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LESSON-1

Introduction to Macroeconomics

Lesson 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 Assessment of prior Knowledge

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"

1.2 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 causes 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 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 cycles 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.

1.3 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 causse 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 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.

1.4 Types of Macroeconomics

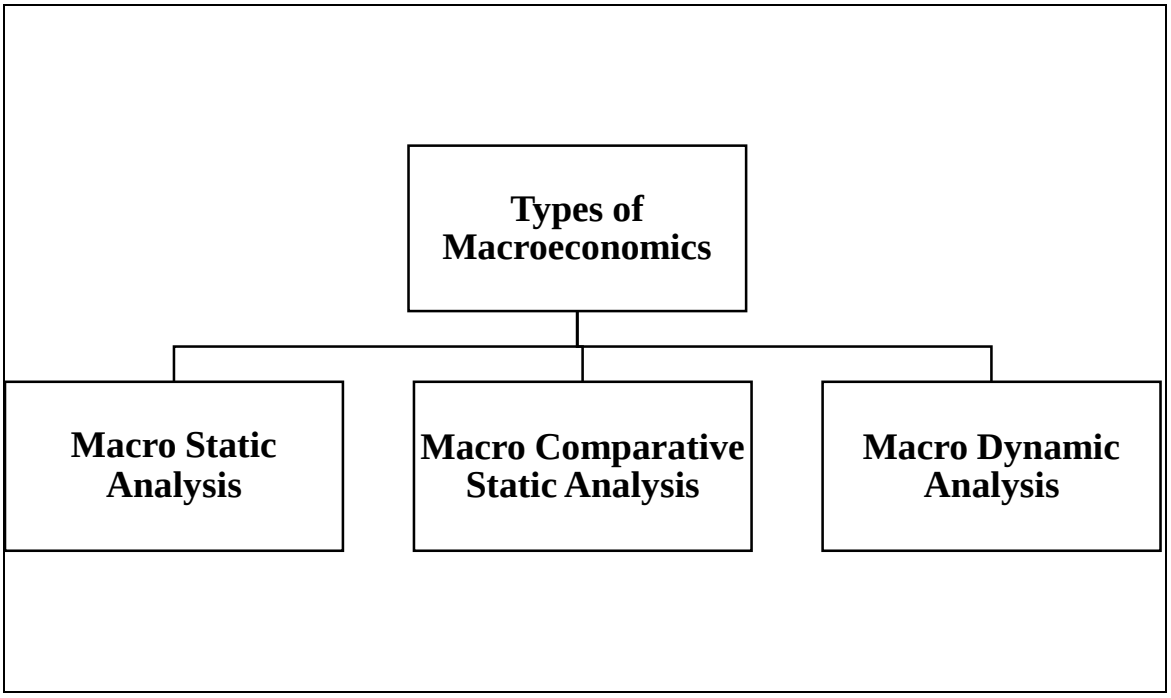

Figure 1-Types of Macroeconomics

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:

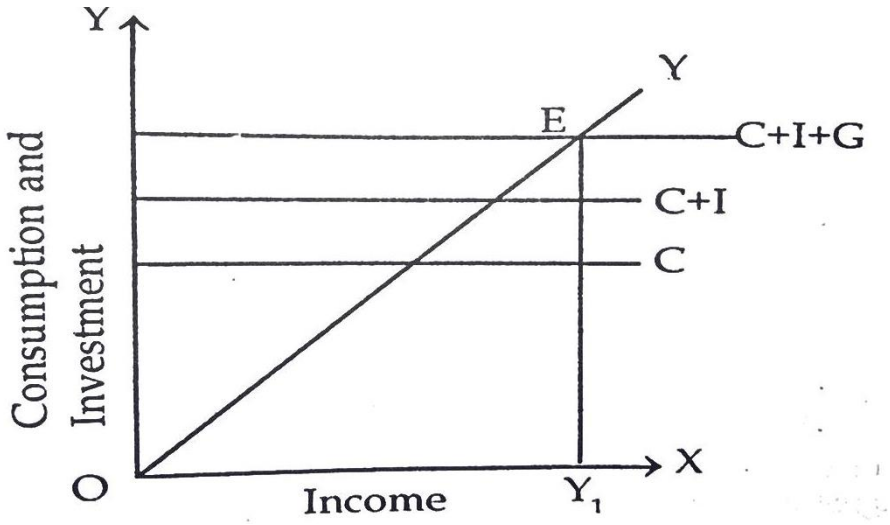

Figure-2

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:

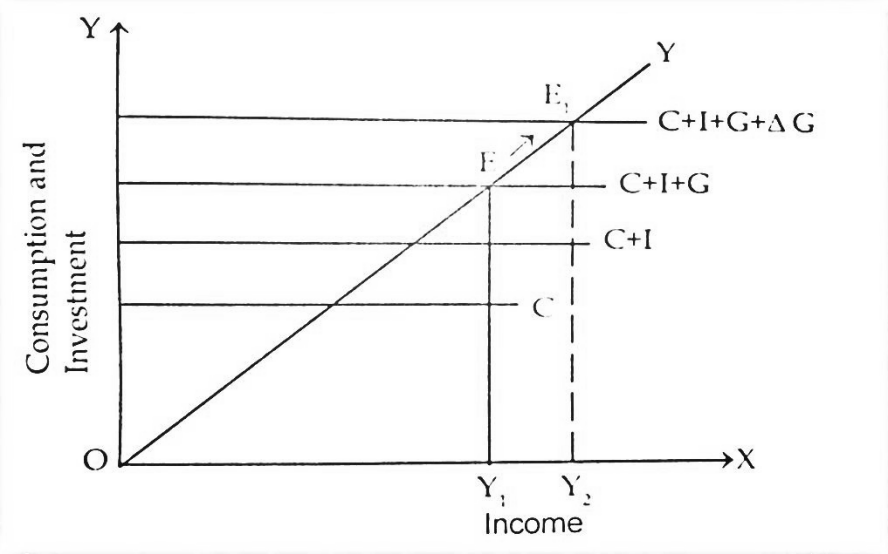

Figure-3

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 increased 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, "Whenever we 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 is 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 shifts 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:

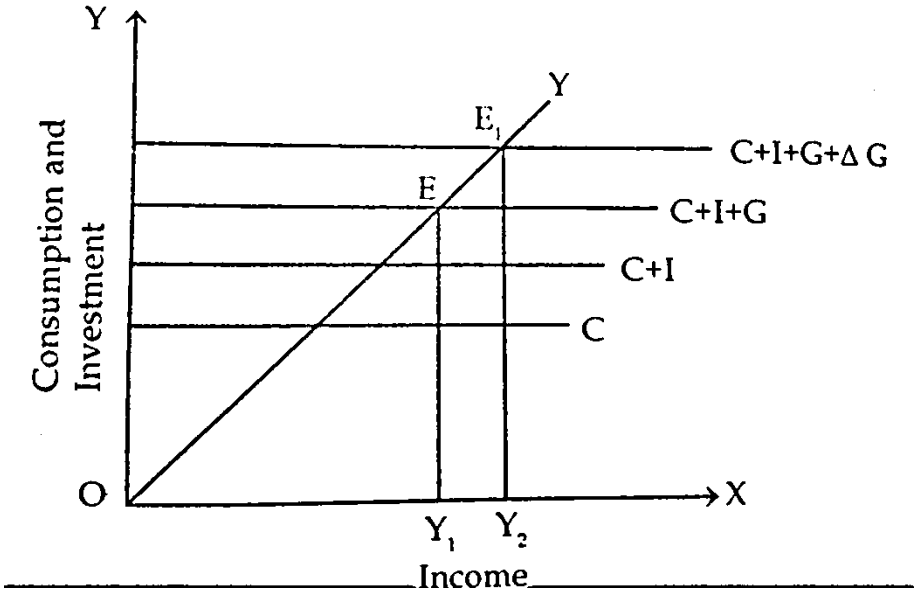

Figure-4

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.

1.5 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.

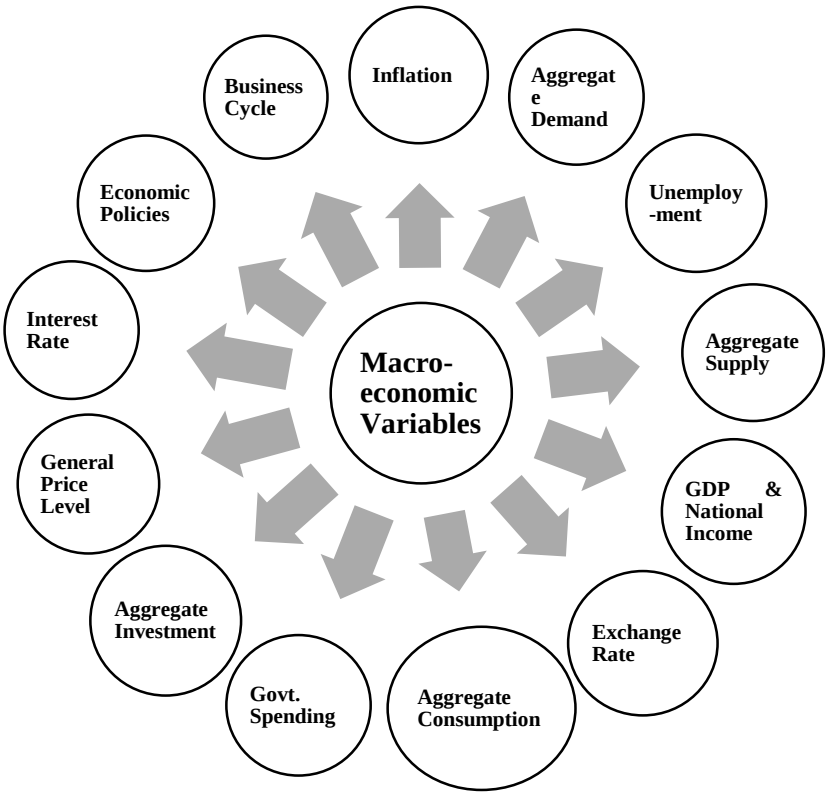

Figure-5

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 lead 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 lead 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 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.

1.6 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 demand, individual income, etc.	It includes general prices, aggregate demand, 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.

1.7 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.

1.8 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.

1.9 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.

1.10 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 firm's 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.

1.11 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.

1.12 Self-assessment Tests

(a) Student Activities

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?

(b) Learning Activities

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".

(c) Feedback of learning activities

Answers of learning activities:

1. Adam Smith
2. Macroeconomics

3. Aggregate Economic Activity
4. Individual Economic Activity
5. Prof. J. M. Keynes

1.13 Study Tips

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LESSON-2

National Income

Lesson 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 Assessment of prior Knowledge

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

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

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:

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

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

NNP_{MP} = GNP_{MP} – Depreciation

NNP_{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.

2.3 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:

2.3.1 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 exist in the economy

(b) Foreign Trade does not exist 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 provide 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 provide 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.

2.3.2 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 no foreign trade in the economy. This model discards 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

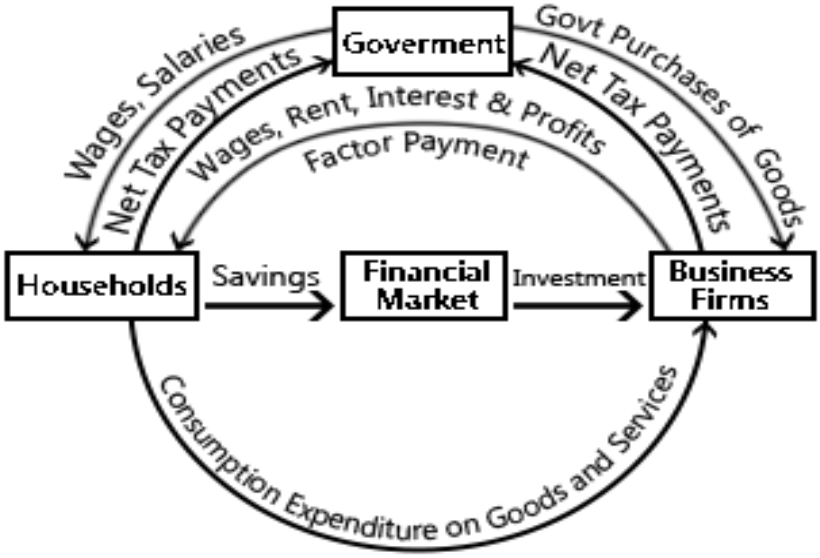

Figure.2 Three Sector Model of Circular Flow of Income

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 result 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.

2.3.3 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

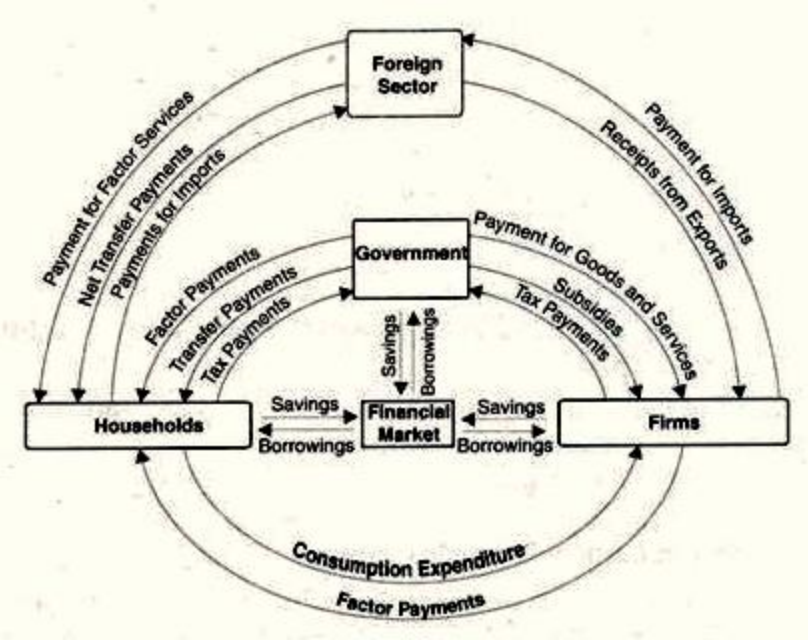

Figure.3 Four Sector Model of Circular Flow of Income

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 provides a complete circular flow of income and expenditure.

2.4 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.

2.5 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:

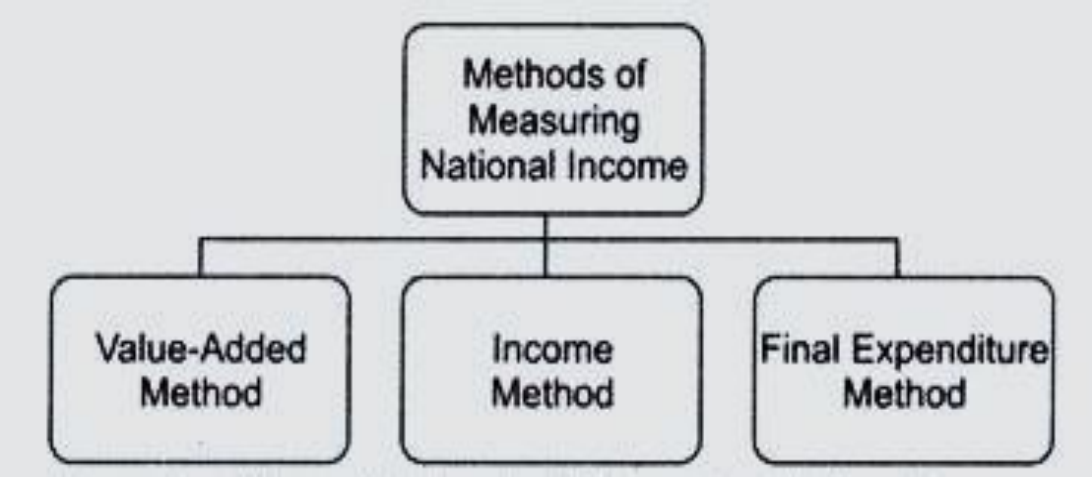

Figure.4 Four Sector Model of Circular Flow of Income

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 ₹ 800 as 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:

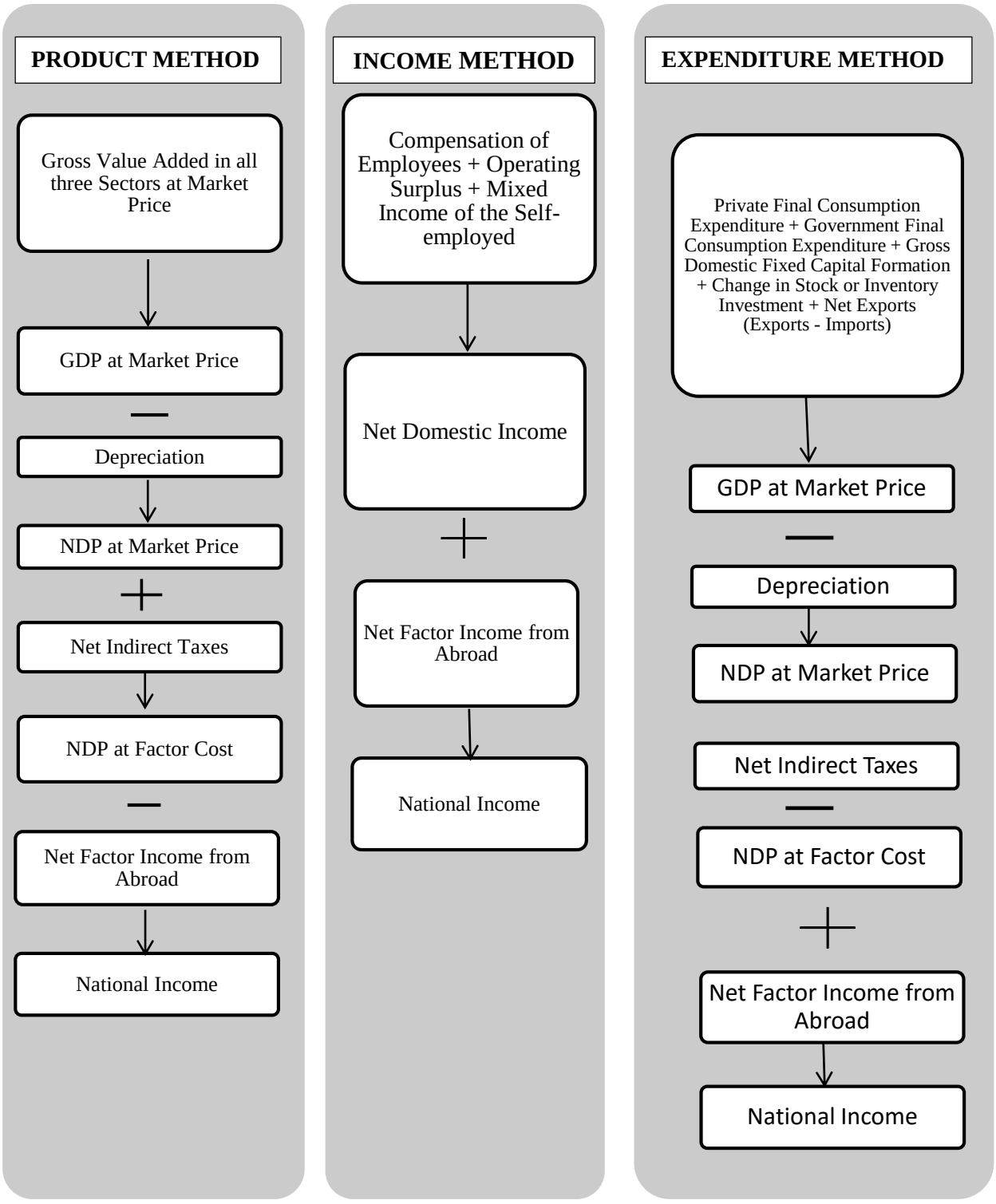

Figure.5 Four Sector Model of Circular Flow of Income

2.6 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 creating 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.

2.7 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

2.8 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.

2.9 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.

2.10 Self-assessment tests

(a) Student Activities

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?

(b) Learning Activities

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_____ .

(c) Feedback of learning activities

Answers of learning activities:

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

2.11 Study tips

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Subject Code: BC 202	Vetter: Prof. Anil Kumar
LESSON-3 Consumption Function	

Lesson Structure

3.0 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.

3.1 Assessment to prior Knowledge

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.

3.2 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 ratio 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. 3.2 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 be presented through a diagram, where consumption is shown on OY axis and income is represented on OX axis. In Fig. 3.1, 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 = $\frac{ON}{OY1}$.

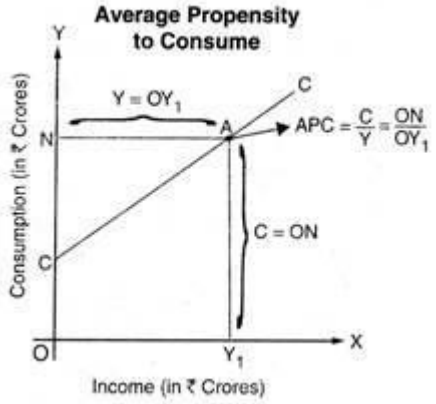

Fig. 3.1 Average Propensity to Consume

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 change in total consumption to change in 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,

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

OR

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

For example, if total consumption expenditure increases from 8,000 to 10,000 rupee and personal disposable income increases 30,000 rupee, then MPC = $\frac{\mathbf{10000}}{\mathbf{30000}} = \mathbf{0.33}$ 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. 3.3.

Table No. 3.3 Marginal Propensity to Consume

Income (Y) Crores	Consumption Crores	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. 3.3 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.

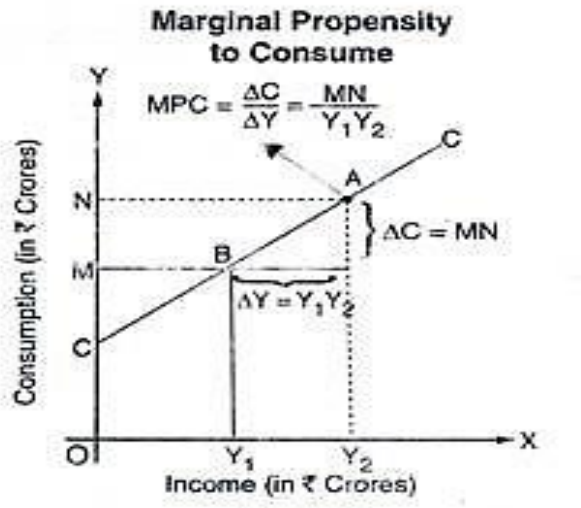

Fig. 3.2 Marginal Propensity to Consume

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.

3.3 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.**

3.3.1 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 assumes 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 exists 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.**

3.3.2 Explanation of the law

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

Table No. 3.4 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.

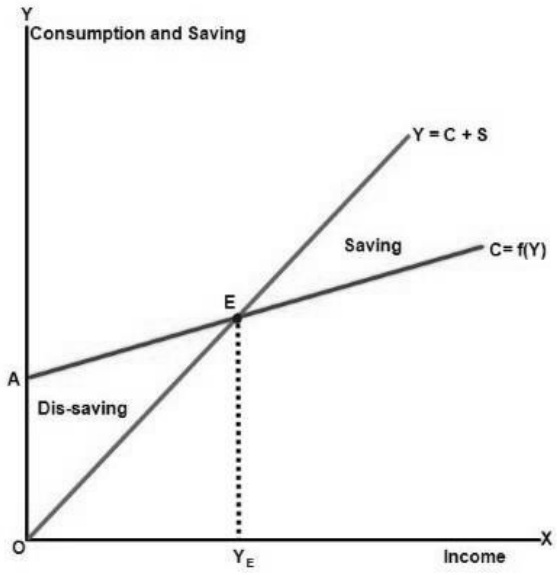

Fig. 3.3 Relationship of Income and Consumption and Saving

Similarly, this situation can be shown through fig. 3.3 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 lead 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 lead to unemployment in the economy.

3.4 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 unemployment in the economy.

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.

3.5 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.

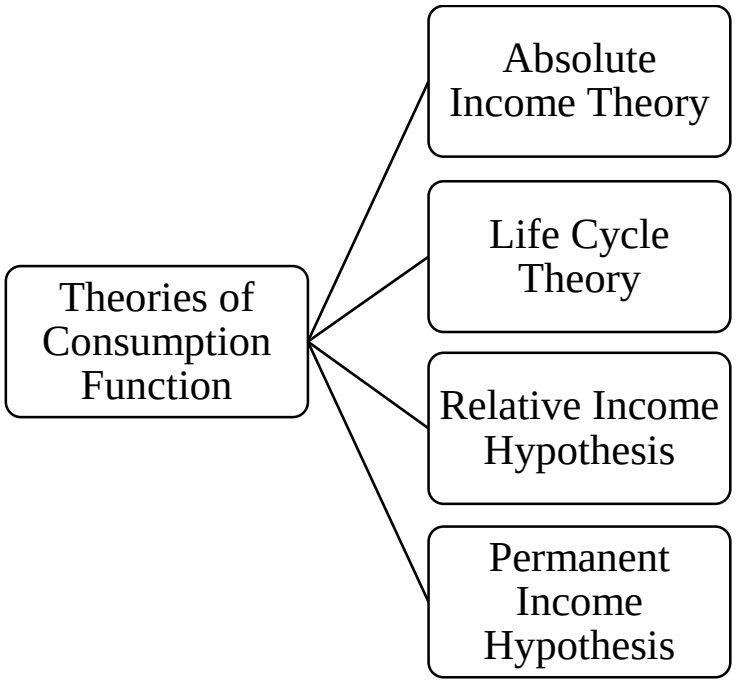

Fig. 3.3 Theories of Consumption Function

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 shows 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.

3.6 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 focus 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.

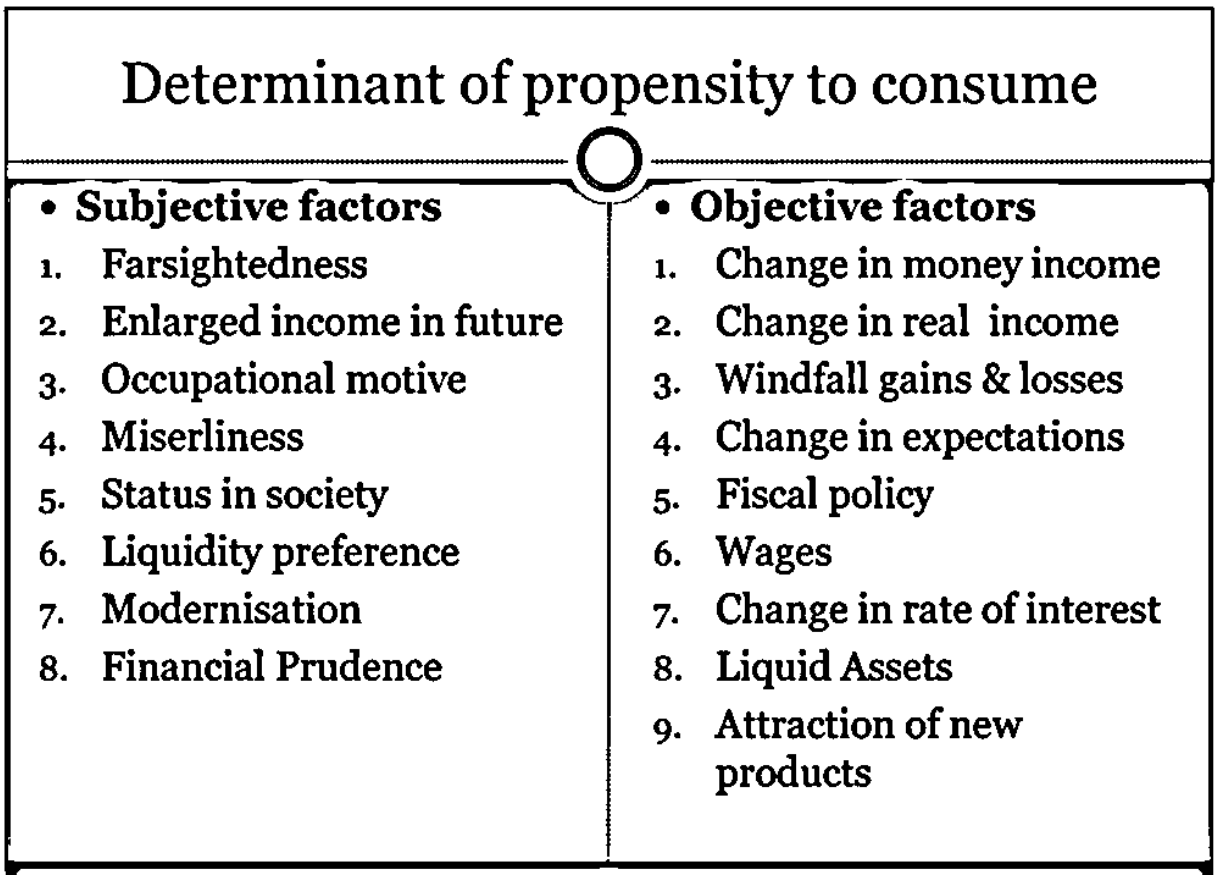

Fig. 3.4 Determinants of Consumption Function

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 affects 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 go down. If inflation decreases with

stable in income, then real income will go 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 result 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 wants 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.

3.7 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 lead 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.

3.8 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.

3.9 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.

3.10 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.

3.11 Self- Assessment Tests

(a) Student Activities

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.

(b) Learning Activities

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.

(c) Feedback of learning activities

Answers of learning activities:

1. Propensity to consume

2. One
3. Less than one
4. Income
5. Propensity to save

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LESSON-4 Investment Function	

Lesson Structure

4.0 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.

4.1 Assessment to prior Knowledge

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."

4.2 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 fluctuations will result 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 lead to lower desired investment expenditure on fixed assets, while lower the real rate of interest will lead to higher investment expenditure on fixed assets in the organisation. Further, business expectations refer 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 lead 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.

4.3 Types of Investment

As an investor we have a large number of options for investment and as a rational person, one has 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.

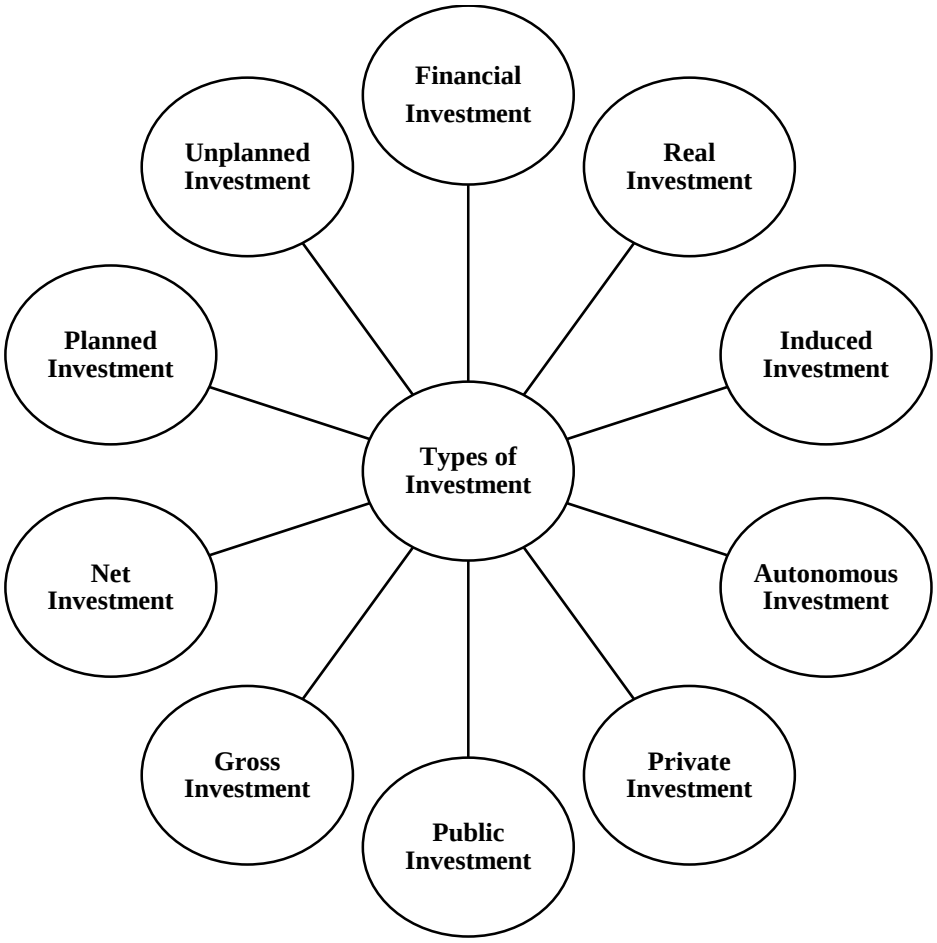

Fig. 4.1 Types of Investment

(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 induced investment".

(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 makes 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.

4.4 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 is 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 has 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 lead to lower down the liquidity on the part of people and lower the interest rate will lead 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 result into higher rate of interest and smaller the liquidity preference will result 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.

4.5 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 stopped before full employment level 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.

4.6 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 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.

4.7 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. 4.2 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 go down and new 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 result 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 is 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 favorably 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 this 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.

4.8 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 result 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.

4.9 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.

4.10 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 interest rate 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.

4.11 Self-assessment Tests

(a) Student Activities

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

(b) Learning Activities

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.

(c) Feedback of learning activities

Answers of learning activities:

1. Aggregate demand
2. Depreciation
3. Investment
4. Not related
5. Interest rates

4.12 References

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LESSON-5 Multiplier and Principles of Acceleration	

Lesson Structure

5.0 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.

5.1 Assessment of prior Knowledge

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.

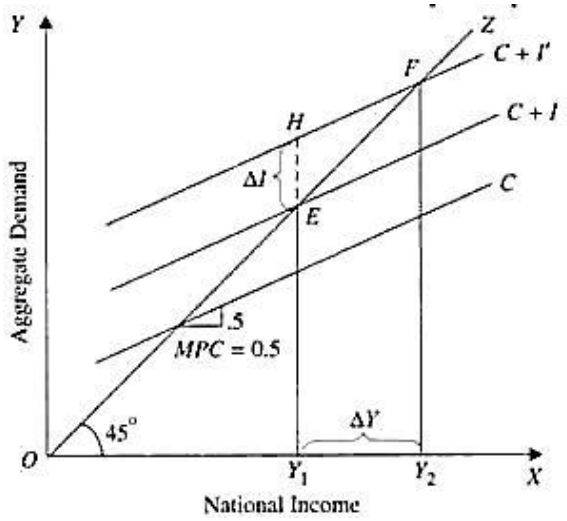

Fig. 5.1 Keynesian Income Multiplier

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 represent 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 that Y_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.

5.2 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 amount 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.

5.3 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.”

5.3.1 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 increase 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:

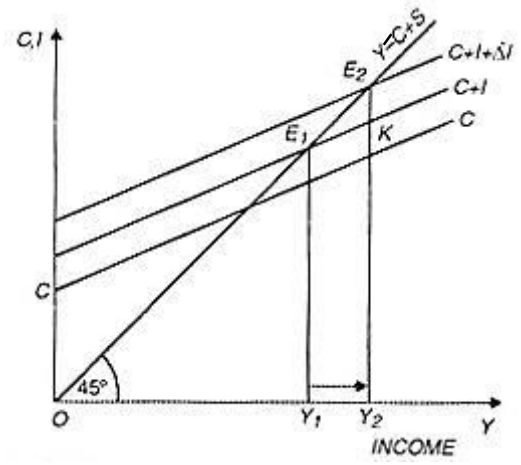

Fig. 5.2 Forward action of the Multiplier

In this figure 5.2, 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 shift 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 5.2, the arrow between Y_1 and Y_2 represents this forward movement of multiplier.

5.3.2 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 decrease by rupee 10 crores × 2 = rupee 20 crores. This can be shown by the figure 5.3 as below:

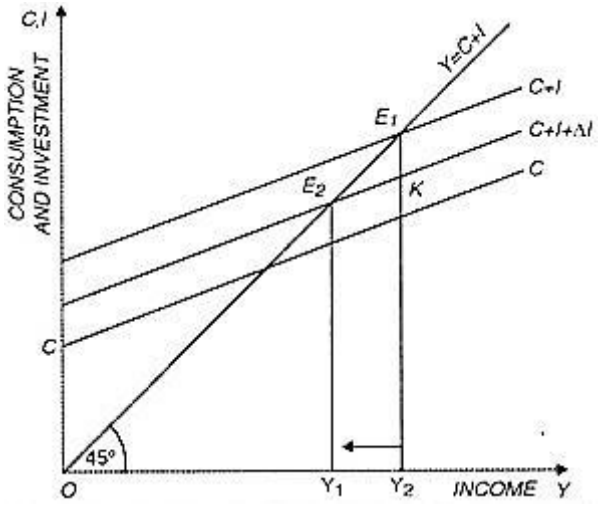

Fig. 5.3 Reverse action of the multiplier

In this figure 5.3, 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 shift 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 5.3, 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.

5.4 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:

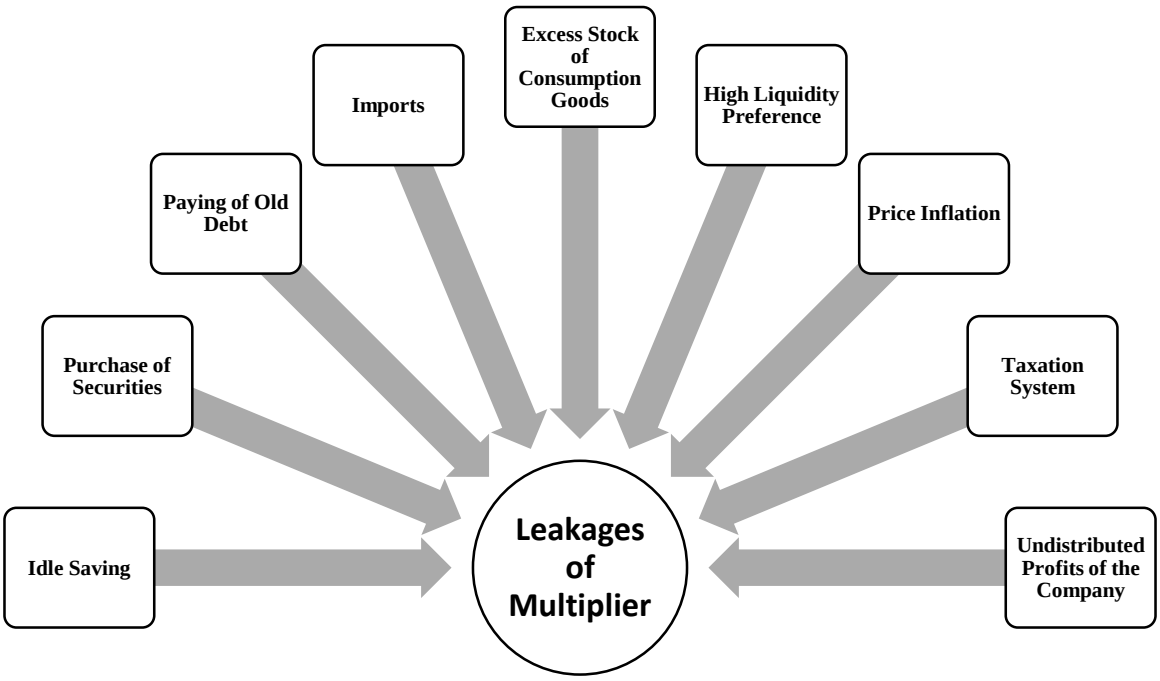

Fig. 5.4 Leakages of Multiplier

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 has 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 lead 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 lead 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.

5.5 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 lead 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.

5.6 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. 5.5 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 go 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 go down and vice-versa. Thus, constant value of marginal propensity of consume will tend 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 lead 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 work with different assumptions because without these assumptions multiplier will not be effective.

5.7 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 several times larger than the output produced with it during any short period (say a year) any increase in final demand will give rise to an additional demand for capital goods several 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.

5.8 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.

5.9 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.

5.11 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.

5.12 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.

5.13 Self-assessment Tests

(a)Student Activities

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.

(b) Learning Activities

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.

(c) Feedback of learning activities

Answers of learning activities:

1. Equal to one
2. Investment Multiplier
3. Direct
4. J. M. Clark in 1917
5. Volume, timings

5.14 Study Tips

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Subject Code: BC 202	Vetter: Prof. Anil Kumar
LESSON-6 **Classical & Keynesian Theory of Income and Employment,** **Income Determination in Closed Economy**	

Lesson Structure

6.0 Learning Objectives

In this chapter, we will discuss about the macroeconomics theories i.e. theory of income, output and employment. We will study about two major theories for determination of income, output and employment. In the first part of this lesson, we will describe the classical theory and in the second part Keynesian theory of income and output is explained. 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 both the 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. At last, we will discuss about income determination under the closed economy or three sector model without foreign trade.

6.1 Assessment of prior Knowledge

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 contributed 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 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 second part of this lesson is about the Keynesian theory of income and employment. Keynesian theory 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. Further, the concept of closed economy is also an interesting fact which provides income determination under three-sector model without foreign trade and includes government sector

in the economy. Before discussing these theories in detail, it is important to describe the various important concepts related with these theories.

6.2 Determination of Equilibrium level of Income and Employment

Classical theory of income and output stated that equilibrium can be determined with the help of three major situations in the economy i.e. with saving and investment, without saving and investment and with the role of money and prices in the economy. Here, production function and labour function are used as major factor responsible for equilibrium in the economy. This theory is based on some of the assumptions. These are as follows:

I. Every person is a rational man and he wants maximum satisfaction in every situation.

II. Economy is free from any type of interference by the government.

III. There is perfect competition in commodity and labour market.

IV. There exists closed economy without foreign trade.

V. There will be no change in the technique of production in organisation in short period.

VI. Classical theory assumes that money is just a medium of exchange.

VII. Further, it also assumes that wages, interest and price will be flexible.

VIII. Full employment exists in the economy without any inflation.

6.2.1 Determination of Income and Employment when there is no saving and Investment

Classical theory undertakes that national income and employment level depends on the aggregate production and demand and supply of labour in the economy. Further, it assumes that homogenous and divisible goods are produced in the market. Let us take output as Y and it is produced with the help of two factors of production i.e.

(a) Labour which is shown by N and

(b) Capital, this is shown by K.

It can be shown as,

Y = F (K, N); Aggregate production is the function of labour and capital. Here, capital is assumed as fixed and any change in the technology will leads to shift the production line. Determination of employment and wages can be shown through a figure 6.1 of labour market equilibrium.

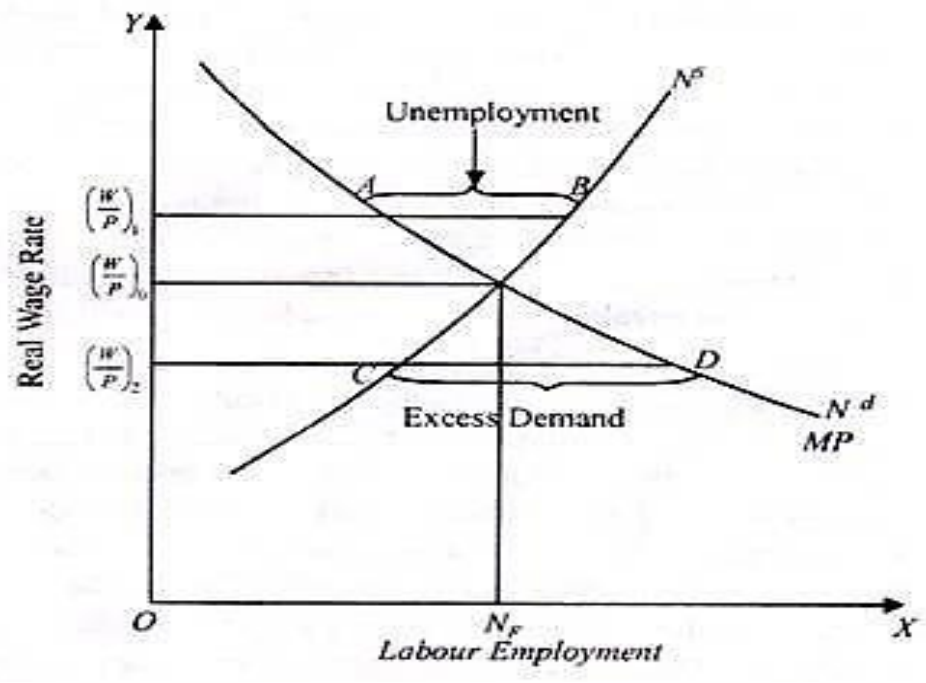

Fig. 6.1 Labour-Market Equilibrium

Determination of Employment and Wages

Figure 6.1 represents that the output Y will increase only if there is increase in labour N, with the fixed capital and constant technology. It means there is simultaneous increase in labour and income. According to classical theory, employment of labour increases with fixed capital but marginal product of labour would decreases due to the law of diminishing returns of classical economists. This theory further assumes that every firm which is engaged in production wants to maximize their profits. These firms will use labour factor until the marginal production of labour goes equal to the real wages.

It is also interesting to note that real wage rate can be calculated as nominal wage rate divided by the general price level i.e. Real wage rate = W/P, where W represents nominal or money wage rate and P is the average price level. Thus, marginal product of level can be shown as $W/P = MP_N$. This can be concluded that by lowering the real wage rate, more and more labour can be employed by the firms and at high rate of real wages, demand for labour will be reduced.

Demand function of labour can be written as:

$N^d = f (W/P)$ and in fig. 6.1, MP curve depicts the diminishing marginal product of labour as well as demand curve of labour.

On the contrary, supply of labour depends on the income and leisure preferences of households in the economy. According to classical economists, population does not change in short run and supply curve of labour slopes downward.

Supply function of labour can be written as:

$N^s = g\ (W/P)$, which represents that more labour will be supplied at higher wage rate and vice-versa. We can see that the real wage rate is the point of equilibrium where supply of labour and demand for labour cuts each other. The situation above equilibrium point represents unemployment (AB) in the economy and situation below this point represents excess demand for labour (CD). At equilibrium point, there is neither excess supply of labour nor excess demand for labour. Due to competition among workers, the excess supply of labour at wage rate $(W/P)_1$ would force the wage rate to fall at the point of equilibrium i.e. $(W/P)_0$. On the contrary, if wage rate goes down to $(W/P)_2$ then the firms will demand more labour and thus again the real wage rate can be attained.

6.2.2 Determination of Income and Employment in an Economy with Saving and Investment

Sometimes it is assumed that supply creates its own demand but this assumption is not valid in practical life. It may be correct that output generates an equal amount of income but it is not necessary that this income is used to purchase goods and services because some part of this income may be saved and some part may be invested for future income. Thus, saving and investment will adversely affect the demand for products. This adverse effect will cause fall in output as well as employment level.

But, classical economists denied this deficiency of aggregate demand due to the assumption of supply creates its own demand even in the presence of saving. Further, classical economists believed that some part of income earned can be spent on consumer goods and rest can be invested. The amount which is not spent is saved and invested by businessmen equals this saving. Thus, there will be no effect of saving and investment. But, no one can guarantee that investment will earn same income as the income from saving of the households. Classical economist believed that change in interest rates brings the equality between saving and investment. Whenever there is lower rate of interest then more money can be borrowed for investment. On the other hand, higher rate of interest leads to larger

savings. Here, it is cleared that loan market will be in equilibrium at that rate of interest where the demand for investment is equal to the supply of savings.

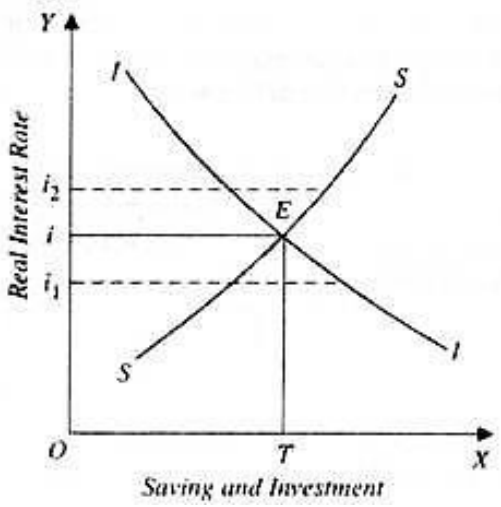

Fig. 6.2 changes in rate of interest bring about equality between saving and investment

Figure 6.2 shows the changes in rate of interest bring about equality between saving and investment. Here, interest rate i is determined with the help of intersection among investment demand curve II and the supply of saving curve SS. High interest rate i_2 represents that investment demand is less than the intended supply of saving. On the other hand, lower interest rate i_1 represents that demand for investment exceeds the supply of saving. Thus, we can see that rate of interest I where loan market is in equilibrium and investment and saving are equal here.

6.2.3 Determination of Income and Employment: Role of Money and Prices

Determination of income and employment in classical theory can also be explained with the introduction of money and prices. It will explain how the full employment of labour can be assured in the economy with money and prices. Further, introduction of money will not affect the results of the classical theory i.e. the problem of deficiency of aggregate demand would not be experienced in the free-market.

According to the classical theory, quantity of money will only determine the price level of output and it will not affect saving and investment level. Moreover, quantity of money determines the price level of output and it affects wage rate. Increase in money supply leads

to change in money wages and price level in such a way that real wage rate remain constant in the equilibrium situation and labour market will be restored automatically. Beside, this increase money supply and change in price level equilibrium of saving and investment will not be bothered. Classical economists assumed in the quantity theory of money which explains that supply of money determines price level in the economy.

Quantity theory of money can be expressed as:

$MV = PY$

$P = MV/Y$

Where, M = Quantity of Money; V = Income Velocity of Circulation of Money

Y = Level of Aggregate Output (Real Income); P = Price level of Goods and Services

In classical theory, level of aggregate output is determined by the supply of productive resources and technology will remain constant in short run. In Figure 6.3, aggregate supply curve (AS) is shown through a vertical straight line which represents that aggregate output remains constant and has no effect of price level. Here, V and Q remain constant and increase in money supply will cause proportionately increase in price level.

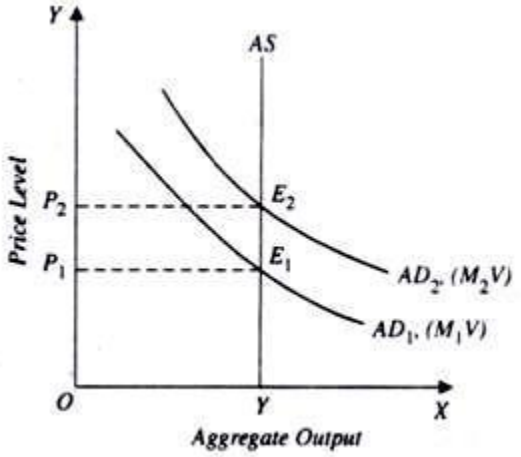

Fig. 6.3 Increase in the quantity of money cause proportionate rise in the price level

For example, if money supply in an economy is rupees 500 and velocity of circulation is 4, then 500 × 4 = 2000 crores will be aggregate expenditure. MV represents aggregate expenditure or aggregate demand curve which slopes downwards to the right. This is due to the fact of lower price level where more quantity of goods and services purchased at the given aggregate expenditure. When quantity of money is equal to M_1, Velocity of money is

V then aggregate expenditure on goods and services will be shown by M_1V and thus price level will be determined at O P_1. Now with increase in money supply from M_1 to M_2, V remains constant and aggregate expenditure will move to M_2V and thus price level will shift from OP_1 to OP_2. It can be concluded that increase in prices will be proportionate to increase in quantity of money.

6.3 Criticism of Classical Theory

Classical theory of income and employment is opposed by Keynes through different ways. Classical theories are criticized due to its assumptions. The criticism of these theories is described as under:

I. One of the assumption of classical theory is about full employment prevails in the economy. Keynes considered this assumption unrealistic and vague.
II. Keynes also opposed the classical assumption of long term equilibrium in the economy. He gives more emphasis on short-term equilibrium.
III. Classical economist blindly depends on Say's Law of markets and assumed that supply creates its own demand which assured the equilibrium in the economy. But, Keynes totally disagrees with this concept.
IV. Further, classical economist Pigou stated that if worker accept sufficiently low wage rate then unemployment will automatically disappear in the economy. This classical formulation of employment theory is opposed by Keynes.
V. Classical economists believed that equilibrium in saving and investment is dependent on flexible rates of interest but Keynes argue against it and believed that equilibrium can be obtained through change in income rather than change in interest rates.
VI. The assumption of laissez-faire i.e. free perfect competition is not possible in the changed conditions of modern world.
VII. One of the important assumptions of classical theory i.e. demands for money is only for transactional and precautionary purpose. But, Keynes did not agree to this assumption and he believed that money is also demanded for speculative purpose.
VIII. Keynes also did not agree with the classical view regarding direct and proportionate relationship between money wages and real wages. According to Keynes, there is negative relationship between these two.

6.4 Keynesian Theory 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.

6.4.1 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.

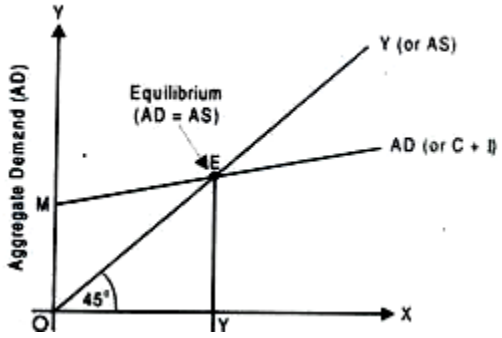

Fig. 6.4 Equilibrium GDP

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

mean 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:

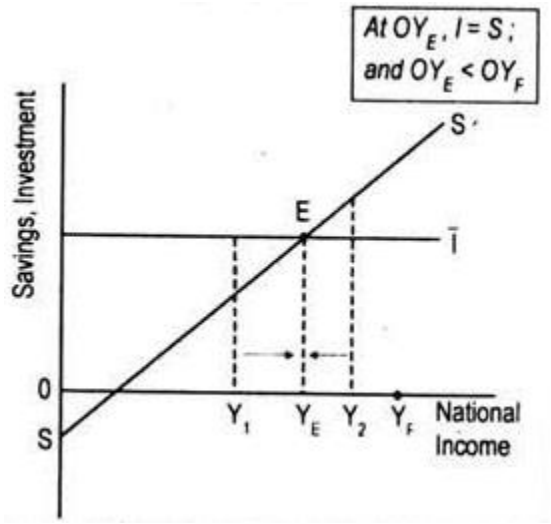

Fig. 6.5 Equilibrium GDP: Saving and Investment

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 lead 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.

6.4.2 Significance of Keynesian Theory of Income and Employment

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:

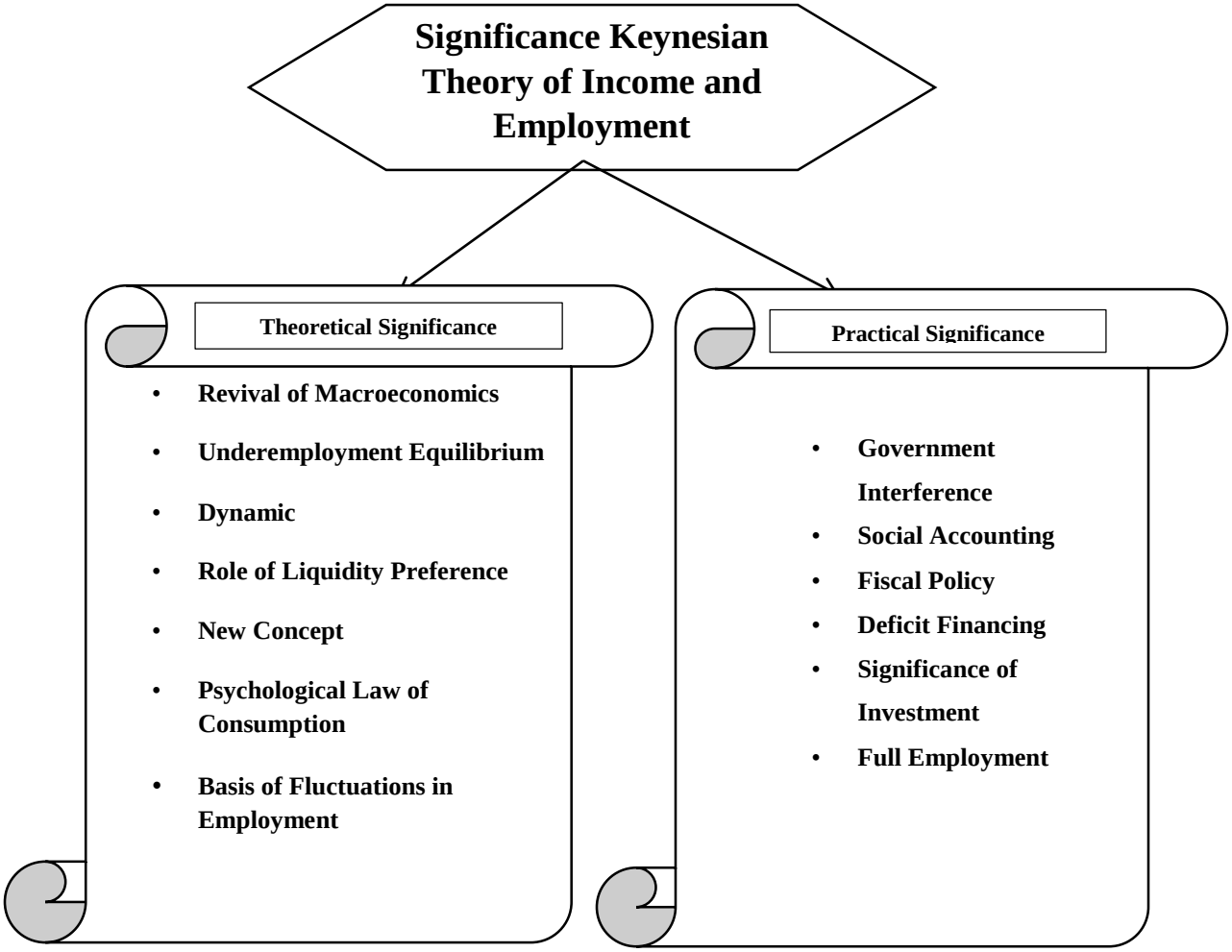

Fig. 6.6 Significance of Keynesian Theory of Income and Employment

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 causes 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 theoratical 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 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 exists 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 lead 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 contexts. This theory is a complete revolution that has deep impact on the entire economist. According to Harris, no economist can escape Keynes' venom.

6.4.3 Criticism of Keynesian Theory 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.

6.5 Income Determination in a Closed Economy

Closed income can be discussed in two major contexts i.e. two-sector economy and three-sector economy. We had already discussed about income determination under two-sector economy. Now, we will discuss about income determination under three-sector economy and it includes household, business and government sector. Government influences the level of economic activities in different ways through fiscal policies, monetary policy, industrial policy, labour policy, wage policy, employment level, etc. Inclusion of government sector introduces three major variables in the model which are taxes, government expenditure and transfer payment. Three-sector model does not include foreign trade and national income can be shown as GNP = C + I + G. Hence, government spending becomes an important element of aggregate expenditure and taxes results into change in disposable income. With the introduction of taxes, national income becomes: Y = C + S + T. But, equilibrium condition make two things compulsory to be equal i.e. Aggregate demand and aggregate output.

C + I + G = C + S + T means I + G = S + T,

Now, if the government does not impose any taxes then,

S = I + G

Further, equilibrium can be determined under two situations which are discussed below:

(a) Determination of equilibrium income when C + I + G line cuts the 45° line

It is assumed that there are zero taxes and government spending exists in the economy. National income is determined when aggregate supply equals to aggregate demand. It can be understood with the help of a figure:

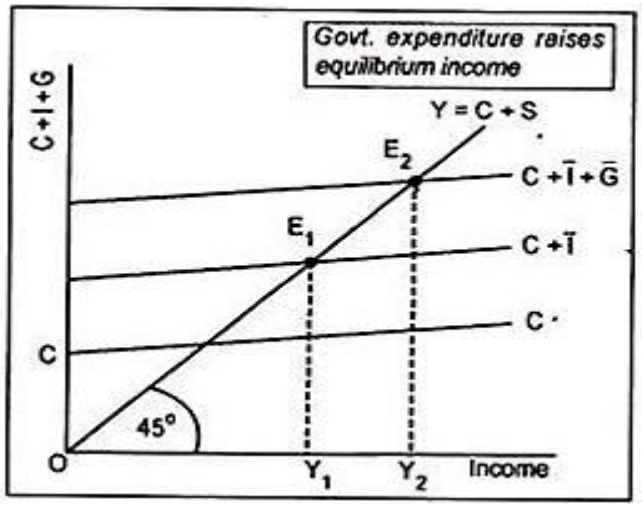

Fig. 6.7 Government Spending and Equilibrium Income

Fig. 6.7 represents that before government spending equilibrium was situated at point E_1 where level of income is determined at OY_1 and aggregate demand and aggregate expenditure line cuts each other. Let us assume government spending's are autonomous and it is independent of level of income. When government expenditure is added to C + I, it will form C + I + G and equilibrium will shifts from E_1 to E_2. New level of income is determined at OY_2. Thus, it can be concluded that an injection of government spending results into increase in income and employment.

(b) Equilibrium Income at the Intersection of S and I + G Line

We had discussed about the injection in the form of government spending but we did not consider leakages for equilibrium. Total injections and total leakages must be equal for determination of equilibrium. If we assume tax does not exist in the economy then savings will constitute leakages. Here, equilibrium can be written as S = I + G. Further, it is assumed that both private investment and government spending are autonomous. It is

shown through line $\bar{I}$ which is parallel to horizontal axis, shown in Fig. 6.8. If autonomous government spending is added in it then $\bar{I}$ + G is formed. Before introduction of government spending equilibrium is situated at point E_1 where line SS' and I intersect each other. After addition of government spending equilibrium will shift from E_1 to E_2. Equilibrium level of income shifts from point OY_1 to OY_2.

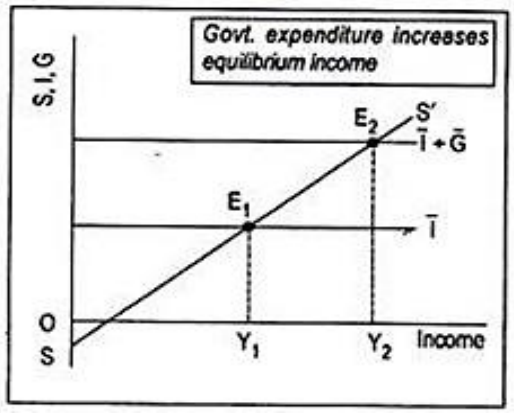

Fig. 6.8 Government Expenditure and Equilibrium Income

Thus, this will also provide same results as we obtained in first case i.e. an increase in government expenditure results in an increase in equilibrium level of income. Further, we describe both the situation without effect of taxes. Now, we will discuss **effect of taxes on national income:**

Whenever government imposes a tax then the amount of tax is reduced from national income and thus remains disposable income. It can be shown as $Y - T = Y_d$; here Y= national income, T= tax and Y_d = Disposable income. With the fall in disposable income, people will reduce expenditure on consumption and this reduction will lead to reduction in national income.

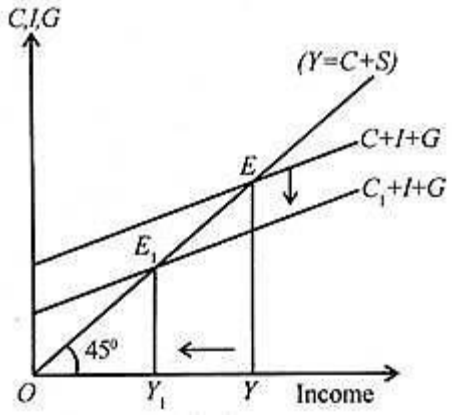

Fig. 6.9 Income determination with Inclusion of Taxes

Equilibrium is situated at point E without a tax, where aggregate demand curve intersect the aggregate supply curve line and income level is determined at OY. But, with the introduction of taxes the aggregate demand curve will shifts from C + G + I to C_1 + I +G and equilibrium shifts towards point E_1. These will result into reduction of income level from OY to OY_1. Thus, introduction of taxes will lead to reduction in level of national income.

6.6 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 dimension 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. Further, income determination in closed economy is also studied which includes two sector model and three sector model. Two-sector model has only two variables i.e. household and production sector. Three-sector model has three variables i.e. households, business and government. 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.

6.7 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.

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.

6.1 Self-assessment Tests

(a) Student Activities

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 income and employment. What are the main assumptions of this theory?

Q.4 What do you mean by Keynesian theory of income and employment? What are the salient features of this theory?

Q.5 How did GDP determination is done through Keynesian theory? What are the major differences between Classical theory and Keynesian theory of income and employment?

Q.6 What mechanism in classical theory of income and employment is used for ensuring equality between saving and investment in full employment?

Q.7 Explain the two major approaches to determine equilibrium under Keynesian theory of income and employment.

Q.8 What are the major assumptions of Keynesian theory of income and employment? To what extent these are applicable in the real world situations?

Q.9 Explain the role of Keynes in introducing new concepts of macroeconomics. Also critically discuss the Keynesian theory of employment.

Q.10 Explain the role of government spending and taxation in the three-sector model of economy.

(b) Learning Activities

1. In Keynesian Economics, equilibrium level of income implies _____ and _____ .
2. In Keynesian Theory, equilibrium GDP is discussed with reference to _____
3. Keynes assume that aggregate supply is _____ .
4. _____ is the value of MPC in Keynesian model.
5. The concept of " laissez-faire" was the contribution of _____ .

(c) Feedback of learning activities

Answers of learning activities:

1. Equilibrium level of output; equilibrium level of employment
2. Short-period
3. Perfectly elastic
4. Greater than zero and less than one
5. Classical Economists

6.9 Study Tips

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Subject Code: BC 202	Vetter: Prof. Anil Kumar
LESSON-7 Inflation concept and Theories	

Lesson Structure

7.0 Learning Objectives

After reading this chapter you will be able to understand about the concept of inflation and its different types. You will also learn about the causes and effect of inflation on the economy. Further, you will be able to understand the major theories of inflation i.e. demand pull and cost push 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 concepts in detail under this chapter.

7.1 Assessment of prior Knowledge

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 result in 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 reduces the purchasing power of a unit of currency. It means value of money is falling here and it leads to prices rise. Or inflation may be defined as a situation where supply of money increases at a rate higher than the supply of real output.

7.2 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:

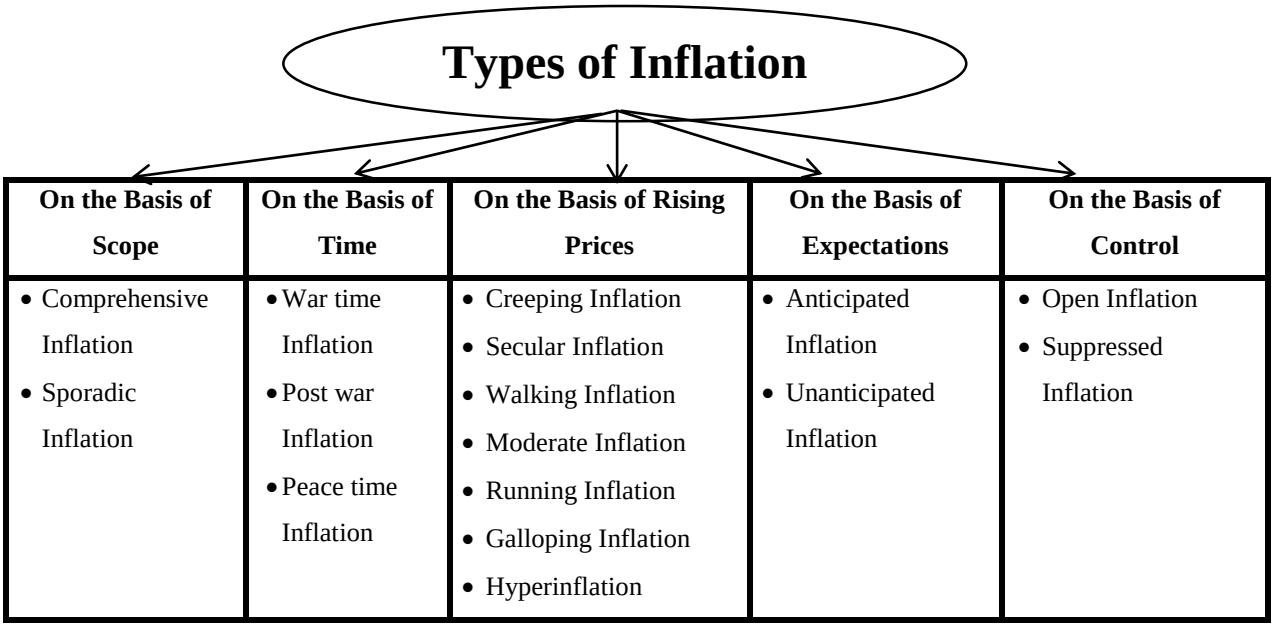

Fig. 7.1 Types of Inflation

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

It 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 attempts to control inflation 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 lead 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.

7.3 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 more 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.

7.4 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. 7.1 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 will have negative impact 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.

7.5 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.

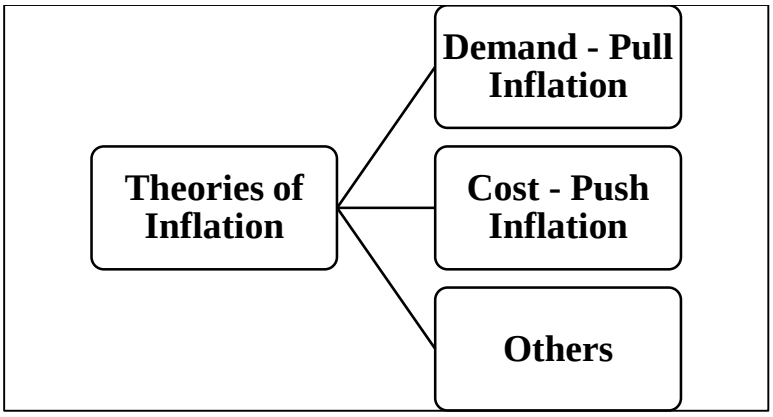

Fig. 7.3 Theories of Inflation

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.

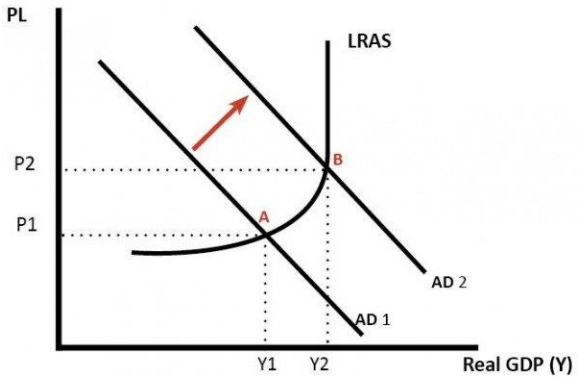

Fig. 6.4 Demand-Pull Inflation: Excess Demand over Supply

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_2 which 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.

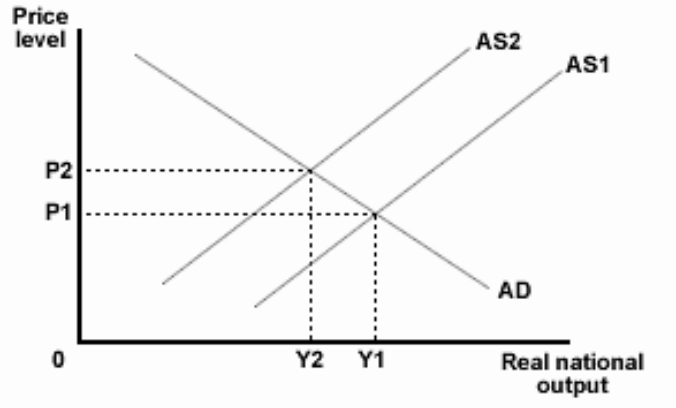

Fig. 6.5 Cost-Push Inflation

Fig. 6.5 shows cost-Push inflation, here AD shows to aggregate demand and AS shows aggregate supply. Is there is increase in AS1 to AS2 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.

7.6 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 known as a measure of price changes in consumer goods and services such as food, clothing, gasoline and automobiles except 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:

$$\textbf{CPI of a Year} = \frac{\textit{Cost of Market Basket in a Year}}{\textit{Cost of Market Basket in Base Year}} \times 100\%$$

$$\textbf{Inflation in Year 2} = \frac{\textit{CPI in Previous Year} - \textit{CPI in Current Year}}{\textit{CPI in Current Year}} \times 100\%$$

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. 7.1 represents price per unit and cost of Basket

CPI for different Year:

CPI of a Year = $\frac{\textbf{\textit{Cost of Market Basket in a Year}}}{\textbf{\textit{Cost of Market Basket in Base Year}}} \times \mathbf{100}\%$

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 = $\frac{\textbf{\textit{CPI in Previous Year}}-\textbf{\textit{CPI in Current Year}}}{\textbf{\textit{CPI in Current Year}}} \times \mathbf{100}\%$

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 = $\frac{\textbf{\textit{Nominal GDP (Current Price)}}}{\textbf{\textit{Real GDP (Base Year Price)}}} \times \mathbf{100}$

Rate of Inflation = $\frac{\textbf{\textit{GDP Deflator in Year 2}}-\textbf{\textit{GDP Deflator in Year 1}}}{\textbf{\textit{GDP Deflator in Year 1}}} \times \mathbf{100}$

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. 7.2. 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. 7.2 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:

$$\textbf{GDP Deflator} = \frac{\textit{Nominal GDP (Current Price)}}{\textit{Real GDP (Base Year Price)}} \times 100$$

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:

$$\textbf{Rate of Inflation} = \frac{\textit{GDP Deflator in Year 2} - \textit{GDP Deflator in Year 1}}{\textit{GDP Deflator in Year 1}} \times 100$$

Rate of Inflation in Year 2006 = $\frac{171-100}{100} \times 100\% = 71\%$

Rate of Inflation in Year 2007 = $\frac{240-171}{171} \times 100\% = 40.35\%$

7.7 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:

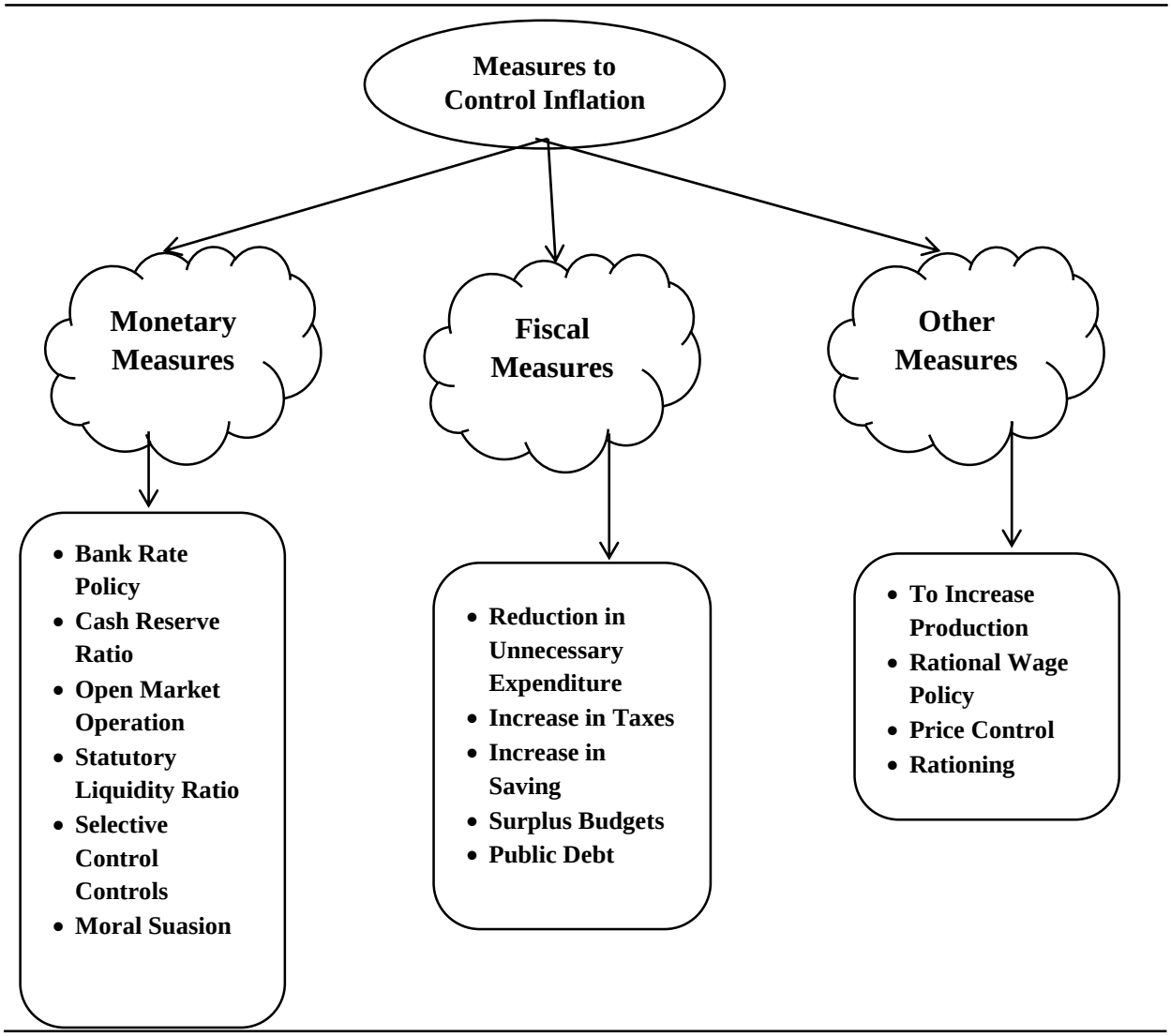

Fig. 6.6 Measures to Control Inflation

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 measures 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 Suasion is a technique of moral persuasion and pressure in general and the banks which are not following rules. The central bank uses 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.

7.8 Summary

Inflation is not just a word rather it is a phenomenon which affects economy as a whole. Every country faces 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. Two major theories of inflation are focused in modern times 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.

7.9 Keywords

Inflation- Inflation refers to continuous increase in prices or it reduces the purchasing power of a unit of currency.

Creeping Inflation- It 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.

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.

7.10 Self-assessment Tests

(a) Student Activities

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 between 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.

(b) Learning Activities

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. Inflation_____ saving and capital formation.
4. Due to an easy availability of_____ consumer's spending rises.

5. A cut in government spending is adapted to _____ .

(c) Feedback of learning activities

Answers of learning activities:

1. Creeping Inflation
2. Full employment
3. Reduces
4. Credit
5. Reduce inflation

7.11 Study Tips

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Subject: Macro Economics	Author: Ms. Chand Kiran
Subject Code: BC 202	Vetter: Prof. Anil Kumar
LESSON-8 Business Cycle	

Lesson Structure

8.0 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.

8.1 Assessment to prior Knowledge

The business cycle is 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.

8.2 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 expansion on 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.

8.3 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:

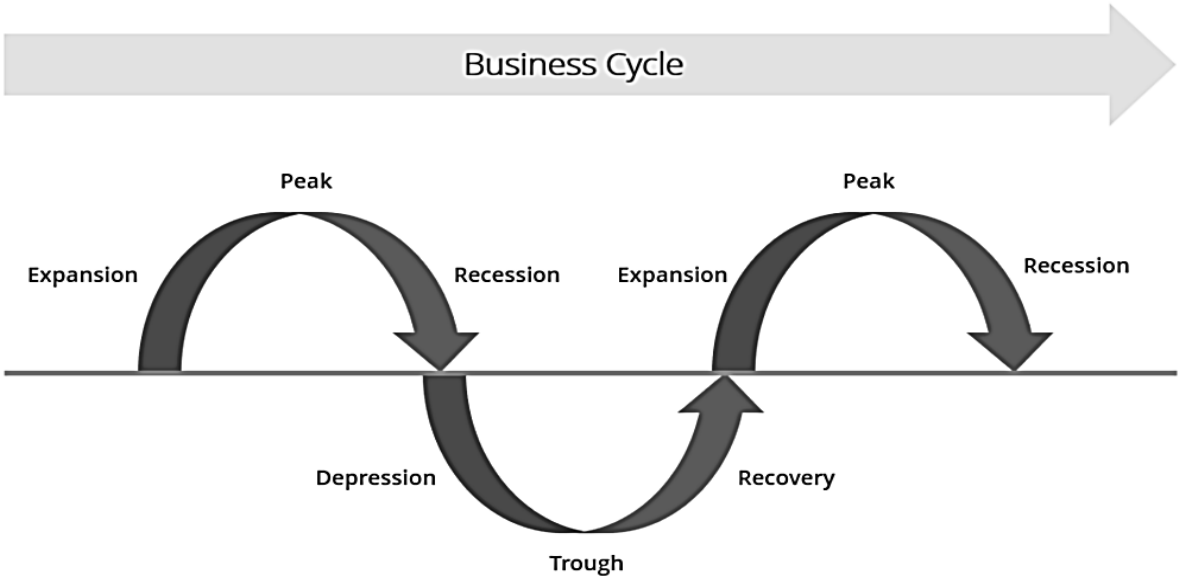


Fig. 8.1 Stages of Business Cycle

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 or at peak, which is the second stage of business cycle. There is 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

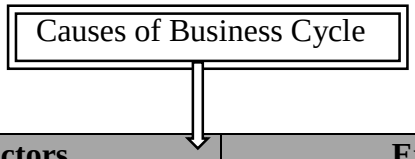
In the stage of depression, growth rate falls below the normal level of growth and it became negative. Further, it declines until the factor prices, demand and supply of goods and services reach at their lowest point. Eventually, the economy reaches to the next stage i.e. trough. It is the negative saturation 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 increase 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 and in this process 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.

8.4 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. 8.2 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 start producing more goods to meet the increased demand. It will lead 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 result 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 shift 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 lead 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.

8.5 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 lead 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 can signify 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.

8.6 Theories of Business Cycle

A large number of theories were propounded by various economist 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 economist like Adam Smith, Miller, and Ricardo, have conducted a study on business cycles. Afterwards many other economists, such as Keynes and Hick, had provided a different framework to understand business cycles. 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 result of 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 which leads 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 focuses 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.

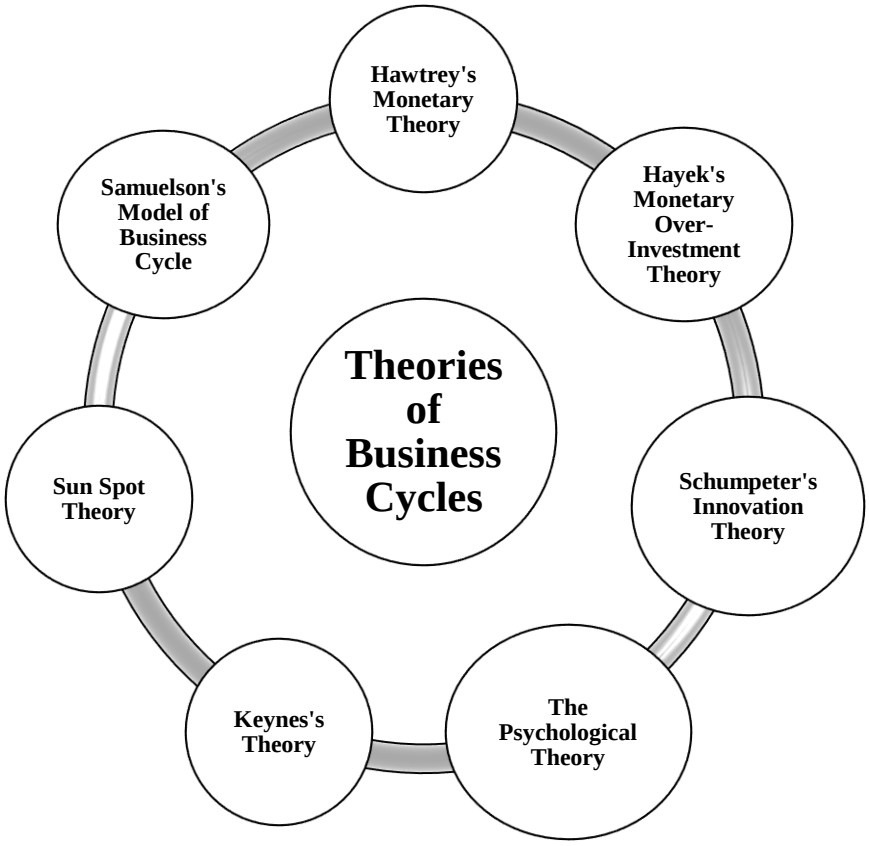


Fig. 8.3 Theories of Business Cycle

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 fall. 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 lead 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

the result of innovations in the industrial and commercial organization. Innovations are such changes of the combination of the factors of production as cannot be effected by infinitesimal steps or variations on the margin. Innovation consists primarily in changes in methods of production and transportation, or changes in industrial organization, or in the production of a new article, or opening of a new market or of new sources 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 profit shows downtrend due to decrease in output prices. Here, debtors have to pay their debts to bank and flow of money will decrease. 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 decrease. 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 increase 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 after a gap of one year, the consumption function would be represented 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 preceding equation, 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 future can be determined if the values of a, b and income of two preceding years are given. It can be depicted from the preceding equation that the changes in income level can be affected by the values of α and b.

The different combinations of α and b give rise to fluctuations in business cycles as shown in Figure-4:

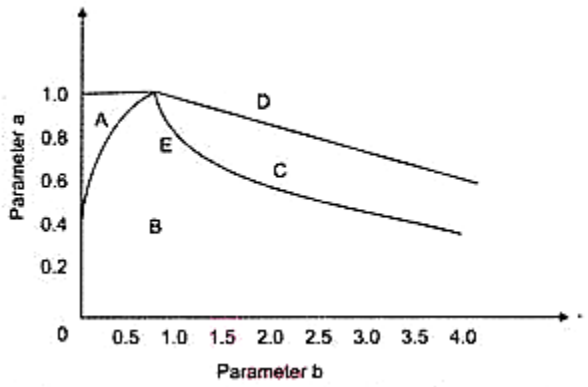


Fig. 8.4 Business Cycles and Combination of Parameters a and b

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 8.5,

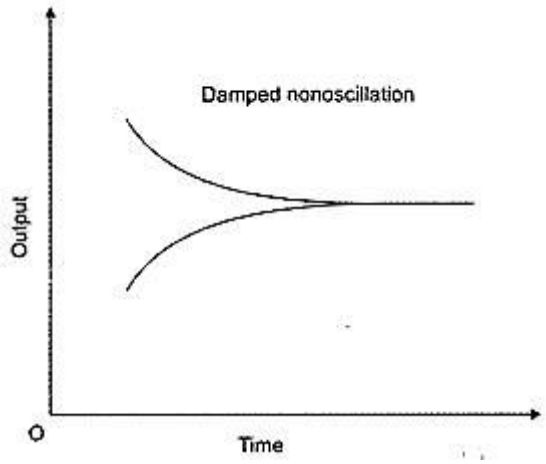


Fig. 8.5 Business Cycle Pattern in Area A

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.

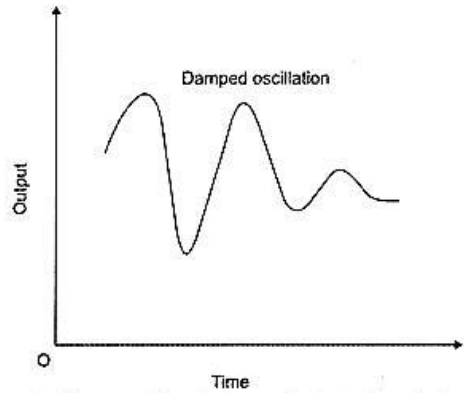


Fig.8.6 Business Cycle Pattern in Area B

C: Refers to the area in which points, a and b, together makes amplitude cycles that become larger. This represents explosive oscillations.

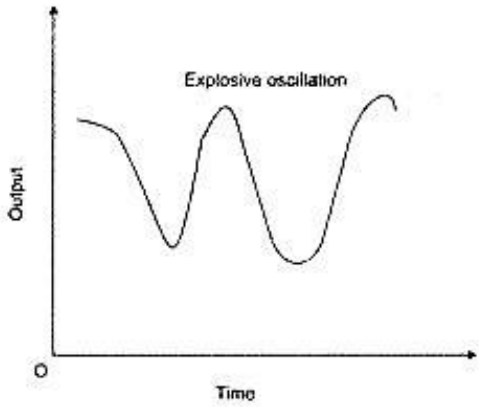


Fig. 8.7 Business Cycle Pattern in Area C

D: Refers to the area at which the income level is increasing or decreasing at the exponential rate. This process continues till cycles reach at the bottom. It represents one-way explosion and results in explosive oscillations.

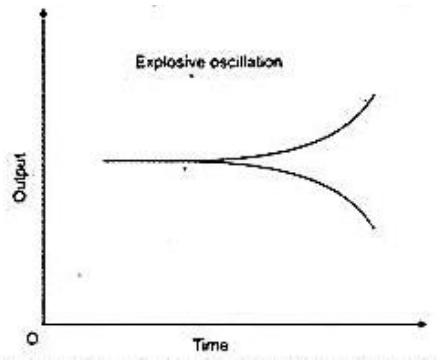


Fig. 8.8 Business Cycle Pattern Area D

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.

8.7 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 lead 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.

8.8 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.”

8.9 Keywords

Business Cycle- The business cycle is 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.

8.10 Self-Assessment Questions Self-assessment Tests

(a) Student Activities

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.

(b) Learning Activities

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 _____

(c) Feedback of learning activities

Answers of learning activities:

1. Recession
2. Throgh
3. Cyclical
4. Peak, Recession, Throgh, Recovery
5. Sunspot Theory

8.11 Study Tips

1. Jhingan 2012. *Macro Economic Theory*, pages 463-502, Vrinda Publication (P), Delhi.
2. Ahuja 2013. *Macroeconomics Theory and Policy*, pages 431-451, S. Chand & Company Pvt. Ltd., New Delhi.
3. Shapiro Edward, *Macro Economic Analysis*, Fourth Edition, 1978, p.378.