest more in order to obtain the new resources. On the other hand, if production of natural resources decreases or destroyed then there will be decrease in investment level also.

3) Government Policies

Investment is also affected through monetary and fiscal policy of the government in an economy. Whenever government wants to expands credit and use cheap money policy then investment will increase. On the other hand, when government wants to contract the credit and use dear money policy then investment will decrease. Similarly, taxation and expenditure policy of the government affects investment decision in the economy. If more taxes are

imposed by government then expectations of profit will goes down and investment will be discouraged. On the contrary, if fewer taxes are imposed then investment will be encouraged.

4) Foreign Trade

Foreign trade has a positive impact on the level of investment. Whenever investor expects that foreign trade of a country will increase then he will investment more. On the contrary, if volume of foreign trade reduces then level of investment will also fall in the economy.

5) Political Environment

Political environment is an important factor that affects business as well as investors in a country. If there is peace and stability in the political environment of a country then it will induce more investment. On the other hand, if there is political disturbance, danger of foreign aggression and instability in a country then it will adversely affect investment level and investment will fall.

6) Expectations

Business expectations are directly related with profits in the organisation. Businessman uses capital goods for the further production of products. So, the expectation of profit depends upon the sale of goods produced through capital goods. If business is in good condition and business community is positive about future growth then there will be increase in investments. But, when business is going through depression and business community is pessimistic about its growth then there will be a decrease in investment.

7) Rate of Population Growth

If there is continuous increase in population in a country then it will require new houses, schools, hospitals, roads, transportation, consumer goods, public services, etc. Thus, increase in population leads to more investment for the above requirement of the population. Further, according to Norman F. Keiser growth in population will leads to increase in labour supply. So, wage rate will fall and prospective yield of invested capital will increase.

8) Territorial Expansion

Due to increase in population, there is requirement for new territories in the economy which require public and private investment. Thus, opening of new business houses also affects investment.

9) The Price Level

Price is a major factor which affects investment level in the economy. If price in the market starts increasing then there will be increase in profits for investors and due to this investors will be attracted towards more investment. On the other hand, if price starts declining then it will discourage investment.

10) The Market Structure

Market structure refers to the nature of competition prevails in the market. If there is many producer of same commodity in the market and competing with each other then they will try to cut down their cost of production through use of new machines and technology. These will results into increase in investment. On the contrary, if there is low competition among producers then monopoly can be created and production will continue through old machinery and obsolete technology. It will adversely affect investment level in the economy.

11) Availability of Finance

Investment is also influenced through availability of finance. Two major source of finance for a firm is internal source and external source. If a firm had more internal source of finance like: undistributed profits and reserves, etc. then the firm is able to investment more. Similarly, when external source of finance are easily available to firm then they are able to invest more. However, unavailability of finance leads to decrease in investment by a firm.

12) Condition in the Labour Market

Labour market is an equally important factor to study as other factors affecting investment decision. If trained and skilled labourers are available in the labour market, investment will be favourably influenced. This is due to the cordial and peaceful relationship among labourers and employer.

13) The Present Stock of Capital Goods

If present stock of capital goods in the firm is in excess of need then there is excess capacity in the firm and very little investment is required. On the other hand, when there is deficiency of capital goods then the possibility for investment will be more in the firm.

14) Aggregate Demand

Aggregate demand is the total demand of all the individuals in the economy during an accounting year. Aggregate demand also affects investment level in the economy. Continuous increase in aggregate demand for goods and services will stimulate the investment.

15) Factors Influencing Investment in Public Sector

Investment in public sector is influenced through the objectives like: economic development, social welfare and defence of the country. Investment for the discussed purposive is independent of income or profit. If we need defence products for the security in the country or social welfare of people, then we have to invest irrespective of profit and income. But, it does not mean that government does not concentrate on profit or income. Government also makes public investment to earn profits.

8.3 IMPORTANCE OF INVESTMENT

We had discussed about the types and factors influencing investment level in the economy. Some other aspects of investment are also discussed under this chapter. But, still a major aspect of investment i.e. importance of investment left behind. The following points describe the importance of investment:

(1) Determination of income and employment

In short-run, consumption expenditure remains constant and investment expenditure plays a key role for determination of income and employment level in the economy. Due to multiplier effect, increase in investment leads to increase in income. This increase in investment works as remedy against depression and unemployment. Thus, the cycle goes on from increase in investment to increase in income then increase in output and ultimately this will results into increase in employment. Thus, investment function is important to determine the level of income and employment in the economy.

(2) Volatile factor

Investment is a volatile factor which fluctuates over a period of time. Investment depends on future expectations and these expectations are subject to change. So, income and employment level also changes. Business cycles are the results of changes in investment. During policy formulation regarding trade cycles, it is important to measure fluctuation in investment.

(3) Economic development

Every country tries to induce investment in different sectors because investment form basis for the economic development. Harrod explains that investment influence both supply and demand in the economy. Economic development is last step of cycle of investment. Investment leads to capital formation which results into increase in production capacity. Increased production

capacity will increase the supply of goods and services which will ultimately results into economic development.

8.4 CHECK YOUR PROGRESS

1. Investment is an injection which increases _____.
2. _____ is the difference between gross investment and net investment.
3. Increase in _____ leads to increase in the level aggregate demand.
4. Autonomous investment is _____ to the level of GDP.
5. An increase in _____ leads to a movement along the marginal efficiency to capital schedule.

8.5 SUMMARY

At the end, we can conclude that investment function represents the relationship among aggregate income and aggregate investment. Investment function is an important component of aggregate demand. Investment function is not just for theoretical review but it should be practically used in the economy. Investment has various types which are helpful for economic development. Investment function also describes the factors influencing investment decisions. These factors are helpful to determine the investment level in the economy. Further, marginal efficiency of capital and rate of interest are also important determinants of induced investment. Moreover, public investment also plays an important role in the economic development. Public investment can be done through taxation, loans and deficit financing. It is also interesting to notice that government should ensure that public investment of government should not affect the level of private investment in the economy. Another important term multiplier is also used in this chapter which will be described in detail in next chapter.

8.6 KEYWORDS

Investment - Investment refers to the expenditure made for acquiring the capital assets such as machinery, furniture, building, etc.

Real Rate of Interest - Real rate of interest refers to the difference between money rate of interest and expected rate of inflation.

Marginal Efficiency of Capital - Marginal efficiency of capital may be defined as the ratio between the potential return of supplementary capital and price of their supply.

Rate of Interest - It is the rate a bank or other lender charges to borrow its money, or the rate a bank pays its savers for keeping money in an account. The annual interestrate is the rate over a period of one year.

Prospective Yield - Prospective yield of an asset may be defined as the aggregate of expected revenue from the sale of output produced during its life time but excluded variable cost.

Private Investment - Private investment refers to the investment made by private individual or private player of the market with the merely motive to earn profit.

Public Investment - Pubic investment refers to the investment made by central government, state government and local self-government of a country.

8.7 SELF-ASSESSMENT TEST

Q.1 What do you mean by Investment? Explain the types of Investment in detail.

Q.2 What is investment expenditure? Explain the different types of investment expenditure.

Q.3 Differentiate: (a) Financial Investment and Real Investment

(b) Induced Investment and Autonomous Investment

Q.4 Explain the major determinants of induced investment in detail.

Q.5 What are the major sources of Autonomous investment in the economy?

Q.6 Differentiate: (a) Private Investment and Public Investment

(b) Voluntary Investment and Involuntary Investment

Q.7 What do you mean by inducement to invest? Discuss the factors which govern the inducement to invest in a capitalist economy.

Q.8 What do you mean by Private Investment? Explain the measures to stimulate private investment.

Q.9 Discuss the significance of marginal efficiency of capital and rate of interest as determinants of investment.

Q.10 Explain the following:

(a) Gross Investment (b) Net Investment (c) Marginal Efficiency of Capital

8.8 ANSWERS TO CHECK YOUR PROGRESS

1. Aggregate demand
2. Depreciation
3. Investment
4. Not related
5. Interest rates

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Subject: Macro Economics	Author: Ms. Chand Kiran
Subject Code: BCOM 202	Vetter: Prof. Anil Kumar

LESSON-09

Multiplier: Concept, Importance and Principles of Acceleration

Structure

9.0 LEARNING OBJECTIVES

In the last chapter the term multiplier was used which we will be discussing in this chapter. After reading this chapter you will be able to understand the concepts of multiplier and its working which are helpful to understand the mechanism of investment and its effect on income. Further, we will discuss about movement of multiplier so that we can understand forward and backward actions of the multiplier in detail. Then, another topic of concern i.e. Principles of Acceleration is also included in this chapter. So, this chapter will provide comprehensive knowledge about multiplier and acceleration and their effect on economy.

9.1 INTRODUCTION

The concept of multiplier was introduced in the beginning of 1930s by F.A. Kahn an economist of Cambridge University. He defined multiplier in the context of increase in employment level due to increase in initial investment and employment. It is known as employment multiplier. Further, Keynes refined the concept of multiplier with reference to increase in total income due to increase in investment income. This multiplier defined by Keynes is known as investment multiplier or income multiplier. The spirit of multiplier is that total increase in income, output and employment is multiple of the increase in original increase in investment. For example, if investment of rupee 100 crores is made, then it does not mean that income will also rise by rupee 100 crores but a multiple of it. If national income increases by rupee 300 crores due to investment of rupee 100 crores then multiplier will be equal to 3.

According to **Keynes**, "Investment multiplier tells us that when there is an increment of an aggregate investment; income will increase by an amount which is 'K' times the increment of investment." Thus, multiplier may be defined as the ratio of increase in income to the increase in investment. It may be shown as:

$$K = \Delta Y / \Delta I$$

Here,

K stands for multiplier,

ΔY stands for change in Income,

ΔI stands for change in Investment.

Thus, multiplier is simply associated with change in investment and size of multiplier depends upon the size of marginal propensity to consume. Further, the value of multiplier varies from unity to infinity

Diagrammatic representation of Multiplier:

We had earlier discussed that the level of national income if determined where C + I curve intersects the 45° income curve. The same diagram is used to explain the multiplier.

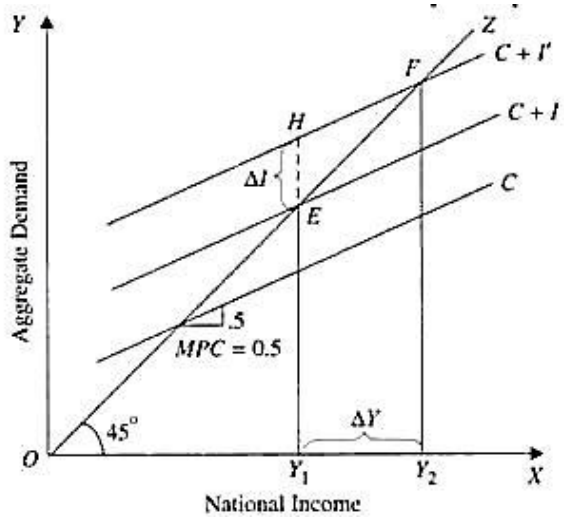

Fig. 9.1 Keynesian Income Multiplier

Here, OX axis represents National Income and OY axis represents aggregate demand, C represents marginal propensity to consume. It is assumed that marginal propensity to consume is equal to 0.5 so that the curve C of MPC shown equals to 0.5. C + I represents the level of aggregate demand curve which intersects the 45° line at point E so that the level of income equal to OY_1. If investment increases by the amount EH then aggregate demand curve shifts upward to the C + I'. Thus, new aggregate demand curve intersects at point F represents the equilibrium level of income which increases to OY_2. So, the increase in investment leads to increase in income also. Through measurement we can conclude thatY_1Y_2 is twice the length of EH. This is expected because the marginal propensity to consume is equal to 0.5 here and therefore the size of multiplier will be equal to 2.

9.2 DYNAMIC CONCEPT OF MULTIPLIER

Various critics argue against Keynes as Keynes theory of investment multiplier is static concept. This theory has no connection with dynamic process of income generation. Keynes defines that how many

times more increase in income will be reported due to increase in investment. But, he cannot define how and what time will be required for this increase. One important question rise here i.e. why there is increase in income is so many times more than the initial increase in investment. Answer to this question is explained below:

For example, government made a public expenditure of rupee 100 crores on construction of roads in rural area. Here, government has to pay wages to labourers, prices for raw material and remuneration to other workers who are engaged in the work of road construction. Total cost of the project will amounted to rupee 100 crores and this will increase the total income of the people equal to rupee 100 crores. But, this process not stopover here.

People will spend some part of their income for consumption purpose. Let us assume that marginal propensity to consume of the people is 80% of the total income then they will spend rupee 80 crores for consumption out of rupee 100 crores. This consumption expenditure will increase the incomes of people who supply the consumer goods equal to rupee 80 crores and receiver of this income will spend some part of this income again for consumption according to their marginal propensity to consume. Again if they spend 80% of the income then it will be amounted to rupee 64 crores. Thus, it will again increase the income of some other people equal to rupee 64 crores.

In this way, the chain of consumption expenditure will be continued and income with the public will increase. But, this additional increase in income will be gradually less because some part of the income will be saved. Hence, the question is solved as income will not increase by only rupee 100 crores which were initially invested by government for construction of roads.

This process of multiplier is continuous and automatic. Moreover, multiplier is not just affected through private and public investment rather than it is also affected through consumption expenditure.

9.2.1 Movements of the Multiplier

Process of multiplier has two types of movement i.e. forward action and backward action. Whenever, there is increase in investment then as multiplier effect, income increases many times more than the initial investment. This is known as forward action of the multiplier. On the other hand, whenever investment decreases then as multiplier effect, income decreases many times more. It is known as backward action of the multiplier.

According to **Prof. Samuelson**, "The multiplier is a two-edge sword. It will cut for you or against you. It will amplify new investment as we have seen. It will also amplify downward decrease in investment."

Forward action of the multiplier

Forward action of the multiplier indicates that increase in initial investment will leads to many more times increase in the ultimate income. It can be understood through an example; suppose initial investment increases by rupee 10 crores and multiplier is 2 then ultimate income will increases by rupee 10 × 2 = 20 crores. Forward action of multiplier can be seen in those countries where Marginal Propensity to Save is small and Marginal Propensity to Consume is large. The forward action of multiplier is shown through the following diagram:

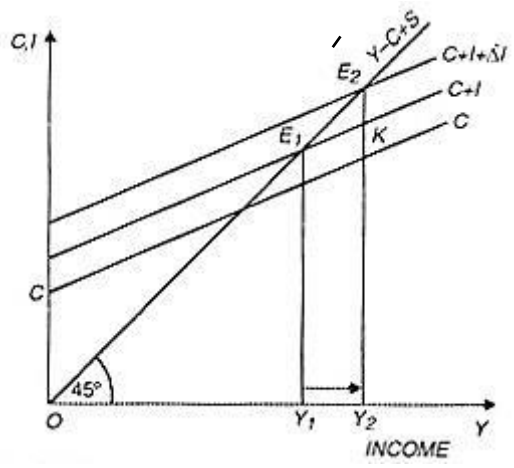

Fig. 9.2 Forward action of the Multiplier

In this figure 9.2, income is shown on X-axis and consumption is shown on Y-axis. CC curve represents the consumption curve which is drawn with according the MPC level less than 1. Total income is the sum of consumption and saving by an individual. Point E_1 is the equilibrium point where income level is at OY_1 and consumption is at C + I. When investment level is increases from C + I to C + I + ΔI, consequentially income level will also raise from OY_1 to OY_2 which is many more times than the initial investment level. Increased vertical difference among Y_1 to Y_2 is more than the difference among C + I to C + I + ΔI. Thus, equilibrium level will shifts upwards from point E_1 to E_1. This increase in income is almost double to the increase in investment level. This increase in income also represents the forward action of the multiplier. Further, in the figure 9.2, the arrow between Y_1 and Y_2 represents this forward movement of multiplier.

Backward action of the multiplier

Multiplier works in both directions i.e. forward as well as backward. Multiplier is also known as double-edged weapon. Backward action of the multiplier is opposite to the forward action of the multiplier. As it represents that decrease in initial investment level will results in several times more decrease in the final income. It is also termed as reverse action of the multiplier. For example, if initial investment level decreases from rupee 20 crores to rupee 10 crores and multiplier is 2, then final income will decreases by rupee 10 crores × 2 = rupee 20 crores. This can be shown by the figure 9.3 as below:

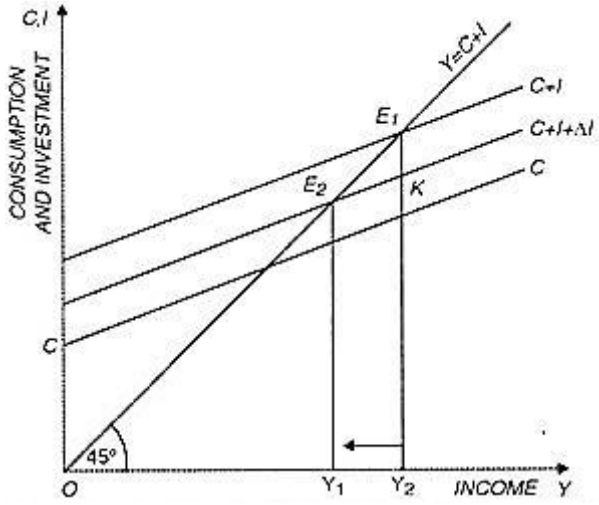

Fig. 9.3 Reverse action of the multiplier

In this figure 9.3, income is shown on X-axis and consumption is shown on Y-axis. CC curve represents the consumption curve. Higher the Marginal propensity to consume will results into greater the level of multiplier as well as greater the cumulative decline in income. Total income is the sum of consumption and saving by an individual. Point E_1 is the equilibrium point where income level is at OY_2 and consumption is at C + I. When investment level is decreases from C + I to C + I + ΔI, consequentially income level will also decline from OY_2 to OY_1 which is many more times decreases than the initial investment level. Increased vertical difference among Y_2 to Y_1 is more than the difference among C + I to C + I + ΔI. Thus, equilibrium level will shifts upwards from point E_1 to E_1. This decrease in income is almost double to the decrease in investment level. This decrease in income also represents the backward action of the multiplier. Further, in the figure 9.3, the arrow between Y_2 and Y_1 represents this backward or reverse movement of multiplier.

Thus, we can conclude that multiplier works in the forward and backward directions in the economy. Multiplier plays an important role for the determination of income and investment level in the economy.

9.2.2 Leakages of Multiplier

Marginal propensity to consume is generally less than the total income because whole income is not used for the consumption purpose. And the part of income which is not spent for consumption is known as leakages from total income. Forward action of multiplier does not exist for endlessly rather than the process of income circulation comes down. The reasons behind this decrease in income are known as leakages in the multiplier. Several reasons for leakages in multiplier are discussed below:

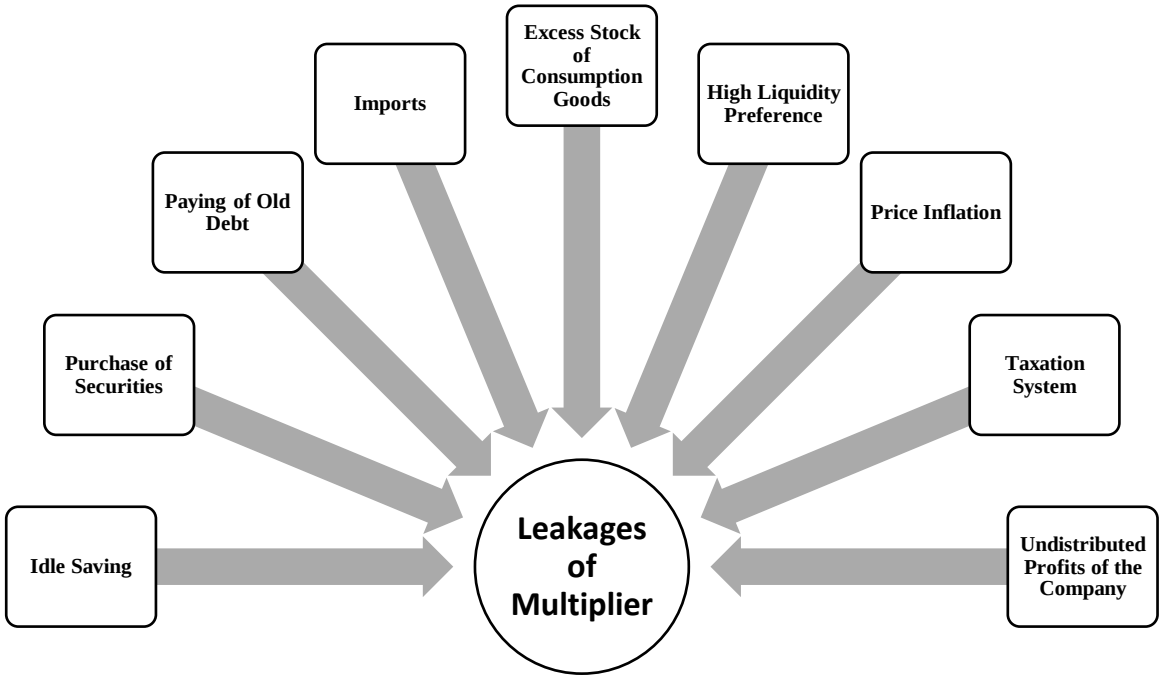

Fig. 9.4 Leakages of Multiplier

I. Idle Saving

Idle savings are the part of increased income which is not used for consumption purpose and it goes out of the circulation. Idle savings results into equivalent fall in marginal propensity to consume and fall in marginal propensity to consume leads to fall in the value of multiplier. We can conclude that higher the marginal propensity to save will leads to leakages from the income circulation and it will also lower the value of multiplier.

II. Purchase of Shares and Government Securities

Purchase of shares and government securities are one of the major reasons behind leakages of the multiplier. Income used for buying such old securities is cause of fall in the income streams. This part of income is not used for consumption purpose so; it will not generate further income for the future. Thus, there will be decrease in future income as well as decrease in multiplier.

III. Paying of Old Debts

Whenever a person have to pay its old debt then he/she used money from increased income and this amount used for paying debt is not used for purpose. This will leads to another leakage of multiplier and it restricts the process of income generation through multiplier effect.

IV. Imports

Import refers to the purchase of goods and services from the rest of the world or outside the boundaries of a country. When income goes out of the country it will adversely affects process of income generation. The money which goes out of the country will not generate further income in the boundaries of that country. Hence, imports will result into leakages in the multiplier.

V. Excess Stock of Consumption Goods

Excess stock of consumption adversely affects the multiplier in the economy. Increase in income tends to increase the demand and this will leads to increase in consumption. If this increased demand is fulfilled by existing stock in the economy then new goods will not be produced and as a result of this further production falls down as well as multiplier also goes down. This will reduce the income stream in the process of income generation.

VI. High Liquidity Preference

Liquidity refers to the cash position with a consumer. If people prefer high liquidity; means they want hold more cash with them, will negatively affects multiplier. As high liquidity preference leads to less expenditure and it will restrict the process of income generation. Thus, high liquidity preference leads to leakages in the multiplier.

VII. Price Inflation

Inflation is a situation of continuous increase in prices in the economy. If prices increase with the increase in income then same amount of goods can be purchased with the increased income. Due to increased prices, people have to spend more income to buy the same amount goods and services as before. Thus, increase in price will nullify the effect of increase in income in the

economy. Very few part of income will be left behind for the purchase of additional goods and services. There will be little effect on the consumption of goods and services. Thus, multiplier effect will be limited to price inflation.

VIII. Taxation System

Whenever taxes on goods and progressive tax rate on income are increased then there will be no significant increase in consumption of goods and services even if income increases. Increases in taxes leads to slow down the process of income generation in the economy. Thus, taxes in the economy are considered as leakage in the multiplier.

IX. Undistributed Profits of the Companies

Undistributed profits are that part of company's profit which is not divided among shareholders as dividend. Undistributed profits work same as the idle saving. Many companies do not distribute the whole profits of the company among its shareholders and kept some part of profit as reserve. This undistributed profit is not used for further consumption as well as it will not provide any future income in the economy. Thus, undistributed profits are leakages in the multiplier.

9.2.3 Importance of Multiplier

It is very important to study the multiplier concept for economic analysis. Multiplier is very important to study for the determination of investment and income. Further, multiplier is an important tool for the Keynes theory of income and employment. Multiplier is very important in different aspects in the economy. Various uses and importance of multiplier are discussed below:

I. Concept of multiplier is helpful in understanding the income circulation process in the economy. It is helpful to determine that increase in employment, income and output is due to increase in investment.

II. The concept of multiplier is helpful for the better understanding of trade cycles in the business. Trade cycles define the business fluctuations like: boom, depression, recession, etc. Multiplier explains that increase in investment leads to increase in income. Further, investments are increased during depression and decreased during inflations.

III. Importance of investment in economic analysis can be better understood through the concept of multiplier. Investment is a dynamic factor which affects income as well as employment level in the economy.

IV. Multiplier is helpful for the determination of employment level in the economy. Increase in investments leads to increase in income and increase in income leads to increase in output and improving the employment level.

V. Keynes define that equilibrium position is recognized when saving and investment are equal. Concept of multiplier is a helpful factor to achieve equilibrium in saving and investment. Whenever saving volume is low in the economy then marginal propensity to save is a tool to determine increase in income so that required saving volume can be obtained. Similarly, to determine the level of investment required for increase in income, coefficient of multiplier is used.

VI. Deficit financing is also highlighted through concept of multiplier. Some of the economists define that deficit financing is helpful to remove the bad effects of depression. Due to deficit financing, investment increases and this increase will leads to increase in income many more times due to multiplier effect.

VII. Keynes also used the concept of multiplier in introducing importance of public investment during depression. In this period, if public investment is raised then there will be increase in income many more times. Such an increase in investment tends to control the situation of depression and unemployment in the economy.

VIII. Further, concept of multiplier is also helpful to decide that how much increase and decrease in investment is required for balancing the prices in the economy. It means multiplier is also helpful to control the situation of inflation and deflation.

IX. Government interference is a must according to Keynes and it is equally supported by concept of multiplier. By introducing a little investment in the economy, government can increase the income level many times under the impact of multiplier.

X. At last, multiplier is also important to decide the level of additional investment required to achieve the desired rate of GDP in the economy.

9.2.4 Limitations of Multiplier

The above discussion about multiplier focus on investment and income and multiplier is categories as static as well as dynamic. Multiplier is very important topic of concern as it has various uses in the economy. However, nothing is perfect or complete in all the sense and multiplier has also some shortcomings. These shortcomings are discussed as under:

Sr. No.	Limitations of Multiplier
1.	Availability of Consumer Goods
2.	Net Increase in Expenditure
3.	Multiplier Period
4.	Net increase in Investment
5.	Less than Full Employment Level
6.	Autonomous Investment
7.	Steady Flow of Investment
8.	Closed Economy
9.	Acceleration effect ignored
10.	Constant Marginal Propensity to Consume
11.	No change in Prices
12.	Industrialised Economy
13.	No change in Distribution of Income
14.	Surplus Capacity in Consumer Goods Industries
15.	Availability of other Resources of Production

Fig. 9.5 Limitations of Multiplier

I. Availability of Consumer Goods

Income circulation is dependent on the availability of consumer goods in adequate quantity so that consumer can spend their increased income on these goods and income generation process goes on. If quantity of consumer goods is not adequate in the economy then consumer will not be able to spend their increased income and this will restrict the multiplier effect. Thus, it will adversely affect the income generation process.

II. Net Increase in Expenditure

Keynes define that spending may be known as expenditure which is used to increase the stock of goods and net increase in expenditure can be obtained through increase in expenditure of government on various projects and by reducing the taxes on goods. Further, net expenditure can also be increased through modifying the tax structure in such way that idle saving can be discouraged.

III. Multiplier Period

We have earlier discussed that increase in investment will leads to increase in income due to multiplier effect but this multiplier effect does not work immediately rather than it needs a time

lag for operation. Whenever consumer receive income they can't spend all the income immediately and it takes a time lag between receipts of income again and its expenditure again. If we want to recognize the effect of increase in investment on the national income then we have to study the effect of multiplier period. If multiplier period is greater than there will be small number of secondary expenditure on consumption and multiplier value will be small and vice-versa.

IV. Net increase in Investment

Direction of multiplier is very important for the determination of the value of multiplier. Value of multiplier is dependent on the net increase in investment. Here, net increase in investment does not mean that increase in public sector investment is supplemented by decrease in private sector investment. In this, situation multiplier will not work. It becomes necessary that the increase in investments should be at regular time intervals for obtaining a high value of multiplier. Thus, level of multiplier and national income can be raised, kept and maintained.

V. Less than Full Employment Level

Multiplier is based on some assumptions and less than full employment level in the economy is one of these assumptions. We had earlier discussed that increase in investment leads to increase in income, output and employment and this is possible only when all the resources in the economy are not fully utilized. On the other hand, if there is full employment in the economy then there will be no increase in income and output and there will be no effect of multiplier on it.

VI. Autonomous Investment

There are two major types of investments i.e. autonomous investment and induced investment. Induced investment is affected by profits and income whereas autonomous investment is independent of profit motive. Moreover, value of multiplier is more than that of autonomous investment and less than that of induced investment.

VII. Steady Flow of Investment

As we had earlier discussed that net increase in investment is necessary for the determination of multiplier in the economy. It means there should be regular flow of income. If investment is not made on regular basis then the multiplier effect will goes down and initially income will raise but afterwards it stars declining and reached at its original position. Thus, for maintaining the effect of multiplier, it is necessary that there should be continuous increase in income.

VIII. Closed Economy

Closed economy is another important factor to determine the value of multiplier in the economy. Multiplier works on the assumption that there is closed economy. There is absence of international trade in the closed economy. Open economy works adversely in the process of income generation through multiplier because imports over exports acts as a leakage. Further, any expenditure on imports will reduce the marginal propensity to consume and thus, it will adversely affect the value of multiplier.

IX. Acceleration effect ignored

Multiplier is related with the original investment on consumption and income only but it ignores the effect of increased or induced consumption on investment. But the value of multiplier will be affected by this increase in investment. This change in investment as a result of change in consumption is known as acceleration. This acceleration is helpful to increase the value of multiplier many times more than earlier increase but in multiplier, effect of acceleration is ignored.

X. Constant Marginal Propensity to Consume

Assumption of multiplier becomes the limitations for multiplier and constant marginal propensity to consume is another limitation of multiplier which is assumed as constant. Any change in the value of MPC leads to change in value of multiplier. If value of MPC goes down, then value multiplier will also goes down and vice-versa. Thus, constant value of marginal propensity of consume will tends to constant value of multiplier.

XI. No change in Prices

It is also assumed that there will be no change in the prices of commodities and any other material related to commodities. If there is any change in the prices then consumption will be affected and change in consumption will affect the value of multiplier.

XII. Industrialised Economy

Multiplier is more effective in an industrialised economy rather than an agricultural economy. Elasticity of demand is higher in case of industrial products than agriculture products. Further, supply of industrial product is highly associated with its demand and fulfilled earlier than demand for agricultural products. Thus, industrial economy will leads to more effective for determination of multiplier.

XIII. No change in Distribution of Income

Multiplier has another limitation due to its assumption of no change in distribution of income in the economy. It is due to the fact that change in income distribution tends to change in marginal propensity to consume. Thus, in case of change in distribution of income, it becomes difficult to determine the value of multiplier.

XIV. Surplus Capacity in Consumer Goods Industries

We are known to the fact that increase in initial investment tends to increase in income and as a result of increase in income, consumption will also increase. But, consumption will increase only if there is surplus capacity in consumer goods industries. Due to this surplus capacity increased demand can be fulfilled. On the other hand, when there is no surplus capacity then consumption will not be increased and multiplier will be less effective.

XV. Availability of other Resources of Production

Availability of other resources of production like: raw material, capital equipment, etc., besides laborers is necessary for the smooth and better working of multiplier. When there is absence of these resources of production then multiplier will not be effective.

Thus, we can conclude that multiplier is a helpful tool to determine the income, investment, output and employment. But, multiplier is also associated with different limitations. Multiplier would only works with different assumptions because without these assumptions multiplier will not be effective.

9.3 CONCEPT OF ACCELERATOR

The multiplier and the accelerator are parallel concepts in economics and both are helpful for the determination of income and investment level in the economy. Multiplier represents the effect of change in investment on the income level whereas accelerator represents the effect of change in consumption on private investment. Further, the concept of acceleration principle was firstly introduced in economics by J. M. Clark in 1917. Afterwards, this concept was developed by Hicks, Samuelson and Harrod with reference to business cycles.

According to Hayek,"Since the production of any given amount of final output usually requires an amount of capital severaltimes larger than the output produced with it during any short period (say a year) anyincrease in final demand will give rise to an additional demand for capital goodsseveral times larger than the new final demand."

It means whenever demand for consumer goods increase it leads to increase in demand for the factor of production because these factor of production will be used for production of consumer goods. Here is an important point to note that demand for factor of production i.e. machines will increase at a faster rate than the demand for consumer goods. Thus, we can conclude that accelerator is a function of the rate of change in consumption and not of the level of consumption.

Further, accelerator is functional relationship among change in demand for the investment goods due to change in the demand for the consumer goods in the economy. Moreover, accelerator coefficient can be defined as the ratio between induced investments to net change in the consumption expenditure. Accelerator coefficient can be shown as:

$\alpha = \Delta I/\Delta C$, where α represents the accelerator coefficient; ΔI represents net changes in the investments and ΔC denotes the net change in consumption expenditure. The value of accelerator coefficient could be one or less than one. However, increase expenditure on consumer goods leads to increase the expenditure over capital goods. Thus, accelerator value is almost more than zero. But, accelerator coefficient can also be positive and more than unity when there is a good deal of capital goods.

9.3.1 Working of Accelerator

Accelerator is as important as multiplier in the economy and both of these goes are not in competition but are parallel to each other. Before understanding the working of accelerator it is necessary to discuss about its assumptions. These are as follows:

(a) Capital-output ratio will be constant.
(b) Resources are easily available.
(c) There is no excess or idle capacity of the plant.
(d) The increased demand is permanent.
(e) There is elastic supply of credit and capital.
(f) An increase in output will leads to immediate increase in investment.

Working of multiplier depends on all the above assumptions and it is shown through the following table:

Example: Life of the Machine 10 years

	Period	Change in Consumption	Capital Equipment needed	Gross Investment			% change in Gross investment
				Additions	Replacement	Total	

10% rise in demand	0 1	1000 1100	100 110	Nil 10	10 10	10 20	100 % increase

Table No: 1. Working of Accelerator

Table no. 1 represents that life of a machine is 10 years, we require 100 machines for the production of 1000 units of consumer goods according to constant capital output ratio i.e. 1:10. If we want to maintain the same level of production over a long period then after 10 years the machines has to be replaced and 10 machines have to be replaced after some period of time. This is known as replacement demand.

If demand for the consumer goods increased by 10% in the market then the change in consumption will be 1100 goods and for achieving the level of 1100 units; thus we require 110 machines as per the constant capital-output ratio i.e. 1:10. Thus, we had requirement of 20 machines out of which 10 machines are required for addition production and other 10 machines are required for replacement. Thus, we can conclude that a 10% increase in the demand for consumption goods leads to 100% rise in the demand for investment goods. Hence, principle of acceleration shows that a small increase in the consumption leads to many more times increase in the induced investments.

9.3.2 Criticisms of Acceleration Principle

Accelerator is very important concept to discuss still it is criticize by many economists due to its assumptions. Limitations of acceleration principle are discussed below:

- **I.** Acceleration principle is based on an assumption of constant capital-output ratio which is a vague assumption. But, this ratio can't be constant in the dynamic word where changes in capital and output are obvious.
- **II.** The other assumption which assumes that resources should be elastic but this is possible only when there is unemployment. If there is full employment in the economy then it will limits the working of acceleration principle.
- **III.** One other limitation is due to the assumption of no excess capacity of the plant which means that the plant is fully utilized. On the other hand, if there are some machines which are not fully utilized or idle in the company then as a result of increase in demand for consumer goods there will be no increase in new capital goods. Thus, acceleration principle will fail.
- **IV.** Acceleration principle only explains the volume of investment but it fails to explain the timing of investments in the economy.

V. Further, timing of the investment depends on their availability and cost of financing. Thus, principle of acceleration also does not consider availability and cost of capital goods.

VI. Acceleration effect is assumed to be zero for the already existing and installed equipment which can be used for production of anticipated future demand.

VII. Another assumption of acceleration states that the increased demand is permanent which is totally vague. This assumption means acceleration principle will not work for temporary demand.

VIII. The acceleration principle assumes that supply for credit is elastic which means whenever there is induced investment then cheap credit will be available but it is not possible. If cheap credit is not available or the rate of interest increases then the acceleration principle will fail.

IX. Principle of acceleration also ignores the expectations of the entrepreneurs in decision making for organisation. The investment decision is not only affected by demand for the products rather than it is also affected by future anticipations.

X. Principle of acceleration also ignores technological factors and it fails to explain the lower turning point. Moreover the principle of acceleration is not precise and it is unsatisfactory.

Thus, we can conclude that the principle of acceleration works with many limitations but still it is important to make the income generation process clear and realistic. Principle of acceleration is shows fluctuations in income and employment due to fluctuations in capital goods.

9.4 CHECK YOUR PROGRESS

1. Minimum value of investment multiplier is _____.
2. _____ is the ratio of change in income to a given change in investment.
3. There is _____ relationship among investment multiplier and MPC.
4. Acceleration principle was firstly introduced in economics by _____.
5. Acceleration principle only explains _____ of investment but it fails to explain _____ of investments in the economy.

9.5 SUMMARY

Multiplier explains the change in income due to the change in the investment in the economy. Multiplier is simply associated with change in investment and size of multiplier depends upon the size of marginal propensity to consume. One another concept i.e. acceleration, is an important term explains the

relationship of change in consumption expenditure on the induced investment. The multiplier and the accelerator are parallel concepts in economics and both are helpful for the determination of income and investment level in the economy. Multiplier represents the effect of change in investment on the income level whereas accelerator represents the effect of change in consumption on private investment. Both the concepts are based on some assumptions which work as limitations for the applicability of multiplier as well as acceleration principle. Working of multiplier is quite different from working of accelerator because multiplier presents the investment and income whereas accelerator represents expenditure and induced investment. Thus, both the concepts are equally important to determine the income and investment. If assumption of these two functions prevails in the economy then these can be fully utilized by the entrepreneurs in the economy.

9.6 KEYWORDS

Multiplier- Multiplier may be defined as the ratio of increase in income to the increase in investment.

Accelerator- Accelerator is functional relationship among change in demand for the investment goods due to change in the demand for the consumer goods in the economy.

Income- Income refers to the money which is received by an individual or business in exchange for providing goods and services or by way of investment.

Investment- Investment refers to that part of income which is not used for consumption purpose today but allocated over different asset which provides income appreciation in future.

Forward movement of Multiplier-Whenever, there is increase in investment then as multiplier effect, income increase many times more than the initial investment. This is known as forward movement of the multiplier.

Backward movement of Multiplier- Whenever, there is decrease in investment then as multiplier effect, income decreases many times more. It is known as backward action of the multiplier.

Induced Investment- When an increase in investment is due to increase in current level of income and production, it is known as induced investment.

9.7 SELF-ASSESSMENT TEST

Q.1 Explain the concept of multiplier with an example. Also explains the importance of multiplier in detail.

Q.2 Explain the working of an investment multiplier in the economy.

Q.3 What is an investment multiplier? Explain the various assumptions and importance of multiplier.

Q.4 Define dynamic multiplier. Also explains the leakages in the multiplier in detail.

Q.5 What are the different movements of the multiplier? Explain it with an example.

Q.6 Differentiate between multiplier and principle of acceleration in detail.

Q.7 Elaborate the concept of accelerator with an example. Also explains the importance of accelerator in detail.

Q.8 Explain the working of principle of accelerator in the economy.

Q.9 What is an accelerator? Explain the various assumptions and importance of accelerator.

Q.10 Discuss the limitations of multiplier and accelerator in detail.

9.8 ANSWERS TO CHECK YOUR PROGRESS

1. Equal to one
2. Investment Multiplier
3. Direct
4. J. M. Clark in 1917
5. Volume, timings

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Subject: Macro Economics	Author: Ms. Chand Kiran
Subject Code: BCOM 202	Vetter: Prof. Anil Kumar

LESSON-10

Business Cycle

STRUCTURE

10.0 LEARNING OBJECTIVES

After reading this chapter you will learn about the existence of fluctuations in Gross Domestic Product in the economy and reasons responsible for these fluctuations. After learning this concept, we will discuss about the effects of business cycles on economic growth. Afterwards, you will be able to understand the different views of economists about business cycles which are given through theories of business cycles. At the end of the chapter, an attempt is made to aware you about the various measures to control business cycles in the economy.

10.1 INTRODUCTION TO BUSINESS CYCLE

The business cycleis the downward and upward movement of gross domestic product (GDP) around its long-term growth trend. It is also known as the economic cycle or trade cycle. Duration of a market cycle is the period of time which contains a single series boom and contraction. These fluctuations typically involve periods of relatively rapid economic growth and period of decline. Over the past two centuries, many capitalist countries such as the USA and Great Britain have registered rapid growth in the economy. Yet economic growth has not followed a consistent and smooth upward path in these countries. There has been a long-run upward trend in Gross National Product (GNP), but substantial short-run variations in economic activity have occurred on a regular basis, i.e. shifts in production, revenue, jobs and prices around this long-run trend. The period of high income, production and employment was referred to as the period of expansion, growth or prosperity, and the period of low income, output and employment was defined as the period of contraction, recession, decline or downswing. These periods of fluctuations are known as business cycles.

Definition:

J.M. Keynes writes, "A trade cycle is composed of periods of good trade characterized by rising prices and low unemployment percentages with periods of bad trade characterized by falling prices and high unemployment percentages."

According to **Parkin and Bade's**, "The business cycle is the periodic but irregular up-and-down movements in economic activity measured by fluctuations in real GDP and other macroeconomic variables. A business cycle is not a regular, predictable, or repeating phenomenon like the swing of the pendulum of a clock. Its timing is random and, to a large degree, unpredictable."

The span of a business cycle was not of the same length; it varied from a minimum of two years to a maximum of ten to twelve years, although it was also believed in the past that demand fluctuations and other economic indicators around the world displayed repeated and frequent trends of alternating expansion and contraction cycles. In addition, however, there was no clear evidence of the same definite length of very regular cycles. For only two or three years, some business cycles have been very brief, while others have continued for several years. In addition, there were large swings away from the trend in some cycles and in others these swings were of moderate.

Economists have focused on researching the causes and consequences and the scale of such oscillations in nations ' economic activities. Throughout economics, the study of periodic business activity fluctuations, which is an unavoidable part of economic growth, is referred to as the business cycle or trade cycle.

10.1.1 Features of Business Cycles

Though different business cycles occurs at different time and these all have different features but there are some common features of business cycles. These are described as under:

I. Business cycles occur on a regular basis. Although they do not show the same regularity, they have certain different phases such as expansion, peak, contraction, or depression and trough. Further, the length of business cycle varies significantly from a minimum of two years to a maximum of ten to twelve years.

II. Business cycles are occurs at the same time whole economy. These do not bring about changes in any industry or sector, but they affect the whole economy. For example, in all industries or sectors of the economy, unemployment or recession happens at the same time.

III. It has been observed that variations occur not only in production levels but also in other variables such as employment, expenditure, consumption, interest rates and price levels at the same time.

IV. Investment and consumption of durable consumer goods such as cars, houses and refrigerators are mostly affected by the cyclical fluctuations.

V. Further, it has been seen that the use of non-durable goods and services during the various phases of business cycles does not vary greatly. Past business cycle data show that households maintain a high level of stability in consumption of non-durable goods and services.

VI. There is immediate effect of depression and expansionon inventories of products. The inventories tend to grow beyond the desired level during depression and this tends to a reduction in consumer demand. On the contrary, the inventories go below the desired level during recovery period. This encourages entrepreneurs to place more orders for goods that are picked up by production and stimulate capital goods investment.

VII. Profits fluctuate more than any other type of income during fluctuations in the economy. It is difficult to predict economic conditions and profits due to business cycles. Profits can even become negative during the depression era, and many companies go bankrupt.

VIII. Business cycles are not limited to specific area only but these are international in nature. When fluctuations start in one country then they also spread to other countries due to international trade among countries.

IX. Business cycles have a wave-like pattern of movement. Rising prices, production and employment leads to upward movement whereas falling prices and employments tends to downward movement.

10.1.2 PHASES OF A BUSINESS CYCLE

Business cycle has different stages according to upward and downward fluctuations in the economy. Different economists provided different views on business cycle and its stages. Typically, there are major four parts of business cycle i.e. Expansion, Peak, Contraction and Trough. But, some economists believed that there are six stages in business cycles i.e. Expansion, Peak, Recession, Depression, Trough and Recovery. These are shown through a diagram:

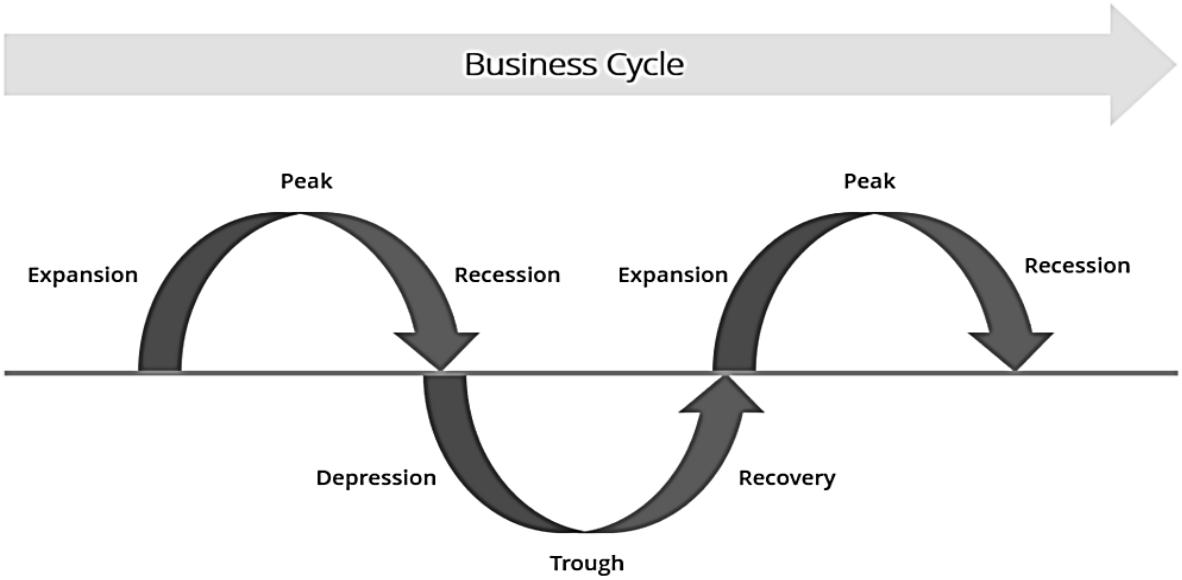


Fig. 10.1 Stages of Business Cycle

I. Expansion

Expansion is the first step of the business cycle. Economic indicators such as employment, production, output, wages, sales, competition, and the provision of goods and services are rising at this point. In this stage, debtors pay their debts on time, pace of money supply is high, and level of investment is also high. This process continues till there are favorable economic conditions for

growth in the economy. Thus, all the positive conditions in the economy lead to increase in flow of income.

II. Peak

The economy reaches at a saturation point orat peak, which is the second stage of business cycle. Thereis maximum growth at this stage in the economy and economic indicators such as production, profit, sale and employment cannot rise anymore above this point.Further, price rates are highest but this increase in prices gradually decreases the demand for consumer goods. This point is a turning point in the economic growth cycle and consumers have to restructure their monthly budgets at this level.

III. Recession

Recession is the third stage which follows peak phase. In this phase, demand for goods and services starts decline rapidly. But, producers do not immediately notice this decline in demand and production continues which results into excess supply in the market and hence, prices tend to decline. Consequently, all positive economic indicators like income, production, wages, savings, investments, etc. starts falling in the economy and this all will results into recession.

IV. Depression

Recession converts into depression when there is a general decline in all the economic activities. It means there is reduction in production of goods and services, employment, income, demand and prices in the economy. This decline in economic activity tends to decrease in bank deposits and thus, credit expansion stops and consequently, bank rate also falls in the economy. Thus, a situation of depression captures an economy.

V. Trough

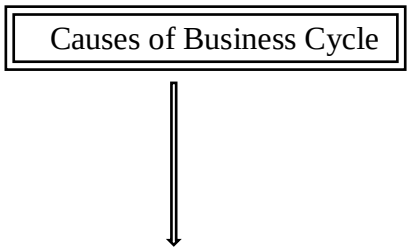
In the stage of depression, growth rate falls below the normal level of growth and it became negative. Further,it decline until the factor prices, demand and supply of goods and services reach at their lowest point. Eventually, the economy reaches to the next stage i.e. trough. It is the negative saturation point of an economy. At this stage, there is complete decrease in national income and expenditure. At this stage, it became difficult for debtors to pay their debts and rate of interest will increases in the economy. Further, investors will not invest in the stock market and investment level goes down. During this period, many weak organizations leave the industry and economy reaches at a lowest level of shrinking.

VI. Recovery

The economy comes to the recovery stage after this point. This is a reversal stage from the recession to recovery in this process and the economy starts to rebound from the negative rate of growth. Demand begins to rise because of the lowest prices and therefore supply also begins to respond. The economy starts developing with a positive attitude towards investment and thus, employment and production will also increase. Employment starts increasing and lending also shows positive signs due to accumulated cash balances with the banks. In this phase, producers replace the depreciated capital, leading to new investment in the process of production. The stage of recovery continues until the economy reaches to expansion stage.

10.1.3 Causes of Business Cycles

The fluctuations in the economy occur due a large number of factors. These factors can be divided into major categories i.e. Internal Factors and External Factors. These are explained through a diagram:



Internal Factors	External Factors
Change in Demand	Wars
Fluctuations in Investments	Technology Shocks
Macroeconomics Policies	Natural Factors
Supply of Money	Population Expansion

Fig. 10.2 Causes of Business Cycle

I. Internal Factors

Internal factors are related with the mechanism within the economic system. There will be self-generating business cycle which means every expansion will raise recession and contraction, and every contraction will in turn raise the revival and expansion in a never-ending chain. These factors are explained as under:

(a) Keynes stated that change in demand leads to change in economic activity. Whenever there is an increase in demand then firms starts producing more goods to meet the increased demand. It will leads to more production, more workers, more employment, and higher profits. This will

cause the economy to boom. Yet excessive demand can also lead to inflation. On the other hand, if the demand falls so does the economic activity also falls. This can even lead to depression in the economy if it lasts for a longer period of time.

(b) Besides fluctuations in demand, investment fluctuations are one of the major causes of business cycles. Investments can fluctuate on the basis of many variables such as economy interest rates, entrepreneurial interest, income expectations, etc. Rising investment will lead to increased economic activity and growth. A decline in investment will have the opposite effect and can lead to a downturn or even depression in the economy.

(c) Monetary policies and economic policies will also result in changes in the business cycle phases. If monetary policies seek to expand economic activity by encouraging investment, the economy would boom. On the other side, we will see a slowdown or recession in the economy if there is an increase in taxes or interest rates.

(d) Business cycles are purely monetary phenomenon i.e. monetary policy affects business cycles. Therefore change in the supply of money would results into the fluctuations of trade. Increase in money will positively affect growth and expansion in the market.But too much supply of money can also cause inflation. And the reduction in money supply would lead the economy to recession.

II. External Factors

The external factors are those factors which cause business cycles due to fluctuations in something outside the economic system. Such external factors are explained below:

(a) Economic resources are used to make special goods such as weapons, arms, and other war goods of this kind during wars and unrest time in the economy. The focus shifts from consumer goods to capital goods and this will results in reduction in income, employment and economic activities. So the economy is going to suffer a slowdown during war time. After war time, the priority would shifts to reconstruction of infrastructure like houses, buildings, highways, bridge, etc. which are necessary for economic development.

(b) New and exciting technology always boosts the economy and it would leads to new investment, higher employment, higher incomes and higher profits in the economy. For example, the invention of modern mobile phones becomes a reason for an enormous boost in the telecommunications industry.

(c) Further, Natural disasters such as floods, droughts, hurricanes, etc. can destroy crops and cause enormous losses to the farming sector. Food shortages would leads to higher prices and high inflation in the economy. In addition, there may also be a reduction in demand for capital goods.

(d) If population growth is out of control, this could be an economic problem. Population growth is generally higher than economic growth and hence, total savings of economy would begin to decline. Afterwards, investment will also be reduced and the economy will be faced with stagnation or recession.

10.1.4 Effects of Business Cycles

Business cycles have both the good and bad effects on the economy and it depends on the different stages of business cycles. We will learn about effects of fluctuations through different stages.

During**expansion phase**, companies grow rapidly and create more jobs in the economy. This will leads to increase in employment. If the economy grows at a relatively fast rate, it puts upward pressure on prices of consumer goods and services which results into inflation.

During **peak phase**, many economic indicators, like a drop in the number of new jobs added to the economy, an increase in the unemployment rate cansignify the peak of expansion phase.Now, the economy is no longer growing, retail sales are declining and economic output is also declining in the economy. All of these variables can result in further job loss and often result into contraction phase in the economy.

The **contraction phase** of the business cycle is the phase where the economy begins to shrink. Economists stated that this period is a period of recession or trough in the business cycle. At this stage, economic output starts decreasing which results into job losses and there will be an increase in unemployment rate in the economy. During periods of economic contraction, the money flow decreases because consumer spending goes down.

During **recovery phase**, economic output starts increasing and business also begin to expand. Thus, the employment rate is also rises even if the unemployment rate is falling. The economic recovery period of a business cycle can be difficult to forecast because other factors might cause a short-term stimulation in the economy but does not necessarily indicate a permanent recovery.

10.1.5 Theories of Business Cycle

A large number of theories were propounded by various economists time to time for better understanding of the concept of business cycle. In the first half of twentieth century, many new theories and concepts regarding business cycles are introduced. However, in nineteenth century, many classical economists like Adam Smith, Miller, and Ricardo, have conducted a study on businesscycles. Afterwards many other economists, such asKeynes and Hick, had provided a different framework to understand businesscycles. We will discuss some of the major theories out of different theories as under:

I. Hawtrey's Monetary Theory

The traditional theorists of the business cycle considered monetary and credit system important for analyzing business cycles.Theories developed by these traditional theorists are therefore called monetary theory of business cycle. This monetary theory states that the business cycle is the resultof change in the conditions of the monetary and credit market.Hawtrey, the main supporter of this theory, stated business cycles are results of continuous phase of inflation and deflation. According to him, fluctuations in the economy are due to change in money flow in the economy. For example, there would be changes in prices, income, and total output when there is an increase in the supply of money and this leads to economic growth. On the contrary, a decrease in the supply of money will result in a fall in prices, income and total output whichleads to a downturn in an economy. Afterwards Hawtrey explained that credit mechanism influence the money flow in the economy and Banking system is important for increasing money flow through credit system.

There will be an upward trend of economic growth when the volume of bank credit increases and this growth will be continued till this volume of bank credit increases. Further, banks provide credit facilities to general public and organizations because it is profitable for banks. These credit facilities are helpful for organizations to perform their business operations. This process overall leads to increase in investment opportunities and capital of businessmen also increased through it. Hence, production of organization increases and supply of its products also rose to a limit. This tends to increase in demand for products in market over supply of products and consequently, the prices of products will be raised. Hence, it can be seen that credit expansion is helpful for the economic growth of a nation. On the other hand, this process can be reversed if the banks start withdrawing credit from market. Hence, this theory provides business fluctuations on the basis of monetary factors.

But, this theory fails at some of the grounds like it focus only on monetary factors and ignored non-monetary factors. Then, it describes only the recession (Downturn) and expansion (Upward movement) stage of business cycle but ignores the intermediate stages. Further, through credit mechanism it is assumed that businessmen are more concerned about interest rate but it is not true as businessmen are more concerned about future opportunities.

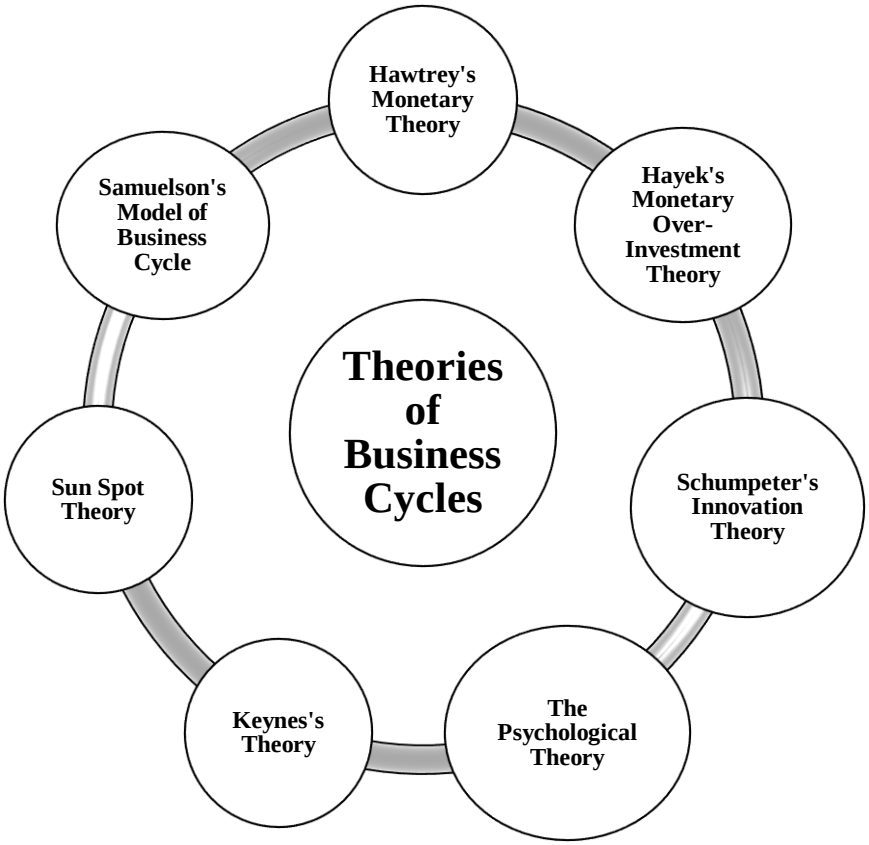


Fig. 10.3 Theories of Business Cycle

II. Hayek's Monetary Over-Investment Theory

The monetary over-investment theory of business cycle was propounded by F.A. Hayek. This theory focused on natural rate of interest and market rate of interest. Hayek stated that when natural rate of interest equals to market rate of interest then the economy will be in equilibrium and there will be full employment. Trade cycles caused due to imbalance between the market rate of interest and natural rate of interest. When the market rate of interest is higher than natural rate of interest then the economy will be in depression. On the contrary when market rate of interest is less than the natural rate of interest then the economy will be in prosperity phase of business cycle.

When the market interest rate is low in the economy, the demand for investment funds will be more than supply of savings. The demand for the investment funds is met by the increase in supply of money and thus the interest rate will falls. Low rate of interest induces producer to borrow money from banks and more money leads to increase in production of capital goods. Hence, producer will use capital-intensive techniques for the production which results into fall in cost and increase in profits. At the same time, factor of production shifts from consumption goods to capital goods which results into fall in the production of consumer goods and increase in prices of consumer goods. Hence, consumption of consumer goods falls and forced saving increases due to decrease in consumption which is invested for the production of capital goods. At last, there will be increase in production of capital goods. On the contrary, the producer will earn more profits because of increase in prices of consumer goods. High profits lead to increase in higher remuneration for the factor of production in comparison with the producers of capital goods. Thus, this increase in prices tends to atmosphere of prosperity in the economy.

Hayek described that when there is continuous rise in the prices of factors, the rise in production cost will decrease in profits of producer. Producer of capital goods will invest less in the expectation of loss in the future. Thus, the natural interest rate will fall. Consequently, banks put restrictions on loans and this will leads to reduction in production of capital goods by producers. Producers have to adopt the labour-intensive technique which results into less investment for capital goods. Afterwards, demand for money reduces and market rate of interest will increase more than the natural interest rate. Now, more factors of productions cannot be used for consumer goods as compared to capital goods which tends to decrease in prices of factor of production and some of resources become unemployed. The whole process will be reversed and there will be continuous reduction in the prices of goods and factors in the economy and hence, depression captures the economy.

Hayek tries to explain business cycle with monetary over-investment concept but still there are some loopholes in this theory. Firstly, the assumption of full employment and equilibrium is a vague. Then, only interest rates are not enough to describe business fluctuations. Further, Hayek gives more preference to forced saving which is not right concept. Thus, it is an incomplete theory of trade cycle.

III. Schumpeter's Innovation Theory

The Innovation theory of business cycle is associated with the name of Joseph Schumpeter. He found that innovations in business are major reason behind change in investment and business fluctuations. According to Schumpeter said, "Business cycles are almost exclusively theresult of innovations in the industrial and commercial organization.Innovations are such changes of the combination of the factors ofproduction as cannot be effected by infinitesimal steps or variations on the margin. Innovation consists primarily in changes in methods ofproduction and transportation, or changes in industrial organization, or inthe production of a new article, or opening of a new market or of newsources of material." He designed a model with two stages i.e. first approximation and second approximation.

First Approximation study the effect of innovative ideas on the economy at first instance and it is the beginning stage in which the economy is in equilibrium. Here, Marginal Cost = Marginal Revenue and Average Cost = Price and there is no involuntary unemployment in the economy. At this stage, there is neither surplus fund nor idle funds with the businessmen and innovators have only one source of fund i.e. Banks. When the innovators got funds from bank then they purchase inputs for the production of innovative ideas. If there is increase in prices of output then there will be increase in prices of products and competitors will start coping innovation. Thus, output and profits of organization will increase. But, it will increase to a certain limit, afterwards it profit show downtrend due to decrease in output prices. Here, debtors have to pay their debts to bank and flow of money will decreases. Hence, there will be recession in the economy.

Second Approximation study the effect of first approximation and it is related with the speculation of future economic conditions. In this stage, customer expects that there will be an increase in prices of the durable goods in near future; so they start buying goods in the present time with borrowed money. If prices start declining then debtors are in the worst period because they are unable to repay the loan and this will leads to depression in the economy.

Schumpeter shows different view on business cycle but his theory is not free from criticism. Assumption of bank as the only source of fund is not right because there are other source of fund prevails in the economy. Further, Innovations are not only the cause of business cycles. At last, full employment assumption is not realistic.

IV. The Psychological Theory

The Psychological theory was introduced by Prof. A.C. Pigou who stated that business cycles happen due to changes in the psychology of industrialists and businessmen. Normally, business class people react so much to the changing conditions of the economy which become reason behind cyclical fluctuations in the economy. Pigou believed that expectations depends on some real factors such as good harvests, wars, natural calamities, industrial disputes, innovations, etc. he divided the causes of business cycles into two categories i.e. Impulses and Conditions. Impulses mean the causes which set a process in motion; whereas, conditions can be defined as the way through which the process passes and upon which the impulses act. Pigou further divided the impulses into two parts: (a) the expectations of businessmen and (b) the actual resources owned by businessmen. Normally expectations depend on the psychology of businessmen and he can control over resources. But some expectations do not generate cyclical fluctuations and these expectations are parallel to the actual changes in the economy.

Pigou found that when expectations deny their realistic basis then there may error in forecasting fluctuations. This type of expectations creates disturbance in the economy and such error caused due to (i) deviation in the actual and anticipated demand of consumer, (ii) the continuous and unpredictable changes in the values of economic variable and (iii) due to long gestation periods.

Happening of such error in any sector of the economy leads to spread in the same direction. If once this impulse starts working on the conditions then it continuously work. Here, the wave of optimism and pessimism occur. Whenever businessmen have a feeling of optimism about the future prospectus, then there will be increase in demand for investment resources and there would be inter-industrial relations which would induce businessmen in other industries. Consequently, there will be emergence of boom conditions in the economy.

But, this wave of optimism is replaced by pessimism due to gestation period of production. Sometimes high expectations for future lead to excess production which creates problem for producer to sale these products at high prices. But, it is not easy to sale the products at high prices and there will be a stock of inventories. This turns optimism into pessimism and there will be slump in the economy. Hence, this theory advocated that booms and slumps occur due to optimism and pessimism wave of businessmen and industrialists.

Although, this theory uses a new area of concern to describe business cycles still there are various lacunas in this theory. These are: (i) In real sense it is not a theory of business cycle because it

cannot define phases of business fluctuations. (ii) It also fails to describe periodicity of business fluctuations. (iii) It ignores monetary factors affecting fluctuation and (iv) It is unable to explain the reason behind deficiency of demand.

V. Keynes's Theory

This theory of business cycle was developed by Keynes in 1930s when the whole world was going through great depression. This theory of business cycle is also known for Keynes reply to classical economists. Keynes described that the demand for consumer and capital goods will be helpful in determination of income, employment and output. Here, total investment and expenditure on goods and services is more and the level of production also increases. As a result of increase in production there will be increase in employment and income level. On the contrary, if total demand decreases then level of production would also decreases. Thus, the income, output and investment level also decreases in the economy.

Keynes advocated that expected rate of profit is the marginal efficiency of capital. When the expected rate of profit is greater than the current rate of interest then the investor would invest more. On the contrary, marginal efficiency of capital can be determined through expected rate of return and replacement cost of capital goods. Similarly, marginal efficiency of capital increases due to new innovations in the economy because it is assumed that prices would rise in near future. Whereas, it decreases when there is decrease in prices, increase in cost and inefficiency of production process.

Keynes believed that investors are positive about economic conditions during expansion phase and they over-estimate the rate of return on investments. But, this rate increases until the full employment is not achieved in the economy and when the economy is on the direction of full employment, it is termed as boom phase. During this phase, investor did not consider the decline in marginal efficiency of capital and rate of interest. Hence, the profit from investment start decreasing and this situation is known as contraction or recession phase. During contraction or recession, investment opportunities falls down and even banks do not provide credit due to lack of funds. Hence, rate of interest is higher so that people can be diverted to savings and as a result demand for products also decreases and economy reaches to the phase of depression.

Further, Keynes also introduced three types of propensities to understand the business cycle i.e. Propensity to save, propensity to consume and propensity to marginal efficiency of capital. He also

introduced another concept which is known as multiplier and it represents the change in income level due to change in investments. Keynes propounded that the expansion in business cycle occurs due to increase in marginal efficiency of capital. This would encourage investors to invest and thus, there will be increase in income of individual as well as rate of consumption. Hence, profits of businessmen also increases which leads to increase in total income and investment level in the economy. As a result, there will be recovery phase in the economy.

However, Keynes describes the theory of business cycle very well. But, some economists criticize his theory by some points like: this theory fails to explain the recurrence of business cycle and it ignores the role of accelerator in business cycle. Further, Keynes provided only a systematic framework not the whole concept.

VI. Sun Spot Theory

This theory is the oldest theory of business cycle and it is developed in 1875 by Stanley Jevons. Sun-spot may be defined as the storms on the earth of the sun caused by violent nuclear explosions. This theory is propounded by the fact on which Jevons believed that sun spots affected weather on the earth. We are dependent on agriculture in older time and agriculture is dependent on weather conditions. The changes in agriculture output affect the industry and these changes spread throughout the economy. Some of the other economists also believed that there is change in climate and weather due to sun spots. They think that these weather cycles become the reason for fluctuations in agricultural output. Earlier, when there is lack of monsoon and drought in India, it affects the whole economy because these fluctuations reduce income of the farmer as well as demand for the products of industries. Thus, industrial recession occurs in the economy. This theory did not provide the complete concept of business cycle and modern economists do not accept these theories.

VII. Samuelson's Model of Business Cycle

Samuelson Model was post Keynesian model of business cycle and he emphasized on the multiplier and accelerator concepts to explain the business cycle. Samuelson used two different concepts; one is autonomous investment and the other is derived investment. Whenever, autonomous investment occurs in the economy then the level of income also increases and then the concept of multiplier arises. When there is increase in consumer level then the demand for consumer goods also increases. The supply of consumer goods should satisfy the demand for

consumer goods. This is possible only when the large quantity of goods and services are produced in the economy. This will increase the investment by businessmen on production techniques. Thus, consumption affects the demand for investment and it is known as derived investment. This shows a sign of acceleration which results in increase in income. Again an increase in income leads to increase the demand for goods. Hence, the multiplier and accelerator interact with each other and income will grow at higher rate than expected. Samuelson introduced this theory with certain assumptions that the production capacity is limited and consumption take place after gap of one year. There will be closed economy. The equilibrium is shown as:

$Y_t = C_t + I_t$

Where, Y_t = National income

C_t = Total consumption expenditure

I_t = Investment expenditure

t = Time period

According to the assumption that consumption takes place aftera gap of one year, the consumption function would berepresented as follows:

$C_t = \alpha Y_{t-1}$

Where, Y_{t-1} = Income for t-1 time period

$\alpha = \Delta C/\Delta Y$ (multiplier propensity to consume)

Investment and consumption has a time lag of one year;therefore, the investment function can be expressed a follows:

$I_t = b (C_t - C_{t-1})$

Where, b = capital/output ratio (helps in determination of acceleration)

By putting the value of C_t and I_t in the first equation of national income,we get

$Y_t = \alpha Y_{t-1} + b (C_t - C_{t-1})$

If $C_t = \alpha Y_{t-1}$, then $C_{t-1} = \alpha Y_{t-2}$. Putting the value of C_{t-1} in the precedingequation, we get

$Y_t = \alpha Y_{t-1} + b (\alpha Y_{t-1} - \alpha Y_{t-2})$

$Y_t = \alpha (1 + b) Y_{t-1} – abY_{t-2}$ (equation for equilibrium)

With the help of preceding equation, the income level for past and futurecan be determined if the values of a, b and income of two preceding yearsare given. It can be depicted from the preceding equation that the changesin income level can be affected by the values of α and b.

The different combinations of α and b give rise to fluctuations inbusiness cycles as shown in Figure-4:

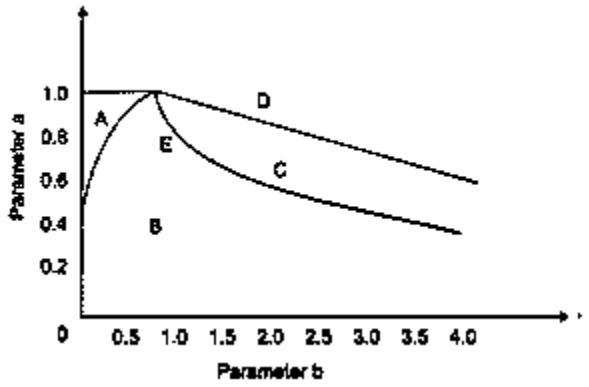


Fig. 10.4 Business Cycles and combination of parameters a and b

Figure-4 demonstrates the different phases of business cycles in the areas A, B, C, and D. With the help of the following points, the types of various cycles represented by A, B, C and D are described in detail:

A: Refers to the area where the level of income increases or decreases at the rate of decline and reaches a new point of balance. The change in the level of income would only be one-way.It results in damped non-oscillation, as shown in Figure 10.5,

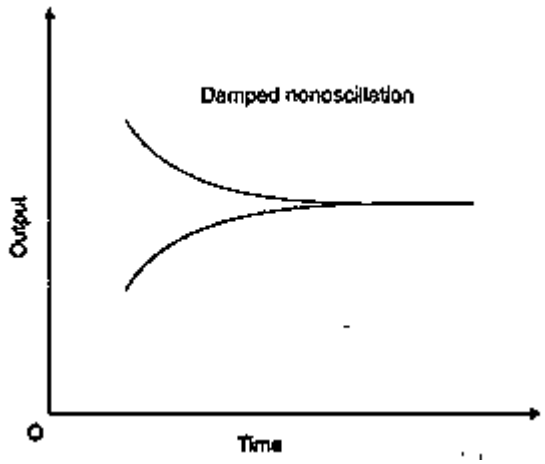


Fig. 10.5 Business Cycle pattern in Area A

B: Refers to the region where points, a and b, together create cycles of amplitude that slowly decrease. The process continues until the cycles are disrupted and the equilibrium of the economy. It results in damped oscillation.

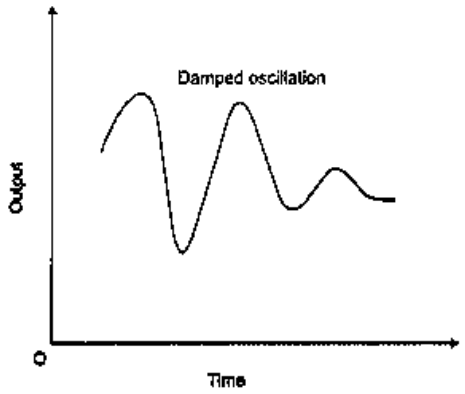


Fig.10.6 Business Cycle pattern in Area B

C: Refers to the area in which points, a and b, together makes amplitudecycles that become larger. This represents explosive oscillations.

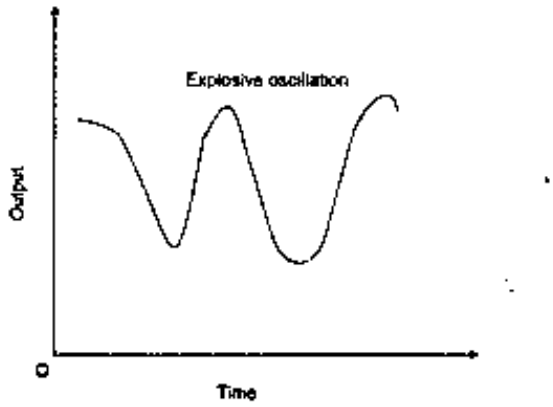


Fig. 10.7 Business Cycle pattern in Area C

D: Refers to the area at which the income level is increasing or decreasingat the exponential rate. This process continues till cycles reach at thebottom.It represents one-way explosion and results in explosiveoscillations.

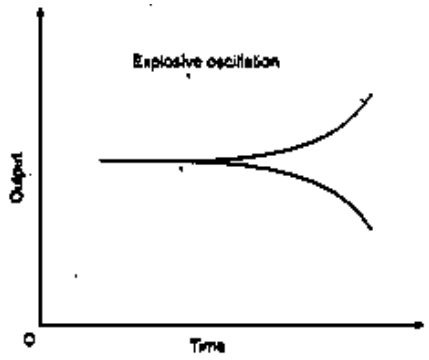


Fig. 10.8 Business Cycle pattern Area D

E: Refers to the point at which the oscillations are of equal amplitude.

Thus, this model represents the business cycle through different points. But there are some drawbacks in this model. These are: (a) It does not explain the business cycle completely. (b) Ignores other factors which can influence business cycle. (c) Assumption of constant capital/output ration is not true.

10.1.6 Measures to Control Business Cycles

Different economists provide a different method or measure to control business fluctuations. These measures are used for controlling business fluctuations and stabilizing the economic activity. These measures can be divided into three parts:

I. Monetary Policy

Monetary policy is controlled by a country's central bank and it works as a method of controlling business fluctuations.The central bank adopts a number of ways of regulating credit quantity and quality.It increases its bank rate, sells securities in the open market, raises the reserve ratio, and adopts a range of selective credit control measures, such as increasing margin requirements and controlling consumer credit, to regulate the growth of money supply during a boom.Therefore, a dear money approach is implemented by the central bank.Commercial borrowing becomes more dear, difficult and selective.Efforts are being made to regulate the economy's excess money supply.The central bank implements an easy or cheap monetary policy to control recession and depression. This leads to increase in reserves of commercial banks and it reduces bank rate. Further, central bank purchases securities in the open market so that money flow in the market can be increased. It cuts the credit margin of banks so that more money can be provided to consumer as a loan.

II. Fiscal Policy

Monetary policy alone cannot handle the business cycles.Compensatory fiscal policy should therefore be applied to it.During a boom, fiscal controls are highly effective in reducing excessive government spending, personal spending on consumption, and private and public expenditure.On the other hand, during a crisis, they help to increase government spending, personal consumption spending, and private and public expenditure.

During Boom: The government tries to reduce unnecessary spending on non-development programs during a boom in order to reduce the demand for goods and services. This is also helpful to check private spending but it is very difficult the government expenditure. Further, it is difficult to find essential and non-essential activities. Therefore, government comes with taxation system. The government is raising the rates of personal, corporate and commodity taxes to cut personal spending.

The government frequently follows the policy of having a budget surplus when government revenues are higher than expenditures.This is achieved by increasing tax rates or reducing government expenditures or both.It tends to reduce sales and aggregate demand through the reverse process of multiplier. Another budgetary step that is usually taken is to borrow more from the economy that has the effect of reducing the supply of money with the public.Therefore, the

servicing of public debt should be suspended and deferred to some future date when the economy stabilizes.

During Depression: In this stage government raise public spending, lowers taxes, and adopts a policy of budget deficit.Such policies tend to increase aggregate demand, production, profits, employment and prices.An increase in public expenditure would raise the aggregate demand for goods and services and it will leads to higher income through the multiplier. Public expenditure includes construction of roads, canals, dams, parks, schools, hospitals, and other construction works. This will create demand for the labour in the market.The government is also increasing its spending on welfare programs such as unemployment insurance and other social security initiatives to raise demand for consumer goods industries.

III. Direct Control

Major objective of direct control is to ensure proper allocation of resources for price stability in the economy.They are intended to affect the economy's strategic points and they impact particular consumer and producers.These are in the form of licensing rationing, price and wage controls, export taxes, currency caps, quotas, monopoly regulation, etc. They are more effective in addressing inflationary pressure bottlenecks and shortages.Its success depends on an effective and fair administration being in place. Otherwise it will lead to black marketing, coercion, long queues, speculation, and so on.

10.2 CHECK YOUR PROGRESS

1. Decrease in GDP for at least 6 month is called _____.
2. Low point of GDP during a business cycle is called _____.
3. _____ unemployment is due to downturn in the business cycles.
4. The four phases of business cycles are _____.
5. The theory of business cycles which is based on solar activity is known as _____

10.3 SUMMARY

Most of the people thought that Business cycle and Inflation are inter-related terms. But, they are different from each other in macroeconomics. Inflation is a term which describes continuous increase in prices whereas business cycles refer to the fluctuation or upward and downward movement of GDP of an economy. Business cycle is a complete concept and it is necessary to understand this concept as a consumer, businessmen, producer, economists, industrialists, etc. It represents the waves in the

economy and further we had learnt about the positive and negative effects of these fluctuations. These fluctuations can be helpful for us till these are in limit but when these fluctuations go out of our control then they affect the whole economy. Various theories are given for the better understanding of this concept. It is necessary to control the trade fluctuations when they cross the limits because these are dangerous to economic growth. Different economists suggest various measures to control business cycles. But, single method of control cannot work and thus, all the methods of control should work simultaneously. Thus, we can sum up it with a thought of Keynes.

Keynes, "The right remedy for the trade cycles is not to be found in abolishing booms and thus keeping us permanently in a semi-slump; but in abolishing slumps and thus keeping us permanently in a quasi-boom."

10.4 KEYWORDS

Business Cycle- The business cycleis the downward and upward movement of gross domestic product (GDP) around its long-term growth trend.

Expansion- It is the phase of the business cycle during which output is increasing.

Recession- It is the phase of the business cycle during which output is falling.

Depression- When there is a deep and prolonged recession, it is known as Depression.

Peak- The turning point in the business cycle between an expansion and a contraction; during a peak in the business cycle, output has stopped increasing and begins to decrease.

Trough- The turning point in the business cycle between a recession and an expansion; during a trough in the business cycle, output that had been falling during the recession stage of the business cycle bottoms out and begins to increase again.

Recovery- When GDP begins to increase following a contraction and a trough in the business cycle; an economy is considered in recovery until real GDP returns to its long-run potential level.

10.5 SELF-ASSESSMENT TEST

Q.1 What is business cycle? Explain the different phases of business cycle in detail.

Q.2 Explain Business Cycle and its characteristics. Also describe the effects of business cycle in the economy.

Q.3 Explain the Hawtrey's monetary theory of business cycle in detail.

Q.4 Critically examine the Samuelson's model of business cycle. Also explain its different point model.

Q.5 What are different theories of business cycles? Explain any two theories in detail.

Q.6 What is business Cycle? What are major causes behind business cycles?

Q.7 Define the term Trade Cycle. Also explain the different measures taken by government to control trade cycles.

Q.8 What are different phases of business cycle? Explain with diagram.

10.6 ANSWERS TO CHECK YOUR PROGRESS

1. Recession
2. Throgh
3. Cyclical
4. Peak, Recession, Throgh, Recovery
5. Sunspot Theory

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Subject: Macroeconomics	
Course Code: BCOM 202	Author: Dr. Sanjeet Kumar
Lesson No. 11	Updated By: Kapil Singh

Concept and Theory of Money

STRUCTURE

11.0 LEARNING OBJECTIVE

The objective of the chapter is specially focused on money as well as its various functions, classification and methods of currency note issue in India.

1. To know about the various measurement of money because modern society cannot run without it. To study the various types of money that has changed its form with time keeping in tune with the different stages of development of the society.
2. To learn and go through the several functions of money and its important lies in the fact that act as medium of exchange, as a unit of account, as a standard of deferred payments and as a store of value.
3. To study the certain theories which explain the intricate relationship between the money and level of general price. such as Quantity theory, Cambridge theory, Friedman theory and Keynesian equations. The general theory by Keynes came with a bang and revolutionized the economic thinking. Keynesian is of the views that money affects real variable only in the long run.

11.1 INTRODUCTION

The use of barter-like methods may date back to at least 100,000 years ago, though there is no evidence of a society or economy that relied primarily on barter. Instead, non-monetary societies operated largely along the principles of gift economics and debt. When barter did in fact occur, it was usually between either complete strangers or potential enemies.

Many cultures around the world eventually developed the use of commodity as money. The shekel was originally a unit of weight, and referred to a specific weight of barley, which was used as currency. The first usage of the term came from Mesopotamia circa 3000 BC. Societies in the Americas, Asia, Africa and Australia used shell money – often, the shells of the money cowry (Cypraea Moneta L. or C. annulus L.). According to Herodotus, the Lydians were the first people to introduce the use of gold and silver coins. It is thought by modern scholars that these first stamped coins were minted around 650–600 BC.

The system of commodity money eventually evolved into a system of representative money. This occurred because gold and silver merchants or banks would issue receipts to their depositors- redeemable for the commodity money deposited. Eventually, these receipts became generally accepted as a means of payment and were used as money. Paper money or banknotes were first used in China during the Song Dynasty. These banknotes, known as "jiaozi", evolved from promissory notes that had been used since the 7th century. However, they did not displace commodity money, and were used alongside coins. In the 13th century, paper money became known in Europe through the accounts of travelers, such as Marco Polo and William of Rubruck. Marco Polo's account of paper

money during the Yuan Dynasty is the subject of a chapter of his book, The Travels of Marco Polo, titled "How the Great Kaan Causeth the Bark of Trees, Made Into Something Like Paper, to Pass for Money All Over his Country". Banknotes were first issued in Europe by Stock holms Banco in 1661, and were again also used alongside coins. The gold standard, a monetary system where the medium of exchange are paper notes that are convertible into pre-set, fixed quantities of gold, replaced the use of gold coins as currency in the 17th-19th centuries in Europe. These gold standard notes were made legal tender, and redemption into gold coins was discouraged. By the beginning of the 20th century almost all countries had adopted the gold standard, backing their legal tender notes with fixed amounts of gold.

After World War II, at the Bretton Woods Conference, most countries adopted fiat currencies that were fixed to the US dollar. The US dollar was in turn fixed to gold. In 1971 the US government suspended the convertibility of the US dollar to gold. After this many countries de-pegged their currencies from the US dollar and most of the world's currencies became un backed by anything except the governments' fiat of legal tender and the ability to convert the money into goods via payment.

Etymology

The word "money" is believed to originate from a temple of Hera, located on Capitoline, one of Rome's seven hills. In the ancient world Hera was often associated with money. The temple of Juno Moneta at Rome was the place where the mint of Ancient Rome was located. The name "Juno" may derive from the Etruscan goddess Uni (which means "the one", "unique", "unit", "union", "united") and "Moneta" either from the Latin word "monere" (remind, warn, or instruct) or the Greek word "moneres" (alone, unique). In the Western world, a prevalent term for coin-money has been *specie*, stemming from Latin *in specie*, meaning 'in kind'.

Barter System

During the primitive stages of civilization, human needs were simple and every person produced all that was needed to sustain life - he gathered his own food, sewed his own clothes and built his own shelter. Robinson Crusoe collected his own food, wore fig leafs and lived in caves. He fulfilled all his requirements and exchanged nothing because it was a one-man economy. Though, earlier societies were not one-man society, they fulfilled all their requirements on their own. In course of time, people started different occupations and with specialization in production of some goods and services, trade among people came into existence. In the beginning, trade was direct. It involved exchange of goods for goods.

For example, exchange of rice for shoes by some individuals. This exchange of goods for goods was known as barter. In this system of exchange, there were several difficulties and inconveniences.

Difficulties of Barter System

Barter system had certain difficulties which created numerous inconveniences to people. They are:

- The most obvious inconvenience of barter system was the requirement for a double coincidence of wants. A man, who wanted to exchange some rice for cloth, had to find another person who not only wanted that same good i.e., rice, but had cloth to offer in exchange.
- The quantity of goods which the two parties wanted to exchange should be equal in value to each other. One cannot exchange one cow for 10 kg of rice. The value of a cow and 10 kg of rice are different.
- Those who enter in barter trade should know how to calculate the value of commodities exchanged. For instance, a shoemaker and a farmer wanted to exchange shoe against rice. They should first come to a decision in what ratio the two goods should be exchanged. Difficulties were experienced in this exchange as there were no agreed prices. There was no common measuring unit in terms of which value of goods could be expressed. The price of goods or exchange ratio was determined by the intensity of each other's demand.
- In barter system, exchange would not be possible if the possessions or property of a person could not be divided or sub-divided without loss. For example, if an individual's wealth consisted of cow, it would be almost impossible for him to barter them for value of small article.
- The exchange of services would be far more complicated than the trading of goods. For example, how to pay for the services rendered by a teacher or a barber is not easy to decide in a barter system.
- In a barter system, it is very difficult to accumulate wealth for future use. Most of the commodities like, corn, cattle, wheat, etc., lack adequate durability and deteriorate over time and therefore cannot be stored conveniently for long duration for future use.

Thus, the difficulties associated with this barter system compelled human beings to give up this sort of exchange and to look for something easily recognizable and generally acceptable to all. This commonly accepted commodity or thing had to act as a medium of exchange. This medium of exchange formed the basis for earlier definition of money.

11.2 DEFINITION AND MEANING

In the words of Crowther**,** "The value of money is what it will buy." The amount of goods and services received in exchange for a unit of money constitutes value of money. If in exchange for one rupee one gets two pencils, then the value of the rupee will be two pencils. According to Robertson, "By the value of money we mean the amount of the things in general which will be given in exchange for a unit of money." Value for money is based not only on the minimum purchase price (economy) but also on the maximum efficiency and effectiveness of the purchase. The time value of money is the value of money figuring in a given amount of interest earned or inflation accrued over a given amount of time. The ultimate principle suggests that a certain amount of money today has different buying power than the same amount of money in the future. This notion exists both because there is an opportunity to earn interest on the money and because inflation will drive prices up, thus changing the "value" of the money. The time value of money is the central concept in finance theory.

For example, $100 of today's money invested for one year and earning 5% interest will be worth $105 after one year. Therefore, $100 paid now or $105 paid exactly one year from now both have the same value to the recipient who assumes 5% interest; using time value of money terminology, $100 invested for one year at 5% interest has a future value of $105. This notion dates at least to Martín de Azpilcueta (1491–1586) of the School of Salamanca.

The method also allows the valuation of a likely stream of income in the future, in such a way that the annual incomes are discounted and then added together, thus providing a lump-sum "present value" of the entire income stream.

All of the standard calculations for time value of money derive from the most basic algebraic expression for the present value of a future sum, "discounted" to the present by an amount equal to the time value of money. For example, a sum of FV to be received in one year is discounted (at the rate of interest **r**) to give a sum of PV at present:

$$PV = FV - r \cdot PV = FV/ (1+r).$$

Some standard calculations based on the time value of money are:

Present value: - The current worth of a future sum of money or stream of cash flows given a specified rate of return. Future cash flows are discounted at the discount rate, and the higher the discount rate, the lower the present value of the future cash flows. Determining the appropriate discount rate is the key to properly valuing future cash flows, whether they are earnings or obligations.

Present value of an annuity: - An annuity is a series of equal payments or receipts that occur at evenly spaced intervals. Leases and rental payments are examples. The payments or receipts occur at the end of each period for an ordinary annuity while they occur at the beginning of each period for an annuity due.

Present value of perpetuity: - It is an infinite and constant stream of identical cash flows.

Future value: - It is the value of an asset or cash at a specified date in the future that is equivalent in value to a specified sum today.

Future value of an annuity: - It is the future value of a stream of payments (annuity), assuming the payments are invested at a given rate of interest.

Value of Money and Price Level: - The value of money is closely related to the prices of goods and services. As money is used as a unit of account and as a measure of value of all other things, its own value can be measured only through the prices of other things. The value of money therefore depends upon the level of prices of goods and services to be purchased with money. The lower the price level, the greater will be the purchasing power of money and the higher will be the value of money; the higher the price level, the smaller will be the purchasing power of money and the lower will be the value of money. Hence, there is inverse relationship between the value of money (or the purchasing power of money) and the price level. The value of money is, thus, the reciprocal of the price level.

Symbolically,

$$Vm = \frac{1}{P}$$

Where, Vm stands for the value of money, and

P stands for the price level.

Let us illustrate the relationship between value of money and price level with the help of an example. Price of salt is Rs. 10 per k.g. Here, a unit of money, i.e. one rupee can buy 100 grams of salt. So, in this example value of money is 100 grams of salt. If the price falls to Rs. 8 per k.g., the value of money will increase to 125 grams of salt because now one rupee can buy 125 grams salt.

The value of money is of two types: -

(i) The internal value of money and

(ii) The external value of money.

The internal value of money means the purchasing power of money over domestic goods and services. The external value of money means the purchasing power of money over foreign goods and services.

11.2.1 FUNCTIONS OF MONEY

In the past, money was generally considered to have the following four main functions, which are summed up in a rhyme found in older economics textbooks: "Money is a matter of functions four, a medium, a measure, a standard, a store." That is, money functions as a medium of exchange, a unit of account, a standard of deferred payment, and a store of value. However, modern textbooks now list only three functions, that of medium of exchange, unit of account, and store of value, not considering a standard of deferred payment as a distinguished function, but rather subsuming it in the others.

There have been many historical disputes regarding the combination of money's functions, some arguing that they need more separation and that a single unit is insufficient to deal with them all. One of these arguments is that the role of money as an exchange in conflict with its role as a store of value: its role as a store of value requires holding it without spending, whereas its role as a medium of exchange requires it to circulate. Others argue that storing of value is just deferral of the exchange, but does not diminish the fact that money is a medium of exchange that can be transported both across space and time. http://en.wikipedia.org/wiki/Money - cite_note-22 The term 'financial capital' is a more general and inclusive term for all liquid instruments, whether or not they are a uniformly recognized tender.

1. **Medium of exchange**

   When money is used to intermediate the exchange of goods and services, it is performing a function as a medium of exchange. It thereby avoids the inefficiencies of a barter system, such as the 'double coincidence of wants' problem.

2. **Unit of account**

   A unit of account is a standard numerical unit of measurement of the market value of goods, services, and other transactions. Also known as a "measure" or "standard" of relative worth and deferred payment, a unit of account is a necessary prerequisite for the formulation of commercial agreements that involve debt. To function as a 'unit of account', whatever is being used as money must be:

- Divisible into smaller units without loss of value; precious metals can be coined from bars, or melted down into bars again.
- Fungible: that is, one unit or piece must be perceived as equivalent to any other, which is why diamonds, works of art or real estate are not suitable as money.

- A specific weight, or measure, or size to be verifiably countable. For instance, coins are often milled with a receded edge, so that any removal of material from the coin (lowering its commodity value) will be easy to detect.

3. Store of value

To act as a store of value, money must be able to be reliably saved, stored, and retrieved – and be predictably usable as a medium of exchange when it is retrieved. The value of the money must also remain stable over time. Some have argued that inflation, by reducing the value of money, diminishes the ability of the money to function as a store of value.

4. Standard of deferred payment

While standard of deferred payment is distinguished by some texts, particularly older ones, other texts subsume this under other functions. A "standard of deferred payment" is an accepted way to settle a debt – a unit in which debts are denominated, and the status of money as legal tender, in those jurisdictions which have this concept, states that it may function for the discharge of debts. When debts are denominated in money, the real value of debts may change due to inflation and deflation, and for sovereign and international debts via debasement and devaluation.

5. Measure of value

Money acts as a standard measure and common denomination of trade. It is thus a basis for quoting and bargaining of prices. It is necessary for developing efficient accounting systems. But its most important usage is as a method for comparing the values of dissimilar objects.

11.2.2 CLASSIFICATION OF MONEY

Along with the development of human civilization, money also changed its form and its role to meet new challenges for economic prosperity and development of society. Money evolved itself over the ages starting from animal money to credit cards of today. Economists have identified the following phases in the evolution of money:

- Animal Money
- Commodity Money
- Metallic Money
- Convertible Paper Money
- Fiat Money
- Bank Money

- Super Money
- Electronic Money

11.2.3 PRINCIPLES AND METHODS OF NOTE ISSUE

Principles: There are two principles of note issue, one is called the Currency Principle and the other is named as Banking Principle. Both these principles are contradictory to each other.

(1) Currency Principle: - According to the currency principle, the central bank of the country should keep 100% gold for every note issued. In other words there should be full convertibility for the amount of legal tender currency; it assumes full convertibility of notes. The advocates of this principle of note issue are of the view that the currency under this system will expand or contract as it would have expanded or contracted under the metallic money. The currency principle assures maximum safety for the notes. Those who oppose this principle assert that the system no doubt gives safety to the currency but it lacks elasticity.

(2) Banking Principle: - According to this principle, there is no need to keep 100% gold or silver against notes issued. The notes issued should have a guarantee of convertibility into gold. It is sufficient to keep only a certain percentage of total paper currency in the form gold and silver reserves. The notes issued in the country should be according to the needs of trade and Industry. If at any time there is an excess of notes issued to the requirements of trade and industry, these will be returned to the bank of issue for conversion. The principle of note issue has the merit that it provides the country with an elastic currency. The guarantee of convertibility also acts as a regulator of note issue. Since it does not require 100% metallic backing against the note issue, it is therefore most economical principle. The demerit of this principle is the danger of over issue of notes, possibility of inconvertibility of excess notes, loss of public confidence in the currency and monetary instability.

Methods of Note Issue

Both the principles of note issue mentioned above, have serious defects. The monetary experts' by coordinating the advantages of both the principles have evolved various systems or methods of notes issue. The main systems of note issue prevalent in different countries of the world are

(1) Fixed Fiduciary System.

(2) Proportional Reserve System.

(3) Minimum Reserve System.

These systems are now discussed in brief.

(1) Fixed Fiduciary System

Under this system, a fixed amount is laid down by law which needs to be covered by government securities. Notes issued in excess of this amount must be fully backed by gold. England adopted this system in 1844. The 'system lacked elasticity and was not capable of satisfying the needs of trade and industry. This system was abandoned in 1913 in favour of proportional reserve system.

(2) Proportional Reserve System

Under this system, the central bank is to keep a certain percentage of the total notes issued in gold. There is to be covered by sound government securities, trade bills etc. This system remained prevalent in USA, Great Britain and over a large part of the world. The proportional reserve system was also adopted by State Bank of Pakistan (SBP) and it remained enforced till December 1965. This system was abandoned in 1965 as it was rigid and lacked elasticity. The State Bank of Pakistan could not give guarantee for full convertibility of notes. The State Bank of Pakistan has now adopted a new system of note issue named as Minimum Reserve System.

(3) Minimum Reserve System

The proportional reserve system of note issue has been replaced by minimum reserve system in Pakistan in 1965. According to this system, the central bank is required to keep only a minimum amount of reserve in the form of gold and foreign exchange securities. The central bank can expand note issue in accordance with the volume of business activities without backing of gold. The level of currency backing by gold is fixed at Rs. 1200 million in Pakistan. The merit of this system is that it ensures an adequate supply of currency to meet the business demands of the country. In other words, the method of note issue is sufficiently elastic. The demerit is that paper currency issued is practically inconvertible in this system.

11.2.4 SIGNIFICANCE OF MONEY IN CAPITALIST ECONOMY

Money plays an important role in shaping the economy of any country by stimulating or even hampering economic progress irrespective of the type of economy. However, in a capitalist economy, where allocation of resources, production and distribution of national dividend are all decided by market mechanism i.e. by the forces of demand and supply. Money plays an important role in this system. It has substantial effects on output, income, employment, "consumption and economic welfare of the community at large. Economic planning which is an indispensable aspect is workable both at micro and

macro level with the help of cautious financial planning. This is made possible from the following equation.

Money → Purchasing power → consumption → economic development

Money → Store of value → investment → employment → economic development.

Money through its purchasing power increases consumption and as a store of value increases investment, employment and leads to economic development.

Let us examine the following points, which highlight the dynamic role of money:

- In monetary economy, different individuals specialize in different goods. The use of money leads to discovery of two important facets namely; occupational specialization and division of labor. This resulted in widening of market over the entire world with well-organized system of exchange.
- Households and firms affect the two important economic concepts namely savings and investment. Households save and firms invest. The equality between savings and investment leads to equilibrium condition of income, output and employment. Economy takes care of transforming savings into investments. The mobilization of savings is better done with the help of monetary institutions.
- Modern monetary system helps the government to spend money on social overhead capitals, economic policies and political policies. It also helps in redistribution of income and wealth by means of taxation and expenditure.
- Compared to assets such as saving accounts, bonds government securities, treasury bills, common stock, inventories and real estate, money is the most liquid asset. It possesses two basic determinants like capital certainty and shift ability. Capital certainty of an asset entails that it can be easily converted to another form of asset without loss of value. The shift ability feature of an asset ensures a readily exchangeable feature of the commodity.
- Unlike other financial assets, money possesses 100 percent liquidity. Financial assets are termed as near-money. Time deposits and saving deposits with commercial banks and other banks, postal saving deposits, savings in Unit Trusts, bills of exchange, treasury bills, marketable government securities, saving bonds and certificates, life insurance policies, shares of investment trusts, shares of joint stock companies and transferable credit instruments constitute near money. These kinds of financial, assets are also quite liquid and can be readily converted to money by selling and discounting them without any significant loss.

11.2.5 DEFECTS OF MONEY

Money plays a vital role in today's economy. However, money has also certain defects. Some writers regard it as the source of all evils in society. J.S. Mill regarded as an insignificant thing in the economy. These limitations of money are:

- Money is something which is very difficult to define since it fits into the category of stuff which is not amenable to any single definition. We know one of the important functions of money is to act as the medium of exchange. If we define money as an asset that is generally acceptable in exchange of goods and services, the demand for money becomes an indirect demand. What people require are goods and services but they want money in order to carry-out the transactions. Thus, money is not demanded for its own sake and hasn't any intrinsic value of its own.
- In this ultra-post-modern age, money has taken electronic form due to advancement in technological sphere. This has changed the meaning of 'exchange'. Today, the exchange of product is often based not on the transfer of money but on the promise to make payment later. That is, the buyer goes into debt, usually being granted credit by the trader, a bank or some financial intermediary. Thus, exchange occurs only when the debt incurred by the purchase is settled and for this to take place there has to be a transfer of money. But this is fundamentally different from the idea of exchange that money allows.
- Money is required to enter into an act of exchange but it is definitely not necessary. It is correct that there still exist a variety of transactions in which a purchaser must hand over to the seller bank notes or a cheque or debit card that will bring about a transfer of bank deposits. Although one cannot pay, for instance, bus fares by credit card, the array of transactions for which this is so has turned out to be much narrower in recent times. There may still be some inconvenience from not having immediate access to cash. However, the trouble of not having access to cash will be very short-term as long as one has wealth or reputation against which one can borrow. Exchange is, in general, constrained by the lack of wealth or an ability to borrow to a certain extent than by the lack of money. This understates the significance of money in exchange since it focuses on the act of exchange and gives no credence to the role of money as a unit of account.
- We know money acts as a store of value. The value of money is affected by inflation. With the rise in general level of prices, the value of money declines and vice-versa. In times of hyperinflation

people refuse to accept money and prefer payment in real assets. Money turns into mere pieces of paper only in times of galloping inflation. Thus, money as a store of value has serious limitations.

- Money is believed to be responsible for creating a divide between 'haves' and 'haves not' and perpetuating these gross inequalities in the society. This led to the growing concentration of money in the hands of a few rich people. This resulted in the exploitation of poor people and the working classes and existence of misery and degradation in the society
- Money is also held responsible for corruption in the society.

Money may not produce anything; but in the absence of it, nothing can be produced in today's world. The small defects of money cannot undermine its importance in our society.

11.3 THEORIES OF VALUE OF MONEY

The concept of the quantity theory of money (QTM) began in the 16th century. As gold and silver inflows from the Americas into Europe were being minted into coins, there was a resulting rise in inflation. This led economist Henry Thornton in 1802 to assume that more money equals more inflation and that an increase in money supply does not necessarily mean an increase in economic output. Here we look at the assumptions and calculations underlying the QTM, as well as its relationship to monetarism and ways the theory has been challenged.

11.3.1 QUANTITY THEORY OF MONEY (QTM)

The quantity theory of money states that there is a direct relationship between the quantity of money in an economy and the level of prices of goods and services sold. According to QTM, if the amount of money in an economy double, price levels also double, causing inflation (the percentage rate at which the level of prices is rising in an economy). The consumer therefore pays twice as much for the same amount of the good or service.

Another way to understand this theory is to recognize that money is like any other commodity: increases in its supply decrease marginal value (the buying capacity of one unit of currency). So, an increase in money supply causes prices to rise (inflation) as they compensate for the decrease in money's marginal value.

The Theory's Calculations

In its simplest form, the theory is expressed as:

MV = PT (the Fisher Equation)

Each variable denotes the following:

M = Money Supply

V = Velocity of Circulation (the number of times money changes hands)

P = Average Price Level

T = Volume of Transactions of Goods and Services

The original theory was considered orthodox among 17th century classical economists and was overhauled by 20th-century economists Irving Fisher, who formulated the above equation, and Milton Friedman. It is built on the principle of "equation of exchange":

Amount of Money x Velocity of Circulation = Total Spending

Thus, if an economy has US$3, and those $3 were spent five times in a month, total spending for the month would be $15.

Assumptions

QTM adds assumptions to the logic of the equation of exchange. In its most basic form, the theory assumes that **V** (velocity of circulation) and **T** (volume of transactions) are constant in the short term. These assumptions, however, have been criticized, particularly the assumption that V is constant. The arguments point out that the velocity of circulation depends on consumer and business spending impulses, which cannot be constant.

The theory also assumes that the quantity of money, which is determined by outside forces, is the main influence of economic activity in a society. A change in money supply results in changes in price levels. It is primarily these changes in money stock that cause a change in spending. And the velocity of circulation depends not on the amount of money available or on the current price level but on *changes* in price levels.

Finally, the number of transactions (**T**) is determined by labor, capital, natural resources (i.e. the factors of production), knowledge and organization. The theory assumes an economy in equilibrium and at full employment.

Essentially, the theory's assumptions imply that the *value* of money is determined by the *amount* of money available in an economy. An increase in money supply results in a decrease in the value of money because an increase in money supply causes a rise in inflation. As inflation rises, the purchasing

power, or the value of money, decreases. It therefore will cost more to buy the same quantity of goods or services.

(1) Velocity of money in circulation (V) remains constant:

According to Fisher the velocity of money in circulation (V) remains constant and the changes in the quantity of money cannot influence it (V).

(2) Total volume of transactions or trade remains constant: Total volume of transactions or trade (T) too, remain constant or unchanged and is not affected by the changes in the quantity of money.

(3) Price level (P) is a passive factor: According to Fisher, the price level (P) is a passive factor in the equation of exchange which is affected by the other factors of the equation.

(4) Money is a medium of exchange: The quantity theory of money assumed that money is used only as a medium of exchange.

(5) Long period: The cash transactions approach to the quantity theory of money is based on the assumption of long period.

Criticism of the theory

The quantity theory s subjected to the following criticism.

Unrealistic assumptions: The theory is based on unrealistic assumptions. In this theory P is considered as a passive factor. T is independent. M1, V, V1, are constant in the short run. All these assumptions are covered under "Other things remaining the same." In actual working of the economy, these do not remain constant; hence, the theory is unrealized and misleading.

Various Variables in the transaction are not independent: The various variables in transaction equation are not independent as assumed in the theory The fact is that they very much influence each other For example when money supply (M) increases the velocity f money (V) also goes up Take another case. Fisher assumes (P) is a passive factor and has no effect on trade (T). In actual practice, when price level P) rises, it increases profits and promotes trade (T).

Assumption of full employment is wrong: J. M. Keynes has raised en objection that the assumption of full employment is a rare phenomenon in the economy and the theory is not real.

Rate of interest ignored: In the quantity theory of Fishers, the influence of the rate of interest on the money supply and the level of prices have been completely ignored. The fact is that an increase or decrease in money supply has an important bearing on the rate: of interest. An increase in money supply leads to a decline in the rate of interest and vice versa.

Fails to explain trade cycles: This theory fails to explain the trade cycles. It does not tell as to why during depression, the increase in money supply has little impact on the price level, Similarly, in boom period the reduction in money supply or tight money policy may not bring down the price level. G. Crowther is right in saying, "The quantity theory is at best an imperfect guide to the cause of the business cycle".

Ignores other factors of price level: There are many determinants other than M, V, and T which have important implication on the price level. These factors such as income, expenditure, saving, investment, population consumption etc. have been ignored from the purview of the theory.

11.3.2 CAMBRIDGE THEORY

As an alternative to Fisher's quantity theory of money, Marshall, Pigou, Robertson, Keynes, etc. at the Cambridge University formulated the Cambridge cash-balance approach. Fisher's transactions approach emphasized the medium of exchange functions of money. On the other hand, the Cambridge cash-balance approach was based on the store of value function of money. According to cash-balance approach, the demand for money and supply of money determines the value of money. This approach, considers the demand for money and supply of money at a particular moment of time. Since, at a particular moment the supply of money is fixed, it is the demand for money which largely accounts for the changes in the price level. As such, the cash-balance approach is also called the demand theory of money. The Cambridge cash-balance approach considers the demand for money not as a medium of exchange but as a store of value. The actual demand for money comes from those who want to hold want to exchange it for goods and services. Thus, according to Cambridge cash-balance approach, the demand for money implies demand for cash balances. According to Cambridge cash-balance approach for the given supply of money at a point of time, the value of money is determined by the demand for cash balances. Cash balance is that proportion of the real income which the people desire to hold in the form of money. When people increase their demand for money, they will reduce their expenditures on goods and services in order to have larger cash holdings. As a result, demand for goods and services will fall. Fall in demand for goods and services will reduce the price level and raise the value of money. Conversely, fall in the demand for money will raise the price level and will reduce the value of money.

The Cambridge cash-balances equations of Marshal, Pigou, Robertson and Keynes are stated as under:

Marshall's Equation

The Marshallian cash-balance equation is expressed as follows:

MV = KPY

Where

M is the supply of money (currency plus demand deposits)

P is the price level

Y is aggregate real income; and

K is the fraction of the real income which the people desire to hold in the form of money. The value of money (1/p) (or, the purchasing power of money), in terms of this equation, can be found out by dividing the total quantity of goods which the people desire to hold out of the total income (KY) by the total supply of money (M). Thus,

$$\frac{1}{P} = \frac{KY}{M}$$

Similarly, the price level (P) can be found out by dividing the total money supply (M) by the quantity of goods which the people desire to hold out of the total income (KY). Thus,

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

Thus, for example, if M is Rs. 10,000, Y is 1,00,000 units, K is .5, then the value of money (1/p) will be

$$\frac{KY}{M} = \frac{5 \times 1{,}00{,}000 \text{ units}}{Rs.\,10{,}000} = 5 \text{ units of goods per rupee}$$

and the price level (P) will be

$$\frac{M}{KY} = \frac{Rs.\,10{,}000}{5 \times 1{,}00{,}000 \text{ units}} = Rs.\ 1/5 \text{ per unit.}$$

The cash balance approach states that

(i) The price level (P) is directly proportional to the money supply (M);

(ii) The price level (P) is indirectly proportional to the aggregate real income (Y) and the proportion of the real income which people desire to keep in the form of money (K);

(iii) M and Y being constant, with the increase in K price level (P) falls and with the decreases in K price level (P) rises;

(iv) K and Y remaining unchanged, if supply of money (M) increases, price level (P) rises and if supply of money (M) decreases, price level (P) falls.

Pigou's Equation

Pigou's cash balance equation is as follows:

$$\frac{1}{P} = \frac{KR}{M}$$

Where

P is the price level and 1/p is the purchasing power;

R is the total real income or the real resources;

K is the proportion of real income held by the people in the form of money; and

M is the total money supply.

Since money is held by the community in the form of cash and in the form of bank deposits, According to Pigou, K was more significant than M in explaining changes in the purchasing power of money (value of money). This means that the value of money depends upon the demand of the people to hold money. Moreover, assuming K and R to be constant, the relationship between money supply (M) and price level (P) is direct and proportional.

Robertson's Equation:

Robertson's cash balance equation is as follows:

M = KPT

Where,

P is the price level;

M is the money supply;

T is the total amount of goods and services to be purchased during a year.

K is the proportion of T which people wish to hold in the form cash.

According to Robertson's cash balance equation, P changes directly with M and inversely with K and T.

Keyne's Equation:

Keyne's cash balance equation is as follows:

$$n = pk$$

or $$p = \frac{n}{k}$$

Where

n is the cash held by the general public;

p is the price level of consumer goods;

k is the real balance or the proportion of consumer goods over which cash (n) is kept.

Assuming K to be constant, a change in 'n' causes a direct and proportional change in 'p'. In other words, if the quantity of money in circulation is doubled the price level will also be doubled, provided k remains constant. In order to include bank deposits in money supply,

Keynes extended the equation as follows:

$$P = \frac{n}{k + rk'}$$

Where,

r is the cash reserve ratio of the banks;

k' is the real balance held in the form of bank money.

Again, assuming k, k' and r to be constant, a change in 'n' causes a direct and proportional change in 'p'.

Criticism of cash-balance approach:

The cash-balance approach has been criticized on the following grounds:

(1) Like Fisher's transaction equation, MV = PT, the Cambridge equation, M = KPY, is also a simple truism.

(2) The cash-balance approach is based on the assumption that the demand for money has uniform unitary elasticity. (This means that an increase in the desire for holding cash balance (K) leads to equi-proportionate fall in the price level). This is an unrealistic assumption.

(3) The cash balance approach has not properly analyzed various motives for holding money. For example, it ignored the speculative motive for holding money which causes violent changes in the demand for money.

(4) A serious defect in the Cambridge equations (furnished by Pigou and Keynes) is that they seek to explain the value of money (or, the purchasing power of money) in terms of consumption goods

only and ignored the investment goods altogether. Thus, cash balance approach has unduly narrowed down the conception of the purchasing power of money.

(5) The cash-balance approach ignored the role of rate of interest in explaining the changes in the price level. The rate of interest has a definite influence on demand for money and, in turn, on the price level.

(6) The approach ignored the influence of real factors like, income, saving, investment, etc. on the price level.

(7) The cash balance approach ignored the real-balance effect which means that

(i) An individual's wealth is influenced by the changes in money balances and the price level;

(ii) The changes in wealth further influence the expenditure on goods.

(8) The approach viewed the real income as the sole determinant of K. It has ignored the influence of price level, banking and business habits of the people, business integration, etc. on the value of K.

(9) The approach maintains that the value of money or the price level (P) is determined by K. But it has been pointed out that K not only influences P but K is also influenced by P.

(10) In terms of cash balance approach, it is difficult to visualize, the extent to which prices and output will change as a result of a given change in the supply of money. Thus, the approach lacks quantitative analysis.

(11) Like Fisher's Transactions approach, the Cambridge approach also assumes K and T as given. But it is possible only in a static situation and not in dynamic situation.

(12) Like Fisher's transactions approach, the Cambridge approach also provides no explanation for trade cycle.

In spite of the various shortcomings, the Cambridge cash balance approach is not entirely useless. The great merit of the Cambridge approach is the analysis of demand for money as an important determinant of value of money.

Superiority of Cambridge Quantity Theory of Money over Fisher's Version

The cash-balances approach represents an advance over the cash transactions approach in many respects:

1. Humanistic Approach:

The Cambridge equations emphasize K or cash-balances and consider human motives as important factors affecting the price level, as opposed to the mechanistic nature of the cash-transactions equation.

Fisher's equation, on the other hand, is mechanistic in the sense that it does not explain how changes in the volume of money bring about alterations in the price level. The Cambridge equations attempt to bring out the causal factors involved; a change in the desire to hold money may bring about alterations in the price level, even without there being any change in the quantity of money.

2. Better Mode of Thinking:

The Cambridge version is concerned with the level of income as against Fisherian consideration of the total number of transactions. This notion has paved the way for a new mode of thinking in modern economics.

3. Integration of the Theory of Money with the General Theory of Value:

Fisher's approach is only one-sided in the sense that it considers supply of money to be the only effective element in determining the value of money. The Cambridge equations, on the other hand, are stated in terms of supply and demand both following the general theory of value.

4. More Realistic Approach:

The cash-balances equation emphasizes the psychological factors or subjective valuations as chief determinants of the demand for money, in contrast to the Fisherian approach which stresses the institutional, objective and technological [factors only. Thus, the former is more realistic, because [the fundamental truth about money is that someone always holds it.

5. Foundation of Modern Theory of Interest and Demand for Money:

The cash-balances theory has sown the seeds of the Keynesian Liquidity Preference Theory of Interest as well as the modern concept of the demand for money. It points out two of the three liquidity motives, viz., the transactions and precautionary motives.

6. More Convenient Equation:

Kurihara states that the Cambridge equation P = KT/M is far better than the cash-transactions equation P = MV/T in explaining money value, because it is more convenient to know the amount of the cash-balances individuals hold relative to total expenditure than to know how much they spend for a multitude of transactions.

11.3.3 FRIEDMAN'S THEORY OF MONEY

As restated by Milton Friedman, the quantity theory emphasizes the following relationship of the nominal value of expenditures PQ and the price level P to the quantity of money M:

$$(1) PQ = f(\overset{+}{M})$$

$$(2) P = g(\overset{+}{M})$$

The plus signs indicate that a change in the money supply is hypothesized to change nominal expenditures and the price level in the same direction (for other variables held constant).

Friedman described the empirical regularity of substantial changes in the quantity of money and in the level of prices as perhaps the most-evidenced economic phenomenon on record. Empirical studies have found relations consistent with the models above and with causation running from money to prices. The short-run relation of a change in the money supply in the past has been relatively more associated with a change in real output Q than the price level P in (1) but with much variation in the precision, timing, and size of the relation. For the long-run, there has been stronger support for (1) and (2) and no systematic association of Q and M.

Principles

The theory above is based on the following hypotheses:

1. The source of inflation is fundamentally derived from the growth rate of the money supply.
2. The supply of money is exogenous.
3. The demand for money, as reflected in its velocity, is a stable function of nominal income, interest rates, and so forth.
4. The mechanism for injecting money into the economy is not that important in the long run.
5. The real interest rate is determined by non-monetary factors: (productivity of capital, time preference).

Milton Friedman (another Nobel Prize winner) developed a model for money demand based on the general theory of asset demand. Money demand, like the demand for any other asset, should be a function of wealth and the returns of other assets relative to money. His money demand function is as follows:

$$\left(\frac{M^d}{P}\right) = f\left(Y_p, r_b - r_m, r_e - r_m, \pi_e - r_m\right)$$

Where Yp = permanent income (the expected long-run average of current and future income) rb = the expected return on bonds

rm = the expected return on money

re = the expected return on stocks

pi(e) = the expected inflation rate (the expected return on goods, since inflation is the increase in the price (value) of goods.

Money demand is positively related to permanent income. However, permanent income, since it is a long-run average, is more stable than current income, so this will not be the source of a lot of fluctuation in money demand

The other terms in Friedman's money demand function are the expected returns on bonds, stocks and goods relative the expected return on money. These items are negatively related to money demand: the higher the returns of bonds, equity and goods relative the return on money, the lower the quantity of money demanded. Friedman did not assume the return on money to be zero. The return on money depended on the services provided on bank deposits (check cashing, bill paying, etc) and the interest on some checkable deposits.

Friedman vs. Keynes

When comparing the money demand frameworks of Friedman and Keynes, several differences arise

- Friedman considers multiple rates of return and considers the relative returns to be important
- Friedman viewed money and goods and substitutes.
- Friedman viewed permanent income as more important than current income in determining money demand

Friedman's money demand function is much more stable than Keynes'. Why? Consider the terms in Friedman's money demand function:

- permanent income is very stable, and
- the spread between returns will also be stable since returns would tend to rise or fall all at once, causing the spreads to stay the same. So in Friedman's model changes in interest rates have little or no impact on money demand. This is not true in Keynes' model.

If the terms affecting money demand are stable, then money demand itself will be stable. Also, velocity will be fairly predictable.

11.3.4 KEYNESIAN EQUATIONS

In monetary economics, the quantity theory of money is the theory that money supply has a direct, proportional relationship with the price level. For example, if the currency in circulation increased, there would be a proportional increase in the price of goods.

The theory was challenged by Keynesian economics, but updated and reinvigorated by the monetarist school of economics. While mainstream economists agree that the quantity theory holds true in the long run, there is still disagreement about its applicability in the short run. Critics of the theory argue that money velocity is not stable and, in the short-run, prices are sticky, so the direct relationship between money supply and price level does not hold.

Equation of exchange in its modern form, the quantity theory builds upon the following definitional relationship.

$$M \cdot V_T = \sum_i (p_i \cdot q_i) = \mathbf{p}^{\mathrm{T}} \mathbf{q}$$

Where

M is the total amount of money in circulation on average in an economy during the period, say a year.

V_T is the transactions velocity of money, that is the average frequency across all transactions with which a unit of money is spent. This reflects availability of financial institutions, economic variables, and choices made as to how fast people turn over their money.

p_i and q_i are the price and quantity of the i-th transaction.

$\mathbf{p}$ is a column vector of the p_i, and the superscript $^{\mathrm{T}}$ is the transpose operator.

$\mathbf{q}$ is a column vector of the q_i .

Mainstream economics accepts a simplification, the equation of exchange:

$$M \cdot V_T = P_T \cdot T$$

Where

P_T is the price level associated with transactions for the economy during the period

T is an index of the real value of aggregate transactions.

The previous equation presents the difficulty that the associated data are not available for all transactions. With the development of national income and product accounts, emphasis shifted to

national-income or final-product transactions, rather than gross transactions. Economists may therefore work with the form

$$M \cdot V = P \cdot Q$$

Where

V is the velocity of money in final expenditures.

Q is an index of the real value of final expenditures.

As an example, M might represent currency plus deposits in checking and savings accounts held by the public, Q real output (which equals real expenditure in macroeconomic equilibrium) with P the corresponding price level, and $P \cdot Q$ the nominal (money) value of output. In one empirical formulation, velocity was taken to be "the ratio of net national product in current prices to the money stock".

Thus far, the theory is not particularly controversial, as the equation of exchange is an identity. A theory requires that assumptions be made about the causal relationships among the four variables in this one equation. There are debates about the extent to which each of these variables is dependent upon the others. Without further restrictions, the equation does not require that a change in the money supply would change the value of any or all of P, Qor $P \cdot Q$. For example, a 10% increase in M could be accompanied by a 10% decrease in V, leaving $P \cdot Q$ unchanged. The quantity theory postulates that the primary causal effect is an effect of *M* on *P*.

Criticisms of Keynes Thesis of Money and Prices

Keynes views on money and prices have been criticized by the monetarists on the following causes:

1. Direct Association
2. Stable Demand for Money
3. Nature of Money and
4. Effect of Money

1. Direct Association: Keynes misguidedly took prices as unchangeable and that the effect of money materializes in his scrutiny in terms of quantity of goods exchanged somewhat than their average prices.

   That is why Keynes adopted an indirect mechanism through bond prices, interest rates and investment of the effects of fiscal variations on monetary performance. But the actual effects of monetary variations are direct somewhat than meandering.

2. Stable Demand for Money: Keynes believed that monetary variations are largely absorbed by variations in the demand for money. But Friedman has depicted on the basis of his pragmatic examines that the demand for money is hugely invariable.
3. Nature of Money: Keynes was unsuccessful in understanding the true nature of money. He assumed that money could be exchanged for bonds only. Actually, money can be exchanged for many diverse kinds of like wealth like bonds, physical assets, securities human wealth etc.
4. Effect of Money: Because Keynes wrote for a depression period, this led him to conclude that money had little effect on earnings. According to Friedman, it was the retrenchment of money that impetuous the depression.

It was thus, incorrect on the part of Keynes to argue that money had little effect on earnings. Money does affect national earnings.

11.4 CHECK YOUR PROGRESS

Fill in the Blanks

1. ---------- may be anything chosen by common approval as a medium of exchange.
2. A unit of account is a ---------- of measurement of the market value of goods, services, and other transactions.
3. ---------- refers to a coin whose face value or exchange value is equal to its intrinsic value.
4. ---------- refers to a coin' whose face value of exchange value is more than it's intrinsic value.
5. According to ----------, the central bank is required to keep only a minimum amount of reserve in the form of gold and foreign exchange securities.
6. The amount of goods and services received in exchange for a unit of money constitutes ----------.
7. The ---------- of money is the central concept in finance theory.
8. An ---------- is a series of equal payments or receipts that occur at evenly spaced intervals. Leases and rental payments are examples.
9. The ---------- of money states that there is a direct relationship between the quantity of money in an economy and the level of prices of goods and services sold.
10. ---------- provided the transactions approach of the quantity theory of money.

11.5 SUMMARY

Money has a central place in our society. Money is defined as something which is generally acceptable as a medium of exchange Money performs a number of functions and its importance lies in the fact of that it acts as a medium of exchange, as a unit of account, as standard of deferred payments and as a store of value. In the beginning, when society was simple, trade was direct. It involved exchange of goods for goods. For example, exchange of rice for shoe by two individuals. This exchange of goods for goods was known as barter. In this system of exchange, there were several difficulties and inconveniences. It required double coincidence of wants. Money performs different functions like - it acts as a means of payments, as a unit of account, as standard of deferred payment and as a store of value. Money is used to transact goods and services as it is generally acceptable as means of payments. Values of all goods and services can be measured in terms of money. It also serves as a store of value. Money is the pivot around which economic activity like production, consumption, trade and commerce and government activities revolve. Value of money means the purchasing power of money or its buying capacity. It refers to the quantity of goods and services that can be bought by a unit of money.

The value of money is closely related to the prices of goods and services. Money measures the value of other things. The value of money can be measured through the prices of other things. The value of money depends upon the level of prices of goods and services to be purchased with money. The quantity theory of money states that the quantity of money is the main determinant of the value of money or the price level. According to this theory, due to the changes in the quantity of money the value of money changes.

Irving Fisher provided the transactions approach of the quantity theory of money. According to Fisher, 'other things remaining unchanged, as the quantity of money in circulation increases, the price level also increases in direct proportion and the value of money decreases and vice versa.' According to the transactions approach to the quantity theory of money, other things remaining the same, i.e., if V, and T remain unchanged, there exists a direct and proportional relation between the quantity of money and the price level. Fisher explained his transactions approach to the quantity theory of money on the basis of some assumptions such as, velocity of money in circulation remains constant, total volume of trade remains constant, price level is a passive factor; money is a medium of exchange, etc. The theory has been criticized on some grounds such as, variables are not independent, a simple truism, unrealistic

assumption of long period, unrealistic assumption of full employment, static theory, technically inconsistent, fails to explain trade cycles, ignores the store of value function of money, etc. Cambridge cash-balance approach was formulated by Marshall, Pigou, Robertson, Keynes, etc. at the Cambridge University. According to this approach, the demand for money and supply of money determines the value of money. Cash-balance approach, considers the demand for money and supply of money at a particular moment of time. The approach considers the demand for money not as a medium of exchange but as a store of value. According to cash-balance approach, given the supply of money at a point of time, the value of money is determined by the demand for cash-balance.

Marshall has given his own equation as: **M = KPY**

In terms of this equation, the value of money (1/p) can be found out by dividing the total quantity of goods which the people desire to hold out of the total income (KY) by the total supply of money (M). Thus,

$$\frac{1}{P}+\frac{KY}{M}$$

Like Fisher's transactions approach, cash-balance approach has been also criticized on certain grounds such as, it is also a simple truism, unrealistic assumption of uniform unitary elasticity, speculative motive for holding money ignored, investment goods ignored, role of rate of interest ignored, influence of real factors ignored, real-balance affect ignored, no explanation to trade cycles, etc.

11.6 KEYWORDS

Commodity Money: Commodity money is money whose value comes from a commodity of which it is made. Commodity money consists of objects having value or use in themselves (intrinsic value) as well as their value in buying goods.

Metallic Money: Money made of any metal is called metallic money. It refers to coins made of various metals like gold, silver, nickel, copper, etc. The right of minting coins is the monopoly of the State.

Paper Money: It is made up of paper. It is legally tendered. It is issued by monetary authority or central bank of the nation against the reserve of gold.

Electronic Money: It refers to the currency electronically stored on electronic systems and digital databases used to make it easier to transact electronically. It is popularly referred to by many names, including digital cash, digital currency, e-money, and so on.

Marketable Securities: A marketable security is any equity or debt instrument that can be converted into cash with ease.

Future Value: Future value (FV) refers to a method of calculating how much the present value (PV) of an asset or cash will be worth at a specific time in the future.

Present Value: Present value (PV), also known as discounted value, is a financial calculation to find the current value of a future sum of money or cash stream in today at a specific rate of return.

Money Value: It means the purchasing power of money or its buying capacity. It refers to the quantity of goods and services that can be bought by a unit of money.

Internal Money Value: The internal value of money means the purchasing power of money over domestic goods and services.

External Money Value: The external value of money means the purchasing power of money over foreign goods and services.

11.7 SELF-ASSESSMENT TESTS

1. "Money is what money does". Critically examine the statement.
2. Define money. Explain its various functions.
3. Is money a mere medium of exchange? What are the dynamic functions of money?
4. What is money? Explain the classification of money.
5. Define the principal and method of note issue in detail.
6. What do you mean by value of money?
7. State the statement of the quantity theory of money.
8. Write five assumptions of quantity theory of money.
9. Briefly state the Cambridge cash-balance approach.
10. Write five criticisms of cash-balance approach.

11.8 ANSWER TO CHECK YOUR PROGRESS

Answer to Fill in the Blanks

1. **Money** may be anything chosen by common approval as a medium of exchange.

2. A unit of account is a **standard numerical unit** of measurement of the market value of goods, services, and other transactions.
3. **Standard coin** refers to a coin whose face value or exchange value is equal to its intrinsic value.
4. **Token coin** refers to a coin' whose face value of exchange value is more than its intrinsic value.
5. According to **Minimum Reserve system**, the central bank is required to keep only a minimum amount of reserve in the form of gold and foreign exchange securities.
6. The amount of goods and services received in exchange for a unit of money constitutes **value of money**.
7. The **time value** of money is the central concept in finance theory.
8. An **annuity** is a series of equal payments or receipts that occur at evenly spaced intervals. Leases and rental payments are examples.
9. The **quantity theory** of money states that there is a direct relationship between the quantity of money in an economy and the level of prices of goods and services sold.
10. **Irving Fisher** provided the transactions approach of the quantity theory of money.

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Subject: Macro Economics	Author: Ms. Chand Kiran
Subject Code: BCOM 202	Vetter: Prof. Anil Kumar

LESSON-12

Inflation: Types, Theories, Cause & Effect and Remedial Measures

STRUCTURE

12.0 LEARNING OBJECTIVES

After reading this chapter you will be able to understand about the concept of inflation and different types of inflation. You will also learn about the causes of inflation and effect of inflation on the economy. Further, different theories of inflation are discussed so that you will be able to understand the demand pull and cost push concepts under inflations. At the end of the lesson, we try to learn about the remedial measures to control inflation in the economy. We will discuss all these variables in detail under this chapter.

12.1 INTRODUCTION TO INFLATION

Inflation is not a new phenomenon in modern times because from the earliest days of history, people are confused and puzzle about rising prices. The same condition of inflation prevails in the modern times also which affect almost the whole world. Inflation is a highly volatile term which requires modification time to time. This term was first defined by neo-classical economists as it is a galloping rise in prices due to excessive increase in the quantity of money. Neo-classical economists also described inflation, "as a destroying diseases born out of lack of monetary control whose results undermined the rules of business, creating havoc in markets and financial ruin of even the prudent." But, Keynes did not agree with the neo-classical economists and he opposed the situation of full employment in the economy. Further, he did not believe that full employment cause hyper-inflation due to increase in the quantity of money. According to Keynes, there may be underemployment in the economy and an increase in the money supply tends to increase in aggregate demand, output and employment.

Further, inflation reduces the purchasing power of each unit of currency and this will results into increase in the prices of goods and services over time. For example, one has to spend more to buy a packet of milk, to fill petrol tank of bike or to buy new clothes, etc. In simple words, inflation increases the cost of living. In broader sense, inflation means a considerable and continuous rise in the general level of prices over a long period of time.

Definition of inflation:

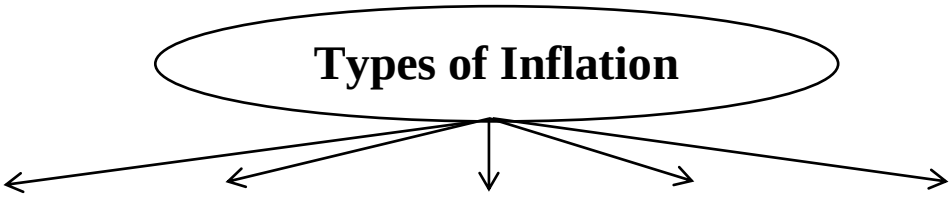
According to **Parkin and Bade**, "Inflation is an upward movement in the average level of prices. Its opposite is deflation, a downward movement in the average level of prices. The boundary between inflation and deflation is price stability."

In the words of **Peterson,** "The word inflation in the broadest possible sense refers to any increase in the general price-level which is sustained and non-seasonal in character."

Thus, we can conclude that inflation refers to continuous increase in prices or we can say that inflation reduce the purchasing power of a unit of currency. It means value of money is falling here and prices will rise. Or inflation may be defined as a situation where supply of money increases at a rate higher than the supply of real output.

12.1.1 Types of Inflation

Different economists provide many types of inflation classified according to their basis. Normally, we study about inflation on the basis of rising prices but there are various bases on which inflation can be studied. We will discuss this classification of inflation through the following figure:



On the Basis of Scope	On the Basis of Time	On the Basis of Rising Prices	On the Basis of Expectations	On the Basis of Control
• Comprehensive Inflation • Sporadic Inflation	• War time Inflation • Post war Inflation • Peace time Inflation	• Creeping Inflation • Secular Inflation • Walking Inflation • Moderate Inflation • Running Inflation • Galloping Inflation • Hyperinflation	• Anticipated Inflation • Unanticipated Inflation	• Open Inflation • Suppressed Inflation

Fig. 12.1 Types of Inflation

I. On the basis of Scope

Scope defined the area and coverage which is affected by inflation in the economy. It can be classified into two categories, viz. are as follows:

Comprehensive Inflation arises when the prices of all the commodities rise in the whole economy. It is also known as Economy-wide Inflation because it affects the whole economy. **Sporadic Inflation** occurs when prices of only a few commodities rises in some regions of the economy. It is sectional in nature because it does not affect whole of the economy. For example, Increase in food prices due to bad monsoon.

II. On the basis of Time

On the basis of time, inflation can be categorised into three types i.e. war time inflation, post war inflation and peace time inflation. These are explained below:

War time inflation means the inflation which takes place during the period of war like situations. This inflation occurs because in war time, priority is given to production of military goods and

capital goods. This would results into limited supply of raw material which is used for production of essential items. Thus, production and supply of necessity goods slow down and prices of these products rises in the market. Hence, it would results into war time inflation in the economy.

Post War Inflation takes place very soon after the war time inflation. Whenever war ended in any economy then government control in the country relaxed and due to reduced government control, there will be hike in the prices. This hike in prices is faster than what experienced in the war time.

Peace-time Inflation is just opposite to war time inflation. Prices of the commodities rise in the economy even if there is peace in the economy. It is due to huge government expenditure or spending on capital projects for a long time period.

III. On the basis of Rising Prices

Inflation is a phenomenon which arises due to increase in prices but this increase in price has different stages. These are discussed below:

Creeping Inflation refers to inflation where prices rise at a very slow pace. This is the mildest form of inflation and it is also termed as mild inflation or low inflation. Some of the economists believed that creeping inflation takes place when prices increases but not more than 3% per annum.

Secular Inflation occurs when creeping inflation continuous to increase for a longer period of time. It is also known as chronic inflation because if an inflation rate continuously increases without a downturn then it possible leads to Hyperinflation.

Walking Inflation takes place when the rate of rising prices is more than the creeping inflation. When prices rises by more than 3% but less than 10% per annum, is known as walking inflation. Some of the economists believed that we should take walking inflation seriously because it gives signals for the occurrence of running inflation.

Moderate Inflation happens when prices rise by less than 10% per annum or single digit inflation rate. Prof. Samuelson clubbed both the creeping and walking inflation into moderate inflation. It is a stable inflation and it is not a serious economic problem.

Running Inflation occurs when there is rapid increase in the rate of rising prices. Further, running inflation happens when price rise is more than 10% to 20% in a year.

Galloping Inflation is defined by Prof. Samuelson as it occurs when price rise by dual or triple digit inflation rate like 30%, 40% or 999% yearly. It is also known as jumping inflation.

Hyperinflation refers to a situation where the prices rise at a very high rate and so fast that it becomes difficult to measure its magnitude in the economy. In the situation of hyperinflation, paper money becomes worthless and people starts trading in metals or uses the old barter system of commerce. In quantitative terms, when rise in prices is above 1000% per annum, it is known as hyperinflation.

IV. On the Basis of Expectations

Inflation can also be categorised on the basis of expectations because inflation can be anticipated or predicted. Both type of inflation on the basis of expectations is described below:

Anticipated Inflation refers to the inflation where the rate of inflation is either expected or predicted to some extent by majority of people in the economy. It is also known as expected inflation or predicted inflation.

Unanticipated Inflation refers to the inflation where the rate of inflation is neither anticipated nor predicted by majority of people in the economy. It is also known as unexpected inflation.

V. On the Basis of Control

Control here refers to government control over inflation in an economy. It can be bifurcated into two parts which are explained below:

Open Inflation refers to inflation where government does not attempt to restrict inflation in the economy. This case is found in free-market economy where prices are allowed to move freely in the economy.

Suppressed Inflation refers to the inflation where government makes attempt to control price rise through price control, rationing, etc. This type of inflation is also known as repressed inflation. If government does not use control measure then it will becomes open inflation and this will leads to corruption, black money, artificial scarcity, black marketing, etc. in the economy.

Thus, it can be concluded that on different basis inflation can be classified into different categories. Many economists offer various types of inflation according to their convenience. There are some other classification also like: Deficit inflation, credit inflation, scarcity inflation, profit inflation, tax inflation, etc.

12.1.2 Causes of Inflation

Inflation is caused when aggregate demand exceeds aggregate supply of goods and services in the economy. So, we have to discuss the factors affecting aggregate demand and aggregate supply. These factors are discussed in detail here:

I. Factors affecting Demand

Both Keynesian and monetarists are of the view that inflation is caused due to increase in aggregate demand. The following factors are responsible for increase in demand.

(a) Increase in supply of money leads to increase in aggregate demand which will results into inflation. Further, higher the growth rate of the money supply, the higher will be the inflation rate.

(b) Increase in the disposable income of consumer is another cause for increase in aggregate demand. Disposable income may be increased through reduction in taxes, rise in national income or reduction in the savings of the people.

(c) Government spending is another reason behind increase in aggregate demand.

(d) Whenever there is increase in consumer spending then it will results into increase in aggregate demand.

(e) Aggregate demand is also increased through cheap monetary policy or the policy of credit expansion because cheap monetary policy leads to increase in money supply.

(f) Sometimes, government borrow money from public and printing more notes to meet its necessary expenses which resulted into deficit financing. This will raise aggregate demand in relation to aggregate supply and thereby it will cause deficit-induced inflation.

(g) Further, expansion of private sector in the economy also tends to increase in aggregate demand. Huge investment results into increase in employment and income and so it will create demand for commodities.

(h) Black money in all the countries exist due to corruption, tax evasion, etc. which results into increase in aggregate demand. Black money creates unnecessary demand in the economy.

(i) Whenever government of a country repay its loan to public then public get more money to spend on the commodities. This increase in money supply leads to increase in aggregate demand.

(j) Sometimes demand for domestic products increases in the foreign market and foreign currency enters into domestic boundaries. Thus, this foreign currency tends to increase in money supply with public and hence, aggregate demand will increase.

II. Factors affecting Supply

Decrease in supply is the second important variables which cause inflation. Decrease in supply is caused due to many factors explained below:

(a) If there is shortage of factor of production or excess capacity of the plant then there will be shortage of goods in the market. This shortage will raise the prices of the commodities in the market.

(b) Another reason for decrease in supply of commodities in the market is industrial disputes. In some countries, trade unions are very powerful and they will resorts to strikes due to their demands in the organisation. This strike and lock-out will results into decrease in production and hence, there will be decrease in supply.

(c) Natural calamities also adversely affect the supply of commodities such as agricultural products. Natural calamities involve situations like drought and floods. These calamities will results into shortage of food products and raw material. Hence, it will create inflationary pressure in the economy.

(d) Sometimes, artificial scarcity is also created by the hoarders and speculators who want to create black marketing in the market. Hence, these practices will results into decrease in supplies of goods and raise their prices.

(e) When a country produces more goods for the purpose to export rather than for domestic consumption. This will creates shortages of commodities in the domestic market and hence this will leads to inflation in the economy.

(f) Sometimes, producers also focus on the production of comfort and luxury products rather than producing essential commodities of basic needs and create shortage of consumer goods in the market. This leads to increase inflation in the economy.

(g) If industries in the country are using old machines and out-dated technology for production then the law of diminishing returns operates. This will increase the cost per unit of production; hence it will raise the prices of the commodities.

(h) Inflation is a world-wide phenomenon and when price rise in major industrial countries then it will affect rest of the countries. Whenever prices of a commodity from major industries increase, then prices in other countries will also be raised.

12.1.3 Effects of Inflation

Normally, we assume that inflationary situation is not good for an economy but sometimes, Inflationary pressure in an economy may generate its good effects on the economy. Inflation may affect an economy in both the ways i.e. positive effects and negative effects. These are explained as under:

Effects of Inflation	
Positive Effects	**Negative Effects**
• Higher Profits • Higher Investment • Higher Production • Higher Employment and Income • Possibility of Higher Income for the Shareholders • Gain for the Borrowers	• Fall in the Real Income of Fixed-Income Groups • Inequality in the distribution of Income • Upset the Planning Process • Increase in Speculative Investment • Harmful impact on Capital Accumulation • Lenders will lose • Harmful impact on Export Income

Fig. 12.1 Effects of Inflation

I. Positive effects of Inflation

Inflation is not always unfavourable for the economy because in some situations, inflation had positive effects on the economy. These situations involve creeping inflation and walking inflation in the economy. Positive effects of inflation are discussed below:

(a) Inflation is beneficial for producers because they can sell their products on higher prices and earn higher profits in the market.

(b) During inflation, entrepreneurs and investors get additional incentives for the investment made by them. They can earn higher prices on their investment.

(c) Due to higher productive investment, production of goods and services will also increases during inflation.

(d) Increase in production of goods and services leads to increase in factor of production during inflation. So, it can be perceived that there will be increase in employment as well as income opportunities in the economy.

(e) During inflation, if the companies are earning higher profits then they will declare dividends for their shareholders. Hence, dividend income of the shareholders will rise during inflationary period.

(f) Inflation refers to decrease in the value of money or decrease in purchasing power of money. If the rate of interest to be paid by borrower is less than the inflation rate then the borrower will gain. It is due to the fact that real value of money which is returned by the borrower will be less than that of money borrowed earlier.

II. Negative effects of Inflation

Whenever inflation goes beyond the creeping and walking stage then it is negative impacts on the economy. Limited level of inflation can bear by an economy and at this stage it may be beneficial for economy. But, high degree of inflation had negative effects on the economy. These negative effects are as follows:

(a) Inflation had negative effect on the real income of fixed-income groups. Real income means purchasing power of money. During inflation, real income of workers, salaried people and pension earner adversely affected.

(b) During inflation, the profits of businessmen and entrepreneurs increasing whereas the real income of fixed income group declines. Thus, inflation leads to inequality in the distribution of income.

(c) During inflation, prices of goods, raw material and factors increases and continuously more money has to spent on the investment projects taken up during the planning period. If more financial resources cannot be raised by the Government then planning process will be disturbed.

(d) Further, inflation is major reason for increasing speculative activities in the economy. If the prices rise at a very fast pace then speculative investment will increases. These types of investments do not help in the creation of productive capital in the economy.

(e) If there is continuous increase in prices then people will prefer goods rather than money and thus, consumption will increase in the economy. As a result of increase in consumption the

intensity to save goes downward and it will adversely affects capital accumulation in the economy.

(f) As we have earlier discussed that borrowers will gain during inflation; this will become reason for loss of lenders. This is due to the fact that lenders perceived an amount having lower value than before.

(g) If prices of the export items also increase during inflation then their demand in the foreign market will decreases. Thus, this increase in prices leads to fall in the export income of a country.

Thus, we can conclude that inflation had both positive as well as negative impact on the economy. But, the impact depends on the degree of inflation because a small degree of inflation can have positive impact on economy whereas high degree of inflation leads to negative impact on the economy.

12.1.4 Theories of Inflation

Different economists have given different theories on inflation, out of which some theories are similar to each to other and some theories are different. Further, these theories are categorized by different economists according to their convenience and use. Some of the economists categorized these theories as classical theories and neo-classical theories. Classical theories are collectively contribution of Jean Bodin, Richard Cantillon, John Locke, David Hume, Adam Smith and William Petty. Another version of classical theories of inflation is known as neo-classical theories of inflation which were developed by the Cambridge Economists. Afterwards, Keynes made an important contribution to theories of inflation and he focus on inflationary gap of demand and supply in the market. Theories of inflation are extended with the time passes and then modern theories of inflation are introduced. We will discuss these theories in detail.

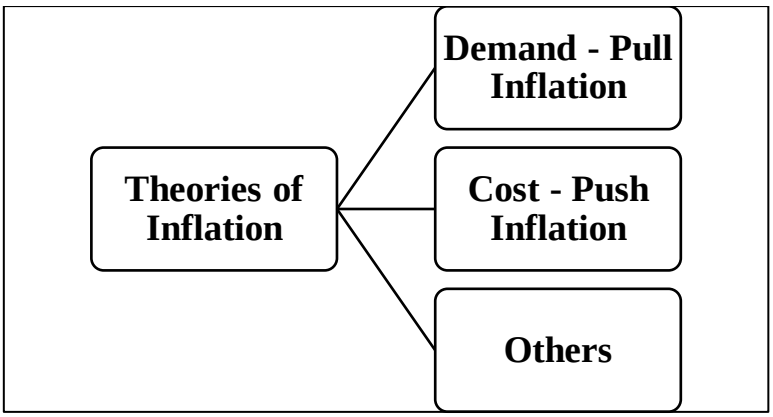


Fig. 12.3 Theories of Inflation

I. Demand-Pull Inflation

Demand-pull inflation occurs when the aggregate demand increases more rapidly than the aggregate supply in the market. This theory is also known as tradition theory of inflation which is based on the fact that inflation is cause due to excess demand over supply of goods and services at existing price. In modern income theory, demand-pull refers to an excess of aggregate money demand relative to full employment/output level in the economy. Various economists like Friedman, Hawtrey, Golden Weiser, etc. considered inflation as a monetary phenomenon and strongly support this theory. As a result of excess demand prices will raise and excess demand will pull inflation i.e. demand-pull inflation.

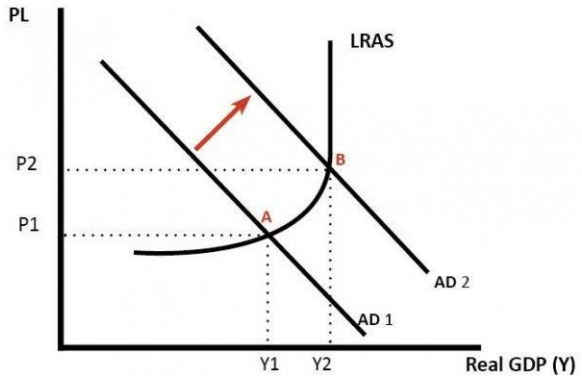


Fig. 6.4 Demand-Pull Inflation: Excess Demand over Supply

In Fig. 6.4, LRAS represents long run aggregate supply, AD represents aggregate demand. If aggregate demand shift from AD_1 to AD_2 more rapidly than long run aggregate supply curve, then firm will raise the prices of their products from P_1 to P_2which results into inflation. This inflation is pulled by excess aggregate demand, thus it is known as demand –pull inflation.

II. Cost-Push Inflation

This theory opposed the view that inflation is caused due to demand-side factors alone. There are others factors which are responsible for inflation in the economy. Under cost-push inflation, price rise due to rise in the cost of raw materials and wages. Sometimes, some producers or workers may raise the prices of their products above the level which prevails in the market. It has been seen that during recession period aggregate demand decrease than supply then prices should also decrease but it did not happen. The cost-push inflation is caused by monopoly which is created by some monopoly groups of the society. It has been seen in the society that labour unions succeed in their demand for higher wages from the industries. Higher wages leads to increase in prices thus is creates wage push inflation which is a part of cost push inflation. Not only labour unions but monopolistic and oligopolistic also increase their profit margin and increase the prices which is known as profit push inflation. Similarly, there can be supply shock inflation.

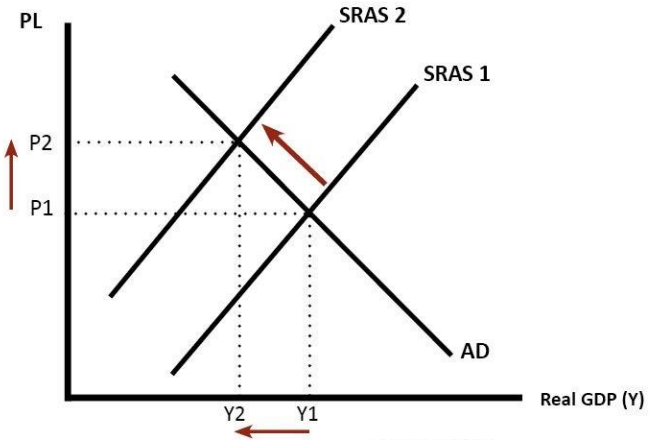


Fig. 6.5 Cost-Push Inflation

Fig. 6.5 shows cost-Push inflation, here AD shows to aggregate demand and SRAS shows short run aggregate supply. Is there is increase in SRAS1 to SRAS 2 then GDP will move from Y1 to Y2 and prices will increase from P1 to P2. This will leads to inflation in the economy. Thus, it can be concluded that cost of factor of production also push inflation in the economy and excess demand is not only a reason for inflation.

III. Others

There is a middle group of economists who believed in structural theories of inflation. These theories stressed that market power is one of the important reason behind inflation. The

supporters of structural theories stated that inflation arises due to lack of structural adjustments in the economy. Structural theories can be divided into two parts i.e. Mark-up theory and Bottle-Neck Inflation. These are discussed as under:

Mark-Up Theory of inflation is given by Prof. Gardner Ackley who describe that inflation is not occurs only due to the demand and cost forces in the economy. Whereas he described that inflation occurs due to cumulative effect of demand pull and cost push activities. Prof. Gardner has provided a model for mark-up inflation in which both the factors i.e. demand and cost, are determined. Increase in demand tends to increase in prices of products because customers have to spend more on products. On the other hand, if goods are sold to businesses then the cost of production increases and prices of products also increases. Similarly, a rise in wage results in increase in cost of production which would results into increase the prices of products.

Bottle-Neck Inflation was introduced by Prof. Otto Eckstein who describe that the direct relationship between wages and prices of products is the major reason behind inflation. Or we can say that inflation take place when there is simultaneous increase in wages and prices of products. He believed that inflation occurs due to the boom situation in capital goods and wage-price level. He observe the inflationary situation and advocated that prices of almost every industry is higher during the period of inflation but very few industries shows rapid price hike than the rest of the industries. These industries are termed as bottle neck industries and these are responsible for increase in prices of goods and services.

Thus, we can say that there are various theories which are propounded by different economists at different time intervals. But, mostly demand-pull theory and cost-push theory are used in the modern times. But, we should have knowledge about the other theories of inflation for better understanding of this concept. Further, these theories are helpful to form basis for future measurement of inflation in the economy.

12.1.5 Measurement of Inflation

Inflation can be measured through two different methods i.e. Consumer Price Index (CPI) and GDP Deflator. We will learn these two methods with the help of examples and different formulas. These are explained below:

I. Consumer Price Index

Consumer Price Index or CPI measures changes in price from the consumer perspective. CPI can be knownas a measure of price changes in consumer goods and services such as food, clothing, gasoline and automobilesexcept housing costs and mortgage interest payments. It shows changes in the prices of a market basket of goods and services purchased by consumers. CPI also helps in the measurement of cost of living of consumers.

The U.S. Bureau of labour statistics defined, 'CPI is a measure of the average changes over time in the prices paid by urban consumers for a market basket of consumer goods and services.'

Thus, CPI is a statistical estimate constructed with the help of prices of items that represent the economy, whose prices are collected periodically. The annual percentage change in CPI is taken as a measure of inflation.

Formula:

CPI of a Year = $\frac{\boldsymbol{Cost\ of\ Market\ Basket\ in\ a\ Year}}{\boldsymbol{Cost\ of\ Market\ Basket\ in\ Base\ Year}} \times \mathbf{100}\%$

Inflation in Year 2 = $\frac{\boldsymbol{CPI\ in\ Previous\ Year - CPI\ in\ Current\ Year}}{\boldsymbol{CPI\ in\ Current\ Year}} \times \mathbf{100}\%$

Example,

Suppose the market basket of a typical consumer contains 4 breads and 2 eggs. Year 2005 is considered as base year. The Table represents per unit cost of commodities and cost of basket.

Year	Per Unit Price of Bread (₹)	Per Unit Price of Egg (₹)	Cost of Basket (₹)
2005	1	2	4×1 + 2×2 = 8
2006	2	3	4×2 + 2×3 = 14
2007	3	4	4×3 + 2×4 = 20

Table no. 12.1 represents price per unit and cost of Basket

CPI for different Year:

CPI of a Year = $\frac{\boldsymbol{Cost\ of\ Market\ Basket\ in\ a\ Year}}{\boldsymbol{Cost\ of\ Market\ Basket\ in\ Base\ Year}} \times \mathbf{100}\%$

YEAR 2005 = $\frac{8}{8} \times 100\% = 100$

YEAR 2006 = $\frac{14}{8} \times 100\% = 175$

YEAR 2007 = $\frac{20}{8} \times 100\% = 250$

Inflation rate for the years:

Inflation in Year 2 = $\frac{\boldsymbol{CPI\ in\ Previous\ Year - CPI\ in\ Current\ Year}}{\boldsymbol{CPI\ in\ Current\ Year}} \times \mathbf{100}\%$

Inflation Rate for YEAR 2006 = $\frac{175-100}{100} \times 100\% = 75\%$

Inflation Rate for YEAR 2007 = $\frac{250-175}{175} \times 100\% = 43\%$

II. GDP Deflator

GDP deflator is the measurement of changes in the overall prices of newly produced goods and services that are ready for consumption. It is a helpful tool to determine the rate of inflation through converting output measured at current market prices into constant base year prices.In other words, GDP deflator measures the relationship between nominal GDP (total output measured at current prices) and real GDP (total output measured at constant base year prices). It measures the current level of prices relative to the level of prices in the base year. Calculation of GDP Deflator is shown through an example given below:

Formula:

GDP Deflator = $\frac{\boldsymbol{Nominal\ GDP\ (Current\ Price)}}{\boldsymbol{Real\ GDP\ (Base\ Year\ Price)}} \times \mathbf{100}$

Rate of Inflation = $\frac{\boldsymbol{GDP\ Deflator\ in\ Year\ 2 - GDP\ Deflator\ in\ Year\ 1}}{\boldsymbol{GDP\ Deflator\ in\ Year\ 1}} \times \mathbf{100}$

Example,

Suppose the market basket of a customer contains bread and egg, price per unit of products and quantity of the products is given in table no. 12.2. Further, Nominal GDP is calculated in the last column of the Table. Now, we have to calculate the GDP Deflator and Inflation rate on the basis of GDP Deflator.

Year	Per unit price of Bread	Quantity of Bread(₹)	Per unit price of Egg(₹)	Quantity of Egg(₹)	Nominal GDP(₹)

	(₹)				
2005	1	100	2	50	1×100 + 2×50 = 200
2006	2	150	3	100	2×150 + 3×100 = 600
2007	3	200	4	150	3×200 + 4×150 = 1200

Table No. 12.2 Represents price per unit, quantity and Nominal GDP

Computation of Real GDP:

Year 2005 is taken as base year for calculating real GDP,

Year 2005 = 1×100 + 2×50 = 200

Year 2006 = 1×150 + 2×100 = 350

Year 2007 = 1×200 + 2×150 = 500

Computation of GDP Deflator:

GDP Deflator = $\frac{\textbf{\textit{Nominal GDP (Current Price)}}}{\textbf{\textit{Real GDP (Base Year Price)}}} \times \mathbf{100}$

Year 2005 = $\frac{200}{200} \times 100\% = 100\%$

Year 2006 = $\frac{600}{350} \times 100\% = 171.4\%$

Year 2006 = $\frac{1200}{500} \times 100\% = 240\%$

Computation of Rate of Inflation:

Rate of Inflation = $\frac{\textbf{\textit{GDP Deflator in Year 2}}-\textbf{\textit{GDP Deflator in Year 1}}}{\textbf{\textit{GDP Deflator in Year 1}}} \times \mathbf{100}$

Rate of Inflation in Year 2006 = $\frac{171-100}{100} \times 100\% = 71\%$

Rate of Inflation in Year 2007 = $\frac{240-171}{171} \times 100\% = 40.35\%$

12.1.6 Remedial Measures of Inflation

Most of the economists believed that inflation beyond creeping and walking stage are dangerous for the economy and it will prove disastrous if these are not controlled. So, economists suggest some measures to control inflation. These measures can be divided into three parts. These are as follows:

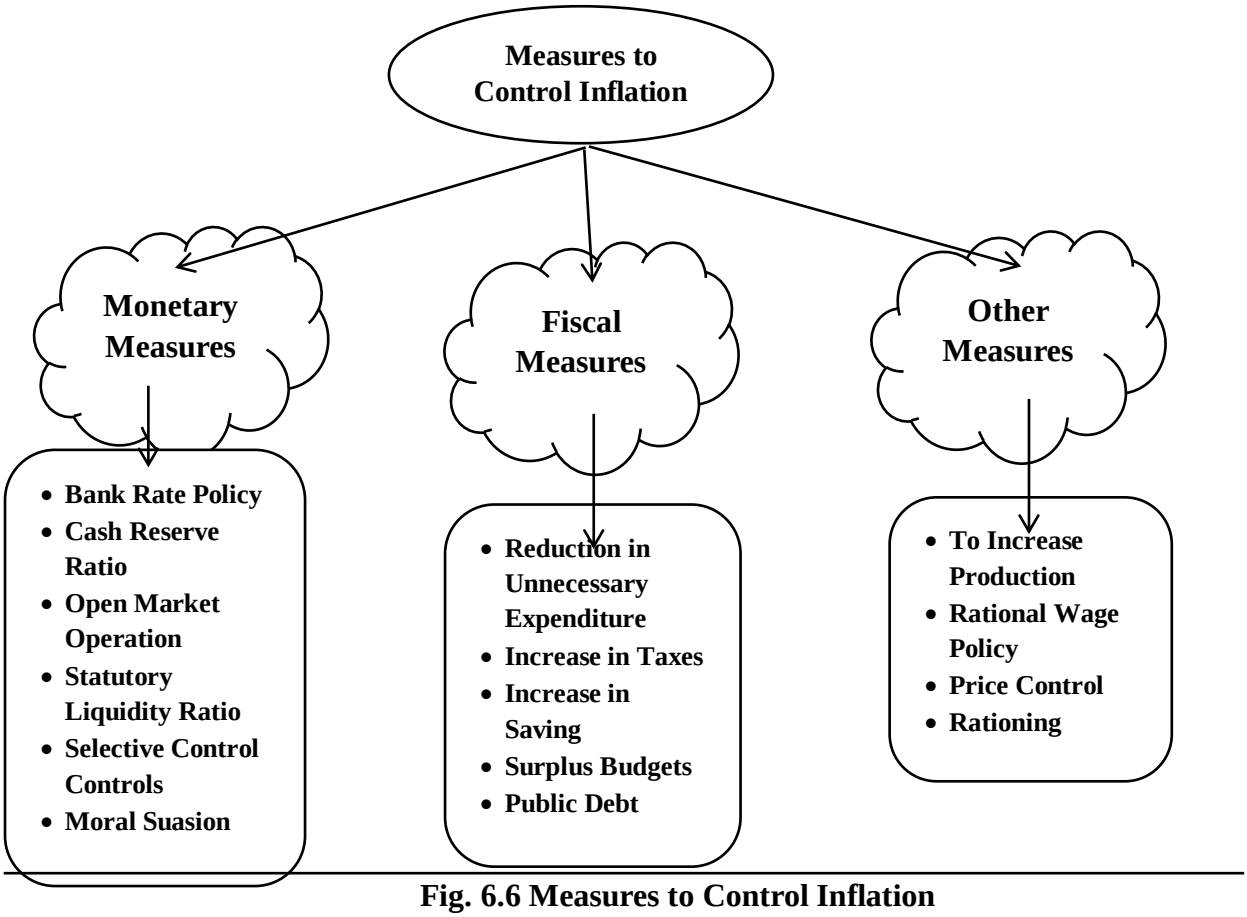


Fig. 6.6 Measures to Control Inflation

I. Monetary Measures

Many economists and monetarists argue that inflation is a monetary phenomenon and arise due to increase in the money supply in excess of its optimum level. Thus, they believed that inflation can be controlled through monetary measures which are greatly effective in controlling demand-pull inflation. The monetary measures which are used widely in the economy are discussed as under:

(a) Bank Rate Policy is one the important measure which is used to control inflation in the economy through use of Bank rate tool. Bank rate is the rate at which Central bank of a country lends money to other domestic and commercial banks. When there is excess money supply in the country then central bank increases the bank rate so that money supply can be controlled and vice-versa. Increased bank rate leads to low borrowing by commercial bank from central bank and thus, flow of money from commercial bank to the public reduces.

(b) Cash Reserve Ratio is the ratio or proportion of total demand and time deposits which is maintained by commercial banks. One part of this proportion is maintained as cash in hand and the other part is statutory reserve which is known as cash reserve. During inflation, commercial banks increase the cash reserve ratio so that they can control the excess money supply in the market. More cash reserve means more cash will put to reserve and less cash left for public and thus, Inflation can be controlled.

(c) Open Market Operations are another measure to control inflation in the economy. Open market operation refers to sale and purchase of government securities and debts by the central banks to general public in the open market. In order to control inflation, central bank sold the government securities to general public through commercial banks so that excess money of public can be captured by central bank.

(d) Statutory Liquidity Ratio is another monetary measure to control inflation and it is one of the non-tradition methods of control used by RBI. Statutory Liquidity Ratio is the minimum proportion of bank's daily demand and time liabilities which is to be kept by commercial banks in the form of liquidity assets. In order to control inflation, RBI increases the Statutory Liquidity Ratio so that banks left with small amount of money for lending to public.

(e) Moral Suasionis a technique of moral persuasion and pressure in general and the banks which are not following rules. The central banks use this technique to adopt a lending policy in line with the objectives of the general monetary policy. The central bank uses this technique through discussion, letters and speeches of the authorities when the traditional methods of monetary control do not work. The central Bank uses this moral persuasion for implementing monetary policy for controlling inflation.

(f) Selective Credit Controls is the method that RBI uses to regulate the distribution of bank credit between the various sectors on the selective basis. RBI uses selective credit control measures to prevent banks from lending money for speculative hoardings of essential commodities like food grains, oil seeds and agricultural products. Thus, inflation can be controlled.

II. Fiscal Measures

Monetary policy is an effective measure of control inflation in the economy but it is not only one measure to control inflation. Thus, fiscal measures are introduced as measure to control

inflation. Fiscal measures are highly effective in the field of government expenditure, personal consumption expenditure, private and public investment. These are described as follows:

(a) Inflation can be controlled if unnecessary expenditure on non-developmental activities by government is reduced. This is also a good measure of private expenditure because private expenditure is dependent on government demand for goods and services.

(b) Further, inflation can be controlled when rates of direct taxes and indirect taxes raises. But, the rate of taxes should not be so high so as to discourage saving, investment and production. Government should prepare a tax collecting system so that tax evaders can be penalised. Thus, all these efforts will be helpful to control inflation in the economy.

(c) Excess money supply can be controlled through encouraging savings in the market. This will tend to reduce the disposable income of people and personal expenditure will reduce. Hence, inflation can be controlled.

(d) One of the important fiscal measures to control inflation is to adopt anti-inflationary budgetary policy.

(e) Further, government should stop repayment of public debt and postpone it for the future date until there is controlled inflationary pressure in the economy.

III. Others

There are some other measures which are helpful to control inflation in the economy. These are based on aggregate demand and aggregate supply. These are as follows:

(a) Inflation can be controlled if production of essential commodities is increased.

(b) There should be rational wage and income policy in an organisation. Under hyperinflation, government freeze wages, income, profits and dividends to control it.

(c) Another direct control to check inflation is to control prices in the economy.

(d) Further, rationing is another measure to control inflation. Rationing focus on distributing consumption of scarce goods so that resources can be made available to large number of consumers. Rationing is thus, helpful to stabilize prices in the economy.

Thus, we can conclude that there are various monetary, fiscal and other measures to control inflation in the economy. Here, Inflation is considered as a monster for economy and these measures works as weapons through which government should fought with the monster.

12.2 CHECK YOUR PROGRESS

1. When the rise prices are very slow like that of a snail is called .
2. The reason for existence of proportional relationship between money stock and price level is .
3. Inflationsaving and capital formation.
4. Due to an easy availability of consumer's spending rises.
5. A cut in government spending isadapted to .

12.3 SUMMARY

Inflation is not just a word rather it is a phenomenon which affects economy as a whole. Every country has this situation one or the other time. Inflation is considered as unfavorable for the growth of an economy but it is not right for all types of inflation. There are different types of inflation and degree of their effect is different on economy. Thus, creeping and walking inflation is not considered as dangerous rather than these have positive impact on the economy. We have learned about various reasons behind the inflation. After a research of long time, various theories are introduced by different economists for better understanding of inflation. Major two theories are focused in modern time i.e. Demand-pull inflation and Cost-push inflation. Many economists find different methods for the measurement of inflation and these are used all over the world. Further, various economists suggests different measures to control inflation like monetary measures, fiscal measures and others. Thus, it is well said that inflation is a poison for the economy and its timely treatment is a must.

12.4 KEYWORDS

Inflation- Inflation refers to continuous increase in prices or it reduces the purchasing power of a unit of currency.

Creeping Inflation- Itrefers to inflation where prices rise at a very slow pace. This is the mildest form of inflation and it is also termed as mild inflation or low inflation.

Walking Inflation- It takes place when the rate of rising prices is more than the creeping inflation. When prices rises by more than 3% but less than 10% per annum, is known as walking inflation.

Hyperinflation- It refers to a situation where the prices rise at a very high rate and so fast that it becomes difficult to measure its magnitude in the economy.

Demand-Pull Inflation- Demand-pull inflation occurs when the aggregate demand increases more rapidly than the aggregate supply in the market.

Cost-Push Inflation- Under cost-push inflation, prices rise due to rise in the cost of raw materials and wages.

12.5 SELF-ASSESSMENT TEST

Q.1 What do you mean by Inflation? What are the major causes of inflation in an Economy?

Q.2 How does Inflation measured? What are major two methods of measuring Inflation with example?

Q.3 What are the different types of Inflation? How do they are different from each other?

Q.4 Differentiate: Demand-Pull Inflation and Cost-Push Inflation.

Q.5 Explain the difference between Walking inflation and Hyperinflation. What are the major features of both of these types of inflation?

Q.6 Explain the major theories of Inflation in detail. Does these theory are helpful for the basic understanding of Inflation?

Q.7 What are the remedial measures for controlling inflation in the economy?

Q.8 What is Inflation? Explain the different effects of inflation in the economy.

Q.9 Write short note on: Open and Suppressed Inflation; Predictable and Unpredictable Inflation.

12.6 ANSWERS TO CHECK YOUR PROGRESS

1. Creeping Inflation
2. Full employment
3. Reduces
4. Credit
5. Reduce inflation

12.7 REFERENCES/SUGGESTED READINGS

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