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MACRO ECONOMICS

M. A. Economics First Year

Semester – I, Paper-II

Director, I/c

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102EC21: MACRO ECONOMICS

MODULE – 1 : NATIONAL INCOME AND ACCOUNTS

Circular Flow of Income in two- three-and four-sector economy; different forms of national income accounting – GNP Deflator.

MODULE – 2 : CONSUMPTION FUNCTION

Determination of output and employment – classical and Keyneans approach; Keynes' Psychological law of consumption – implications of the law; short-run and long-run consumption function; Empirical evidence of consumption function; Income-consumption relationship-absolute income, relative income, life cycle and permanent income hypotheses.

MODULE – 3: INVESTMENT FUNCTION

Determinants of Investment – Capital and Investment – Accelerator Principle, Marginal Efficiency of Capital – Acceleration.

MODULE- 4 : THEORY OF INFLATION

Cost-push and demand pull inflations - Philips curve analysis – Short run and long run Philips Curve; The natural rate of unemployment hypothesis.

MODULE -5 : BUSINESS CYCLES

Theories of Schumpeter, Samuelson and Hicks, Control of business cycles – relative efficacy of monetary and fiscal policies.

READING LIST:

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CONTENTS

Lesson – 1

NATIONAL INCOME ANALYSIS

1.0 AIMS AND OBJECTIVES:

The main aim of this lesson is to make students understand the definitions, concepts and measurement of National Income, Difficulties in measurement, Social accounting etc. with out understanding these concepts it is not possible to study any economy.

Content

1.0 INTRODUCTION:

The concepts of National Income and Product are most significant in macro accounting. Both these macro economic concepts are frequently used to measure the economic performance of an economy because they serve as better yardsticks of economy's performance than the other aggregative concepts. Both income and product are simple and familiar concepts. Both national income and product are flow quantities related to a given time and dimensions. While national product refers to a flow of goods and services over any given period of time, national income represents the flow of total factor earnings available to purchase the net flow of goods and services in the economy during any given time period.

Two things must be noted in regard to the meaning of national income. First it measures the market value of annual output. In other words national income is a monetary measure. But in order to know accurately the changes in physical output the figure for national income is adjusted for price changes. Secondly for calculating national income accurately all goods and services produced in any given year must be counted only but not more than once. Parts or components of many goods are brought and sold many times through a series of production stages before reaching a market. To avoid counting several times the parts of goods that are sold and resold, national income only includes the market value of all final goods but not intermediate goods.

1.1. VIEWS OF PROMINENT ECONOMISTS

The idea of 'National Income' has attracted the attention of economic thinkers and policy markers since the inception of Economics. Following are the views of prominent economists before Keynes.

1.1.1 Views of Marshall on National Income:

"The labour and capital of a country, acting on its natural resources, produce annually a certain net aggregate of commodities, material and immaterial, including services of all kinds….. and net income due on account of foreign investments must be added in. This is true net national income or revenue of the country or the national dividend".

Marshall's concept of national dividend suffers from the following practical difficulties:

1. Difficulty in conducting a detailed census of production :

It is really very difficult to make a statistically correct estimate of the production of all the commodities and services turned out in a country during a specific period.

2. Difficulties in Aggregation:

The aggregation of the outputs of goods and services is not easy. The different commodities and services constitute heterogeneous statistical units i.e., wheat in tonnes, cloth in meters, cotton in bales, petroleum in gallons and electricity in kilowatts.

3. Difficulty in monetary evaluation of goods and services :

There are a number of commodities which are produced but whose output is not evaluated before consumption. For instance, a farmer retains a part of total produce for self consumption. This portion of produce is not evaluated by normal market operations.

4. Double Counting :

The major difficulty in adopting Marshall's definition was the possibility of double counting of the products. Since industries are related to other industries and since a product has to pass through a number of successive stages of production, there is likelihood of double counting in the aggregate output of the community.

1.1.2 Pigou's views on National Income :

Pigou defined the National Income or dividend as "That part of the objective income of the community including, of course, income derived from abroad which can be measured in money".

Pigou's definition of National Income was considered as quite practicable, elastic and convenient. It does not give rigid concept of National Income. According to it, all the goods and services which are transacted in a specific year in exchange of money may be included in the national dividend of the country. Pigou's emphasis upon monetary exchange was thus a definite advance over the Marshallian concept of national income. In fact this definition attempted to remove the difficulties of measuring national dividend which were inherent in Marshall's definition.

Pigou's definition however suffered from the flaw that the distinction between the goods exchanged for money and those not exchanged for money was artificial. And all the known illustrations given by Pigou about the maid servant marrying her master and continuing the same services, since her services will no longer be paid, they become excluded from the national dividend of the country.

Secondly, Pigou's definition of national income is of very limited significance in the poor countries where a large proportion of goods and services might be exchanged through barter.

1.1.3 Fisher's views on National income:

Fisher made a very significant departure from the line followed by Marshall and Pigou. He adopted the level of satisfaction as the basis for measurement of national income in place of the stock of goods and services produced during a year. In his words, "…..The national dividend for

income consists solely of services as received by ultimate consumers, whether from their material or from their human environments. Thus, a Piano or an overcoat made for me this year is not a part of this years income but an addition to capital. Only the services rendered to use during this year by these things are income". This definition gave a new perspective to the concept of national income as it measured the welfare of the community rather than its economic performance in respect of the production of goods and services. Adoption of this approach makes objective measurement of income through goods and services much more specific and meaningful than that through the flow of subjective satisfaction. The difficulties might be aggravated by the durable goods for which the measurement of the spread of satisfaction over time cannot be easily determined.

1.1.4 Keynes's Concept of National Income :

While explaining the concept of national income, keynes made a departure from the earlier thinking on the concept. He adopted an approach which helped in the aggregative analysis of income and employment. Keynes had suggested three approaches to national income in his book known as the General Theory.

1. Aggregate expenditure (on consumption and investment goods) approach.
2. Factor Incomes approach.
3. Sale proceeds minus cost approach.

1. The Aggregate Expenditure Approach :

Keynes had explained the aggregate expenditure approach through the following equation.

$$(A - A_1) + (G^1 - B^1 - G) = Y$$

A = aggregate sale proceeds received by all the entrepreneurs in the community.

A_1 = the amount of a aggregate purchase made by the entrepreneurs from other entrepreneurs.

$A - A_1$ = the purchases made by the consumers from the entrepreneurs or consumer's out lay.

$G^1 - B^1 - G$ = capital consumption during the current production period, i.e., Net investment out lay.

Thus $(A - A_1) + (G^1 - B^1 - G) = y$ or consumption + Investment = National Income.

2. The Factor Income Approach

Keynes second approach to national income is in terms of the incomes by all the factors of production. He has expressed the national income aggregate as the sum of the receipts of factors of production like land, labour and capital plus the earnings or profits accruing to the entrepreneurs i.e.,

$$Y = F + Ep$$

Where F denotes payments received by land, labour and capital

Ep shows the entrepreneurial profits.

3. Sale Proceeds Minus Cost Approach :

The view implies that national income of a community lies some where between the gross national product and net national product. National Income falls short of GNP but exceeds NNP. Keynes does not deduct the whole of depreciation and replacement cost, but only a part of it which he terms 'user's cost'.

If the users cost calculated for all the individual business units is aggregated, it will determine the aggregate users cost. Keynes observed that the income of the community can be calculated by deducting user's cost from the aggregate sale proceeds. Income is denoted as $Y=A-U$

For estimation of net national income, it is necessary to deduct the supplementary cost also.

Thus $Y = A - U - V \Rightarrow Y = A-(U+V)$

By deducting users' cost plus supplementary cost from the aggregate sales, the net national income of the community can be estimated.

In a two-sector economy national income equals national product can be expressed in the form of the following equation.

National Product = Value of Final Goods & Services = Wages + Rent + Interests + Profits

From the above analysis it is evident that national income and national product are one and the same thing. Prof.J.R.Hicks rightly writes "The value of the net social product of the community and the sum of the incomes of its members are exactly equal. The net social product and the social income are one and the same thing".

1.2 Concepts of National Income :

There are various concepts of national income :-

1.2.1 Gross National Product (GNP) :

This is the basic national accounting measure of the total output or aggregate supply of goods and services. Gross national product is defined as the total market value of all final goods and services produced in a year in a country. Two things must be noted in this concept. First, it measures the market value of annual output. In other words, GNP is a monetary measure. There is no other way of adding up. The different sorts of goods and services produced in a year except in terms of their money prices. But in order to know accurately the changes in physical output, the figure for GNP is adjusted for price changes.

Secondly, for calculating GNP accurately, all goods and services produced in any years must be counted once, and not more than once. Most of goods go through a services of production stages before reaching a market. To avoid counting several times the parts of goods that are sold and resold. GNP includes, the market value of only final goods and ignore transactions involving intermediate goods.

1.2.2 Gross Domestic Product (GDP) :

Another important concept of national income is gross domestic product. GDP is the money value of all final goods and services produced by normal residents as well as non-residents in the domestic territory of a country but does not include net factor income earned from abroad. Thus difference between GDP and GNP at market prices arises due to the existence of 'net factor income from abroad.'

$GDP_{MP} = GNP_{MP}$ – net factor income from abroad

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

In national income accounting, we substract the value of imports from the value of exports to arrive at net exports which are a part of GDP and therefore also of GNP. Thus earnings from

net exports are quite distinct from net factor income from abroad. Thus GDP can be obtained by adding up the first four items of GNP. Thus GDP = C +I +G +Xn,

Where Xn = (X – M) Net factor Income from abroad

Gross Private Investment	Gross Private Investment	Less depreciation Net Private Investment	Less net Direct Taxes Wages + Profits + Interest + Rent
Net Exports Xn	Net Exports	Net exports	
Government Purchases G	Government Purchases	Government Purchases	
Consumption expenditure C	Consumption Expenditure	Consumption Expenditure	
GNP	GDP	NDP_{MP}	NDP_{FC}

1.2.3 Net National Product (NNP) or National Income at market prices (NNP_{MP})

The other important concept of national income is that of net national product (NNP). In the production of gross national product of a year, we consume or use up some fixed capital, i.e., equipment, machinery etc. The capital goods like machinery, will wear out or fall in value as a result of its consumption or use in production process. This consumption of fixed capital or fall in the value of fixed capital due to wear and tear is called depreciation. The market value to final goods and services after providing depreciation is called national income at market prices.

Therefore,

Net National Product Or National Income at Market Price = Gross National Product Depreciation

1.2.4 National Income at Factor Cost (NNP_{FC})

National Income at factor cost which is also simply called national income means the sum of all incomes earned by resource suppliers for their contribution of land, labour, capital and entrepreneurial ability which go into the years' net production. In other words, national income at factor cost shows how much it costs society in terms of economic resources to produce net output. The difference between national income at factor cost and nation income at market price arises from the fact that indirect taxes and subsidies cause market prices of output to be different from the factor incomes resulting from it.

National Income
Or
National Income at factor cost } = National Income at market prices – Indirect Taxes + Subsidies

National Income = Net National Product – Net Indirect Taxes

(Net of Indirect Taxes and Subsidies is called Net Indirect Taxes)

1.2.5 National Domestic Product (NDP)

GDP provides the measure of the total production of final goods and services in the economy. It includes some producer goods which are made to replace the existing produce goods that are depreciating or wearing out. If a machine lasts for ten years, we can say that one-tenth of it is used every year. The machine must be replaced by a new machine immediately after its life time. If cost of replacement is deducted from the GDP, we will get the net domestic product. Net domestic product measures the total production of goods and services for current consumption and for adding to the stock of producers goods. While calculating net national product, the balance of payments position must also be taken into account. Exports are a part of the NNP because they have to be paid for. Any surplus in the balance of payments must be added to and deficit must be deducted from the domestic product.

NDP + Net Foreign Income = NNP

Exports are a part of NNP because they are paid by foreigners. Imports must be deducted because they have to be paid for.

1.2.6 Personal Income (PI)

Personal Income is the sum of all incomes actually received by all individuals on household during a given year.

Personal Income = National Income – Social Security Contributions – Corporate Income Taxes - Undistributed Corporate Profits + Transfer Payments.

In moving from national income as an indictor of income earned to personal income as an indicator of income actually received, we must subtract from National Income those three types of income which earned but not received and add those incomes which are received but currently not earned.

From National Income to Disposable Income

Net Factor Income from abroad Profits Interest Rent Wages and Salaries	Less : (1) Undistributes corporate profits (2) corporate taxes (3) Social security contributions Plus Transfer payments		Less personal taxes Consumption + Saving (C+S)
National Income (NI or NNP_{FC})		Personal Income (PI)	National disposable (Income (DI)

1.2.7 Disposable Income (DI)

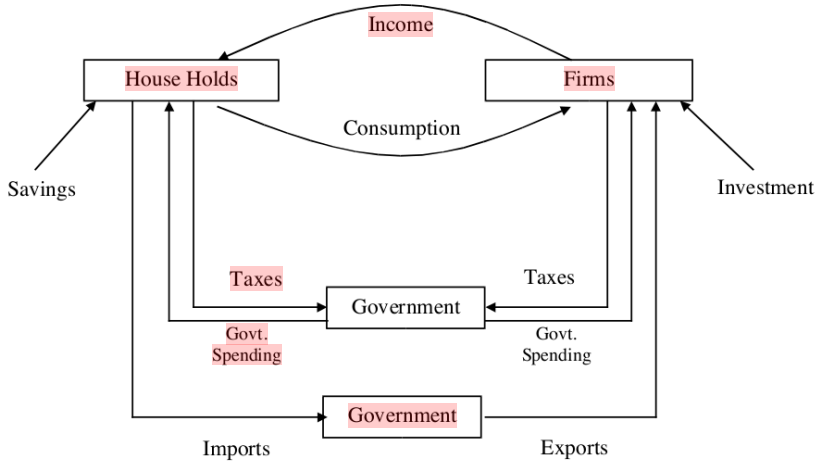
Even whole of the incomes which are actually received by the people are not available to them for consumption. This is because government levy some personal taxes such as income tax, personal property taxes. Therefore after a part of personal income is paid to government in the form of personal taxes like income tax, personal property tax etc, what remains of personal income is called disposable income.

Disposable Income = Personal Income – Personal Taxes.

Disposable income can be either consumed or saved.

Hence disposable income = consumption + saving.

Aggregate output, National Expenditure and National Income :



In principle, the value of an economy's total output can be measured in three ways. These can be seen with the above chart which shows the flow of income and expenditure in a simple model of the economy. The two main economic agents in the flow diagram are household and firms. The household can be thought of as the owners of factors of production, the services of which they sell to firms in exchange for income (in the form of wages, salaries interest, rent and profit). It should be noted that, in the model, all profits are assumed to be distributed to households and not retained by the firms. The firms use the factors of production to produce many different types of goods and services which they then sell to household (whose spending is called consumption), the government, foreigners (who buy exports) and other firms (whose spending on capital goods is called investment). The diagram also shows that the part of the household income which is not spent on consumption is either saved, spent on imports or in taken in taxes by the government. The government itself uses its taxes revenue (as well as money from other sources) to finance government spending, including transfer payments (such as pensions, unemployment benefits and student grants).

1.3 Measurement of National Income :

There are three methods of measuring national income because national income can be looked at from three view points as total output, total income or total expenditure. All those three are flows in the economy per period of time. They are three names for the same thing which is the aggregate output. As Cairncross has written "The national income can be looked at in any of three ways: as the national income measured by adding up everybody's income; as the national product measured by adding up everybody's outputs……, as the national outlay measured by adding up the value of all the things that people buy and adding in their saving".

Since the volume of flows in a particular period of time must equal, we can closely define a fundamental accounting identify which applies to a hypothetical economy in a particular period. It is

Income = Product = Expenditure on product

National Income = Net National Product

= Expenditure on net national product and also

National Income				
+	=	Gross National	=	Expenditure on gross
Depreciation		Product		National Product

The three methods measure the same flow. When production takes place, factors of production are paid. There is an income flow and an output flow. Output is purchased by people through expenditures which give rise to income. Thus income, output and expenditure are the three facets of the same coin.

1.4.1 Product or Value Added Method :

We have stated that the national product is the money value of all the final goods and services produced in a country during a year. To avoid double counting, we have to take the value of final goods and services only. There are three uses for a commodity, namely, final consumption, intermediate consumption such as seeds, fertilizers, labour etc used in cultivation and capital formation. There are only two final uses out of the three: final consumption and capital formation. The value of goods and services going into these two uses is to be calculated. A much easier way to find out the value added at each stage of production by every producing enterprise.

That is how we can avoid double counting. Gross value added at each stage in the preparation of bread is shown below.

Value Added

(Value in Rupees)

Name of the Producer	Stage of Production	Value of intermediate consumption	Value of output	Gross value added at each stage
(1)	(2)	(3)	(4)	(5 = 4-3)
Farmer	Wheat	Nil	300	300
Miller	Flour	300	500	200
Baker	Bread	500	700	200
Shopkeeper	Sale	700	800	100
Total		**1500**	**2300**	**800**

The value of final commodity is equal to the gross value added at market prices. This method involves the following steps.

(1) Identifying the producing enterprises and classifying them into industrial sectors according to their activities.

(2) Estimating net value added by each producing enterprise as well as each industrial sector and adding up the net values added by all the sectors.

All the producing enterprises are broadly classified into the following three industrial sectors

(1) Primary Sector : This sectors includes agriculture and allied activities, forestry, fishing and quarrying. All these sub-sectors produce commodities by exploiting natural resources – both surface resources like land and water and underground resources like coal, iron ore and other minerals.

(2) Secondary Sector : This is also called manufacturing sector. Enterprises in this sector transform one type of commodity into another type of commodity.

(3) Territory Sector : This is also called services sector. The enterprises in this sector produce services only such as banking, insurance, transport and communications trade and commerce.

In practice these three sectors are further divided into sub-industrial sectors. Each of these sub-sector is further divided into commodity groups or type of services.

The second step of estimating net value added, involves the estimation of the following :

(1) Value of output

(2) Value of intermediate consumption

(3) Value of consumption of fixed capital

The third and final step in the calculation of national income through the value added method is to estimate the net factor income earned from abroad, and add it to the domestic product.

Precautions :

The following precautions should be taken while measuring national income of a country through value added method.

1. Imputed rent values of self-occupied houses should be included in the value of output. Though these payments are not made to others, their values can be easily estimated from prevailing values in the market.
2. Sale and purchase of second hand goods should not included in measuring value of output of a year because their values were counted in the year of output of the year of their production. But commission and brokerage earned in their sale and purchase has to be included because this is a new service rendered in the current year.
3. Value of production for self-consumption are be counted while measuring national income. In this method, the production for self-consumption should be valued at the prevailing market prices.
4. Value of services of house wives are not included because it is not easy to find out correctly the values of their services.
5. Value of intermediate goods must not be counted while measuring value added because this will amount to double counting.

1.4.2 Income Method :

This method approaches national income from distribution side. Under this method, national income is obtained by summing up of the incomes of all individuals of a country. Individuals earn incomes by contributing their own services and services of their property such as land and capital to the national production. Therefore, national income is calculated by adding up rent of land, wages and salaries of employees, interest on capital, profit of entrepreneurs and incomes of self-employed people.

This method has the great advantage of indicating the distribution of national income among different income groups such as landlords, owners of capital, workers, entrepreneurs. Measurement of national income through income method involves the following steps :

a. The first step in income method is to identify the productive enterprises and then classify them into various industrial sectors such as agriculture, fishing, forestry, manufacturing, transport, trade and commerce, banking etc.

b. The second step is to classify the factor payments. The factor payments are classifieds into the following groups :

1. Compensation of employees which include wages and salaries, employers' contribution to social security schemes.
2. Rent and also royalty, if any
3. Interest
4. Profits : Profits are divided into sub-groups :
   (1) Dividends
   (2) Undistributed Profits
   (3) Corporate income tax
5. **Mixed income of self employed :** In India a large number of people are engaged in household industries, in family farms and other unorganised enterprises. Because of self-employment nature of business it is difficult to separate wages for the work done by self employed from the surplus or profits made by them. Therefore, the incomes earned by them are mix of wages, rent, interest and profit and are called mixed income of the self-employed.

c. The third step is to measure factor payments. Price paid out to each factor multiplied by the number of units of each factor employed would give us the factors' income.

d. The adding up of factor payments by all enterprises belonging to an industrial sector would give us the incomes paid out to various factors by a particular industrial sector.

e. By summing up the incomes paid out by all industrial sectors we will obtain domestic product at factor income which is also called net domestic at factor cost.

f. Finally, by adding net factor income earned from abroad to domestic factor income or NDP_{FC} we get net national product at factor cost NNP_{FC} which is called national income.

Income Method

			Net Indirect Taxes
	Net Income from	Consumption of	Consumption of

	Abroad	Fixed capital	Fixed Capital
Dividends		Dividends	
Undistributed Profits		Undistributed Profits	
Corporate Income Tax	Profits	Corporate Income Tax	
Interest	Interest	Interest	Interest
Rent	Rent	Rent	Rent
Mixed Income of self-employed	Mixed Income of self-employed	Mixed Income of self-employed	Mixed Income of self-employed
NDP_{FC}	NNP_{FC}	GDP_{FC}	GDP_{MP}

Precautions :

While estimating national income through income method the following precautions should be taken

(1) Transfer payments are not included.

(2) Imputed rent of self-occupied houses are included in national income as these houses provide services to those who occupy them and its value can be easily estimated from the market value data.

(3) Illegal money such as hawala money, money earned through smuggling etc are not included as they can not be easily estimated.

(4) Wind fall gains such as prizes won, lotteries are also not included.

(5) Corporate profit tax should not be separately included as it has already been included as apart of profits.

(6) Death duties, gift tax, wealth tax, tax on lotteries are paid from past savings or wealth and not from current income. Therefore, they should not be treated as a part of national income of a year.

(7) The receipt from the sale of second-hand goods should not be treated as a part of national income. This is because the sale of second hand goods does not create new flows goods and services in the current year.

(8) Income equal to the value of production used for self-consumption should be estimated and included in the measure of national income.

1.4.3 Expenditure Method :

Expenditure method arrives at national income by adding up all expenditure made on goods and services during a year. We add up the following types of expenditure by households, government and by productive enterprises to obtain national income.

1. Expenditure on consumer goods and services by individuals and households. This is called final private consumption expenditure and is denoted by c.
2. Government's expenditure on goods and services to satisfy collective wants. This is called government's final consumption expenditure and is denoted by G.
3. The expenditure by productive enterprises on capital goods and inventories or stocks. This is gross domestic capital formation denoted by I or GDCF. It is divided into two parts.
   (1) Gross fixed capital formation
   (2) Addition to the Stocks or Inventories of goods.
4. Estimating the net exports i.e., Exports – imports (X – M)

   X = Expenditure made by foreigners on goods and services of a country exported to other countries denoted by X.

   M = Expenditure by people enterprises and government of a country on imports of goods and services from other countries.

GDP_{MP} = Private final consumption expenditure + Govt's final consumption expenditure + Gross domestic capital formation + exports - imports

GDP_{MP} = C + G + I (X –M)

= C +G + I + Xn

On deducting consumption of fixed capital (i.e., depreciation) from gross domestic product at market prices (GDP_{MP}) , we get net domestic product at market prices (NDP_{MP})

In this method, we subtract net indirect taxes i.e., (Indirect taxes – subsidies) to arrive at net domestic product at factor cost (NDP_{FC})

Expenditure Method

Gross Domestic Capital Formation	Less Depreciation		Net Income from abroad
	Net Domestic Capital formation	Less net indirect tax	Net Domestic Capital formation
Govt. Final consumption expenditure	Govt. Final consumption expenditure		Govt. Final consumption expenditure
Private Final consumption expenditure	Private Final consumption expenditure		Private Final consumption expenditure
Net Exports (X – M)	Net Exports (X – M)		Net Exports (X – M)
GDP_{MP}	NDP_{MP}	NDP_{FC}	NNP_{MP}

1.5 Difficulties in the measurement of National Income :

Although all methods are used almost in all countries to calculate national income, yet the calculation is a complex affair and is beset with conceptual and statistical difficulties. Following are some difficulties involved in the measurement of National Income.

1. **Difficulty in defining nation :** National income does not only include income produced with in the country but also income earned in other countries by way of shipping charges, interest insurance and banking minus any payments made to foreign countries. Therefore definition of nation goes beyond the political boundaries.
2. **Treatment of non–monetary transactions :** Which kind of goods and services should be included in national income ? commodities and services having money value are included in the national income but there are goods and services which may have no corresponding flow of money payments. Services performed for love, kindness and mercy and for money have an economic value but have no money value. The difficulty is whether these services should be included in national income and how to measure their money value.
3. **Inapplicability of any one method :** Another difficulty is regarding the method to be used in the estimation of national income. It is preferred to use the three methods simultaneously depending upon the availability of statistics.

4. **Pau city of statistics:** Another important difficulty is the non-availability of statistical material. According to National Income Committee of India, the available statistics,

especially for agriculture and small scale industries are extremely unreliable and incomplete.

5. **Identification of transfer payments :** Another difficulty in calculation of national income is that of transfer of payments associated with the income method of national income calculation. Therefore, the transfer of money from one person or group to another person or group should be avoided. The best way to solve this difficulty is to consider only the disposable income of individuals or groups i.e., personal incomes minus all transfer payments.
6. **Self-consumed production :** Another difficulty is substantial part of the output is not exchanged for money in the market, it being either consumed directly by producers or bartered for other goods and services in the unorganised sector. The existence of a vast unorganised and non-monetized sector makes calculation of national income very difficult.
7. **Multi occupations :** The production in agriculture, industrial and as a matter of fact in all sectors is highly scattered and unorganised rendering the calculation of national income very difficult.
8. **Double Counting:** Another difficulty is of double counting usually associated with the inventory method. Double counting implies the possibility of a commodity like raw material or labour being included in national income more than once. The best way to avoid this difficulty is to calculate only the value of all goods and services that enter into final consumption.
9. **Which stage to choose :** Regarding the stage of economic activity at which national income be calculated, it is agreed that any stage-production, consumption and distribution- may be adopted depending upon the function the national income estimate is expected to discharge. If the aim is to show the economic progress and power of the economy, then the production stage would be more suitable, if the aim is to measure the welfare of individuals, then consumption stage would be more useful.

1.6 National Income measurement in India :

The Central Statistical Organisation, Department of Statistics, Ministry of Planning publishes national income statistics on a regular basis. The CSO is entrusted with the task of estimating national income of India on yearly basis.

The methodology followed by the CSO to measure the domestic product in India is described in its "National Accounts Statistics : Sources and Methods". In India it is not possible to estimate the national income by each of the three methods. For example in Indian agriculture it is

not possible to use income method because reliable income data is not available. In the household enterprises it is not possible to estimate income generated and final expenditure using all these three methods. As such different methods are used for different sectors. However, both valued added method and income method are being used to cross check the results.

Value added method is used to estimate the domestic product and the following are the commodity producing sectors.

(1) Agriculture and allied activities
(2) Forestry and logging
(3) Fishing
(4) Mining and Quarrying
(5) Registered manufacturing

Income method is employed to estimate domestic product in the following sectors.

(1) Unrecognised manufacturing
(2) Gas, electricity and water supply
(3) Banking and insurance
(4) Transport, communication and storage
(5) Real estate, ownership of dwellings and business services.
(6) Trade, hotels and restaurants
(7) Public administration and defence
(8) Other services.

In the construction sector, estimates are based on a combination of commodity output and expenditure approaches.

1.7 Social Accounting :

National Income accounting is similar to ordinary business accounting. Ordinary business accounting tries to summarise the performance of a firm by measuring its profit or loss over a particular period of time. It provides accurate information in numerical form in relation to the economic and financial activities during a year. Similarly national income accounting tries to summarise the performance of a country's economy by measuring its total income and production of goods and services in a particular year.

The terms National Income Accounting or Social Accounting was first introduced by J.R. Hicks in 1942. He defined it as the accounting of the whole community or nation, just as private

accounting is the accounting of an individual firm. Edey, Peacock and Copper describe social accounting thus : "Social accounting is concerned with the statistical classification of the activities of human beings and human institutions in ways which help us to understand the operations of economy as a whole". The field of studies summed by the words, "Social accounting embraces, not only the classification of economic activity but also the application of the information thus assembled to the investigation of the operation of the economic system".

1.8 SUMMARY:

National Product refers to a flow of goods and services over any given period of time, national Income represents the flow of total factor earnings during any given time period. National Income measures the market value of annual output. The idea of 'National Income' has attached the attention of economic thinkers and policy makers since the inception of Economies. Among the economic thinkers Marshall, A.C. Pigou Fisher and Keynes are the prominent economists. Keynes made a departure from the earlier thinkers on this concept. Keynes had suggested three approaches to National Income such as aggregate expenditure, factor income approach and sale proceeds minus cost approach.

There are various concepts of National Income. They are G.N.P., G.D.P., N.N.P., National Income at factor cost, N.D.P. personal Income & Disposable income.

There are three methods of measuring National Income because National Income can be looked at from three view points as total output or value added, income and total expenditure.

Although all methods are used almost in all countries to calculate National Income, yet the calculation is a complex and is beset with conceptual and statistical difficulties.

The central statistical organisation, department of statistics, Ministry of Planning publishes, National Income statistics on a regular basis. In India it is not possible to estimate the National Income by each of the three methods. However both value added method and income method are being used to cross check the result.

National income accounting tries to summarise the performance of country's economy by measuring its total income and production of goods and services in a particular year.

1.9 MODEL QUESTIONS:

1. Define National Income what are the different concepts of National Income? How are these interrelated?

2. How National income be measured? What are the difficulties in its measurement?

3. How far is National Income of a country a measure of welfare?

4. Describe the method of measuring National Income adopted in India. Give suggestions for improvement.

1.10 REFERENCES:

1) Macro economics – P.N. Chopra

2) Macro Economics – D.M. Mithani

3) Macro Economics – A.V.R. Chary

4) Macro Economic Theory – M.C. Vaish

Lesson – 2

CIRCULAR FLOW OF INCOME

1.0 AIMS AND OBJECTIVES:

The main aim of this lesson is to make students understand the circular flow of income in various sectors. Students will get knowledge as how the income flows in two sector, three sectors and four sector economy.

CONTENTS

1.0 INTRODUCTION:

The concept of circular flow of income explains how income flows between the sectors. The concept can be explain in a two sector model, three sector model and four sector model. In a two sector model the flow of income is explained between the household sector and business sector. In a three sector model apart from the household and business sector, government sector is also seen and in the four sector model there are household sector, business sector, government sector and the rest of the world is the fourth sector.

2.1 CIRCULAR FLOW OF INCOME

The circular flow of income is a neoclassical economic model that depicts how money flows through the economy in various sectors. In the simplest version, the economy is modeled as consisting only of households and firms. This is a two model sector. Money flows to workers

in the form of wages, and money flows back to firms in exchange for products. The concept of circular flow of income is extended to a three tier and a four tier economy where by government sector and foreign sector are introduced.

The circular flow of income refers to the process where the national income and expenditure of an economy flows in a circular manner continuously throughout the time. The circular flow shows both income and expenditure of the economy. It includes both national income and national expenditure of the country. Various components in the national income and expenditure are – Saving, Investment, Taxation, exports, imports, etc. In this flow the national income is equal to the national expenditure.

2.1.1 CIRCULAR FLOW OF INCOME IN TWO SECTOR MODEL

The concept of circular flow of income can be explained in a simple hypothetical economy where there would be only two sectors namely – household sector and business sector. The circular flow is shown in the figure 2.1 below.

The household sector owns all the factors of production namely land, labour, capital etc. This sector would sell these factors of production to the business sector. And in turn receive income. The business sector consists of producers who produce the products and sell them to the household sector or the consumers. Thus the household sector would buy the products from the business sector and pay the price. The circular flow of income and expenditure in this two sector model is show in figure 2.1 where the product market is shown in one side and the factor market in the other side.

In the product market the household sector purchase goods and services from the business sector. In the factor market the household sector receives income from the business sector for rendering services. Thus the household sector purchases the good s and service that are produced by the business by making payment to them. The business sector also makes payments to the household sector for the services rendered by them in the form of wage payments for the services of the labourers, interest for supplying the capital, rent for the use of land etc. Thus the payments go around in a circular manner from business sector to household sector and from household sector to business sector.

Goods flow from the business sector to the household sector in the product market and services flow from the household sector to the business sector in the factor market.

Figure 2.1

Circular Flow of Income in a Two Sector Economy

2.1.2 CIRCULAR FLOW OF INCOME IN THREE SECTOR MODEL

It includes household sector, producing sector and government sector. It will study a circular flow income in these sectors excluding rest of the world i.e. closed economy income. Here flows from household sector and producing sector to government sector are in the form of taxes. The income received from the government sector flows to producing and household sector in the form of payments for government purchases of goods and services as well as payment of subsides and transfer payments. Every payment has a receipt in response of it by which aggregate expenditure of an economy becomes identical to aggregate income and makes this circular flow unending.

In this model there are three sectors namely- household sector, business sector and government sector and three markets namely - product market, factor market and financial

market. It shows a continuous flow of payments for goods and services between the producers and the consumers with particular emphasis on taxes and government purchases. Main highlight in this model is on the key role of government sector.

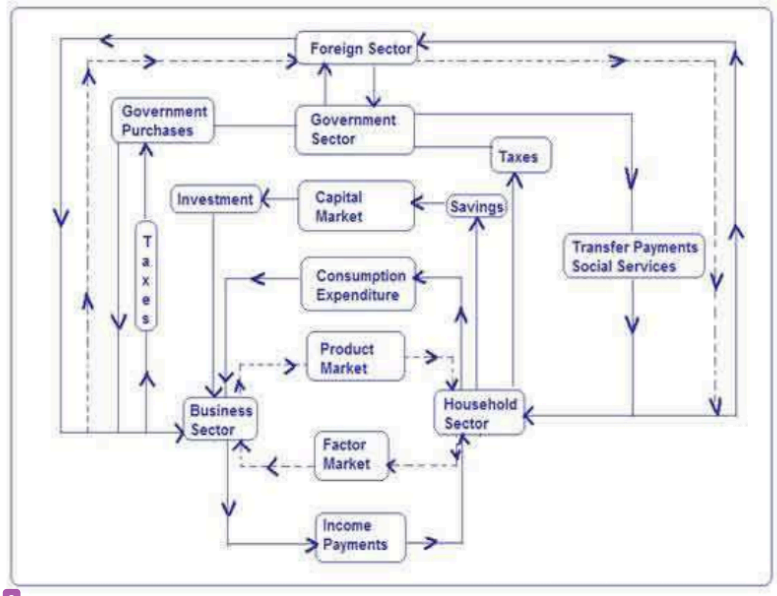
The Household Sector includes everyone, all people, seeking to satisfy unlimited wants and needs. This sector is responsible for consumption expenditures. It also owns all productive resources or the factors of production. The business sector includes the institutions that undertake the task of combining resources to produce goods and services. Government sector includes the ruling bodies of the federal, state, and local governments. Regulation is the prime function of the government sector, especially passing laws, collecting taxes, and forcing the other sectors to do what they would not do voluntary. It buys a portion of GDP as government purchases. The government sector buys a portion of gross domestic product flowing through the product markets to pursue its assorted tasks and functions, such as national defense, education, and judicial system. These expenditures are primarily financed from taxes collected from the household sector. However, when tax revenue falls short of expenditures, the government sector is also prone to borrow through the financial markets.

The product market is the combination of all markets in the economy that exchange all the final goods and services. The resource or the factor market is the combination of markets that exchange the services of the factors of production. The Financial Market deals with the commodity exchanged through financial markets are legal claims.

Figure 2.2 shows the three-sector, three-market circular flow. At the household sector contains the consumers. The business sector is the production sector, responsible for the production part. The product market deals with the exchange of final goods and services and the factor market deals with the exchange of the services of scarce resources. We have the government sector that highlights the financial markets which divert saving to investment expenditure.

The government sector derives taxes from the household sector. Taxes in the form of personal income tax or commodity taxes are paid by the consumers in the household sector are it outflows from the circular flow of income. But the government purchases the services of the household and makes transfer payments in the form of old age pensions, unemployment relief etc, all such expenditures by the government are injected into the circular flow of income.

Figure 2.2



The circular flow between the business sector and the government sector deals with all types of taxes paid by the business sector to the government and these are the leakages from the circular flow. On the other side, the government purchases all its requirements of goods of all types from the business sector and gives subsidies and makes transfer payments to the firms in order to encourage their production. These government expenditures are injected into the circular flow.

The flow between the business sector and household sector remains same as it is discussed in the two sector economy. Taxation trends to reduce the consumption and saving of the household sector. That in turn reduces the sales and income of the firms or the business sector. Taxes on the business firms trend to reduce their investment and production. The government offsets these leakages by making purchases from the business sector and also by buying services from the household sector to equal it to the amount of taxes. Thus the government activities brings equilibrium between the income and expenditure flow in the economy.

2.1.3 CIRCULAR FLOW OF INCOME IN FOUR SECTOR MODEL

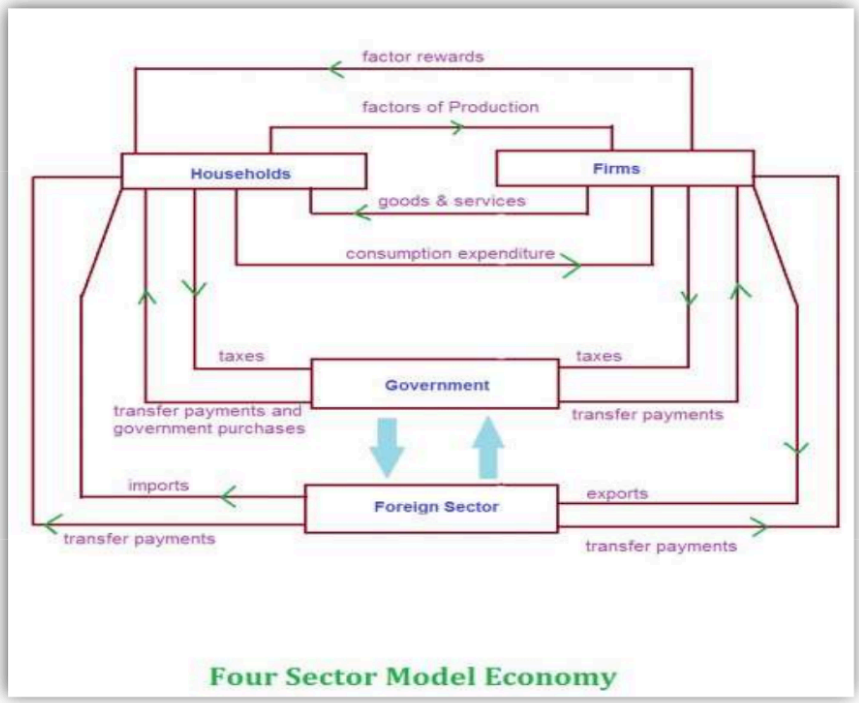
A modern monetary economy comprises a network of four sectors these are- 1.Household sectors 2.Firms or Producing sector 3.Government sector 4.foreign sector or external sector. The four sector model become more important, because almost all the countries are opened and they are actively participating in foreign trade (export and import). So, the four sector model representing an open economy.

Household sector consist of consumers and they provide factors for productions like labour, land, building, capital etc. The industries provide goods and services to satisfy the demand of households. Firms hire the factor services supplied by households and reward them in various forms like wages for labour, rent for land and building etc. The main function of government sector includes policy making, implementation of policies, law and order etc. The government may make fiscal policy or monetary policy. They adjust policy instruments to stabilize the economy. The instruments may in the form of tax, subsidies, factor payments etc. Foreign sector is an integral one for any open economy. Since the international trade become more active every country take it as a vital one to make policy, improve national growth etc. in an open economy, factor rewards are flowing both in to the economy and out to the economy.

Foreign sector plays a vital role in an open economy. When household sector demand more, the import will increase and lead to a deficit foreign trade account. On the other hand foreign sector make payments on services provided by household sector in abroad. Foreign sector pays on commodities exported by firms to abroad. So, it is an injection to the economy. When a tourist visits domestic economy, they will spend money, so it is also an inflow to the economy. Similarly government sector also interact with government. If government makes any trade with foreign sector, there will be inflow or outflow of income.

Figure 2.3 shows the circular flow of income between the four sectors of the economy. The flow is similar between the households, business sector and the government sector. In this model the new entry is only the foreign sector which plays a vital role in the income and expenditure flow.

Figure 2.3



2.3 SUMMARY

The concept of circular flow of income explains how income flows between the sectors. The concept can be explain in a two sector model, three sector model and four sector model. In a two sector model the flow of income is explained between the household sector and business sector. In a three sector model apart from the household and business sector, government sector is also seen and in the four sector model there are household sector, business sector, government sector and the rest of the world is the fourth sector.

2.4 MODEL QUESTIONS

1. What is circular flow of income?
2. Explain circular flow of income in a two model economy.
3. Explain circular flow of income in a three model economy.
4. Explain circular flow of income in a four model economy.
5. Which model of circular flow of income is perfect for the modern economies?

2.5 REFERENCES:

1) Macro economics – P.N. Chopra
2) Macro Economics – D.M. Mithani
3) Macro Economics – A.V.R. Chary
4) Macro Economic Theory – M.C. Vaish

LESSON – 3

INCOME AND EMPLOYMENT THEORY

CLASSICAL THEORY OF EMPLOYMENT

3.0 AIMS AND OBJECTIVES:

After completing this lesson, you will be able to learn the following.

* What is meant by unemployment and different kinds of unemployment.
* Full Employment
* Say's Law of Markets
* Classical Theory of Employment
* Shortcomings in Classical Theory

CONTENTS:

3.1 INTRODUCTION:

There is close relationship between national product and general employment. In short run, employment level changes according to the changes in the national product classical economists put forth their opinions relating to income, and output and employment. They expressed that there is positive relationship between quantity of labour and national product.

Economists such as Adam Smith, David Ricardo, Mathues, J.B. Say, A.C. Pigoue are considered as classical economists by Keynes. These classical economists always assumed a state of full employment. They believed that less than full employment is an abnormal situation. As such, they have not propounded a separate theory for employment. However, the classical theory of employment is a collection of the opinions of classical economists on employment.

3.2 DIFFERENT KINDS OF UNEMPLOYMENT :

Unemployments are different kinds. The following are the various kinds of unemployments.

A) **VOLUNTARY UNEMPLOYMENT :** A worker is said to be voluntarily unemployed when he refuses to work at the current wage rate or one refuses to work at all. For example, a worker who goes on strike demanding higher wages was considered by Classicals to be voluntarily unemployed, for he can be employed if he is just prepared to accept the current wage rate. Similarily, voluntary unemployment exists when the potential workers are unwilling to accept less wages; they include persons who have enough to depend upon the income derived from the large property which they happen to possess.

B) **INVOLUNTARY UNEMPLOYMENT :** A worker is said to be involuntary unemployment when he is not able to get employment even he ready to work into the existing wage rate.

C) **FRICTIONAL UNEMPLOYMENT :** Frictional unemployment exists because the workers do not possess the necessary skills or are located in the wrong places or unsuitable jobs. Frictional unemployment is caused on account of the immobility of labour, seasonal nature of work, temporary shortages of raw materials, breakdowns of machinery, ignorance about job opportunities etc.,

D) **TECHNICAL UNEMPLOYMENT :** Technological unemployment is the result of changes in the techniques of prdouction. This type of unemployment is caused when machines replace men.

E) **SEASONAL UNEMPLOYMENT :** Seasonal unemployment arises in a particular industry through seasonal variations in its activity brought about by climatic conditions or by changes in fashions. This is the simplest and most obvious type. The effects of the weather and of customary buying patterns are implicit. Many consider it to be a kind of frictional unemployment. The dimenssions of seasonal unemployment, despite its apparent simplicity are by no means clear.

F) **STRUCTUAL UNEMPLOYMENT :** Structural unemployment is said to exist when large number of persons are unemployed or underemployed not because they want to remain idle or underworked, but because the co-operant factors of production to engage them fully are not sufficiently available. There may be scarcity of land, capital, or skill in the national economy causing structural disequilibrium (unemployment) in the labour sector. This type of unemployment, while commonly recognized, is one of the most difficult to define clearly and consistently.

3.3 DEFINITION :

It is rather difficult to give a precise and yet generally acceptable definition of full employment; It is a concept of which has often been misunderstood and requires explanation. Prof. Gardner Ackley calls it "slippery concept" for it does not mean zero unemployment. American Economic Association Committee defines full employment as follows :

"Full employment means that qualified people who seek jobs at prevailing wage rates can find them in productive activities without considerable delay. It means full-time jobs for people who want to work full time... it does not mean that unemployment is ever zero". In a dynamic economy in which new industries are developing and old ones are declining, there is bound to be a high degree of labour mobility and transitional unemployment. Even with an excess demand for labour some workers are idle for seasonal reasons, some workers having lost a job have not yet moved to fill avacncy, new entrants in the labour force need some time to settle down, some workers cannot hold a steady job on account of mental, physical, and emotional handicaps. Thus, full employment is a concept which is compatible with a certain amount of unemployment.

In short, full employment is a situation when there is no involuntary unemployment, through there may be frictional, structural or voluntary unemployment.

3.4 CLASSICAL THEORY OF EMPLOYMENT :

According to classicals the normal situtation in any economy is stable equilibrium at full employment. As this theory was enuntiated by classical economists. This theory was called classical theory. The following are various, assumptions that keeps the economy at full employment level. The following discussion gives at broad idea of classical theory.

ASSUMPTIONS :

The classical theory is based, more or less, on the following assumptions.

(i) That the free enterprise system based on price mechanism provides a place for growing population and an increase in capital.

(ii) In an expanding economy new firms and workers find their way into the productive process, not by displacing others but by offering their own products in exchange.

(iii) The extent of the market is not limited i.e., incapable of expansion. The extent of the market is as big as the volume of products offered in exchange.

(iv) No necessity on the part of the government to intervene in business matters so that the attainment of automatic adjustment is facilitated.

(v) Flexibility of interest rates and wage rates and long period were considered essential for its succesful working.

(vi) Perfect competition exists in the economy.

(vii) Classicals assumed that savings will always equal to investment.

3.5 SAYS LAW OF MARKETS:

Say's law of markets, named after the French economist, J.B. Say (1767 - 1832) can be readily summarised as "supply creates its own demand". The obvious implication of Say's law is that any increment in output (supply) will by itself generate an equivalent increase in income and in spending (demand). Thus income and output will always be at a 'full employment' level. If they are somehow at a lower level, implying that some resources are unwillingly idle or 'umemployed', additional production will immediately take place and this will generate an equivalent amoutn of additional income which will all be spent in turn, on the purchase of the added product. Moreover, since no one will be content with less than 'full employment', it becomes obvious that additional production will always be undertaken until the 'full employment' level is actually reached.

The basic argument underlying Say's law can be expressed in greater detail in the following way - peoplework not for the sake of doing work but only to obtain goods and services that give them the required satisfaction. In an economy characterised by the division of labour and exchange, one does not obtain most of these goods and services directly by producing all of them with one's efforts. Instead everyone generally produces only those goods in which his efficiency is relatively the greatest and exchanges the surplus that remains after his own use for the products of others. The very act of production, therefore, constitutes the demand for other goods - a demand equivalent to the value of the suprlus goods each man produces. Under these conditions it is evident that there can never be a general overproduction fo goods and hence the aggregate demand must in some sense equal the aggregate supply. Total output may suffer because at some point, an individual may prefer to sacrifice material benefits for lesrue, but such 'unemplyment' will be 'voluntary' rather than 'involuntary'.

The essence of the argument which wa smore explicitly put forward by David Ricardo while adopting Say's law is that if all individual supplies and demands are exactly balanced, demand and supply in the aggregate must also necessarily balance. However, it may be noted that Ricardo's formulation of Say's law quite explicity admits that temporary imbalances in specific lines of production might arise because individuals may not correctly direct their production in accordance with the wants of others. Thus for instance, we may have situations where a man producing wooden chairs might produce more than people want to buy at the price (in terms of other goods) he had assumed would exist when he brought the product to the market. As a result the surplus wooden chairs would buy fewer potatoes and less milk than he had anticipated. His adjustment to this would involve either a decision in favour of more leisure or a decision to produce some other product, more in demand. But this is merely the temporary maladjustment of relative outputs which the market will promptly correct.

The maladjustment of relative output is viewed as an essentially short-term 'temporary' phenomenon because it is felt that a supply in excess of demand of one commodity is more or less exactly balanced by a supply below demand of another commodity. This, in turn implies that at the aggregate level there is no overproduction or a 'general glut of commodities'. Moreover, in the long run the market mechanism would tend to correct whatever internal imbalances exist in the short run in some sectors of the economy.

It is significant to note htere that although the basic argument of Say's law was framed in terms of a barter economy, Ricardo and his followers extended its application to the case fo the money using capitalist economy without making any modifications. The cllassical economists

assumed that the law also held true for an economy using money, perhaps because they believed that apart from the 'occasional accentric miser', people do not desire money for its own sake. This implied that if they sold their output or services for money, the money so earned would in turn be promptly spent for other goods. In other words they regarded money as merely a convenient medium of exchange, introduced primarily with a view to avoiding the awkwardness and inconvenience of barter, and nothing more.

It follows from the above discussion that according to the classical economists, under conditions of general equilibrium the economy operates at the full employment level of output. To understand the theoretical foundation of this important result it is necessary to examine the macro-economic system implicit in the writings of the classical economists.

3.6 THE CLASSICAL SYSTEM:

The classical economists held the view that the economy consists of three markets : for labour, goods and money. It was argued that the operation of the forces of supply and demand in each of these markets would finally result in full employment. The classical system can be represented by the following set of equations :

$$y = f(N) \quad \text{----------} \quad (1)$$

$$\frac{dy}{dN} = \frac{W}{P} \quad \text{----------} \quad (2)$$

$$N^D = f^4\left(\frac{W}{P}\right) \quad \text{----------} \quad (3)$$

$$N^3 = f^3\left(\frac{W}{P}\right) \quad \text{----------} \quad (4)$$

$$N^D = N^S \quad \text{----------} \quad (5)$$

$$M = kpy \quad \text{----------} \quad (6)$$

where y = real output

N = employment

W = money wage rate

P= general price level

M = quantity of money

k = fraction of income that is deemed to be held in cash balances.

Equation (1) is the aggregate production function of the economy relating output to employment. Output increases with an increase in employment. However, the rate of increase in output decreases as employment increases because of the operation of the law of diminishing

returns. Equation (2) expresses the profit maximisation condition which states that under a competitive system real wages equal the marginal product of labour. Equation (3) treats the demand for labour as a function fo the real wage rate. More and more employment is offered only as the real wage rate is lowered. This is so because the marginal product of labour decreases as output increases with the increase in employment. The demand function for labour is the slope of the production function embodied in Equation (1). Equation (4) treats the supply of labour as an increasing function of the real wage rate because the marginal disutility of work rises as the amount of work done increases. Equation (5) specifies the equilibrium condition for the labour market. Equation (6) represents the quantity theor of money. The total quantity of money is treated as a constant proportion of money income.

GENERAL EQUILIBRIUM :

It is easy to see how these equations constitute a self-contained system. Equations (3), (4) and (5) determine the equilibrium quantity of labour employed and the corresponding equilibrium level of real wage rate.

Once the equilibrium level of employment is known, we can derive from Equation (1) the total output that will be produced at that level of employment. It is obvious that the output level so determined represents the full employment level of output consistent with the given equilibrium level of real wage rate. From Equation (6), given the quantity of money we can find out the amount of money income that would correspond to the full employment level of output. Since the real income or the full employment level of output is already known, the level of price can be obtained easily from the same equation.

2

The downward sloping demand curve for labour is derived from the prodcution function. The supply curve for labour is upward sloping in relation to the real wage rate. Diagram (b) shows the production function depicting the relationship between employment and output. In diagram (c) the relationship between the quantity of money and the money income is represented. The line kpy, shows the level of money income, which each possible quantity of money can support. The slope of the line is 1/k.

The intersection of the demand curve and the supply curve for labour determines the equilibrium quntity of employment, which is shown as N_0 in diagram (a). From diagram (b) it can be seen that at an employment of N_0 the real output is y_0. Diagram (c) shows that at M_0, which is the given stock of money, the money income that can by supported is P. y_0. Since y_0 is known from diagram (b), P_0 can be derived.

2

The classical system also comprises another segment in which investment and savings are treated as functions of the interest rate. The following three equations constitute this segment:

$$S = S(r) \qquad (7)$$

$$I = I(r) \qquad (8)$$

$$S = I \qquad (9)$$

Equation (7) expresses savings as an increasing function of the interest rate, given the

full employment level of output. Equation (8) expresses investment as a decreasing function of the interest rate. Both S and I are defined in real terms. Equation (9) represents the equilibrium condition in the capital market.

In Fig. 22.2 the upward sloping saving function depicts the direct relationship between the amount of saving and the rate of interest, and the downward sloping investment function depcits the inverse relationship between the amount of investment and the rate of interest. Since the equilibrium level of output is already determined at the full employment level through the earlier system of equations, the saving function shows the amount of saving out of the full employment level of income that will correspond to alternative rates of interest. The intersection of the saving and investment on the one hand and the equilibrium rate of interest on the other.

It is evident from the above discussion that the determination of the equilibrium level of saving and investment in the classical system is not in any way linked with the determination of total output, employment and price level. The earlier system of equations, (1) to (6) can be solved independently of the ohter system of equations, (7) to (9). Thus the latter system only determines the distribution of total output between investment goods and consumption goods.

In the entire classical analysis the labour market plays a crucial role. It is assumed that wages are flexible and that the wage rate will rise only if there is an excess demand for labour. The analysis fails tot ake into account the institutional rigidities in lowering the wage rate. In addition, another serious weakness of the system is that it fails to incorporate the impact of a reduction in the wage rate on the demand for labour. Wage is not only an element in the cost of production but also an element in income. If a cut in wage rate causes the aggregate demand to fall propertionately, employment may not change.

3.7 CLASSICAL EMPLOYMENT THEORY - KEYNES' ATTACK:

The classical theory of employment is no more easily accepted because few people really believe that there is any automatic tendency for the economic system to be in equilibrium at full employment level. The classical theory, as such, collapsed on account of great 1930 depression, economists confirmed the classical theory and its conclusion that full employment was a normal condition but after thirties till the beginning of forties, for ten long years, serious and prolonged unemployment became the normal condition fo the economy, thereby giving a rude shock to the classical belief and the theory proved incapable of coping with the situation and an alternate theory developed by Keynes became more acceptable.

1. **Money Wages No Way to Reduce Real Wages :** According to Keynes we cannot reduce real wages by reducing money wages, however hard we may try, as this would lead to a reduction in aggregate demand prices and profits. Moreover, workers are under what Keynes calls "Money Illusion", i.e., they are very sensitive to changes in money wages and are more concerned with given money wages than with given real wages. Keynes rejected the classical theory of unemployment, which, in his view, asserted that (1) wage bargains between workers and employers determine real wages, and (2) the level of (real) wages thus arrived at determines the amount of employment. He agreed-basically on the assumption of diminishing returns - that an increase in employment can only occur to the accompaniment of a decline in the rate of real wages. His basic difference with the classical theory lay rather in his argument

that there was no expedient which later as a whole can reduce its real wage to a given figure by making revised money bargains with the entrepreneurs.

2. **No Full Employment (Underemployment Equilibrium) :** According to Keynes, the tacit assumption of full employment by the classicals is not wholly warranted by actual facts, as there always exists some unemployment in the economy based upon the philosophy of laissezfaire capitalism Booms and depressions are common features of capitalist economies and investments are not only inadequate but also often fluctuate. In such economics less than full employment is the rule, and full employment equilibrium only an exception. Thus, Keynes felt that underemployment equilibrium (equilibrium at less than full employment) is the normal situation in such economies.

The classical assumption of full employment in the economy is based on Say's Law of Markets, according which whatever is produced is automatically consumed. Keynes, however, held that level of employment at a time is determined by effective demand.

3. **Say's Law Ineffective :** Say's Law of Markets, which was the core of classical theory became the subject matter of special attack from Keynes. Keynes particularly condemned Say's Law for its exhortation that 'supply' creates its own demand and that there is no general overproduction and unemployment. According to Keynes, income is not automatically spent at a rate which will keep all the factors of production employed. Unemployment, according to Keynes, is on account of the failure to spend current income on consumption and investment goods. In a free enterprise economy, Keynes states that supply does not automatically create enough demand within the economy.

4. **Neglecting Role of Money :** Keynes linked the theory of money to general theory. Money, In Keynesian system is the link between the present and the future. Denouncing the classical theory of value and distribution as partial theory, Keynes remarked that treatises with little or no attention paid to money are not likely to be popular unless they deal with income formation also. Keynes integrated the theory of employment and money with the theory of income. He took strong exception tot he veil attitude of classical and denied that money is an illusion.

5. **Interest-Not Equilibrating Mechanism :** According to classicals rate of interest brings automatic adjustment between saving and investment at full employment level. This is because they believed that savings depend upon the rate of interest and rise and fall with a rise and fall in the rate of interest (in other words, to them savings are highly interest-elastic and flow automatically to equal investment at full employment level). Keynes, however, challenged the assumptions of the classicals and pointed out that the functional equality between saving and investment is brought about by changes in income (rather than by the rate of interest). He, therefore, concluded that the equilibrium between S and I is reached considerably below the full employment level, called the underemployment equilibrium. According to Keynes, as long as the shapes of investment schedule, saving schedule and liquidity (demand for money) schedule are as shown further, savings will not automatically flow to equal investment at full employment level; however, flexible wages, prices and costs may be. Therefore, what we have in the economy is the underemployment equilibrium and not the full

employment equilibrium.

6. **State Intervention :** Keynes also denounced the free enterprise, economy and its automatic and self-adjusting nature through the 'invisible hand and price mechanism'. Actually Keynes made a strong plea for state intervention in economic matters. As a result of the depression of the 'thirties', Keynes started doubting the basic principle of 'enlightened self-interest', on which capitalism was supposed to function. Whatever served the interest of businessmen did not serve the interest of the community. Keynes was in favour of giving relief to the unemployed people to boost up effective demand, besides advocating deficit financing and large-scale public expenditure on public works to increase employment. According to Keynes, the policy of laissez-faire captalism might have held sway in good old days, but its weaknesses were throughly exposed in recent times, specially during the depression when it failed to deliver the goods and services. Keynes, therefore, favoured governmental intervention and viewed government spending, taxing and borrowing as the most important weapon against unemployment.

7. **Wages and Propensity to Consume :** Classical economists laid stress on the stimulating effects of wage-cuts on the propensity to consume. Their argument was that a general reduction in wages will result in a general reduction in prices (because marginal costs fall on account of the pressure of lower wage rates). The lower prices will increase consumption. But such an approach represents a vague attempt to apply certain principles relating tot he price and demand for a particular product to the problem of total consumption. Actually, the effects of wage-cuts are likely to be more unfavourbale on the propensity to consume. It is, therefore, clear that wage cuts, by redistributing the income in favour of the groups, with lower marginal propensity to consume (and high MPS), will cause income and output, as also the employment, to decline.

8. **Liquid Assets and Pigou Effect :** Liquid assets (currency, bank deposits, government bonds and so on) and changes therein also affect the propensity to consume. Prof. Pigou argued that a general fall in prices induced by the general wage-cut will increase the real value of cash balances and other forms of saving thereby leading to a higher rate of consumption. This later relationship (between the real value of liquid assets and consumption) has come to be known as the 'Pigou Effect'. 'Pigou Effect' in brief, means that the real value of money assets rises as a result of general wage-cut and prices. The rise in the real value of money assets shifts the consumption function upwards. It is also called 'Real Value of Money Assets Effect'. But the validity of the 'Pigou Effect' has been questioned by modern economists, partly on the ground that a large number of persons do not possess money assets and partly on the ground that those who possess such assets want to possess still more. Under such circumstances, it is highly doubtful whether propensity to consume will be raised through 'Pigou Effect'. Hence, justification of Keynes criticism of classicals.

3.8 CONCLUSION:

In the opinion of classical economists, unemployment is not at all an important problem.

In their view, unemployment general over production are short run problems and the problems will automatically settled in the long run. She says Land's supply creates its own demand, Pigoue's flexible wage rates brings the economy to full employment level. But the classical economists solutions for unemployment did not solve the great depression of 1930's. Hence, Keynes enunciated a separate theory criticized the classical views and short-run problems better integrat ethe theory of money, income and output, make theory more useful in the area of public policy, be more concerned with general demand, thrift and expectations, and be less certain on the relation of wage-cutting and employment". Keynes was perfectly conscious of his debts to the early writers as well as his own contributions. Keynes himself makes pertinent remarks in the preface of the 'General Tehory', "Those who are strongly wedded to what I call the classical theory will fluctuate, I expect, between a belief that I am quite wrong and a belief that I am saying nothing new". His judgements of the typical shapes of the various functions are indeed revolutionary. No other economist had ever worked out a complete and determinate model based on the propensity to consume, marginal efficiency of capital and liquidity preference.

3.9 IMPORTANT POINTS TO BE REMEMBERED:

1. The main feature of the classical theory of employment is that it denies the deficiency of aggregate demand and hence unemployment.
2. It is difficult to define full employment. It can coexist with various type of unemployment.
3. Classical economists took full employments as a situation where there is no 'involuntary unemployment'. Attainment of full employment has become the chief objective of economies.
4. There are three building blocks in the classical theory of employment. Relationship between money-wage, real-wage and employment. Total aggregate demand which is never deficient and the theory of price level in which MV = PT. These relationships have been shown in the classical model with and without saving and investment.
5. Classical equilibrium was always a full employment equilibrium.
6. Classicals and Keynes agreed for a reduction in real wage in order to increase employment but they differed as regards the way it was to be done.
7. A particular wage cut in a single industry or firm may increase employment there but a general wage cut does not increase employment.
8. Keynes rejected without qualification the classical plea of increase in employment through wage reduction.
9. His conclusion was that wages should be left intact and other measures should be resorted to generate full employment.
10. The classical theory of employment collapsed on account of depression and Keynes' alternate theory.
11. Keynes attacked the classical theory of employment on the grounds that real wages cannot be reduced, there is no full employment; Say's Law is ineffective, they neglect the role of money; interest rate is not equilibrating mechanism. Wage cuts, not

favourable to consumption or real balances, there is state intervention etc.

12. Despite the above criticism, Keynes debts to classical economists cannot be denied, though his own contributions could be described in the nature of a revolution.

3.10 GLOSSARY:

1. **Full Employment :** Absence of involuntary unemployment.
2. **Say's Law of Markets :** Supply creates its own demand.
3. **Lesseiz-faire Economy :** Non-intervention of government in economic affairs.

3.11 MODEL QUESTIONS:

I. Essay Type Questions

1. Critically examine the classical theory of employment.

II. Short Essay Type Questions

2. J.B. Say's Law of Markets
3. Is wage-cuts improve the employment level ?

III. Short Questions

4. Full employment
5. Leiseiz-faire Economy.

3.12 SUGGESTED READINGS:

1.	McDongal & Dernburg	:	Macro Economics
2.	Jhingan M.L.	:	Advanced Economic Theory
3.	Vaish M.C.	:	Macro Economics
4.	Gupta R.D.	:	Keynes and Post Keynesian
5.	Dewett K.K.	:	Modern Economic Theory

LESSON – 4

KEYNES THEORY OF INCOME AND EMPLOYMENT

4.0 AIMS AND OBJECTIVES:

After completing this lesson, you will be able to understand the following :

* Keynesian view on employment
* Effective Demand
* Aggregate Supply Function
* Aggregate Supply Function
* Determination of Employment

CONTENTS:

4.1 INTRODUCTION

The publication of J.M. Keynes *The General Theory of Employment, Interest and Money,* in 1936 is usually referred to as the *The General Theory* in economic literature.

Keynes in his book "*The General Theory of Employment, Interest and Money*" contrast his theory of employment with that of classical economists. He argued that the postulates of the classical theory are applicable to a special case of full employment only, but not to the general case of less than full employment.

Keynesian theory is "general" in terminology also. Keynesian analysis is a macro-economic one which deals with the economic system as a whole. Where as the classical theory is a micro-economic one relating primarily to the individual economic entities in the system. In his theory, Keynes refers to concepts such as demand, consumption, investment, saving, employment, income and output in the aggregate sense or as pertaining to economic system as a whole.

4.2 EFFECTIVE DEMAND

The logical starting point of Keynesian Theory of Employment is the principle of effective demand. According to Keynes, the level of income and output in an economy is determined by the level of employment (that is, the employment of workers along with the exploitation of other given resources, such as land, and capital) which, in turn, is determined by the level of effective demand.

ASSUMPTIONS :

Keynesian theory of employment based on the following assumptions :

Firstly, the Keynesian theory concentrates on the short period only. In the long run, Keynes said, "we are all dead." He assumed that during this short period, the techniques of production and the quantity of fixed capital remained constant. This was an important assumption with him and it considerably simplified his analysis. As a result of this assumption, employment became *proportional* to output (or, income).

Secondly, the Keynesian theory proceeds throughout on the assumption that there is perfect competition in the market or at least there is no change in the degree of monopoly in the market.

Thirdly, the Keynesian theory assumed the operation of the law of diminishing returns or increasing costs in production. This assumption had become essential for him in view of the earlier assumption of unchanging techniques in industry.

Fourthly the Keynesian theory is based on the assumption of a closed economy. In other words, Keynes did not take into account the effects of foreign trade on the volume of employment created within the economy.

Fifthly, the Keynesian theory deals exclusively with the aggregative, and not the relative concepts, such as relative wages and prices.

It would not be correct to say that Keynes was very rigid with these assumptions. But these assumptions do underline a major portion of his analysis.

In a money economy, effective demand is revealed by the total expenditure incurred by the people on real goods and services, meant for both consumption and investment. The flow of expenditure, in turn, determines the flow of income, as one man's expenditure becomes another man's income in the economic system. It thus follows that : Total Expenditure = Total Income.

23.3 DETERMINANTS OF EFFECTIVE DEMAND

According to Keynes the level of effective demand in an economy is determined by the interaction of the aggregate supply function and the aggregate demand function. These two are determinants of effective demand. Now we will learn about these two determinants.

4.4 AGGREGATE SUPPLY FUNCTION

The supply price for any given quantity of a commodity refers to that price at which the seller is willing to or is induced to supply a given amount in the market. Hence, the supply schedule of a commodity shows the varying levels of quantities of the commodity the seller offers for sale at alternative prices. Similarly, the aggregate supply schedule for the economy, as a whole, refers to the total supply of output of all entrepreneurs in the economy. Keynes measured the total output of the economy in terms of the amount of labour employed with a given marginal productivity. He therefore concluded that the level of output varies with the level of employment. Obviously, each level of employment leads to a corresponding level of output of commodities, that is, real income along with the money income generated in the process of investment expenditure.

Each level of employment (of labour) necessitates the use of certain quantities of other factors of production, such as land, capital, raw materials, to assist the labour employed. All these factors of production are to be paid according to the prevailing factor prices, which is known as the cost of production. Each level of employment involves certain money costs (including profits). Every prudent entrepreneur must at least seek to recover the total cost of production, including normal profit. The entrepreneurs must get some minimum amount of sales revenue to cover the total costs incurred at a given level of employment. Only if the sales proceeds are high enough to cover the total costs of production, at a given level of employment and output, the entrepreneur will be induced to provide that particular level of employment.

This minimum price of revenue – proceeds entrepreneurs must get from the sale of output, associated with different levels of employment – is defined as the aggregate supply price schedule or the aggregate supply function. Thus the aggregate supply function refers to a schedule of the various minimum amounts of proceeds, or revenues which must be expected to be received by the entrepreneurs from the sale of output, corresponding to various levels of employment.

By using employment as the single measure of total output of the economy, the supply price of employment can be determined in terms of labour cost. We may illustrate the Keynesian aggregate supply function, hypothetically, in Table 23.1.

Table – 4.1

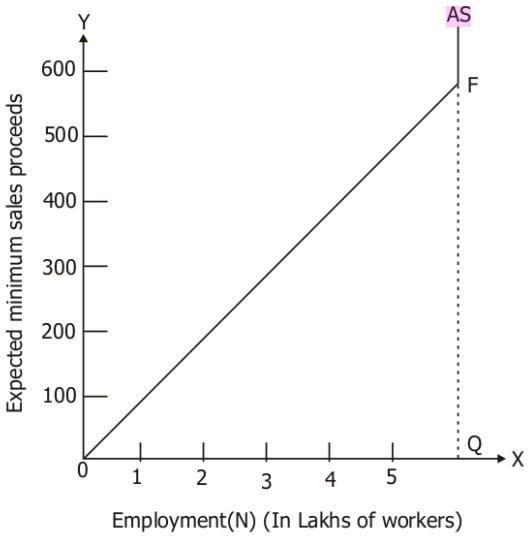
AGGREGATE SUPPLY FUNCTION

Level of Employment (in lakhs of workers) (N)	Money wages (per annum in 1,000) (W)	Aggregate supply Price (ASF) (in crores of Rs.) (N x W)
1	10	100

2	10	200
3	10	300
4	10	400
5	10	500
6	10	600

As the flow of expenditure varies, the level of income also varies accordingly. That is to say, if the total expenditure flow in an economy increase, the flow of income will also increase in the same proportion. And, if the aggregate expenditure flow decreases, income flow will also decrease.

In Table 4.1 it is assumed that on an average the amount of money wages, to be paid per year, is Rs. 10,000. Thus, the schedule shows for each alternative level of employment how much minimum sales proceeds must be realized by the entrepreneurial class to undertake the level of employment. It can be seen that to employ one lakh workers for a year, entrepreneurs should expect to get a minimum of Rs. 100 crores from the economy, by selling the output produced. Similarly for two laksh workers to be employed, the minimum expectation of sales proceeds is Rs. 200 crores, and so on.



Graphical Presentation : The AS curve in Fig. 23.1 graphically represents the data given in Table 4.1.

The x – axis measures the level of employment while y axis measures the expected minimum sales proceeds. The curve AS represents the aggregate supply function. It is linear because we have assumed a constant wage rate. If however, wage rate changes (increases) or costs of employment rise with an increase in employment, the AS curve will be non-linear and upward sloping. In fact the aggregate supply price is correlated to the employment level. The aggregate supply function – AS – curve – will become perfectly inelastic at a point where the economy reaches full employment. At full-employment level, the aggregate supply function will be a vertical straight line.

Suppose, the economy reaches full employment when six laksh workers are employed; then the AS curve will become vertical at point F, as can be seen in Fig. 4.1. That means, the actual level of employment cannot exceed Q (that is, 600 in our example), however high the expectations may be about m9inimum sales proceeds. It is interesting to note that modern economists measure the aggregate supply function in terms of real income, or value of total output, by measuring GNP rather than the level of employment as Keynes did.

The Shape of the AS Curve : As has been seen in Fig. 4.1, the AS curve is an upward sloping curve; but it is not very easy to conclude about its shape. To determine the shape of the AS curve, the relationship between employment (N) and marginal productivity should be traced. The value of marginal product (VMP) is called marginal productivity, which obtained by multiplying the marginal physical product (MP) of labour with the price of output (P). In a technical sense, AS curve is obtained by aggregating the expected, total revenue functions of all the firms. The actual shape of the AS curve, however, will be determined by the aggregate production functions of all firms in the economy, and money prices of all inputs.

Actually the linear AS curve, in Fig. 4.1, is a simplified case. It is based on the assumptions that : (i) the money prices of all outputs and inputs are constant; and (ii) when prices are constant, the community's total outlay (national expenditure) – which is measured at these constant prices – and the level of employment and income, change in the same proportion. This means that if total money expenditure is doubled, employment and income will also double, and vice versa. In reality, however, such proportionate relationship is rarely found. Thus, the actual AS curve, which relates the level of employment to the amount of total expenditure of the nation, cannot be linear. The linear AS curve was assumed by Keynes for the sake of simplicity in analysis. The steepness of the AS curve depends on technical production conditions, namely the productivity of labour, capital, and other resources employed by the economy.

4.5 AGGREGATE DEMAND FUNCTION (AD)

In Keynesian terminology, the aggregate demand function refers to the schedule of maximum sale proceeds, which the entrepreneurial community actually does expect to receive from the sale of different quantities of output, corresponding to various levels of employment. The quantum of maximum sales revenue expected from the output produced is described as the demand price of a particular level of employment. There is a positive correlation between the level of employment and the demand price – that is, expected sales receipts.

Consequently, with the increase in the level of employment, aggregate demand price tends to rise, and vice versa. The aggregate demand price – the maximum sales proceeds expected for a given level of output-depends upon the total expenditure flow of the economy, which is determined by the spending decisions of the community as a whole. In a free capitalist

economy, households and firms are the two major economic sectors, which spend on consumption and investment. What these sectors are expected to spend in the next period is viewed as aggregate demand price – the expectation of sales revenue – for the given level of output and employment by the entrepreneurs. In two sector economy aggregate demand covers consumption (C) and investment (I).

AD = C + I

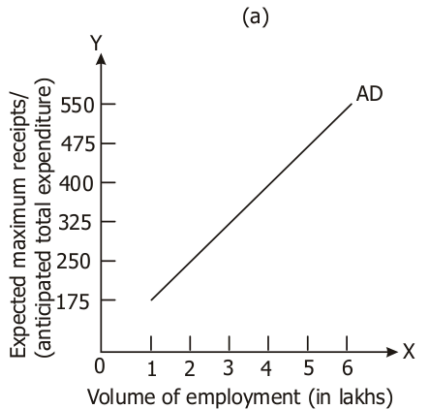
A more simplified presentation of the aggregate demand function is illustrated in Table 4.2.

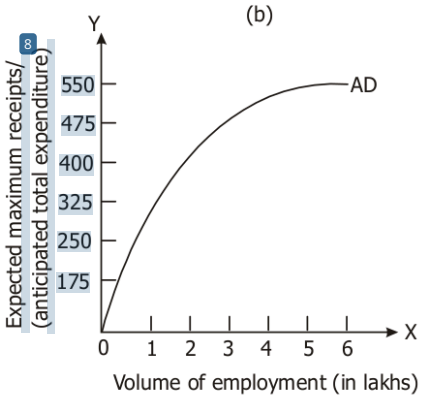
Table – 4.2

AGGREGATE DEMAND FUNCTION (SCHEDULE)

Level of Employment (N) (in lakhs of workers)	Expected Maximum Sales Proceeds (expected total expenditure) (AD) (in crores of Rs.)
1	175
2	250
3	325
4	400
5	475
6	550

The aggregate demand schedule (AD) links real income or output (which Keynes measured in terms of the quantity of employment) and expenditure flow in the economy as a whole. Evidently, the aggregate demand schedule shows the aggregate demand price for each possible level of employment.





Graphical Presentation : The aggregate demand function is represented graphically in Fig. 4.2.

In Fig. 4.2 the curve AD represents the aggregate demand schedule. It shows that aggregate demand price is a direct or increasing function of the volume of employment. In symbolic terms

$$AD = f(N)$$

Where

AD = expected sales receipts by entrepreneurs

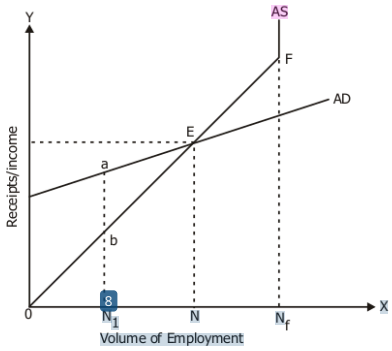
N = the Volume of employment, and

f = the functional relationship

The AD curve drawn in Fig. 4.2 (a) is linear. It can be non-linear too, as in Fig. 4.2 (b). Its shape and slope depend upon the assumptions and nature of data relating to the aggregate only. As pointed out earlier a statement showing the varying levels of aggregate demand prices, that is, expected sales revenue by the entrepreneurs for the output, associated with different levels of employment is called the aggregate demand price schedule or the aggregate demand function.

4.6 EQUILIBRIUM OF THE ECONOMY

The intersection of the aggregate demand function with the aggregate supply function determines the level of income and employment. The aggregate supply schedule represents costs involved a each possible level of employment. The aggregate demand schedule represents expectation of maximum receipts of the entrepreneurs at each possible level of employment. Therefore, so long as receipts exceed costs, the level of employment will go on increasing. The process will continue till receipts become equal to cost. When costs exceed receipts, the employment level will tend to decrease. This is what we can observe by comparing the two functions as represented in Table 4.3.



So long as the aggregate demand price (AD) is greater than the aggregate supply price (AS), the level of employment tends to increase. The economy reaches equilibrium level of employment when the aggregate demand function becomes equal to the aggregate supply function. At this point, the amount of sales process which entrepreneurs expect to receive is equal to what they must receive in order to meet their total costs. In table 4.3, it is Rs. 400 crores which is the entrepreneurs' expected minimum, as well as maximum sales proceeds – this is the point of effective demand. Equilibrium is reached where four lakh workers are employed – this is the point of effective demand.

Graphical Presentation. In Fig. 4.3, the point of effective demand and the equilibrium of the economy, can be represented in graphical terms.

Table – 4.3

Equilibrium Level of Employment

Employment (in lakhs) of workers) (N)	Aggregate Supply Price (in crores of Rs.) (AS)	Aggregate Demand Price (in crores of Rs.) (AD)	Comparison	Direction of Change in Employment (DN)
1	100	175	AD > AS	Increase
2	200	250	AD > AS	Increase
3	300	325	AD > AS	Increase
4	400	400	AD = AS	Equilibrium
5	500	475	AD < AS	Decrease
6	600	550	AD < AS	Decrease

The two curves AD and AS intersect at the point E, which is the point of effective demand. In fact, the value OR, that is, the sales proceeds which entrepreneurs expect to receive at the point where the aggregate demand function intersects the aggregate demand function intersects the aggregate supply function is called the point of effective demand because it is at this point that the entrepreneurs' expectation of profits will be maximised. When aggregate demand prices are equal to aggregate supply prices, the entrepreneurs will earn the highest normal profits as their sale proceeds equal their total costs at this point. It goes without saying that so long as the aggregate demand function lies above the aggregate supply function, that is AD > AS, indicating that costs remain less than the revenue, the entrepreneurs will be induced to provide increasing employment till both of them are equalised. After the point of intersection of the aggregate demand function and the aggregate supply function, for a further rise in employment, aggregate supply prices become higher than aggregate demand prices – that is AS > AD – indicating that total costs exceed total revenue expected, and that the entrepreneur would incur losses and refuse to employ that particular number of workers. Diagrammatically, only ON number of men will be employed where the aggregate demand function (AD) equals the aggregate supply function (AS). ON_1 number of workers still provide some possibility of maximising profits by increasing the employment further, since AD < AS by ab, whereas any number of men exceeding ON, cannot be employed because, in that case AS would exceed AD – which would

mean losses for the entrepreneurs. It is only at point E, where AD = AS and normal profit is maximum, that the equilibrium level of employment is ON. Hence, employment in an economy increases till AD = AS.

The point of effective demand E, is called the point of equilibrium which determines the actual level of employment and output. Though E is the point of equilibrium, it does not imply that the economy has reached full employment at this point. According to Keynes, the equilibrium between the aggregate demand function and the aggregate supply function can, and often does, take place at a point of less-than-full employment. At full-employment level, AD = AS only if investment spending is sufficient to fill the gap emerging between income and consumption. This is not usually the case. More often induced investment outlay is insufficient to fill the gap between income and consumption, with the result that AD = AS at less-than-full employment. This is what is referred to as the point of underemployment equilibrium in a economy.

Of these two determinants of the level of effective demand, Keynes, however, assumes aggregate supply function as given in the short run. Thus, he speaks little about the aggregate supply function.

23.7 A SUMMARY OF KEYNESIAN THEORY

The summary of the Keynesian Theory is presented in Fig. 4.4.

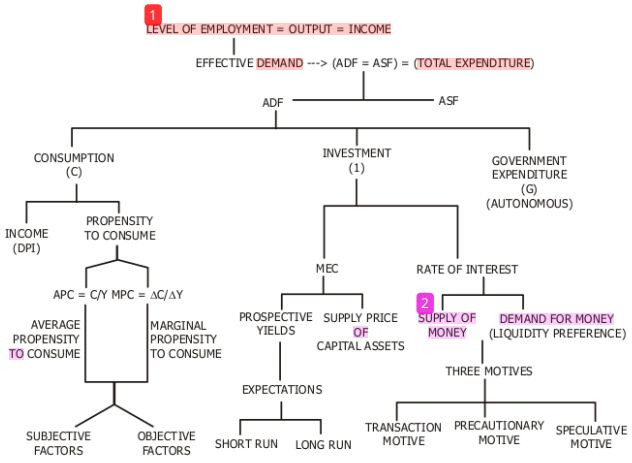


Fig. 4.4 Outline of the Keynesian Theory of Income and Employment.

4.8 SUMMARY

The classical economists believed that the operation of the market forces would automatically result in full employment. However, the recurrence of business cycles and more particularly the depression of the 1930s destroyed the belief in automatic adjustment. The modern theory of income determination largely developed by Keynes concentrates on aggregate demand as the key to understanding the behaviour of an economy. Effective demand must be kept at a high level of income. Keynes, therefore, focussed on the two important components of aggregate demand : consumption and investment, and tried to explain the factors influencing these variables. He linked these variables with those in the monetary sector and thus presented a complete model of an economy. Given the consumption function and a level of investment, the appropriate level of income in an economy can be determined. The equilibrium income may be defined as that income where the total consumption expenditures and the investment expenditures will be equal to the aggregate output.

4.9 POINTS TO BE REMEMBERED

1. Effective Demand = Total Output = Total Income = Employment. The effective demand naturally results in output. Output creates income and also provide employment. All these four quantities are equal to each other. In other words, employment depends upon and originates from effective demand.
2. The effective demand is governed by A.S.F. and A.D.F. Keynes assumes A.S.F. to be given in the short-period and concentrates wholly upon A.D.F.
3. The A.D.F. in its turn, is governed by consumption expenditure, investment expenditure and government expenditure. (Let it be remembered that Keynes, in his statement of the theory, ignored Government Expenditure).
4. The Consumption Expenditure is determined by, (a) size of the income and (b) the community's propensity to consume. Since the Keynesian theory is a short-term theory the expenditure on consumption may be assumed to be stable because the propensity to consume does not change in short-run.
5. The expenditure on investment is governed by, (a) the marginal efficiency of capital, and (b) the rate of interest. Unlike consumption expenditure, it is highly unstable.
6. The marginal efficiency of capital, in its turn, is determined by, (a) the supply price of capital assets, and (b) the prospective yield from the capital assets. The M.E.C. is unstable because expectations regarding the prospective yield from capital assets are subject to the psychological factors.
7. The rate of interest is determined by (a) community's liquidity preference, and (b) supply of money. The liquidity preference is determined by three motives : (a) Transactions motive, (b) Precautionary Motive, and (c) Speculative Motive, while the supply of money is directly controlled by the banking system.
8. Finally, Government Expenditure is 'autonomous' in the sense that it does not depend, like private investment, on independent economic variables, such as, the M.E.C. or the Rate of Interest. It is governed more by political than by economic considerations.

The above summary can also serve to spotlight the action which may have to be taken to curve deflation and unemployment. The Keynesian theory furnishes a practical programme of action to fight deflation and unemployment. Since Keynes assumes Aggregate Supply Function to be given. He concentrates his entire attention upon increasing the Aggregate Demand Function.

4.10 GLOSSARY

1. **Aggregate Supply Function :** It is a schedule of the various amounts of money which the entrepreneurs in an economy must receive from the sale of output at varying levels of employment.
2. **Aggregate Demand :** It is a schedule of the various amounts of money which an entrepreneur in an economy expect from the sale of their output at varying levels of employment.
3. **Effective Demand :** It is a level of demand where the aggregate demand is equal to aggregate supply.
4. **Equilibrium Level of Employment :** The level of employment where aggregate demand is equal to aggregate supply.
5. **Equilibrium Level of Income :** Level of Income where aggregate demand is equal to aggregate supply.

4.11 MODEL QUESTIONS

I. ESSAY QUESTIONS

1. Examine the Keynesian theory of Income and Employment ?

   or

   What is meant by Effective Demand ? How it determines the income and employment ?
2. Explain the determinants that determine the equilibrium level of income and employment.

II. SHORT ESSAY QUESTIONS

3. Write a note on aggregate supply function.
4. Write a note on Aggregate Demand Function.
5. Define effective demand and its role to improve the employment.

III. SHORT QUESTIONS

6. Aggregate Demand
7. Aggregate Supply
8. Effective Demand
9. Equilibrium Level of Employment
10. Assumptions of Keynesian Theory

4.11 SUGGESTED READINGS

1. Dillard .D : Economics of J.M. Keynes
2. Thingan M.L. : Advanced Economic Theory
3. Vaish M.C. : Macro Economics
4. Gupta R.D. : Keynes – Post Keynesian Economics
5. Dewett K.K. : Modern Economic Theory

Lesson - 5

CONSUMPTION FUNCTION DETERMINANTS OF CONSUMPTION FUNCTION

5.0 Aims and Objectives:

CONTENTS:

5.1 INTRODUCTION:

The major constituent of aggregate demand is consumption expenditure. The community's expenditure on consumption is determined by a different factors, such as, household income, tastes and preferences, current and expected prices, expected future income, holding of liquid assets, interest rates, debts, real wealth, advertising and sales propaganda, taxation, inflation and the availability of goods. Keynes, however, assumed that, in the short run, real consumer spending is primarily determined by current real personal disposable income – (that is, gross

personal income minus personal tax liabilities). Prof. Hansen remarks that, "income is singled out as the main determinant of consumption just as in the case of the familiar demand wave, price is singled out as the primary determinant of the quantity taken. In specific terms, Keynes held that, current consumption depends upon current disposable income. A rise in income leads to a rise in consumption and vice versa. The empirical consumption-income relationship is represented by the consumption function.

5.2 THE CONSUMPTION FUNCTION

The consumption function, or the propensity to consume, is defined as an empirical income-consumption relationship. In technical terms, Keynes postulates that, ceteris paribus, consumption is a function of income.

Algebraically, the relationship between consumption, as the dependant variable, and total real income as the explanatory variable, may be expressed as

$$C = f(Y)$$

Where C is real aggregate consumption expenditure, Y is total real incomes, and f means a function of or depends upon.

Real income (Y) is assumed to represent disposable personal income (Y_d), because for simplicity, the model assumes that the economy has no personal income taxes. It must be noted here that Keynes mentions certain subjective and objective factors a code terminants of consumption, but he considers real income as the principal variable upon which consumption depends.

The propensity to consume, or the consumption function shows the relationship between aggregate real consumption and aggregate real income. To put it more simply the propensity to consume refers to the actual consumption expenditure undertaken or intended, out of varying levels of income. Other things being equal, the consumption function shows that changes can be expected in consumption from given changes in income.

5.2.1 THE FUNDAMENTAL PSYCHOLOGICAL LAW OF CONSUMPTION : The Keynesian concept of consumption function developed from the fundamental psychological law of consumption. It states that there is a common tendency for people to spend more on consumption when income increases, but not to the same extent as the rise in income, because a part of the income is also saved. The community, as a rule, consumes as well as saves a larger amount with the rise in income. To quote Keynes in this context, "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".

Thus, Keynes' psychological law of consumption is based on the following propositions :

(i) When the total income of a community increases, the consumption expenditure of the community will also increase, but less proportionately. Since consumption increases by less than the income, savings increases as income increases.

(ii) It follows from this that, an increase in income is always bifurcated into spending

and saving.

(iii) An increase in income will thus lead to an increase in both consumption and savings. This means that with an increase in income in the community, we cannot normally expect a reduction in total consumption, or a reduction in total savings. A rising income will often be accompanied by increased savings, and a falling income by decreased savings. The rate of increase or decrease in savings will be greater in the initial stages of increase or decrease of income than in the latter stages.

It can therefore be seen that consumption mainly depends on income, and that income recipients always fail to spend all their increased income on consumption. This is the fundamental maxim upon which Keynes' consumption function rests.

Keynes' law is limited by the following assumptions :

(i) The propensity to consume will remain stable owing to the constancy of the existing psychological and institutional complexities influencing consumption expenditure.

(ii) General economic conditions in the economy are normal and there are no abnormal and extraordinary circumstances such as war, revolution, or inflation.

(iii) It is assumed that there exists a wealthy, capitalistic economy, with a minimum of government intervention, that is, a free economy, in which there is no government restriction on consumption when income increases.

A more detailed analysis of Keynes' Psychological Law of Consumption shows that it has an important implication : The vital point in the law is the tendency of people not to spend on consumption the full amount of an increase in their income. There is thus a gap between aggregate income and aggregate consumption. Assuming the consumption function to be stable during a short-run period, the gap will be widened with an increase in income. This gives rise to the problem of investment. Investment should be increased to fill the gap between income and consumption. Keynes, therefore stress that investment is the crucial and initiating determinant of levels of income and employment will inevitably fall, unless, the consumption function rises to wipe out the gap between income and consumption. But, due to the fact that the short-run consumption function is stable, the investment function has crucial role to play it. It is the inadequacy of investment which accounts for the existence of unemployment. To increase employment and income, one has to tackle the investment function, the second component of effective demand. Keynes' psychological law of consumption thus emphasises the crucial importance of investment in any programme of full or high employment.

5.2.2 THE PROPENSITY TO CONSUME : The propensity to consume dos not mean a more desire to consume, but the actual amount of real consumption that takes place, or that is expected to take place, out of various income levels. In this respect, it is similar to a demand schedule, which refers not to mere desire to buy, but an effective desire or demand, backed by an ability and willingness to pay for the goods. Similarly, the propensity to consume also refers to effective consumption, and not to the mere desire to consume.

A table of various amount of consumption expenditure which people are prepared to

make, out of various corresponding levels of income is called a schedule of the propensity to consume. A schedule of the propensity to consume is illustrated in Table 5.1.

Table 5.1

THE PROPENSITY TO CONSUME SCHEDULE

Current Income (Y)	**Current Consumption (C)**
0	4
10	12
20	20
30	28
40	36
50	44

In Table 5.1, the first column indicates varying levels of income. The second column shows the amounts of real consumption expenditure at each level of income. It is this whole schedule which relates various amounts of consumption, to various levels of income, which is called the propensity to consume schedule or the consumption function. The Table 5.1 shows that consumption is an increasing function of income as both variables, Y and C, move in the same direction.

In mathematical terms, the linear consumption function is represented through a straight line equation as follows :

$$C = a + bY, \text{ where } a > 0 \text{ and } b < 1.$$

Here,

C stands for consumption.

a stands for minimum subsistence level of consumption, irrespective of the level of income..

b stands for a constant proportion of income consumed, referred to as the marginal propensity to consume.

Y stands for the income

In our example, (table 24.1), a = 4 and $b = \frac{8}{10} = 0.8$. Therefore

$$C = 4 + 0.8(Y)$$

Using this equation the entire schedule may be obtained and can also be extended by assuming further changes in income (Y).

THE CONSUMPTION CURVE :

A consumption curve is the graphical representation of the income-consumption relationship given in table 24.1. In order to plot the curve on a graph, income-which is the independent variable – is measured on the horizontal or x – axis, and consumption is measured on the vertical or y – axis, with a suitable scale. Usually, a line is drawn at 45^0, which represents all the points of equality between consumption and income. This is referred to as the income-unity line. In Fig. 24.1 the C Curve represents the consumption function. When it moves up-wards to the right, it means that consumption increases as income increases. But, it is important to note that the C curve rises less steeply than the 45^0 line or income-utility line. This indicates that the increase in consumption is smaller than the increase in income. C line in Fig. 24.1 shows linear relationship and Figure 24.2 shows non-linear relationship.

5.2.3 CHARACTERISTICS OF THE CONSUMPTION FUNCTION : In the analysis of the consumption function, or the propensity to consume Keynes measured two of the technical attributes (i) the average propensity to consume, and (ii) the marginal propensity to consume.

(i) Average Propensity to Consume : The average propensity to consume (APC) is defined as the ratio of the aggregate or total consumption to the aggregate income in a given period of time. Thus, the value of the average propensity to consume, for any income level may be found by dividing consumption by income.

Symbolically, APC = $APC = \frac{C}{Y}$

Where C stands for consumption and Y stands for income.

In table 5.2, APC is calculated at various income levels, using the data of table 5.1.

Table - 5.2

The Consumption Function : Measurement of APC and MPC

(Rs. Billion)

Income (Y)	Consumption (C)	Average Propensity to Consume $APC = \frac{C}{Y}$	Marginal Propensity to Consume $MPC = \frac{\Delta C}{\Delta Y}$
0	4	--	--
10	12	$\frac{12}{10} = 1.2$	$\frac{8}{10} = 0.8$
20	20	$\frac{20}{20} = 1$	$\frac{8}{10} = 0.8$

30	28	$\frac{28}{10} = 0.93$	$\frac{8}{10} = 0.8$
40	36	$\frac{36}{40} = 0.9$	$\frac{8}{10} = 0.8$
50	45	$\frac{44}{50} = 0.88$	$\frac{8}{10} = 0.8$

At the present break-even level of income, APC equals unity (or 1). Below the break-even level of income APC tends to be greather than unity; while above this level, it is less than unity.

The economic significance of the APC is that it tells us what proportion of the total cost of a given output from planned employment may be expected to be recovered by selling consumer goods alone. It tells us what proportion of the total amount of goods and services demanded by the community originates in the demand for consumer goods.

(ii) Marginal Propensity to Consume : The marginal propensity to consume, MPC, is the ratio of the change in the level of aggregate consumption to the change in the level of aggregate income. The MPC, thus, refers to the effect of additional income on consumption. Thus, MPC can be found by dividing a change (increase or decrease) in consumption by a change (increase or decrease) in income. Symbolically,

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

where, Δ (delta) indicates change (increase or decrease), and C and Y denote consumption and income, respectively.

In table 5.2, above the MPC is calculated at various income levels. It is obvious that the MPC is 0.8 or 80% at all levels. Thus, MPC is constant here because a linear consumption function was assumed in the data. If the consumption function is non-linear, the MPC will not be constant.

5.2.4 THE SAVINGS FUNCTION : Keynes defined savings as the excess of income over expenditure on consumption. In the case of an individual, savings is that part of his income which is not consumed by him. In the case of the community, the aggregate of the unconsumed part of national income of all members of the community represents savings. symbolically,

$$S = Y - C$$

where

S dentes saving

Y stands for income, and

C stands for consumption.

The symbolic expression of savings is applicable both to the individual as well as to the community.

According to Keynes, savings is a function of income, that is, S = f(Y). That is to say, as income increases, savings also increases and vice versa. Savings depends on the propensity to save, which can be derived from the propensity to consume. In other words, the savings function is a counterpart of the consumption function, because S = Y - C. From the data in Table 24.1 savings schedule is computed in Table 5.3.

Table 5.3 reveals that when income increases after the break-even point, that is, after Rs. 20 billion in our illustration, savings tend to rise in an increasing proportion of the income increase.

AVERAGE PROPENSITY TO SAVE (APS) : The average propensity to save refers to the ratio of total savings to a given total real income. In symbolic terms,

$$APS = \frac{S}{Y},$$

where S stands for savings, and y stands for income. Table 5.3 illustrates the measurement of APS.

TABLE 5.3

THE SCHEDULE OF THE PROPENSITY TO SAVE

Income (Y)	Consumption (C)	Savings (S=Y-C)	Average Propensity to Save $APS = \left(\frac{S}{Y}\right)$	Marginal Propensity to Save $MPS = \left(\frac{\Delta S}{\Delta Y}\right)$
0	4	-4	--	--
10	12	-2	$\frac{-2}{20} = -0.2$	$\frac{-2}{20} = -0.2$
20	20	0	$\frac{0}{20} = 0$	0
30	28	2	$\frac{2}{30} = 0.07$	$\frac{2}{10} = 0.2$
40	36	4	$\frac{4}{40} = 0.1$	$\frac{2}{10} = 0.2$
50	44	6	$\frac{6}{50} = 0.12$	$\frac{2}{10} = 0.2$

MARGINAL PROPENSITY TO SAVE (MPS) :

The marginal propensity to save (MPS) is the ratio of the change in the level of aggregate saving to a given change in the level of income. In symbolic terms,

$$MPS = \frac{\Delta S}{\Delta Y}$$

where, Δ (delta) indicates the changes (increase or decrease), and S and Y denote savings and income, respectively.

The MPS expresses the effect of additional income on saving

Table 24.3 illustrates the measurement of MPS.

From the marginal propensity to consume (MPC), we can derive the marginal propensity to save (MPS) by the following formula :

$$\text{MPS} = 1 - \text{MPC or } \left(1 - \frac{\Delta C}{\Delta Y}\right)$$

Similarly, it follows that, MPC = 1 - MPS, and MPC + MPS = 1.

Furthermore, since S = Y - C; Y = C + S.

5.3 FACTORS DETERMINE CONSUMPTION FUNCTION :

According to Keynes, two types of factors which influence the consumption function are subjective and objective factors. The subjective factors affecting the consumption function are those that are endogenous or internal to the economic system itself. The subjective factors include psychological characteristics of human nature, social arrangements, social practices, and social institutions. These are likely to be stable during a short period. Established behaviour patterns undergo material changes only over long periods. These factors fundamentally determine the form of the consumption function (that is, the slope and position of the propensity to consume schedule, or the C curve. The objective factors affecting the consumption function are exogeneous or external to the economic system. These factors may, at times, undergo rapid changes. Thus, objective factors may cause shifts in the consumption function.

5.3.1 SUBJECTIVE FACTORS : It is subjective factors which basically underlie and determine the form of the consumption function. They include : (i) behaviour patterns influenced by the psychology of human nature; and (ii) the institutional arrangements of the modern social order, and social practices relating to the behaviour patterns of business firms with respect to wage and dividend payments, and retained earnings; and the institutions controlling the distribution of income.

Human behaviour with respect to consumption and savings out of increased income depends on psychological motives. For instance, there are motives "which lead individuals to refrain from spending out of their incomes". Keynes lists eight such motives :

(i) The Motive of Precaution : The desire to build up a reserve against unforeseen contingencies.

(ii) The Motive of Foresight : The desire to provide for anticipated future needs, for example, in relation to old age, and family education.

(iii) The Motive of Calculation : The desire to enjoy interest and appreciation because a larger real consumption, at a later date, is preferred to a smaller immediate consumption.

(iv) The Motive of Improvement : The desire to enjoy a gradually increasing expenditure, since it gratifies the common instinct to look forward to a gradually improving standard of living.

(v) The Motive of Independence : The desire to enjoy a sense of independence and the power to do things.

(vi) The Motive of Enterprise : The desire to secure a masse de manoeuvre to carry on speculation or establish business projects.

(vii) The Motive of Pride : The desire to possess or to bequeath a fortune.

(viii) The Motive of Avarice : The desire to satisfy pure miserliness, that is, unreasonable but insistent abstinence from expenditure as such.

To these savings motives, Keynes adds a corresponding list of motives on consumption, such as enjoyment, shortsightedness, generosity, miscalculation, ostentation, and extravagance.

Subjective motivations also apply to the behaviour patterns of business corporations and governmental bodies. In this respect Keynes listed the following motives for accumulation;

(i) Motive of Enterprise : The desire to face emergencies and difficulties successfully.

(ii) The Motive of Liquidity : The desire to face emergencies and difficulties successfully.

(iii) The Motive of Improvement : The desire to secure a rising income and to demostrate successful management.

(iv) The Motive of Financial Prudence : The desire to ensure adequate financial provisionk, against depreciation and obsolescence, and to discharge debt.

Keynes maintains that the strength of all these motives will vary enourmously according to the institutions and the organization of the economic society. Since economic and social institutions and organisations are formed by such factors as habits, race, education, morals, present hopes and past experiences, technological environment, prevailing distribution of wealth and established standards of living - all these factors are unlikely to vary in the short run. They, therefore, affect secular progress only very gradually. In other words, these factors which are subject to slow change, may be considered as given or stable over a long period.

5.3.2 OBJECTIVE FACTORS : We now consider objective factors, which are subject to rapid changes, causing violent shifts in the consumption function.

1. Windfall Gains or Losses : When windfall gains or losses accure to people, their consumption level may cahnge suddenly. For instance, in recent years, windfall gains accuring to Arab countries due to the oil price-hike raised the consumption spending of the Arab people and consequently their consumption function shifted upwards.

2. Fiscal Policy : The propensity to consume is also affected by variations in the fiscal policy of the government. For instance, imposition of heavy taxation tends to reduce both the disposable and real income of the community in such a way that its level of consumption may adversely change. Similarly, a withdrawal of certain taxes may cause an upward shift of the consumption function.

3. Changes in Expectations : The propensity to consume is also affected by expectations regarding future changes. For instance, expected war considerably influences the consumption function by creating fears about future scarcity and rising prices. This leads people to buy more than they immediately need, that is, to hoard. Thus, the ratio of consumption to current income rises and the consumption function shifts upwards.

4. The Rate of Interest : In the long run, substantial changes in the market rate of interest may also influence the consumption function. A significant rise in the rate of interest may induce people to reduce their consumption at each income level, because people will save mor ein order to take advantage of the high interest.

In addition to these four factors, Keynes also mentioned cahnges in the wage level, as well as changes in accounting practice with respect to depreciation (indicating the difference between gross income and net income), as the objective factors affecting the consumption function.

5.4 RELATIVE INCOME HYPOTHESIS :

Reconciliation of the short and long-run consumption functions was first attempted by James S. Duesenberry in his work entitled Income, Saving, and the Theory of Consumer Behaviour published in 1949. His theory, known as the relative income hypothesis, is based upon the assumptions that (1) the consumption behaviour of individuals is interdependent, and not independent, and (2) consumption relations are irreversible over time. On the basis of the first assumption, Duessenberry develops the proposition that the ratio of income consumed by an individual does not depend upon his absolute income; instead it depends upon his relative income – on his percentile position in the total income distribution. In any given year, an individual will consume a smaller percentage of his income as his absolute income increases if his percentile position in the income distribution improves and vice versa. This is supported by evidence from the cross-section data. If, however, an individual's percentile position in the income distribution remains unchanged over time, he will continue to spend on consumption the same percentage of his income as his absolute income increases. In other words, if a family's relative position on the income scale remains unchanged when its absolute income has increased, the fraction of income spent upon consumption by the family will remain unchanged-the division of income between consumption and saving will not change. For all individuals remaining in the same percentile position over time, the rise in their disposable personal incomes over long time will cause an equal percentage increase in their consumption spending. Although the relative income position of some individuals ay change, these changes will balance in the aggregate with the result that the long run aggregate C/Y ratio will remain constant. This statement agrees with the evidence collected from the study of the time-series data. Thus the relative income hypothesis explains the apparent paradox between the cross-section and time-series data evidence.

The second assumption of this hypothesis explains fluctuations in the aggregate consumption-income ratio C/Y during a trade cycle. Given the irreversible consumer standards, a fall in income during the cyclical downswing will cause a less than proportionate fall in the consumption because individuals base their current consumption partially upon prevails higher levels of income and consumption represented by previous peak income and consumption. This means that during recession the ratio of consumption to income (APC) increases and the saving-income ratio (APS) falls because consumers try to maintain their previous high level of consumption.

According to Duesenberry, it is the rate of income growth which is important in determining the movement of consumers in the economy on the short-run or on the long-run aggregate consumption function. After peak income is achieved, assume a fall in income. Consumption does not fall proportionately along the long-run consumption function; it rather falls less than proportionately to the fall in income along the short-run consumption function. As the recovery begins, consumption rises along the short-run consumption function until the previous peak level of income is experienced. After this level of income is attained, aggregate consumption no longer follows the path of the short-run consumption function. Abandoning the short-run consumption function, it takes a detour along, the long-run consumption function and continues to increase proportionately to the increase in income until another depression starts when it again adopts one of the short-run consumption functions to move back along. From this pattern of consumer behaviour it follows that as long as income grows steadily the APC and the MPC will be equal and increases in consumption will be proportional to increases in income as consumers stay on the long-run consumption function throughout the entire period of steady growth in national income. However, if recession occurs and income falls, the APC rises as consumers move backward along the short-period consumption function to repeat the foregoing phenomenon.

5.5 PERMANENT INCOME HYPOTHESIS :

Another attempt to reconcile the short-run non-proportionality income consumption relationship with the long-run proportional income consumption relationship is found in Milton Friedman's famous study entitled. A Theory of the Consumption Function published in 1957. Friedman distinguishes between the current or observed or measured income of any given time period and the permanent income on which consumers base their behaviour. A similar distinction is made between the current or observed or measured consumption and the permanent consumption. According to Friedman, permanent income is the amount a consumer unit could consume (or believes that it could) while maintaining its wealth intact, while permanent consumption is "the value of the services that it is planned to consume during the period in question". It is the mean income which the family unit regards as permanent and would depend upon family unit's time horizon and farsightedness. The time span relevant to permanent income is the minimum period of time over which income influences must be maintained in order to make the income receiver treat these influences as permanent.

The permanent income hypothesis states that the ratio of permanent consumption to permanent income is constant regardless of the level of permanent income. Since permanent consumption is proportional to permanent income, the long-run aggregate APC equals the long-run aggregate MPC. This is not to suggest, however, that the APC of every individual is equal. In particular, the average propensities to consume may depend upon such factors as the rate of interest, the ratio of non-human wealth to permanent income, the ages and number of members in the consumer unit, the extent of income variability etc. Notwithstanding the influence these factors may exert on individual consumer unit's consumption, the value of the consumption-income ratio is independent of the level of permanent income. Rich people do not consume a smaller or larger percentage of their permanent income than do the poor people. Put differently, the rich and the poor devote the same fraction of their incomes to consumption. In other words, expressed as a ratio of their permanent consumption to permanent income, the APC of families at all levels of income is constant.

ABSOLUTE INCOME HYPOTHESIS : According to Arthur Smithies, James Tobin and some others, the basic long-run income-consumption relationship is nonproportional with the consumption income ratio (C/Y) decreasing with increasing income. But the time series data relating to income and consumption does not support their hypothesis. Their explanation is that while the true income-consumption relationship is one of nonproportionality still the time series data give a proportionality relationship because the basic nonproportional consumption function has shifted or drifted upward through time as result of changes in the consumption determining factors other than income. According to these economists, these factors are : (1) consequent upon an increase in their accumulated wealth, the households have tended to spend a larger fraction of their income s on consumption causing an upward shift in the aggregate consumption function; (2) due to the shift in population from the rural to the urban areas the aggregate consumption function has shifted upward because the consumption propensity of the urban factory and other workers is higher than that of the farm workers; (3) the age composition of population has so changed that the old people-total population ratio has increased. Since the old people consume but do not appear on the income side the ratio of aggregate consumption to aggregate income has risen shifting the aggregate consumption function upward; and (4) the introduction of new consumer goods regarded as 'essentials' by the typical household has also caused an upward shift in the aggregate consumption function over time. These factors have caused an upward shift in the consumption functions sufficient to give an apparent proportionality relationship to the otherwise true non-proportionality relationship between the long-run aggregate consumption and the long-run aggregate income.

5.7 LONG PERIOD CONSUMPTION FUNCTION :

Several economists tried to explain the longrun consumption function. However Simon Kumznuts, and Arthur Smithies are important among them. It was found that in the post-war period – 1946 and 1947-the level of consumption was far above that predicted by the simplified consumption function of the form C = a + bY. This simplified consumption function was also discarded on additional grounds. The consumption function of the form C = a + bY implies that the consumption-income ratio (C/Y) falls as income increases, i.e., the percentage of total income spent on consumption falls as income increases. On this basis, the saving-income ratio must increase as income increases. On the basis of non-proportional income-consumption relationship sufficiently high level of investment was deemed necessary for attaining full employment in the post war period. It was, however, experienced that government expenditure of even a smaller magnitude than predicted by such a consumption function resulted in the inflation. The non-proportional income-consumption relationship was controverted by Simon Kuznet's now well-known study of the national income and consumption expenditure for the American economy during the period 1869-1929 which showed that the ratio of consumption to national income (C/Y) had remained constant while income had quadrupled. Simon Kuznets's finding was supported by Goldsmith's study relating to consumption and personal income. According to Goldsmith, "a main enduring characteristic" of saving was long-term stability of aggregate personal saving at approximately one-eighth of income. This means that the long-run consumption-income ratio (C/Y) was stable at seven-eighth of income.

While the consumption-income ratio (C/Y) has been constant over the long period of time, the cross-section data shows that the consumption-income ratio (C/Y) decreases as income-increases. Furthermore, studies also show that the C/Y ratio fluctuates cyclically-consump-

tion decreases much less than proportionately during minor recessions and even increases sometimes in the face of decreasing income. In short, the empirical findings show a proportionality relationship between consumption and income during the long period and a non-proportionality relationship during the short period. Figure explains the short-run and the long-run consumption functions. In the figure aa, bb and dd are the short-run linear consumption functions showing that the consumption income ratio C/Y decreases as income increases. The long-run proportionality consumption function OC=bY shows, however, that the consumption-income ratio C/Y remains constant regardless of the level of national income.

5.8 SIGNIFICANCE OF THE CONCEPT OF CONSUMPTION FUNCTION

It has been widely agreed that Keynes' concept of the consumption function is an outstanding contribution to economic thought. Hansen aptly remarked that, "Keynes' analysis of the consumption function is a major landmark in the history of economic doctrines". In fact, this concept has revolutionized the whole of economic thinking in modern times. Briefly, the significant points of the consumption function are :

* Since in the short run the consumption function is assumed to be a stable phenomenon, the importance of investment in the theory of employment and income becomes apparent. It is from the stability principle of the propensity to consume that Keynes draws the conclusion that employment can only increase with an increase in investment. Thus, investment is regarded as the crucial factor determining employment in the short run.

* On the basis of the principle of the consumption function, Keynes was able to proe the invalidity of Say's Law of Market, which was a fundamental postulate of the classical theory. By showing that consumption expenditure rises by proportionately less than an increase in income, Keynes ruled out the possibility of supply always creating its own demand - the dictum of Say's Law. The nature of the propensity to consume, as described by Keynes, easily proved not only the possibility, but also the probability, of the excess of supply over demand leading to overproduction and large-scale unemployment.

* Keynes' doctrine of the consumption function indicates that a severe depression is arrested by the fact that consumption does not decrease as rapidly as income decreaes. Thus, the concept of consumption function gives an insight into the theory of trade cycles, too.

* Finally, the consumption, and especially the term marginal propensity to consume, is very useful in explaining the multiplier theory and process of income propogation in the Keynesian theory of income and employment.

5.9 SUMMARY

Consumption is an important concept that determine the aggregate demand which inturn determine the effective demand. The relationship between consumption and income is known as

consumption function. Keynes consumption function is based on psychological law of consumption. This law is an important tool of economic analysis in Keynesian economics.

The consumption function is influenced by two kinds of factors namely subjective factors and objective factors. Factors such as precaution, foresight, family affection, oldage security, improvement, enterprise, pride etc are come under subjective factors and income, distribution of income, financial policies, changes in expectations etc. are come under objective factors. The relative and permanent income hypothesis theories hold that relation between consumption and income is proportional whereas absolute income hypothesis holds that the basic relationship is non-proportional.

5.10 GLOSSARY

1. Consumption Function : Emperical relationship between income and consumption.
2. Average Propensity to Consume : The ratio of the aggregate consumption to the aggregate income.
3. Marginal Propensity to Consume : The ratio of the change in the level of consumption to the change in level of aggregate income.
4. Savings Function : Emperical relationship between income and savings.
5. Average Propensity to Save : The ratio of aggregate savings to the aggregate income.
6. Marginal Propensity to Save : The ratio of the change in the level of savings to the change in the level of aggregate income.

24.11 POINTS TO BE REMEMEMBERED

1. The relationship between income and consumption is known as consumption function.
2. When the income goes on increasing, the marginal propensity to consume will diminish.
3. The receprocal of marginal propensity to save $\left(\frac{1}{\text{MPS}}\right)$ or $\left(\frac{1}{1-\text{MPS}}\right)$ is called as multiplier.
4. Subjective and objective factors are two kinds of factors which influence the consumption function. Psychological factors are called as subjective factors and real factors are called as objective factors.

24.12 MODEL QUESTIONS

I. ESSAY TYPE QUESTIONS.

1. What is meant by consumption function? Write briefly about average and marginal propensity consumption.
2. Define consumption function. Write about psychological law of consumption.
3. Write about the factors that influence the consumption function.

II. SHORT ESSAY QUESTIONS.

4. Write the psychological law of consumption.
5. Write a brief note on consumption function.
6. Write the importance of consumption function.
7. Write a note on longurn consumption function.

III. SHORT QUESTIONS :

8. Consumption Function.
9. MPC
10. APC
11. Subjective Factors
12. Objective Factors
13. Demonstration Effect

5.13 SUGGESTED READINGS

1.	Dudley Dillard	:	Economics of J.M. Keynes
2.	M.L. Jhingan	:	Advanced Economic Theory
3.	M.C. Vaish	:	Theory of Macro Economics
4.	K.K. Dewett	:	Modern Economic Theory
5.	R.D. Gupta	:	Keynes, Post-Keynesian Economics

Lesson - 6

INVESTMENT - MARGINAL EFFCIENCY OF CAPITAL

6.0 Aims and Objectives:

After reading this lesson, you will be able to understand the following

* What is meant by investment and whar are different kinds of investments
* Gross Investment, Net Investment, Autonomous Investment and Induced Investment.
* Marginal Efficiency of Capital

Structure of the Lesson:

6.1 Introduction:

The Keynesian economics insists more or aggregate demand analysis rather than aggregate supply analysis. The aggregate demand consists of two main determinants i.e. consumption function and investment function. In this chapter, the other important aspect of aggregate demand i.e. investment function will be discussed. Just like consumption function, investment function is also related to total income. That part of aggregate total income which has not been consumed by

the society is saved. Out of that saving, a past is consumed to met the more pressing demands in future that provides a security. te remaining part of aggregate saving is invested in newly created capital assets.

The consumption funtion, in Keynesian theory has been assumed to be stable in the short period and it does not affect the economy in the short-run. As aggregate demand consists of consumption function and investment function and the sonsumption function stable hence it is investment function that pushes up the output, income and employment in the economy. In order to generate more employment, therefore, investment function is te core of Keyesian economics the concepts of investment in the economy are discussed in this chapter.

6.2 Importance and Meaning of Investment:

The level of income, output and employment in an economy depends upon effective demand, which in turn, depends upon expenditures on consumption goods and investment goods $(Y = C+1)$. Consumption depends upon the propensity to consume, which, we have learnt, is more or less stable in the short period and is less than unity. Greater reliance, therefore, has to be placed on the other constituent (investment) of income. Out of the two components (consumption and investment) of income, consumption being stable, fluctuations in effective demand (Income) are to be traced through fluctuations in invetment. Investment, thus comes to play a strategic role in determining the level of income, output and employment at a time.

We can establish the importance of investment in another way also. In order to maintain an equilibrium level of income $(Y = C+1)$, consumption expenditures plus investment expenditures must equal the total income (Y); but according to Psychological Law of Consumption given by Keynes, as income increases consumption also increases but by less than the increment in income. This menas that a part of the increment in income is not spent but saved. the savings must be invested to bridge the gap between an increase in income and consumption. If this gap is not plugged by an increase in ivestment expenditures, the result would be an unintended increase in the stocks of goods (inventories), which in turn, would lead to depression and mass unemployment. Hence, investment rules the roost.

In Keynesian economics investment means real investment i.e., investment in the building of new machines, new factory buildings, roads, bridges and other forms of productive capital stock of the community. including increase in inventories. It does not include the purchase of existing stocks, shares and securities, which constitute merely an exchange of money from one person to another. Such an investment is merely finanical investment and does not affect the level of employment in an economy. An investment is termed real investment only when it leads to a increase in the demand for human and physical resources, resulting in an increase in their employment. Investment is a flow variable and its counterpart is stock variable called capital.

6.3 Different Kinds of Investment:

Investment may be of different kinds. The following discussion explains various kinds of investments.

1. **Financial Investment and Real Investment:** Financial investment means transfer of rights from one individual party to the another individual party. It does not add to the real capital stock in the conomy. The deposit by a person into the bank, purchase of shares, bonds, building, machinery etc. by one person from another are actually investment from individual point of view i.e. for depositor or for te purchasers of te various assests because they earn something on their investment over a period of time. But such types of investment do not create a new asset. They simply transfer asset from one person to another. When one person invests, the other disinvests and therefore, from society point of view, there is no investment. These all are financial investment.

   Real investment, on the other and refers to the creation of additional productive capacity in the economy. For example, if a person puts up a factory workshop, it is a real investment as it generates additional productive capacity in the economy. It is in this sense that Keynes has used the term investment in its macro economic analysis.

2. **Planned and Unplanned Investment:** Net investment may be planned invesetment and unplanned or unintended investment. Planned or intended investment refers to the investment which the enterpreneurs intend to undertake during a given period of time. It is a deliberate attempt of the enterpreneurs to add to the capital stock. It proceeds acording to the set target. It is motivated by larger sales or by favourable market conditions.

   The unplanned or unintended investment is not a deliberate attempt of the enterpreneurs. It does not according to the set targets. It is a forced investment on the part of the enterpreneurs.

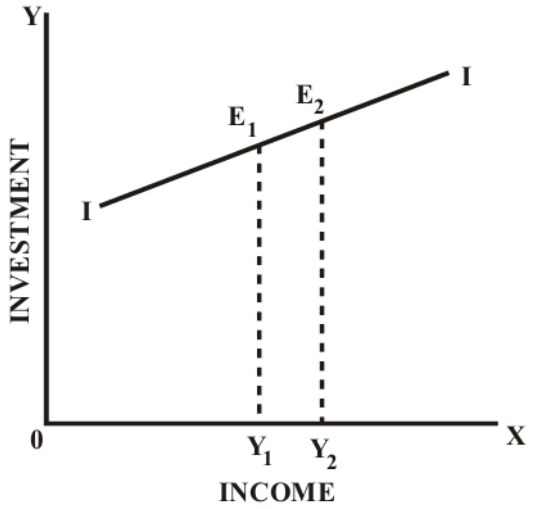
   Planned and unplanned investment make the real investment or realised investment.

3. **Induced and Autonomous Investment:** The classification of investment between induced and autonomous investment is very important in macro economic analysis. Induced investment is an investment which depends upon profit expectations. This type of investment is undertaken by te enterpreneurs when they see an upward change in the level of income or consumption of te people. The higher level of income or consumption of the people. The higher level of income or consumption will raise the demand and sales of final goods which can be produced wit the help of capital goods. Thus, the demand of capital goods will be increased that will lead to more production of capital goods. The produced of capital goods will make investment in anticipation of higher demand by the producers of final goods due to upward shift in te level of income or consumption. This is induced investment and will increase or derease wit the change in the level of income or consumption. This functional relationship can be explained with the help of a diagramme -

   In Fig 6.1 income is measured along the X - axis and investment along the Y - axis. I - I represents the induced investment curve. As income increases from OY_1 to OY_2, the level of induced investment also increased from E_1 to E_2. so, the larger the income of the community, the higher will be the induced investment. According to Keynes, the volume of induced investment is determined by two main factors i.e., the marginal efficiency of capital and rate of interest. The marginal efficiency of capital, in turn depends upon the purchase price of te asset and the expected flow from the capital asset.

Fig 6.1

Induced Investment Function

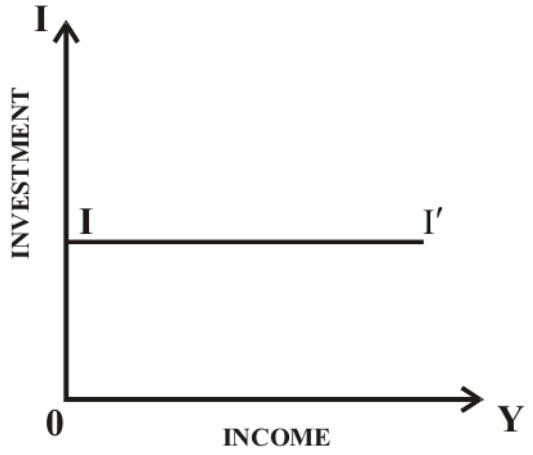


Autonomous Investment, on the other hand, refers to those investment which are not related to income and therefore is not influenced by the level of income or sonsumption or the rate of interest. It is not induced on the other hand, by profit motive. It is not a function of level of income but is a function of technological changes, discovery of new resources growth of population etc. This type of investment remains the same at each level of income. This can be shown diagrammatically as given in Fig 6.2.

In fig 6.2 I - I is investment curve which is parallel to income shown on X - axis and shows that investment is equal at all the levels income.

Fig - 6.2

Autonomous Investment



4. **Gross Investment and Net Investment:** Investment, as we have seen which is in the nature of flow of expenditures, during a given time period, on new fixed capital goods or is in the nature of an addition to the stock of raw materials and unsold consumer goods is called gross investment. However, replacement of investment denotes to the expenditures incurred to maintain the stock of capital, in an economy, intact. This type of expenditure is undertaken to offset the depreciation, wear and tear and obsolescence in the existing productive capacity. Ner investment is, thus the exces of gross investment over the replacement investment. The term net investment, is therefore, some times used for capital formation also. Symbolically,

$$I_g = I_n + I_r$$

Where I_g is the gross investment, I_n the net investment and I_r the replacement investment also called capital consumption. It is the variations in the I_n which causes fluctuations in Y, O and E both in the short-run and in the long-run.

6.4 Determinants of Investment:

Private investment (induced investment) depends upon the marginal efficiency of capital and the rate of interest. The marginal efficiency of capital in turn, depends upon future expectations which fluctuate very low, when in fact, it should be very high. Prospective entrepreneurs keep on comparing the marginal efficiency of capital with the rate of interest and decide to invest only when the former is higher than the later. There willbe no investment if the rate of interest is higher than the MEC. (In other words, if profit expectations are not very bright); that is the reason why investments fall to low levels during depression period, despite the fact that all types of encouragements are given to private investors to invest more.

Classical economists regarded investment as dependent on the rate of interest, this to them was an important lever by which investment in the system was regulated. This is why they relied too heavily on the rate of interest to control fluctuations. They always held that by manipulating the rate of interest, stability in the economic system could be restored. Until the Great Depression of the thirties, Keynes also adhered to this view and believed in the efficiancy of the rate of interest in solving the problem of cyclial fluctuations. But later on he realised its weaknesses and stopped giving it undue importance as cyclical stabilizer. Keynes realised that investment depended more on the psychological factors like the marginal efficiency of capital and not on the rate of interest; as such it was relegated to the background. It is no doubt true that the marginal efficiency of capital has become the chief determinant of investment yet the influence of interest cannot be ignored as both go to determine it. The significant role of public investment, also called the autonomous investment, which the Government may incur to save the economy from falling further to lower income levels, comes to the forefront. In the nature of the case public investment is independent of the profit motive. Since a steady investment is essential for the investment multiplier to have positive effect on income, output and employment, during depression, motives other than profit are necessary to guide more investment - a funtion which is fulfilled only be controlled but is capable of exansion to such an extent to make the investment multiplier work wit greater force than would otherwise be possible. moreover, the government can prevent it from leaking our of the spending

stream, as well as is capable of timing it, so as to let the multiplier have its full and free play. There is no reason why public investment should not be wealth-creating as well as employment generating and why its adverse tertiary effects (if any) cannot be offset as a result of the beneficial effects of multiplier on private consumption. ence, the importance of public investment. It, therefore, becomes necessary to analyse the various measures which stimulate investment.

6.5 Measures to Stimulate Investment:

Various fiscal monetary and other measures to stimulate investment are discussed. It is therefore, natural and useful to examine the measures that stimulate investment:

1. **Tax Concessions:** It is argued that tax concessions allowed on company and corporation profits would stimulate investment during depression period and will work as a great incentive for new entrepreneurs. Many economists like Hansen, Lerner and Klein have supported this view.

2. **Government Spending:** The level of investment can also be stimulated by Government investment. There are many socially useful investments like construction of dams, roads, low-cost housing, slum clearance, recreation houses etc., which are essential from the point of view of the community but which are not undertaken by private businessmen because they do not ensure quick profits.

3. **Pump Priming:** In order to cope with the deficiency of private investment, a programme of Pump Priming is necessary. Under it, public investment is undertaken not only to meet the deficiency of private spending but also to take the economy out of the depths of depression. The idea is to 'prime' the 'pump' of private spending. Once the economy starts working towards full employment, public investment is given up. Pump priming is a helpful policy not only as a method of financing but also a method of spending.

4. **Rate of Interest:** Keynes favoured for a long time in his earlier books a low rate of interest to stimulate private investment. Such a policy is based on the assumption that investment is sensitive to changes in te rate of interest. monetary authorities, by increasing the quantity of money (other things remaining the same) can lower the rate of interest to give a fillip to investment activity. Low interest rates especially give stimulus to investment activity. Low interest rates especially give stimulus to investment in some sectors of the economy.

5. **Wage Level:** Sometimes, reduction in the wage level is suggested to increase the level of investment activity on the ground that reduction in wages will reduce the total wage bill and hence the cost of production thereby leading to a rise in te expected rate of profitability (MEC). Under such circumstances businessmen will be encouraged.

6. **Price Policy:** Frequent fluctions in prices have been found to be one of the important causes of the instability of private investment. Certain amount of stability in the price level, it is felt, will surely stimulate private investment. To achieve the objective of stability in prices, a price-support policy has been suggested. Such a policy implies open market operations in commodities, that is Government purchases and sales of certain storable commodities with a view to adjusting their supply to demand.

7. **Abolition of Monopoly Privileges:** There is a great need of abolishing monopoly privileges in certain industries in order to encourage new inventors to enter the field.

8. **Market Structures:** The term market structure refers to the kind and degree of competition characteristic of the industrial environment within which the firm functions. It is argued that a competitive market structure is highly conductive to economic progress and high rate of investment.

9. **Role of TEchnology and Innovation:** TEchnology and innovation are concepts which cannot be defined clearly and precisely. Even then, they have great influence on investment and innovation may imply, according to Schumpeter an introduction of new good, new method of production discovery of new market and new source of supply or new organisation.

In addition private investment cannot be induced except for profit motives. It will continue to be highly uncertain and stickly in the absence of such an incentive. It was because of this fundamental nature of private investment that Keynes wanted it to be supplemented by public investment.

6.6 Marginal Efficiency of Capital:

The marginal efficiency of capital along with the rate of interest determines the amount of new investment. In the fundamental equation $Y = C + I$, given by Keynes, we have seen that income at a time depends up[on consumption and investment, consumption being stable in the short run and less than unity - a gap comes to exist which can be wiped off only by an increse in investment.

Marginal efficiecny of capital refers to te anticipated rate of profitability of a new capital asset. It is the expected rate of return ofver cost from the employment of an additional unit of capital asset. Marginal efficiency of capital depends upon the expected rates of returen of a capital asset ever its life time (called prospective yield by Keynes) and the supply price of the capital asset. It must be remembered that a businessman while investing in a new capital asset will always weigh the expected rates of net return (profitability) over the life time of the capital asset (say a machine)against its supply price (cost) also called the "replacement cost". If the former is greater than the later, the businessmen will invest, otherwise not.

Prospective Yield:

Prospective Yield refers to total net return (net of all costs, such as maintenance expenses, depreciation, raw material except interest charges) expected from the asset over its life time. If we divide the total expected life of the new capital asset into a series of periods, say years, we may refer to annual returns as a series of annuities reresentted by $Q_1, Q_2, Q_3 \cdots\cdots\cdots Q_n$. We have to add the net return for all these years to arrive at the prospective yield. it is however, very difficult to estimate correctly the expected return from a capital asset over its life time (because, it is difficult to estimate correctly the life of te capital asset). At best, we can guess, intelligently perhaps, but only guess. "An estimate of what an investment will earn in five, ten or twenty years hence is based largely on guesswork, on animal spirits, on adapting estimates to the average estimate, which in turn, is based on uninformed fuesses. Moreover, the expected return each year is not te same (except in a static society). In a changing world, the returns from the capital asset are likely to vary from year to year. Besides, Keynes considers te supply price, which means the cost of te asset (not of the existing asset but of the new asset), also called the replacement cost. Thus, MEC is the

ratio of these two elements (prospective yield and the supply price). In other words, marginal efficiency of capital refers to the rate of discount at which the prospective yield of an asset is discounted so as to make it just equal to the supply price of the asset. Keynes says, "more precisely, I define the marginal efficiency of capital as being equal to that rate of discount which would make the present value of the series of annuities given by the return expected from the capital asset during its life just equal to its supply price". An example will make it clear.

Suppose an investor feels thata given investment in new capital asset (say a machine) will cost him Rs. 10,000. Suppose this machine (unit of capital asset) is exected to yield over its life time a net return (net of all costs like maintenance, depreciation, raw material except interest charges) of Rs. 500 per annum. To find out MEC of the new capital asset, we would simply caluculate the ratio (expressed as a percent) of the expected annual net return [Rs. 500 (prospective yield) divided by Rs. 10,000]. Here, Rs. 500 (prospective yield) divided by Rs. 10,000 (supply price), results in a value of 5% $\left(\frac{500}{10,000} \times \frac{100}{1} = 5\%\right)$. The MEC is 5%, i.e., the expected annual net return on the investment of RS. 10,000 is 5%. If may however be noted that in a dynamic economy it is not so easy to find out the rate of expected return. Thus,

Supply Price = Discounted Prospective Yield

The formulafor its calculation is:

$$Cr = \frac{Q_1}{1+r} + \frac{Q_2}{(1+r)^2} + \frac{Q_3}{(1+r)^3} + \cdots\cdots\cdots\cdots + \frac{Q_n}{(1+r)^n}$$

Where Cr stands for supply price (replacement cost) of the new capital asset, $Q_1, Q_2, Q_3, \cdots\cdots\cdots\cdots, Q_n$ denote expected annual rate of return each year from the capital asset (also called series of the prospective annual yields), r stands for te rate of discount which will make the present value of the series of annual returns just equal to supply price of the capital asset. Thus, r denotes the rate of discount of te marginal efficiency of capital. To take a concrete illustration, let us suppose that the prospective annual yields from the use of te new capital asset whose life is 3 years only are as follows:

1st year	2nd year	3rd year
Rs. 1050	Rs. 3528	Rs. 9261

Suppose that current supply price of the replacement cost of the capital asset is Rs. 12,200. Now 5% must be that unique rate of discount which will equate the sum of the discounted values of the prospective annual yields to the current supply price of the capital asset.

For,

$$\text{Rs. } 12,000 = \frac{1050}{(1.05)} + \frac{3528}{(1.05)^2} + \frac{9261}{(1.05)^3}$$

$$= 1000 + 3200 + 8000$$

$$= 12,200$$

The unique rate of discount (5%) is called the marginal efficiency of capital.

In this equation the current supply price is known (Rs. 12,200) where as the present value V_p is known. In this equation the unknown (MEC or r) ordiscountrate has been found out which makes the present value of the expected income stream, $Q_1, Q_2, Q_3, \cdots\cdots\cdots, Q_n$ equal to supply price (C_r). But there also exists a mathematical formula for finding the present value V_P of an expected future income. It involves discounting the some expected at some future date. The process of discounting is just the opposite of compounding. It means shrinkage at a constant rate, just as compounding means growth at a constant rate. The usual procedure for determining the present value of some expected income stream is to discount it at the current rate of interest. To see how it works, let us assume, that there is an asset that yields an income of RS 3,000 per year for a period of three years (Rs. 9,000 over its total life span). We want to know that the present value of this asset, the discount formula for finding the present value of a future income is:

$$V_P = \frac{R_1}{(1+i)} + \frac{R_2}{(1+i)^2} + \cdots\cdots\cdots\cdots + \frac{R_n}{(1+i)^n}$$

In this equation, V_P is the present value $R_1, R_2, \cdots\cdots\cdots, R_n$ is the expected income stream in absolute amount, and i is the current rate of interest. If we assume, the current rate of interest is 5% we can apply the above formula to findthe present value of our asset:

$$V = \frac{\text{Rs. } 3000}{(1.05)} + \frac{\text{Rs. } 3000}{(1.05)^2} + \frac{\text{Rs. } 3000}{(1.05)^3}, \text{ simplifying we get:}$$

$$V_P = \text{Rs. } 2857 + \text{Rs. } 2721 + \text{Rs. } 2597 = \text{Rs. } 8175.$$

Thus, we find that the present value of the asset is Rs. 8175, an amount less than the sum of the absolute amounts to be received in three years. It shows that more remote the date in the future at which the income is expected the less its present value - RS. 3000 due in three years, for example, has a lower resent value than Rs. 3000 due in one year. Even otherwise, we see that if we lend a sum of Rs. 2857 for one year and Rs. 2721 for two years and Rs. 2597 for three years at 5% rate of interest, we will get Rs. 3000 after one, two or three years repectively. Thus there is some rate of discount which makes the present value of prospective returns from a capital good equal to its supply price. This is the rate of discount (r) which keynes calls MEC of cpaital.

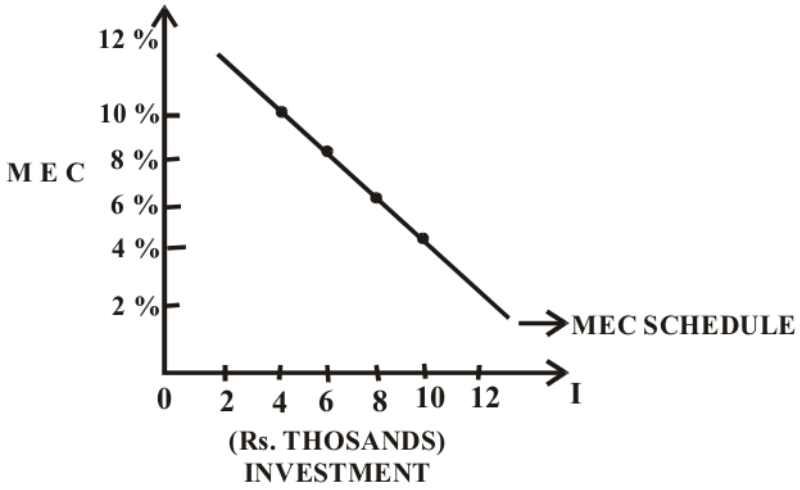
The marginal efficiency of a particular type of capital asset is the highest rate of return over cost expected from an additional or marginal unit of that type of asset. The marginal efficiency of capital in general is the highest rate of return over cost expected from producting an additional or

marginal unit of the most profitable of all types of capital asset. In other words, the marginal efficiency of capital in general is the marginal efficiency of that particular asset, of which the economy finds it most worth while to produce another or additional unit.

The Investment Demand Schedule: The above analysis of the behaviour investors in respect of new investment is conceived in the context of the schedule of the marginal efficiency of capital or investment demand schedule. It shows a functional relationship between the MEC and the amount of investment indicating that the demand for capital asset of any given type is a downward sloping function of the marginal efficiency of capital. For "if there is an increased investment in any given type of capital during any period of time, the marginal efficiency of that type of capital will diminish as the investment in it is increased partly because te prospective yield will fall as te supply price to increase". In other words, as investment in a particular capital asset increases, its marginal efficiency decreases. The marginal efficiencies of all types of capital assets which may be made during a given period of time represent the schedule of the marginal efficiency of capital (also called the investment demand schedule). The position and shape of the investment demand schedule are of major significance in determining the colume of employment. The following diagram Fig 6.3 and table give us the shape of the investment demad schedule:

INVESTMENT	MEC
Rs. 2,000	12 %
Rs. 4,000	10 %
Rs. 6,000	8 %
Rs. 8,000	6 %
Rs. 10,000	4 %
Rs. 12,000	2 %

Fig 6.3



We find that when the investment is Rs. 2,000, the MEC is 12%. As the investment increases, the MEC declines and finally it is 2% at Rs 12,000. The MEC curve is downward sloping showing that the MEC declines with an increase in investment. Figure 6.3 depicts the investment demand curve or what is also called the MEC schedule and shows the inverse relationship between investment and the MEC.

MEC and The Rate of Interest:

MEC and the rate of interest are the two important factors which affect te colume of investment and these two must be determined beforehand independently of each other. MPC is the result of the supply price and the prospective yield of te capital asset. Rate of interest is the price paid for loanable funds. A potential investor will go on weighing the MEC on new investmentagainst the rate of interest. As long as MEC is more than the rate of interest investment will continue to be made, till the MEC and the rate of interest are equalised. Once the MEC becomes equated to the rate of interest, equilibrium investment is determined. thereafter investment has to be increased, either therate of interest should fall or MEC should increase. The following table depicts clearly ther relationship of MEC and the rate of interest in the determination of the inducement to invest:

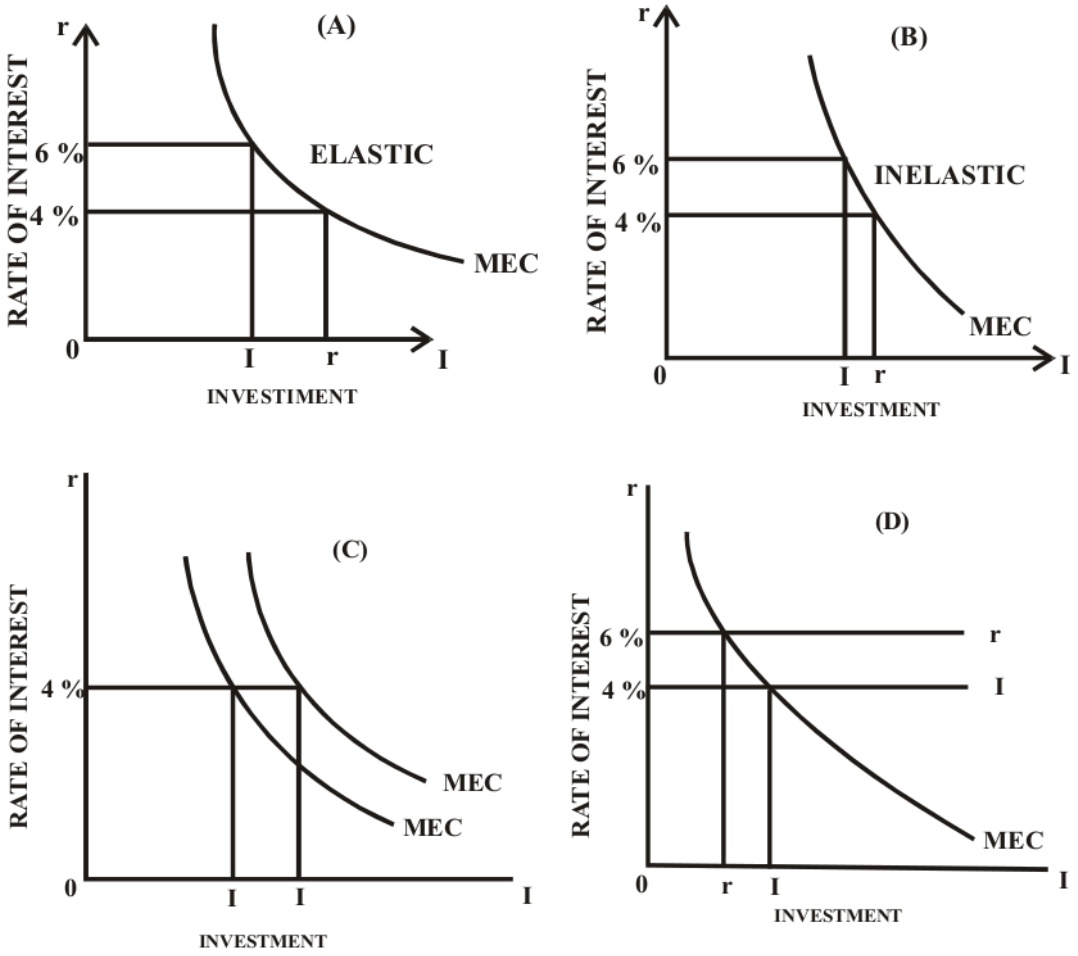
Supply Price	Annual Return	MEC	Rate of Interest	Effect on Investment
Rs. 25,000	Rs. 1,000	4 %	4 %	Neutal
Rs. 20,000	Rs. 1,000	5 %	4 %	Favourable
Rs. 25,000	Rs. 1,000	4 %	4 %	Adverse

In this table it is assumed that the new capital assest in question gives a constant return of Rs. 1,000 annually. The MEC and the rate of interest are given separately in separate columns, having been determined independently of each other. When MEC (4%) is equal to te rate of interest (4%), the effect on investments is neutral; when it is more, the effect is favourable and when MEC is less than the rate of interest, the effect on induced investment is unfavourable.

The position and shape of the investment demand schedule pay a deciding role in determining the volume of investment because it shows the extent to which the amount of investment changes as a result of changes in the rate of interest. If the demand (MEC) schedule is relatively interest - elastic, a little fall in the rate of interest will lead to a considerable increase in investment. On the other hand, if the investment demand schedule (MEC schedule) is relatively inelastic, there will be little increase in investment, though the fall in the rate of interest may be considerable.

Fig 6.4(A) given below shows an interest elastic investment demand schedule. When the rate of interest falls from 6 percent to 4 percent investment increases from OI to OI'. Figure 6.4 (B) shows an interest inelastic investment demand curve. corresponding to the same fall in the rate of interest from 6 to 4 percent, increase in investment II' is much less. There has been a lot of controversy on the extent of interest elasticity of the investment demand schedule. Experience confirms the views that it tends to be interest - inelastic especially during depression.

Fig 6.4



A change in the marginal efficiency of capital or in the rate of interest or both, induces a change in the level of investment, as shown in figure 6.4 (C) given on page 306. We find that a rise in the MEC of capital is accompanied by aconstant rate of interest rate at 4% resulting an increase in the level of investment. Figure 6.4 (D) furter describes the case of a rise in the rate of interest from 4% to 5% with no change in the MEC schedule and the level of investment falls from OI to OI′.

6.7 Factors Affecting MEC:

MEC is effected by two kinds of factors namely short run and long run factors. The following discussion explains theses factors.

Short - Run Factors Affecting MEC: There are a large number of long - run and short - run factors which influence the marginal efficiency of captial. Among the short - run influences, the following are important:

1. **Nature of Demand, Prices and Cost:** If the costs are expected to rise or prices are likely to fall and the demand for a particular product is prone to decline in future, average businesman's expectations regarding the rate of return from any given investment will also decline, affecting the investment adversely. On the other hand, investment will get fillup, if the entrepreneur expects a fall in cost, rise in prices, increase in demand or a combination of these.

2. **Propensity to Consume:** Favourable short-run shifts in the propensity to consume also cause favourable shifts in investment because the demand for capital goods is (at least partly) derived from the demand for consumer goods.

3. **Change in Liquid Asset:** when an entrepreneur has a large volume of liquid assets and the different types, he is likely to take advantage of the investment opportunity that comes his way. But when the assets are not liquid or there is the fear of temporary liquidity (shortage of working capital), it often goes to inhibit the new investment.

4. **Change in Income:** Sudden changes in income caused by wind fall profits or losses, tax concessions or levies also influence the marginal efficiency of capital and hence investment. It will be stimulated by a rise in income and damped by a fall in income.

5. **Current STate of Expectations:** Rates of return on current investment influence business exectations. Entrepreneurs often invest on the assumption that the current state of affairs will continue indefinitely. It is not possible to base expectations and hence investments on future course of events which are so uncertain. Thus, current expectations play an important part in influencing investment.

6. **Waves of Optimism, Pessimism:** Considerable importance is given to waves of optimism and pessimism in influencing the MEC and hence investment. During periods of optimism, rates of profit on future investment are unduly overestimated, while during periods of pessimism often refer to the rsults, as one would expect them to be based on political, psychological and social factors.

Long - Run Indluences on MEC: Following are the important factors which influence the marginal efficiency of capital in the long - run.

1. **Population:** The rate of growth of population favourably affects investment, necause the basic needs of a fast growing population require a greater amount of capital investment in fields like municipal and public utility services, residential buildings and consumer goods industries specially those producing necessaries of life.

2. **Development of New Territories:** The growth and development of new territories lead to heavy investment activities of all types. There will be need to provide for additional transport facilities, residential and commercial buildings. the development of new areas and townships in India like Nangal (Punjab), Okhla (U.P.), Durgapur (West Bengal) and Trombay (Maharashtra) has necessitated huge developmental expenditure and investment.

3. **Techniques of Production:** Improvements in the techniques of production stimulate investment. Any invention or change in the technique of production, specially when it is of labour - saving type and lowers the cost of production calls for huge investment activity. The manufacturing of steel, cars, rubber, glass, textiles, electrical goods etc., has resulted in greater technological progress and the expansion of market resulting in increased investment.

4. **Supply of Capital Equipment:** The influence of population growth, expansion of territories and markets and the changes in the techniques of production depend upon the existing sujpply of capital equipment. If the existing plant and machinery are capable of being used to cope with the increased demand as a result of the above mentioned factors, to that extent new or induced investment will not result. Howeverm if the existing plant and machinery are fully employed, then the favourable effects in investment will follow.

6.8 Equibrium of the Economy:

The equality between saving and investment can be visualise in two ways -

(i) Accounting equality and

(ii) Functional equality

(i) Accounting Equality: This is also known as logical identity according to Keynes, saving and investment must be equal at levels of national income. It is true even when the decisions take by savers and investors are quite independent and have no reference to each other. We can prove this equality with the help of accounting equations.

As we know employment of labour results in two things - (i) increases national output, and (ii) it increases national income. National output and national income are one and the something from two different angles. National output comprises output consumption goods and ivnestment goods we may put it like -

$$O = C + I$$

where O = output, C = consumption goods, I = investment goods. like wise national income is regarded as the income of the various factors of production received by them against their contribution to the national output. This income is used by them for consumption perpose and for saving. It implies that saving is the part of nation income which has not been consumed. We may put it in the form equation as follows:

$$Y = C + S$$

where Y = national income, C = consumption, S = saving. By solve the two equation, we find

$$O = Y$$

or $$C + I = C + S$$

or $$I = S$$

The accounting equality between S and I is significant as it explains the paradax of thrift i.e., if some persons save more, so others will save less becuase one man's expenditure is other man income. If one spends less, the other earns less and therefore less. Thus, the attempt of a community to save more without corresponding increase in national income or national output bound to meet with failure.

The accounting equality between S and I is not of much importance in economic analysis on two counts -

Firstly, it provides no information about the casual factos that affect the level of income saving investment and consumption in the economy.

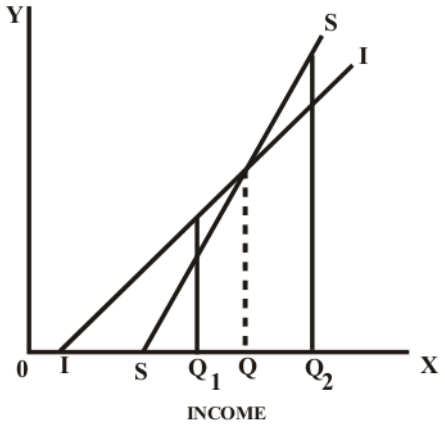
Secondly, it furnishes us with ni edjustment meebanism by which equality between S and I is brought about.

(ii) Functional Equality: The functional equality various casual factors which determine income saving investment and consumption. It also explains the process by which the equality between saving and investment is brought about.

The income level will be at equilibriyn point only when saving and ivnestment will be equal. These two forces saving and investment will determine the level of national income in the same manner as the forces of demand and supply determine the price level. According to Keynes, the economy will be in disequuilibrium if saving exceeds investment or investment exceeds saving. Economy will be in equilibrium only when there is functional equality between S and I. This can be shown graphically as follows:

Fig 6.5

Functional Equality between Saving and Investment



In Fig 25.5 SS and II are two curves showing saving and investment respectively at different levels of income. Both the curve increase with the level of income and intersect at point R. Thus at OQ income the saving and ivnestment levels are equal. Thisis known as equilibrium level of income. At OQ_1 level of income (below equilibrium level) the investment is R_1Q_1 where as saving is K_1Q_1. It shown investment is in excess of saving. Therefore, the income will increase up to the point of Q because only at this point S and I will be equal. At OQ_2 point, the saving is in excess of investment. The saving is R_2Q_2 whereas investment is K_2Q_2. It will pull down the income level upto the point OQ becuase only at this point both S and I are equal. It is, thus, clear that S and I are equal to each other only at the equilibrium income level and no where else. The economy will be in equilibrium when these two are equal.

At equilibrium point, the economy is not necessarily to be at full employmnet point. It implies that S and I are and can be equal at a level below full employment level. (It is also known as under employment equilibrium).

6.9 Summary:

The expenditure incurred for the production of new machinery and productive goods. In otherwords, an increase in the physical resources can be termed as investment expenditure. Investment may be of different kinds. They are induced investment or autonomous investment, Financial or real investment, planned or unplanned investment, gross investment or net investment.

Marginal efficiency of capital is an important concept in the Keynesian analysis that determines the investment of the economy. MEC can also be termed as profit rate. According to Keynes "the marginal efficiency of capital as being equal to that rate of discount which would make the present value of the series of annuities given by the return expected from the capital asset during its life just equal to its supply price.

The MEC and interest rate are two important determinants of investment. If MEC and interest rate are equal effect on investment will be nuetral, MEC is more than rate of interest effect on investment will be favourable, MEC is less than rate of interest effect on ionvestment will be adverse. The MEC is depend on two kinds of factors namely short - run factos and long - run factors.

6.10 Points to be Remembered:

1. MArginal efficiency of capital in conjunction with the rate of interset determines the amount of new investment, which in turn determines the volume of employment.
2. Marginal efficiency of capital refers to the expectred rate of profitability of a new capital asset.
3. MEC depends upon the prospective yield and the supply price of the capital asset and is expressed asthe ratio of these two elements.

4. The marginal efficiences of all types of capital asets which may be made during a given period of time represnet the schedule of the marginal efficiency of capital (also called the investment demand schedule).
5. The position and shape of investment demand schedule are important in determining the volume of employment. The shape of investment demand schedule is down ward sloping.
6. There is close relationship between therate if interest and the MEC, if the former is less than the latter investments would be encouraged otherwise not.
7. There are many short - run factors like changes in demand assets, consumption, income, expectations, etc., which affect the MEC.
8. The long - run factors which affect the MEC are population, development of new territories and markets, changes in the techniques of production and supply of capital equipment.
9. Business expectations play an important role in influencing MEC and prospective yield. These expectations are short - term and long - term.
10. The nature of the short - term expectations is more or less stable while that of the long - term expectations is more or less unstable and uncertain.

6.11 Glossary:

1. **Induced Investment:** It can be called as private investment and it is depends on profit rate.
2. **Autonomous Investment:** It can be called as oublic investment. It is not sensitive to profits or income or independent of profits.
3. **MEC:** It can be called as profit rate or the anticipated rate of profitability of a new capital asset.

6.12 Model Questions:

I. Essay Type Questions:

1. Define investment and write about different kinds of investments.
2. Explain the concept marginal efficiency of capital (MEC) and what factors infhrence MEC.
3. What is meant by investment? Write about the determinants of Investment.

II. Short Essay Questions:

4. Write the importance of investment
5. Explain the discount law
6. Write about the equilibrium level of investment
7. Write short note on the short run factors which infhrence MEC

III. Short Questions:

8. Gross Investment
9. Autonomous Investment
10. Induced Investment
11. MEC
12. MEC curve

6.13 Suggested Readings:

1. Ackley. G : Macro Economics
2. Stonier and Hague : A Text Book of Economic Theory
3. Edmon. M : Macro Economics
4. Dewett. K.K. : Modern Economic Theory
5. Gupta R.D. : Keynes, Post Keynesian Economics

LESSON – 7

MULTIPLIER, ACCELERATOR, KEYNESIAN THEORY AND UNDERDEVELOPED COUNTRIES

7.0 AIMS AND OBJECTIVES:

After reading this lesson, you will be able to understand the following :

* What is meant by multiplier
* Working of the multiplier
* Employment Multiplier, Tax Multiplier, Balanced Budget Multiplier
* Accelerator and Working of the Accelerator
* Multiplier-Accelerator Interaction
* Keynesian Theory and Under Developed Countries

CONTENTS:

7.1 INTRODUCTION

The concept 'Multiplier' occupies an important place in Keynesian theory of income, output and employment. Keynes states that an initial increment in investment increases the final income by many times. The ratio of final increase in aggregate income with the initial increase in investment is called by Keynes as investment multiplier.

Accelerator is another important concept in economic analysis which was associated with the name J.M. Clark. Accelerator is an effect of change in consumption on investment. Multiplier and Accelerator are parallel concepts. These two concepts are explained in detail in this lesson.

7.2 THE MULTIPLIER

The concept of the Multiplier, which may be considered as one of Keynes' path-breaking contribution to economic analysis. Before Keynes were not unaware of the relation of an increment of investment to an increment of income Keynes multiplier is investment multiplied. It was left to Keynes to develop this idea as early as 1929. R.F. Kahn further developed it in 1931, although Kahn's multiplier was, strictly speaking, an employment multiplier rather than an investment multiplier.

The multiplier gives the relationship between an initial increment in investment and the final increment in aggregate income. In other words, the multiplier is the ratio of the change in income to the change in investment. It shows by how many times the effect of an initial change in investment is multiplied by causing changes in consumption and finally in the aggregate income. Whenever an investment is made in the economy, the effect is to increase aggregate income not only by the amount of the original investment, but by something much more than it. Why is to so? The reason is that the original investment increases income not only in the industries where original investment increases income not only in the industries where the investment is made, but

also in certain other industries whose products, are demanded by men employed in investment industries.

7.2.1 MULTIPLIER AND MARGINAL PROPENSITY TO CONSUME :

The size of the multiplier depends upon the size of the marginal propensity to consume. These two are closely related to each other. higher the marginal propensity to consume, higher shall be the size of the multiplier; the lower the marginal propensity to consume, the lower shall be the size of the multiplier. in fact, the size of the multiplier can be derived from the M.P.C. The multiplier is equal to ther eciprocal of 1 minus the M.P.C. Keynes expresses the multiplier in symbolic term as K.

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

(Where M stands for the marginal propensity to consume).

If the marginal propensity to consume is known to us, then K can easily be determined by this formula. Suppose, the marginal propensity to consume is $\frac{1}{2}$, then $K = \frac{1}{1-\frac{1}{2}} = \frac{1}{\frac{1}{2}} = 2$.

7.2.2 MULTIPLIER AND MARGINAL PROPENSITY TO SAVE :

It has already been indicate that the marginal propensity to consume plus the marginal propensity to save is equal to 1. If the marginal propensity to consume is deducted from 1, we are left with the marginal propensity to save. The above formula, thus, can also be expressed in the following form :

$$K = \frac{1}{S}$$ (Where S = Marginal Propensity to Save)

Thus, we can obtain K provided we know either the marginal propensity to consume or the marginal propensity to save. If the marginal propensity to save is known to us, we can straightaway find K by applying the above formula. But, if it is not known, we can find it out by deducting M.P.C. from 1. Any way, what is necessary to find K, is the marginal propensity to save. Let us suppose that the marginal propensity to consume is $\frac{9}{10}$. By deducting $\frac{9}{10}$ from 1, we get $\frac{1}{10}$ which the marginal propensity tos ave. The reciprocal of $\frac{1}{10}$ is 10 which is the multiplier. In short, the multiplier is the reciprocal of the marginal propensity to save which is always equal to 1 minus the marginal propensity to consume.

7.2.3 ESTIMATION OF THE MULTIPLIER :

The table 7.1 below discloses two limiting cases. The M.P.C. is very rarely zero. If it is zero, then teh multiplier is 1. What this means is that nothing is spent by the consumers out of increased incomes. The whole increases of income is saved with the result that the multiplier is

only 1. Suppose there is a new investment of Rs. 10 crores in public works, and the M.P.C., is zero; that means the whole of Rs. 10 crores is saved. The Multiplier is 1. The aggregate income increases only by Rs. 10 crores.

This Table 26.1 gives values of the Multiplier which correspond to certain values of the M.P.C.

Table 7.1

Marginal Propnesity to Consume	Multiplier (K)
0	1
$\frac{1}{3}$	$1\frac{1}{2}$
$\frac{3}{2}$	$1\frac{3}{2}$
$\frac{2}{5}$	$1\frac{2}{3}$
$\frac{1}{2}$	2
$\frac{3}{5}$	$2\frac{1}{2}$
$\frac{5}{8}$	$2\frac{2}{3}$
$\frac{7}{10}$	$3\frac{1}{3}$
$\frac{3}{4}$	4
$\frac{4}{5}$	5
$\frac{9}{10}$	10
$\frac{99}{100}$	100
1	Infinity

The other limiting case is when the M.P.C. is 1. What this implies is that the consumers spend the whole of the increment of their incomes on consumption and nothing is saved, the M.P.S. being zero. The result in such a case shall be an 'explosive' situation. Suppose, Rs. 10 crores are invested in public works. The workers who received Rs. 10 crores shall spend the whole of it on consumers' goods. Other workers who receive increased income shall also spend them.

In this way, Rs. 10 crores shall emerge and re-emerge and result in an infinite increase in income. Such a situation, though rare, is quite conceivable during hyper-inflation when the income-recipients try to spend money as soon as they receive it; and since consumption is increased by as much as income increases, the Multiplier in such a case shall be infinity.

But both these cases are very care. Actually, the multiplier can never be 1 or infinity. It generally varies between 1 and infinity.

The actual process whereby a multiple expansion of income is brought about by increased expenditure on consumption goods as a result of new investment, the process can be illustrated by means of an arithmetical example. Let us suppose that an investment of Rs. 10 crores is made in road-building, and the M.P.C. is $\frac{1}{2}$ or the multiplier is 2. An investment of Rs. 10 crores will, thus, lead to an aggregate income of Rs. 20 crores. This can be explained with the help of the following Tabel 7.2.

TABLE 7.2

Mathematical Example of the Multiplier

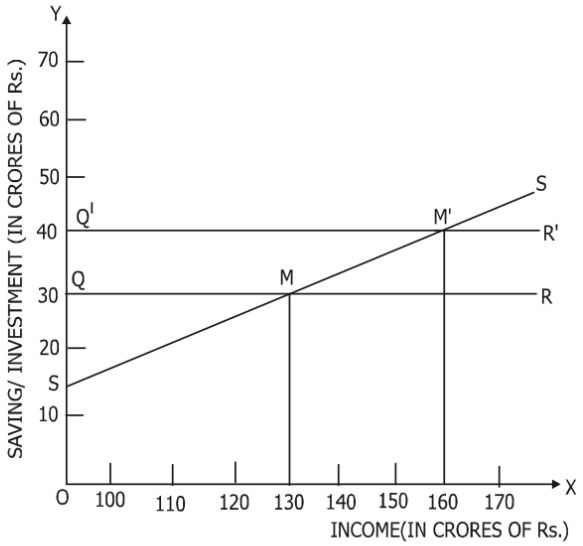
				(in crores of Rupees)
1	×	10	=	10
$\frac{1}{2}$	×	10	=	5
$\left[\frac{1}{2}\right]^2$	×	10	=	2.50
$\left[\frac{1}{2}\right]^3$	×	10	=	1.25
$\left[\frac{1}{2}\right]^4$	×	10	=	0.62
				19.37

At the first round, the income shall increase by Rs. 5 crores since the first set of income-recipients spend only 50 per cent of their incomes; at the second round, income shall be up by Rs. 2.50 crores (50 per cent of Rs. 5 crores); at the third round, income shall increase by Rs. 1.25 crores; and at the fourth stage, Rs. 0.62 crores, till finally the aggregate income will have icnreased to Rs. 20 crores, or 2 times the original investment. It is, thus, clear that as we move from one round to another, the initial investment gives rise to a dwindling series of successive increments in income. It may, however, be added that the whole process of income-propagation is spread over time. In this example, the aggregate income does not increase to Rs. 20 crores all

at once and simultaneously. If each round takes 5 months and four rounds are involved, then it will take about 20 months for a capital investment of Rs. 10 crores to increase income by Rs. 20 crores. Keynes, however, does not seem to give any importance to these timelags in this process of income propagation.

7.2.4 WORKING OF THE MULTIPLIER :

The Multiplier can be explained with the help of a diagram as well. Suppose that the marginal propensity to consume in a community is $\frac{2}{3}$ or the marginal propensity to save is $\frac{1}{3}$. It is obvious that the Multiplier in this case would be 3. Further, suppose that the community which is already investing a sum of Rs. 30 crores, now decides to increase this investment by another Rs. 10 crores. Since the Multiplier is 3, the income of the community shall increase by Rs. 30 crores conseqeunt upon an additional investment of Rs. 10 crores. This is represented in the diagram below (see Fig. 7.1)



(Fig. 7.1)

In this diagram, QR represents the original investment of Rs. 30 crores. SS represents the Saving Curve. The additional investment of Rs. 10 crores is represented by the curve Q'R' which is above the original investment curve QR. The distance between these two curves is equal to Rs. 10 crores as shown in the diagram. M was the original point of equilibrium between saving and investment, and at this equilibrium point the income of the community was Rs. 130 crores. But

when an additional investment of Rs. 10 crores is made the new investment curve intersects the SS curve at M′ . At this point, the income of the community is Rs. 160 crores. In other words, as a result of an additional investment of Rs. 10 crores, the income has increased by Rs. 30 crores (from Rs. 130 crores to Rs. 160 crores) because the Multiplier is 3.

7.2.5 ASSUMPTIONS (OR LIMITATIONS) OF THE MULTIPLIER :

The multiplier is based on certain assumptions. Non-fulfilment or a partial fulfilment of these assumptions will retard the working of the Multiplier. The assumptions (or, the limitations) of the Multiplier are :

(1) Availability of Consumer Goods : The process of income propagation is subject to the availability of consumer goods. If the consumption goods are available in adequate quantity, the multiplier will continue to work and new incomes propagated. If there is a scarcity of consumption goods. The M.P.C. falls and consequently the Multiplier shall also decline. Thus availability of an adequate supply of consumption goods is one assumption.

(2) Maintenance of Investment : It is necessary that the various increments in investment are repeated at regular intervals. In case it is not done, it will not be possible to raise the income to the multiplier level. Thus, a continuing stream of new investment is indispensable for the operation of the Multiplier.

(3) Net Increase in Investment : In order to realize the full value of the Multiplier, it is also essential that there should be a net increase in investment in the economy. If there shall be no net increase in investment and the working of the Multiplier shall be inevitably hindered or obstructed.

(4) No Investment from Induced Consumption : In order to realize the actual value of the Multiplier, it is assumed that there are no effects of induced consumption on investment.

(5) No Change in the M.P.C. : It is also assumed that there will be no change in the marginal propensity to consume during the process of income propagation. If the M.P.C. undergoes a change due to some unforseen causes, the value of the Multiplier will also change.

(6) Existence of Closed Economy : In order to realize the full value of the Multiplier, it is also necessary to assume the existence of closed economy.

(7) No Time-Lags Between Successive Expenditure on Consumption : It is assumed that there ae no time-lags (or, time-intervals) between the receipt of income and the spending of it. What it implies is that the consumers should ultimately spend the income as soon as they receive it.

(8) Existence of Less Than Full Employment : Another assumption of the Multiplier is the existence of involuntary unemployment in the economy. So long as there is involuntary unemployment (or, less than full employment) in the economy, income, output and employement will continue to expand on account of the operation of the Multiplier.

7.2.6 Conditions for the Operation of the Multiplier : Following are the conditions for the working of the Multiplier :

(1) Existence of Involuntary Unemployment : An essential condition for the working of the Multiplier is the existence of involuntary unemployment in the economy. If involuntary unemployment does not exist in the economy (i.e., if there is already full empoyment in the economy there can be no increase in the volume of employment, howsoever high the volume of investment might be. So the Multiplier will fail to work.

(2) Existence of an Industrialized Economy : Second condition for the working of the Multiplier is the existence of an industrialized economy. The Multiplier, it is said, works more freely and fully in an industrialized than in an agricultural economy.

(3) Existence of Excess Capacity in Consumer Goods Industries : To enable the Multiplier to work itself out fully, it is essential that there exists excess, unutilized capacity in consumer goods industries. In case excess capacity exists, an increase in investment would result in an increased demand for consumer goods which would be met by utilizing this surplus capacity in the consumer goods industries. More workers would be employed in such industries. The Multiplier would come into operation.

(4) Existence of an Elastic Supply of Capital etc. : An increase in investment would provide more employment to the workers (and thus activate the Multiplier) only if there are no bottle-necks in the supply of capital, raw material and other resources for the purposes of business expansions.

7.2.7 Leakages and the Multiplier : The M.P.C. is seldom 1 or 100 per cent. If the M.P.C. is 50 per cent then it means that 50 per cent of the new income leaks out of the income-stream, and only the remaining 50 per cent is spent then it means that 50 per cent of the new income leaks out of the income-stream, and only the remaining 50 per cent is spent on consumption. Among the most important of these leakages are the following :

(1) Saving : It constitues an important leakage in the process of income propagation. If the marginal propenstiy to consume (M.P.C.) were to be equal to 1, i.e., if the entire increment in income were to be spent by people on buying consumer goods, then even a single increase in investment would go on creating additional increments in income till the stage of full employment is reached in the economy. But, as we know, the M.P.C. is seldom equal to one. In actual practice, the people do not spend the entire increment in income on consumer goods. On the contrary, they save a part of it. The saved portion of the increased income, thus, peters out of the income-stream (assuming that the savings do not get converted into investment), limiting the value of the Multiplier. Thus, the higher the propensity to save of the people, the lower shall be the value of the Multiplier.

(2) Debt Cancellation : A part of the new increment of income may be used by income recipients to pay off old debts. As such, it does not have any effect on consumption.

(3) Accumulation of Idle Cash Deposits : A part of the increased income may be saved in the form of idle bank deposits which cannot affect the consumption function in the upward direction.

(4) Purchase of Old Stocks and Securities : A part of the new income may be used in buying old stocks and securities from others who fail to spend the proceeds on consumption.

(5) Imports : Money spent on the purchase of imported goods does not add to domestic income and employment. Such an expenditure does not have an effect on consumption of domestic goods, and may be considered to be an important leakage from the domestic income stream.

(6) Price - Inflation : As a result of price-inflation, a good part of increased incomes may be dissipated on higher prices instead of promoting consumption, income and employment.

(7) Taxes and Corporation Savings : Since both of these affect the marginal propensity to consume of the people, they have inevitable repercussions on the value of the Multiplier. An increase in taxation reduces the purchasing power of the people and, thus, constitutes a leakage from the income-stream. Likewise, undistributed profits of business corporations also represent a leakage because they are not available to the shareholders for being spent on consumer goods.

It is because of these leakages that process of income-propagation 'peters out' soon. If there were no such leakages from the income-stream, then the process of income-propagation would go on and on till there was full employment and even inflation.

7.2.8 Reverse Working of the Multiplier : The earlier discussion considered the Multiplier as working in the forward direction. But Multiplier may work in the backward or 'reverse' direction.

If there is a net reduction in investment to the tune of Rs. 10 crores. With the M.P.C. being $\frac{1}{2}$ and the Multiplier 2, the total final decrease in income would be Rs. 20 crores. As a result of the reduction in investment by Rs. 10 crores, the first to be adversely affected shall be the men engaged in investmetn industries, who will reduce their consumption expenditure by 50 per cent. Like wise, in each subsequent round, men will go on cutting down their expenditure by 50 per cent until the aggregate income has decreased by Rs. 20 crores. Thus, the reduction in investment precipitates the reverse operation of the Multiplier. higher the value of the Multiplier, the greater shall be the reduction in aggregate income. A community with a higher M.P.C., or a lower M.P.S., shall suffer more from the reverse working of the Multiplier. A community with a higher M.P.S., or a lower M.P.C., would be hit less hard from the reverse operation of the Multiplier.

The reverse working of the Multiplier can be illustrated with the help of the diagram below (Fig. 7.2).

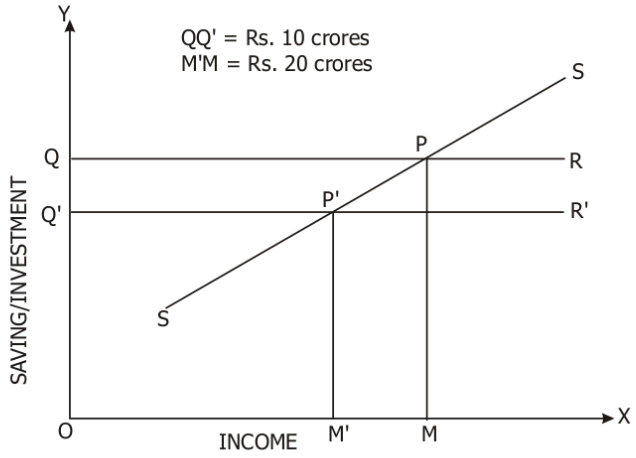


Fig. 7.2

In the above figure, the SS curve has been drawn on the assumption of mrginal propensity to save beign $\frac{1}{2}$. The Multiplier in the above example is 2. The SS curve is intersected by the QR curve at the point P. This gives us the equilibrium level of income M at PM. Then the investment declines from QO to $Q'O$ (i.e., by Rs. 10 crores). The income also declines from OM to OM' and a new equilibrium $P'M'$ is established. The decline in income $M'M$ is double the decline in investment of QQ'.

7.3 KAHN'S EMPLOYMENT MULTIPLIER

Keynes multiplier may be called investment or Income multiplier. there is another type of Multiplier, namely Employment Multiplier. kahn's Multiplier was the Employment Multiplier. The employment Multiplier is the ratio of an increment in primary employment to the total employment, primary as well as secondary. Thus, if primary employment is N_2, total employment N and multiplier K', then $N = K'N_2$. In order to distinguish the employment multiplier from the investment multiplier, the former is expressed as K', instead of mere K. To repeat, the employment multiplier shows the total (primary as well as secondary) increase in employment divided by the primary increase in employment. Assuming that 3 lakhs workers are employed in road-building as

a result of an investment of Rs. 10 crores, then 3 lakhs represent primary employment in road building. But this is not all. There shall be the secondary employment as well flowing from the primary employment because the men employed in road-building shall spend on consumption goods, thereby leading to an expansion of business activity in consumption goods industries. There shall, thus, be an increase in employment in the consumption-goods industries. Assuming that the secondary employment in the consumption-goods industries is 6 lakhs, then the total employment, i.e., primary plus secondary combined shall be 9 lakhs. Dividing the total employment by the primary employment, we arrive at the employment multiplier, which is 3 in this case. The employment multiplier tells us teh number of persons in-directly employed for everyone that is directly employed. When we say that the employment multiplier is 3, what we mean is that every person newly employed in investment industries will cause two other persons to be employed in consumption-goods industries.

7.4 FOREIGN TRADE MULTIPLIER

Economics attempted to extend the application of the multiplier analysis to certain other fields, such, as foreign trade. This is foreign trade multiplier. Income accruing from exports may be considered an 'injection' of purchasing power into the economic system; and this 'injection' of purchasing power shall have the same multiplier effects on income and employment as any other investment. When the foreigners buy our goods, this brings income to our export industries. Men engaged in the export industries spend the new income on consumer's goods in their turn, thus increasing the income of those engaged in consumers' goods industries. In this way, income accruing from exports goes on multiplying itself according to the value of the Multiplier.

It is easy to derive the value of the foreign trade multiplier from the domestic marginal propensities to save and to import which constitute a 'leakage' from the domestic income-stream. Assuming that the domestic marginal propensity to import and save is $\frac{1}{5}$, then, according to this formula, $K = \frac{1}{I.S.}$ (where I.S. = Marginal propensity to import and save), the foreign trade multiplier would be equal to $\frac{1}{\frac{1}{5}} = 5$. If our exports increase by Rs. 10 crores, then the final increase in domestic income will be of the order of Rs. 50 crores, given the Multiplier 5.

7.5 PRICE MULTIPLIER :

The ratio of the ultimate rise in the general price-level to the initial increase in the price level is called price multiplier. The initial increase in the price level may be due to expansion of money supply in the economy or due to increased taxation by the State or due to any other cause. The initial increase in some prices invokes sympathetic increas in other prices with the result that there is a multiple rise in the general price-level. The price multiplier comes into operation in an underdeveloped economy at an earlier stage than in a developed country. The reason is obvious. In an underdeveloped economy on account of several maladjustments in the forces of demand and supply, the supplies of certain basic productive factors turninelastic giving a stimulus to the operation of the price multiplier. Thus, a small expansion of money supply in such an economy

increases the general price-level by a multiple of the initial increase in money-supply. But in a developed economy, the price multiplier comes into operation at a somewhat late stage. It operates only after the full employment is reached in the economy.

7.6 CONSUMPTION MULTIPLIER :

The use of the Multiplier has been extended in several new directions in recent years. Prof. Vakil and Brahmanand have recently evolved the new concept of consumption multiplier in the context of a developing economy. They have based the concept of the Multiplier on Prof. Nurkse's well-known concept of 'saving potential' in a backward and underdeveloped economy. According to Nurkse, there is something like 25% to 30% disguised unemployment to be found in the rural sector of an underdeveloped economy. What do we mean by this disguised unemployment ? This term disguised unemployment refers to a large number of unproductive workers in the rural sector of an underdeveloped economy, who seem to be apparently employed, but are in fact not actually employed. If such workers are removed from agriculture, the production would not suffer any set-back. This is a clear proof that such workers are, in fact, disguised unemployed. This disguised unemployment constitutes, according to Nurkse, a sort of saving potential in a backward, underdeveloped economy. If this saving potential is made use of in an effective manner, it will quicken the tempo of economic development in an underdeveloped economy.

The problem, however, is : How to utilize this savign potential for the purpose of economic development ? The disguised unemployed or the unproductive workers in the rural sector can be removed and made to work else where in a really productive manner if the government is able to provide them some how with basic consumption goods for their sustenance. This will lead to a greater increase in aggregate investment and employment through the operation of the consumption multiplier. The idea implicit in the consumption multiplier is that with an initial increase in the supply of basic consumption goods (or, wage-goods as Vakil and Brahmanand call them) there will be a multiple increase in investment (and employment). The consumption multiplier may, thus, be defined as the ratio of the final increase in the aggregate investment to an initial increase in the supply of basic consumption goods (or, wage-goods).

7.7 TAX MULTIPLIER :

The concept of the tax-multiplier has been evolved in recent years by some economists in the West. Taxation always has the effect of reducing the purchasing power in the hands of the people. to that extent, it cuts down the spending power of the people. This cut in the expenditure has a cumulative negative effect on income on account of the operation of the tax-multiplier. We can illustrate this with the help of an example. Let us suppose that the government takes away a rupee in the form of tax. Let us also assume that the marginal propensity to consume of the people is $\frac{3}{4}$. If the government had not taken away one rupee in the form of tax, some one in the community would have spent 75 paise would have accrued as income to some other person who would spent $\frac{3}{4}$ of this on consumer goods. This $\frac{3}{4}$ of 75 paise would agian appear as

income to some other person in the country who would again spend $\frac{3}{4}$ of it on consumer goods. This process would go on till the total negative effect on income would be some multiple of the initial increase in taxation. In this example, the total negative effect on income would not be restricted to one rupee, but some multiple of it. The total negative effect on income of the removal of one rupee through taxation can be expressed as follows :

$$\frac{3}{4}-\left(\frac{3}{4}\right)^2-\left(\frac{3}{4}\right)^3-\left(\frac{3}{4}\right)^4-\left(\frac{3}{4}\right)^5 \ldots\ldots$$

Is not this multiplier process similar to the one resulting from a rupee of investment ? The two processes are very much similar. The only difference is that the tax-multiplier process starts with $\frac{3}{4}$ instead of 1, and the terms are negative. Whatever the value of the marginal propensity to consume, the effect of subtracting a rupee from the circular flow of national income via taxation can be expressed in a general form as follows :

$$-C^1-C^2-C^3-C^4-C^5-C^6 \ldots\ldots$$

The tax-multiplier, thus, expresses the ratio of the final decrease in spending to the initial increase in taxation.

The multipliers are generally looked upon as positive numbers. What they multiply may be positive or negative. An increase in investment is positive; if we multiply it by the investment multiplier it will give us a positive multiplier effect. A decrease in investment is negative and it results in a negative multiplier effect.

7.8 THE BALANCED BUDGET MULTIPLIER :

The balanced budget is one in which the expenditure of the government is equal to its income or in which there exists no gap between expenditure and income. If the government increases its expenditure, this increase in expenditure is fully financed by an equivalent increase in taxation so that there arises no gap betweene expenditure and income. This is what is implied in a balanced budget. The balanced budget multiplier may be defined as the ratio of final increment in aggregate income and the initial increase in the tax-financed government expenditure. The balanced budget multiplier increases the aggregate income to the same extent as the initial increase in the tax-financed government expenditure, showing thereby that it is equal to unity. The balanced budget multiplier can be illustrated with an example. If the government spends Rs. 10 crores more, the increase in income will be Rs. 30 crores (assuming that the investment multiplier is 3). Now, if the increase in expenditure (i.e., Rs. 10 crores) is exactly financed by increased taxation or, in other words, the government resorts to a balanced budget, the Rs. 10 crores worth of taxation will reduce income by Rs. 20 crores. The net increase in aggregate income will, thus, come to Rs. 10 crores which is equal to the increase in the amount of the budget. Thus, the balanced budget multiplier is exactly equal to one. If the Rs. 10 crores increase in the budget were not financed by taxation or had been deficit financed, the multiplier would have exerted its full leverage of 3, and the aggregate income would have increased by Rs. 30 crores.

Like other multipliers, the balanced budget multiplier also depends upon certain important assumptions - (i) that extra taxation is possible, (ii) that there are no leakages, and (iii) that idle savings could be mobilized through taxes. If these assumptions are not fulfilled in practice, the balanced budget multiplier may be more than unity or less than unity.

7.9 CRITICISM OF THE MULTIPLIER :

Prof. Henry Hazlitt has criticized the Keynes' concept of the multiplier. He refers to it as 'a strange concept about which some Keynesians make more fuss than about anything else in the Keynesian system". He calls it "a myth" - something which has no existence of its own. He bluently points out that there is never any precise, predeterminable or mechanical relationship between investment and income. As such, it is just "a worthless toy", the kind of thing made depressingly familiar by monetary cranks. Moreover, the concept of the Multiplier rests on an assumption which is not at all realistic, namely, that there is already existing unemployment in the economy. Why should Keynes assume that substantial unemployment is the "general situtation", and full employment is only a "special situation"?

Another fallacy pointed out by Hazlitt in Keynes' Multiplier is the assumption that the entire fraction of a community's income that is not "consumed" is hoarded; that no part of this unconsumed income is invested. The "propensity to consume" determines the multiplier only on the assumption that what is not spent on consumption is not spent on anything at all, i.e., it is hoarded, and not invested. Now this appears to be in contradiction to what Keynes had said earlier that saving and investment were not only equal, but also identical. In other words, what is not spent, i.e., what is saved must be invested so that saving and investment are equal. But the acceptance of the concept of the Multiplier gives rise to the problem of inequality between saving and investment, according to Hazlitt. Thus, Keynes concept of the multiplier is not in conformity with the definition of Saving and Investment given in The General Theory, though this concept would be quite in order if Keynes were to revert to the original definitions of Saving and Investment as given in his earlier work Treatise on Money. In that work, he quite visualized the possibility of an inequality emerging between saving and investment. But in The General Theory he made it clear that "the prevalence of the idea that saving and investment, taken in their straightforward sense, can differ from one another, is to be explained, I think, by an optical illustion."

According to Prof. D.H. Robertson, A.P. Lerner and R.M. Goodwin, Keynes' Multiplier does not take into account the effect of induced investment. The multiplier takes into consideration the effects of increases in consumption consequent upon increases in income, but it hardly takes notice of the effects of increases in consumption on investment. This underlines the one-sided character of the Keynesian Multiplier.

Prof. Stigler has criticized the Multiplier as the "fuzziest part of Keynes' theory". Prof. Hutt describes Keynes' Multiplier apparatus as "rubbish" and accuses Keynes of having done great intellectual harm by putting forward this concept. He remarks, "It should be expunged from text-books, its place being taken by an exposition of the dynamic implications of Says Law".

7.10 IMPORTANCE OF THE MULTIPLIER :

Despite this criticism, Keynes' Multiplier is looked upon as an important contribution to

economic thought. (a) It is not only a theoretical concept, but also an important instrument of economic policies. (b) It has emerged as an important theoretical concept because it has focused attention on investment as the major dynamic element in the economy of a country. (c) It has also strengthened the case for public investment, particularly at a time of depression and unemployment, because even a small increment in public investment at such a time leads to a large increment in income, output and employment. (d) The concept of the multiplier also helped the governmetn in formulating an appropriate employment policy during depression (e) It has not only indicated that employment was directly created by investment but also revealed that income was generated throughout the economic system like a stone causing ripples in a lake. Besides, a knowledge of the multiplier is of supreme importance not only in analysing the course of the business cycle, but also in devising an anti-cyclical policy to smoothen business fluctuations in the working of the economy. The concept of the multiplier has, thus, brought about a revolution not only in economic theorizing but also in policy-making at a State level.

7.11 THE ACCELERATOR

The Accelerator is another important tool of economic analysis. It is older than the Multiplier and is associated with J.M. Clark. It was first propounded by French economist, Albert Aftalion. The Accelerator is not at all a Keynesian concept.

Multiplier and the Accelerator are parallel concepts. While the Multiplier shows the effect of investment on consumption (and on income and employment), the Accelerator shows the effect of a change in consumption on investment. In other words, the Accelerator measures the effect of an increment (or decrement) in the rate of consumption on the volume of investment. It expresses the ratio of the net change in consumption to the net change in investment. The Accelerator simply measures the changes in investment-goods industries consequent upon the changes in the consumption-goods industries.

$$A = \frac{\Delta I}{\Delta C}$$

A = Accelerator, $\Delta I =$ Change in Investment, $\Delta C =$ Change in consumption

Assuming that an expenditure of Rs. 5 crores on consumption-goods industries leads to an investment of Rs. 10 crores in investment-goods industries, we can say that the Accelerator is 2. It can be 1 and even less than 1. It can even be zero. If the production of consumption-goods involves no investment in the investment-goods industries then the Accelerator is zero. But, generally, the production of consumption-goods does require some amout of capital equipment. Hence, the Accelerator is generally more than unit.

OPERATION OF ACCELERATOR : The operation of the Accelerator in actual practice is illustrated by example. Suppose that in order to produce, 1,000 consumers' goods, 100 machines are required. Further, suppose that the working life of a machine is 10 years, and that after 10 years, the machine has to be replaced. What this means is that every year 10 machines have to be replaced in order to maintain the constant flow of 1,000 consumers' goods. Assuming that the demand for consumers' goods remains stable, the annual demand for the machines would be 10. This might be called the "replacement demand". So long as the demand for consumers' goods remains unchanged, the annual output of the machines would contrinue to be 10. Complications will, however, ensure if the demand for consumers' goods itself changes. Now let us suppose that

the demand for consumers' goods. We shall need 10 per cent or 10 more machines to increase the production of consumer's goods. The annual demand for machines shall not now be 10 as usual but 20 (10 for replacement and 10 for meeting the increased demand). The demand for machines will, thus, rise from 10 to 20 which represents an increase of 100 per cent. The point to be noted here is that a comparatively small rise of 10 per cent int he demand for consumers' goods causes a rise of 100 per cent in the demand for machines. The employment in the machine-making industry shall be doubled. There shall, then, be a greater fluctuation in employment in the machine-making industry than in the consumers' goods industries. Here we find the true significance of the Accelerator which states that the changes in the investment goods industries are larger than changes in the consumers' - goods industries. In this particular case, the Acceelerator is 10.

Fig. 7.3

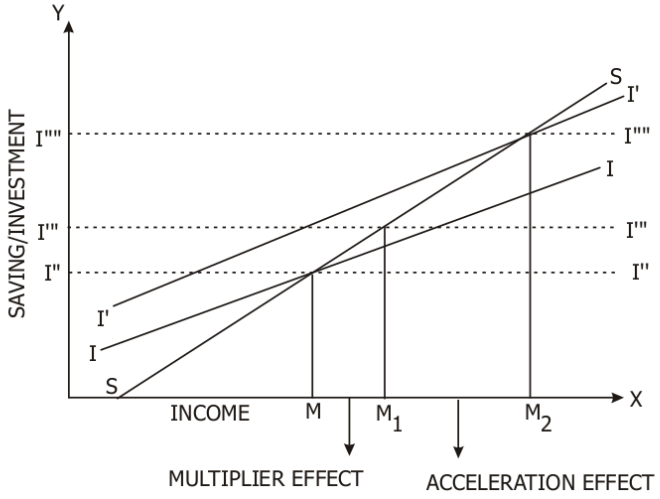


Fig. 7.3

The principle of accelerator (i.e., acceleration coefficient) can be depicted with the help of a diagram. In this diagram (Fig. 7.3) SS and II are saving and investment curves respectively. At the point P, the two curves intersect each other. The economy is in equilibrium with OM income. At this equilibrium level, the saving and investment are both equal to each other (i.e., both are euqal to OI"). Then an increase in investment from OI" to OI"" pushes up the income from OM to OM_2. In other words, the income increases by MM_2. If the increase in investment (i.e., $I''I''''$) had been purely exogenous investment, then the entire increase in income (i.e., MM_2) would have been due to the multiplier effect. But in this diagram, only I'', I'''' increase in investment is

exogenous investment so that only MM_1 portion of the increase in income is due to the multiplier effect. The remaining portion, i.e., M_1M_2 is due to the acceleraton effect, because the I'I" portion of the increase in investment is due to induced investment. The total multiplier-accelerator effect on income is measured by MM_2 (i.e., MM_1 due to the acceleration effect). If the entire increase in investment I"I" were due to exogenous investment, the entire increase in income (i.e., MM_2) would have been due to the multiplier effect.

7.11.1 LIMITATIONS OF THE ACCELERATOR : There are certain cases where the Accelerator would not work. Such cases can be called as limitations.

1. If there is already an excessive number of machines in stock or if some machines are lying idle, then, an increase in the output of consumption-goods industries will not result in any new investment in the machine-making industry.
2. The operation of the accelerator depends upon the assumption that there exists surplus capacity in the investment-goods industries. If no such surplus capacity existed in the investment goods industries, an increase in the derived demand for machines could not lead to an increased supply of machines.
3. Suppose the producers of consumers' goods feel that the rise in the demand for their goods is purely temporary, they shall not make any addition to their capital equipment. So, the Accelerator would have no chance to work itself out.
4. There can be several cases where investments do not await changes in the rate of consumption. nvestments, in such cases, do not follow changes in consumption. Investments in such cases, do not follow changes in consumption.
5. The working of the Accelerator is rendered difficult if the real and monetary resourcs for investment (machine-making) industries are not easily available in the market.
6. The principle of acceleration is based upon the assumption that there is a constant ratio between the output of consumer goods and investment (or, capital) goods. In actual practice, this capital-output ratio is seldom constant.

26.11.2 Multiplier and Accelerator Distinguished : The multiplier shows the effect of the change in investment on income and employment, the accelerator shows the effect of a change in consumption on investment. In the case of the multiplier, the consumption is dependent upon investment while in the case of the accelerator, investment is dependent upon consumption. Secondly, the multiplier depends upon the marginal propensity to consume while the accelerator depends upon the durability of machines. Thus, while the multiplier depends upon psychological factors, the accelerator depends upon technological factors.

7.12 MULTIPLIER - ACCELERATOR INTERACTION

Prof. Hansen has combined Keynes' Multiplier with Aftalion's Accelerator and explained the mutual relation between investment and consumption in the following way. The growth of primary or autonomous investment, has a magnified effect on total employment and income, and, consequently, a magnified effect on the demand for articles of personal consumption (the multiplier). This, in turn, again leads to an icnrease in investment since new means of production are necessary for the satisfaction of the increased demand for consumer goods (the accelerator). These derivated investments again actuate the multiplier mechanism and magnify the increase in employment and income which leads to a new wave of induced capital investment etc. Prof. Hansen calls the effect of the combined action of multiplier and accelerator the leverage effect with a view to measure the aggregate effect on national income of an initial expenditure, it has now become fashionable to combine the multiplier and accelration principles. An example in Table 7.3 illustrate the combinatioon of the multiplier and accelerator.

Table 7.3

Showing Multiplier and Acceleration Effect on Income

(in crores of Rupees)

Multiplier Period	Initial Investment	Induced Consumption	Induced Investment	Aggregate Increase in National Income
1	20	0	0	20
2	20	10	20	50
3	20	25	30	75
4	20	37.50	25	82.50
5	20	41.25	7.50	68.75

The above table has been drawn upon the following two assumptions :

(i) Marginal Propensity to Consume = 0.5, and

(ii) Accelerator - 2.

This Table explains the process of income generation with the help both of the multiplier and the accelerator. As shown in the Table, there is an initial investment of Rs. 20 crores in the first period. Since during the first period neither the multiplier nor the accelerator operates, there is neither any induced consumption nor any induced investment. The total income remains equal to Rs. 20 crores which is also the initial investment. In the second period, the induced consumption is Rs. 10 crores because, as pointed out above, the marginal propensity to consume is 0.5. In other words, half of the total income received by the people is spent on consumer goods. The induced investment in this period is Rs. 20 crores because, as pointed out above, the accelerator is 2. The total income in the second period is now raises to Rs. 50 crores. in the third period also both multiplier and the accelerator operate. The induced consumption is Rs. 25 crores, i.e., one-half of the income in the preceding period (because the M.P.C. is 0.5). The induced investment in the same period is Rs. 30 crores (i.e., double the difference between the induced consumption in

periods 2 and 3rd). That is to say Rs. 25 Rs. 10 crores = Rs. 15 x 2 = Rs. 30 crores. (Please remember that the accelerator assumed is 2). The total income in the third period is Rs. 75 crores. Again, in the fourth period, one-half of the income in the preceding period, i.e., Rs. 37.50 is the induced consumption on the assumption of M.P.C. being 0.5, and Rs. 25 crores is the induced investment on the assumption that the accelerator is 2) that is to say Rs. 37.50 crores - Rs. 25 crores = Rs. 12.50 crores x 2 = Rs. 25 crores). The total income in the fourth period reaches Rs. 82.50 crores as a result of the combined multiplier accelerator interaction. In the fifth period, the induced consumption is Rs. 41.25, i.e., one-half of the total income in the fourth period while the induced investment is Rs. 7.50 crores (that is to say, Rs. 41.25 - Rs. 37.50 crores = Rs. 3.75 crores). Multiply it by 2 and the result is Rs. 7.50 crores). The total income, however, falls down to Rs. 68.75 crores in the fifth period because both the multiplier as well as the accelerator become weak now.

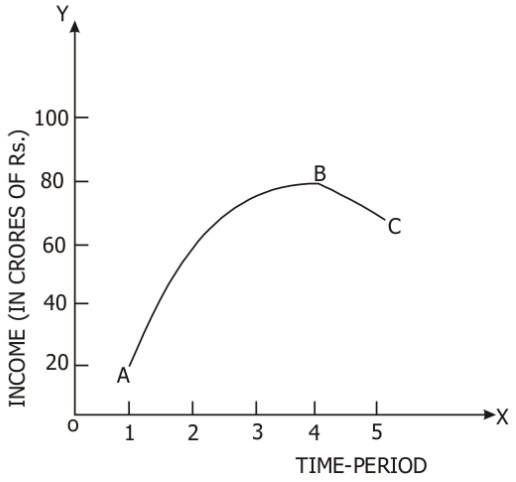


Fig. 7.4

We can show this with the help of the following figure 7.4. The time-period on the X - axis and the increase in income on the Y - axis.

The curve ABC represents the actual process of income-generation in the economy. It shows the total leverage effect as a consequence of multiplier-accelerator interaction during the five periods as indicated in Table 7.3. The national income rises from Rs. 20 crores to the peak level of Rs. 82.50 crores (from A to B), but later declines from Rs. 82.50 crores to Rs. 68.75 crores in the fifth period (from B to C).

In this manner, we can combine the multiplier and the accelerator to know the total effects of an initial investment on national income. The study of the multiplier and acceleration interaction (the Super-multiplier) furnishes us with a better and more scientific explanation of the business cycle.

7.13 KEYNESIAN THEORY AND UNDERDEVELOPED COUNTRIES

Deficiency of effective demand is a prominent feature of economies undergoing depression and in order to improve the level of effective demand in an economy Keynes suggested that policy measures as cheap money policy, government's compensatory investment spending, deficit financing and other fiscal methods. However, Keynesian economics applicable to developed economies and in underdeveloped countries it is limited.

A) LIMITATIONS OF THE APPLICABILITY OF THE KEYNESIAN THEORY TO UNDERDEVELOPED COUNTRIES : Keynesian economics deals primarily with the problem of unemployment in a developed capitalist economy. The problem of unemployment in an underdeveloped economy is quite different from developed economy. Developed economy is unemployment is short-term cyclical unemployment where as in an underdeveloped country it is a chronic age-old or long-term phenomenon.

Keynes' theory of employment tries to solve the problem of cyclical unemployment, and in particular unemployment caused by a depression. Since unemployment is the result of a deficiency in effective demand, in order to increase the level of employment, a shift in the level of effective demand is necessary. In underdeveloped countries, however, there is chronic unemployment and not cyclical unemployment, and is not so much due to the deficiency in demand as due to a deficiency in the supply of capital.

Apart from chronic unemployment, poor countries such as India have a peculiar type of unemployment called disguised unemployment. In certain sectors of the economy people are apparently employed but are actually unemployed because their marginal productivity is zero. This is referred to as disguised unemployment. In this theory, Keynes has not discussed such a phenomenon, let alone provided a solution to it.

The vicious circle of poverty operates in poor countries on account of capital deficiency. In order to solve the problem of unemployment, the vicious circle of poverty needs to be broken and this can be done through capital formation. Contrary to Keynes' preaching, for capital formation in poor countries there is an urgent need for more savings rather than spending. Int hese countries a high saving rate can stimulate and accelerate the process of economic growth; while uncontrolled spending is the root cause of inflation and economic chaos.

Hence, Keynes' theory is applicable to a developed capitalist economy and has hardly any relevance to underdeveloped countries.

B) THE RESTRUCTURE CHARACTER OF THE KEYNESIAN MODEL : Keynes' theory is essentially static and short-run in nature. A number of factors are assumed as given, for example, quantity of available skilled labour,e quipment, techniques, and degree of competition. But, during the process of development, none of these factors can be assumed to remain constant. The major goal of economic policy in a backward area is to induce changes in the quantity and quality of equipment as well as bring about radical changes in the social structure. To solve the problem of chronic unemployment, a dynamic and long-run theory is essential.

Capital formation alone cannot solve the problem of chronic unemployment in underdeveloped countrie.s Capital formation requires a cut in consumption and an increase in savings. The problem in a poor country is just the opposite to what it is in rich countries; the adoption of the Keynesian presumption of more spending and less savings would prove ruinous to poor nations. The policy of injecting more money thorugh monetary and fiscal expansion would, instead of solving unemployment, generate inflationary pressures in the economy.

Keynesian theory deals mainly with conditions where there is surplus resources and equipment which can be readily used and where there is a considerable amount of labour willing to accept employment. Keynesian analysis and policy conclusions are valid only if we accept that there is an excess supply of complementary resources in the community or there is excess capacity in equipment to produce these resources. This is normally a characteristic feature of an economy going through a depression. In fact, a major portion of the general theory of employment deals with depression economics only.

The classical theory may therefore be more appropriate in explaining how an underdeveloped economy can attain a high volume of employment and income. It views an economic problem as one mainly of allocation of given resources. The level of employment does not merely depend upon the volume of available labour; it also depends upon the supply of capital equipment, raw materials and other productive resources, technical skill and improved techniques of production all of which an underdeveloped economy lacks. The supply of these basic requirements has to be increased in order to achieve an increase in the level of income and employment. This is a long-term phenomenon which involves a period of waiting.

According to Dr. Brahmananda, the general theory refers to only lack of effective demand as one of the bottlenecks that prevents the attainment of a high level of employment. A comprehensive theory of employment should explain the causes and remedies for the lack of a high level of employment in both advanced and backward countries.

The effective demand in underdeveloped countries can increase only if income increases. For an increase in effective demand the vicious circle of poverty has to be broken by synchronized application of capital over a wide range of industries. A large amount of capital formation is needed to increase the supply of capital in the economy; but the rate of capital formation is conditioned by the rate of savings in the economy. A backward economy needs more savings rather than spending. Evidently, the Keynesian theory, being a theory of spending, is out of place in the context of a backward economy.

C) FAILURE OF THE KEYNESIAN MULTIPLIER TO OPERATE IN REAL TERMS IN UNDERDEVELOPED COUNTRIES : Dr. V.K.R.V. Rao stresses the limitation of the operation of the Keynesian investment multiplier in an underdeveloped country. Keynes multiplier concept is based on the magnitude of the marginal propensity to consume (MPC). The higher the MPC, the greater is the multiplier and vice versa. In a country, such as India, the MPC is almost unity. Hence, the magnitude of the multiplier in India should be very high but this is not so. The Keynesian multiplier concept is hardly observable in underdeveloped countries.

The theory of the multiplier is based on certain assumptions :

(1) There is a seizable amount of involuntary unemployment and unutilized resources due to the lack of effective demand.

(2) The economy is industrailized and possesses huge capital stock. As such, there is a high elasticity of supply of goods to meet the increase in demand.

(3) There is excess capacity in consumption goods industries which would permit an increase in output.

(4) The economy has relatively elastic supply of working capital, such as power, and raw materials.

These are the conditions prevailing in a developed economy, where the multiplier works. In the case of an underdeveloped country such as India, these condutions are not likely to be found. Dr. V.K.R.V. Rao points out that involuntary unemployment of the Keynesian type is essentially a feature of a capitalist economy where the majority of workers work for money wages and where production is meant more for exchange rather than for self consumption. Involuntary unemployment in this sense is rare in an underdeveloped economy. The fact is that a large part of the economy of the underdeveloped countries comprises the subsistence non-monetized sector which remains totally isolated from money transactions and the workers in this sector work mostly for the purpose of self-consumption. Dr. Rao opines that in an underdeveloped and agrarian economy, with little capital equipment and primitive techniques, disuguised unemployment is a normal phenomenon. Workers can be easily withdrawn from occupations without decreasing the total output; the existence of disguised unemployment in an underdeveloped country hinders the working of the multiplier.

As regards the second assumptin on which the multiplier is based, the supply curve of output in a poor economy is much more inelastic than it is in an industrially advanced economy. In a poor country, the policies of monetary expansion and deficit financing lead to an increase in money income but no corresponding increase in real income. This has an inflationary impact on the economy. The inelasticity of the supply of goods in a poor economy is due to the fact tht the economy is dominated by household enterprises producing mostly for self-consumption rather than for exchange.

2 The prevalence of self-consumption in poor countries acts as a leakage in the working of the multiplier. Moreover, the operation of the demonstration effect induces people of poor countries to increase their consumption of imported goods. This increase in imports (official or smuggled) means a leakage in the stream of expenditure.

As far as the last two assumptions of the multiplier principle are concerned, it may be said that there is zero or insignificant capacity in consumption goods industries in underdeveloped countries. Since these countries ae characterized by capital deficiency, the supply of working capital is also relatively inelastic. There is no increase in the supply of consumption goods to match increase in their demand which is a result of a rise in money income. This rise in the money income without any corresponding rise in output, leads to inflation.

The multiplier has failed to work in India, in the Keynesian sense, because of the inelasticity of real income.

7.14 CONCLUSION

Multiplier which is associated with Keynes and Accelerator which is associated with Clark are two important concepts in economic analysis. Multiplier shows the effect of investment on income and accelerator shows the effect of consumption on investment. Multiplier works in both directions but reverse working is not possible in accelerator.

Although the Keynesian theory put forward a systematic and convencing theory of employment, its validity in under developed countries is limited. Hence, Keynesian tools have to be adopted with suitable modifications.

7.15 POINTS TO BE REMEMBERED

1. Keynes multiplier is investment multiplier and Khan's multiplier is employment multiplier.
2. The ratio of change in autonomus investment to change in income is called as multiplier

$$\left(\frac{\Delta Y}{\Delta I} = \frac{\text{Change in income}}{\text{change in investment}}\right)$$

3. Multiplier - accelerator interaction can be called as super multiplier.
4. Among the important types of multiplier are, Khan's employment multiplier, Keynes investment multiplier, Foreign trade multiplier, Price multiplier, consumption multiplier and Balanced budget multiplier.
5. Accelerator is older than multiplier.
6. Accelerator was first propounded by Aftalion and later developed by Clark.

7.16 GLOSSARY

1. Multiplier : It is a relationship between initial increment in investment and the final increment in aggregate income.
2. Accelerator : The effect of a change in consumption on investment.
3. Inflation : A continuous raising of prices.
4. Deflation : Continues falling of prices
5. Trade Cycles : Rhythematic fluctuations in business activity.

27.17 MODEL QUESTIONS :

I. ESSAY TYPE QUESTIONS

1. Define multiplier and explain about the Keynesian Multiplier ?

2. What is meant by Accelerator ?

3. Can we apply the Keynesian theory to developing countries - Discuss

II. SHORT ESSAY QUESTIONS

4. Distinguish between investment multiplier and employment multiplier ? What are the assumptions of investment multiplier.

5. Define accelerator and distinguish between multiplier and accelerator.

6. Write a note on multiplier accelerator interaction.

III. VERY SHORT QUESTIONS

7. Tax Multiplier

8. Employment Multiplier.

9. Accelerator

10. Distinction between multiplier and accelerator.

11. Leverage effect

12. Foreign trade multiplier

7.18 SUGGESTED READINGS

1. J.R. Hicks : A contribution to Keynesian Dynamics
2. Edward Shapiro : Macro Economic Analysis
3. D. Dillard : Economics of J.M. Keyenes
4. Kenneth K. Kurihara : Introduction to Keynesian Dynamics
5. M.L. Jhingan : Macro Economics
6. M.L. Seth : Macro Economics

Lesson : 8

INFLATION

8.0 AIMS & OBJECTIVES:

In this part, factors of Inflation and various theories of Inflation are explained. By the end of this part you should understood the following topics.

* Definition Inflation?
* Factors of Production and their characteristics
* Casuative Factors of Inflation

CONTENTS:

8.1 INTRODUCTION

Stability of the price level is a prime objective of monetary policy. Changes in the price level or value of money are important to all people who receive money incomes and to all those who engaged in the buying and selling of goods and services for money. In an advanced modern economy, this means that fluctuations in the price level affect all and sundry, although a small section of people still receive part of their incomes in kind, say, for example policemen, hotel, and hospital

employees are provided with uniforms, or railway employees get a certain amount of free travel and so on. To the extent the wages are paid in kind, a measure of immunity is provided from fluctuations in the value of money. A great drawback of the use of money is that unlike other measures like yard or a litre or a mile, it is not a stable measure, its value has always been changing. A second drawback is that its value in terms of goods and services does not change to the same extent or always in the same direction. When these changes are small and gradual they are not harmful but when they are steep and vast they can be of serious consequence as experienced in the last century.

8.2 FLUCTUATIONS IN THE PRICE LEVEL

Frequent variations in the price level are not desirable for the smooth functioning of an economy and its constituents. An upward movement of it is generally known as inflation, while its downward movement is known as deflation. We have discussed the effects of changes in the price level on production, employment and distribution in a separate chapter. We now deal here with the cause of such fluctuations and policies that may be formulated to deal with them. First, we take up inflation.

8.3 DEFINITION OF INFLATION

Inflation is commonly understand to be a situation in which the prices of goods, services and all other commodities go on rising substantially and at a fast pace. Economists are, however, divided about the origin, causes and effects of inflation. There has also been no unanimity among them regarding its definition. Some consider it as a phenomenon of rising prices, while some other consider it as a monetary phenomenon. In the first category, fall economists like Johnson, Crowther, etc. Crowther defines inflation as a "state in which the value of money is falling, i.e., the prices are rising". Harry G. Johnson says that, "I define inflation as substantial rise in prices." According to Gardner Ackley, "inflation a persistent and appreciable rise in the general level or average of prices."

In the second category are included economists like Pigou, Kemmerer, coulborn, Hawtrey, etc. Proof A.C. Pigou held that if money incomes expand more than in proportion to income earning activity, there is inflation. Similarly, Hawtrey defined inflation as that state of economic life in which "there is the issue of too much currency". Kemmerer likewise defines inflation as "too much money and deposit currency in relation to the physical volume of business being done". According to coulborn, inflation is situation of "too much money chasing too few goods".

The one common element in all these definitions is the evidence of disequilibrium which causes a rise in the price level. In fact, inflation is not a single definitive phenomenon capable of being described precisely. Whatever definitions have been given are just an enumeration of the factors that cause its development and continuation. To the quantity theorists inflation meant an increase in the quantity of money; while rise in the price level was considered to be its effect.

8.4 FORMS OF INFLATION

Inflation has been called by different names depending upon its degree or rate of price rise and nature and government interference.

1. Degree of Price Rise

According to the degree of price rise, inflation has been named as creeping, walking, running and galloping or hyper inflation.

(a) Creeping Inflation. Creeping inflation is the mildest form and is conducive to economic progress and growth. In this form, the prices rise imperceptibly over a long period. In fact, some economists have pleaded strongly for the existence of a creeping inflation in the form of secular rise in prices to save the economy from secular stagnation. There are, however, other economists who are opposed to the idea because they feel that creeping inflation is dangerous for the overall stability of the economy. According to them, it is a sort of conception which when once takes place goes on increasing until the baby is delivered. With the passage of time, the infant instead of creeping starts walking, running and galloping.

(b) Walking Inflation. When creeping inflation gets help from some other factors and price rise becomes more marked, the situation is known as that of walking inflation.

(c) Running Inflation. If the price rise becomes more rapid and the prices rise by fits and starts, the situation is that of running inflation.

(d) Hyper Inflation. In hyper inflation the prices rise every moment, in fact, limitlessly. Philip Cagan has concluded that hyper inflation begins when prices start rising at the rate of more than 50 per cent a month. After the First World War, Germany has passed through various periods when prices not only rose by 50 percent a month but doubled every week and on certain occasions they doubled everyday. It was really a startling situation and firms during those days started paying wages to their employees thrice a day. It is the most dangerous situation and economists have been scared of this type of inflation.

2. According to Scope

Inflation can be comprehensive and partial.

(a) Comprehensive. It is comprehensive or economy wide when prices of commodities rise throughout the economy without any exception.

(b) Partial. Partial inflation is of a sporadic or sectional nature. It takes place when the prices of some goods rise owing to a temporary shortage due to physical conditions. For example, a rise in the price of food grains due to crop failure, or due to floods or rise in the price of general goods due to a railway or bus strike is such a situation in view. Thus, in a sporadic inflationary situation the rise in prices is not due to the shortage caused by distortions in the price structure, i.e., either due to the rise in the price of raw materials or due to an increase in the wage rate but due to the restriction imposed by physical conditions on the smooth supply of goods and commodities. The shortage of current production are further aggravated by a backlog of demand. Consequently, market prices shoot high and any increase in prices does not help in restoring the supply to meet the increasing demand.

3. Accordance to Government Interference

According to the degree of interference by the government, inflation can be open or suppressed.

(a) Open. When government interference is nil, and prices rise freely, it is a situation of open inflation. When prices are prevented from rising or when the rate of increase has been slowed down by the government through certain measures like price control or rationing, it is a situation of suppressed inflation. In the opinion of Milton Friedman open inflation is an "inflationary process in which prices are permitted to rise without being suppressed by government price control or similar techniques". The post-war hyper inflations faced by Germany, Austria, Russia, etc. during the twenties or by Hungary and China during the forties of the last century and the examples in view.

(b) Suppressed. Suppressed inflation is, in fact, the result of policies of the government relating to price control and rationing under which the prices are prevented from rising at least for some time, but they rise vigorously as soon as these controls are lifted. Wartime controls are an instance of suppressed inflation. The word 'Suppression' implies : (i) the postponement of the present demand to future; and (ii) the diversion of demand from one type of goods to another.

8.5 INFLATIONARY GAP

The concept of inflationary gap was originated by Keynes in his pamphlet *How to Pay for the War?* Published in 1940. Although Keynes chiefly referred to the phenomenon of inflationary gap caused by an increase in government's expenditure on war, it could also cover causes where under full-employment conditions, increase in public investment outlays is not offset by a corresponding decline in the aggregate private consumption outlays. It represents an excess of the aggregate demand for goods and services over their total supply at constant price, under conditions of full employment. The gap, therefore, is between the increasing purchasing power and the failure of the current rate of production to keep pace with the increasing purchasing power. This gap, according to Klein, "is the difference between what the population will try to consume out of the income (which is determined by the interaction of consumption function and the level of government expenditure) and the amount available at pre-inflation prices". According to Kurihara, inflationary gap can be defined as "an excess of anticipated expenditure over available output at the base prices". Thus the gap is the difference between anticipated effective money demand of the people for consumption output and the supply of the consumption output at pre-inflation prices. How this gap helps in price rise can be illustrated with the help of an example. Let us assume that in a given period of time national income distributed to the factors of production is Rs. 100 crore. Out of this Rs. 20 crore are collected in the form of taxes. The 'disposable' income available to the community then remains Rs. 80 crore. On the other hand, let us also assume that the value of the national product at pre-inflation prices available for public consumption(after paying for government expenditure inclusive of transfer items), is Rs. 60 crore. Therefore, inflationary gap between Rs. 80 crore minus Rs. 60 crore. Therefore, inflationary gap becomes Rs. 80 crore minus Rs. 60 crore of Rs. 20 crore. Thus, inflation is caused by the fact that people have Rs. 80 crore to spend over goods valued at Rs. 60 crore at pre-inflation prices. If the production of consumption goods is increased production in short periods and in an economy which is already operating at full employment level, an attempt to increase the supply of goods, will only result in an increase in the factor prices which would lead to an increase in the aggregate money incomes without any corresponding increase in

the production of consumer goods.

8.6 CAUSATIVE FACTORS OF INFLATION

We now take up the causative factors of inflation. Inflation is caused either by an increase in demand or by an increase in the cost of production; the former is known as demand-pull inflation and the latter is called cost-push inflation. We deal with these in the following paragraphs;

Demand-pull inflation

When the rise in the general price level is due to an increase in the demand for goods and services in excess of their supply at current prices, the situation is known as demand-pull inflation. By demand, we mean aggregate real demand for output and by supply of goods and services we mean maximum feasible or potential or full employment output at current prices. Thus, the supply of goods relate to the ability of an economy to produce goods and services and make available for disposal at the current prices in the market. When the aggregate demand for these goods and services exceeds the supply of these goods and services, the upward shift in the price level, is known as demand-pull inflation.

Factors Causing Demand-Pull Inflation

Regarding the factors responsible for the situation of demand-pull inflation we come across two streams of arguments put forward by : (i) the quantity theorists or the monetarists, and (ii) the Keynesians.

Arguments of the Monetarists. The arguments given by the monetarists for the occurrence of demand-pull inflation are based on the quantity theory of money, that is, given the velocity of circulation of money any increase in its supply will increase the total money expenditure. Since, there is full employment in the economy, the increased demand will push the prices upward. In a static economy with a given level of output and velocity of money being constant, increase in the supply of money is alone responsible for increase in the price level, which is proportionate to the increase in the money supply. Since money supply is controlled by the monetary authority, the rate of inflation also becomes policy determined. In a dynamic economy the real demand for money grows over time. Similarly, the real national income also grows over time. According to the Cambridge economists, the growth rate of national elasticity of demand for money is unity. The increase in the money supply in excess of the real demand for money leads to an increase in prices which ultimately become inflationary.

Factors Causing an Increase in Aggregate Demand

Aggregate demand may increase due to a number of factors :

1. Deficit Financing. In times of war or under other abnormal situations requiring a huge increase in government spending, the government for meeting this expenditure may resort to deficit financing which increases the money supply in the hands of the people, thereby increasing their demand for goods and services. In most of the developing countries, the governments have to obtain funds for executing the development plans through deficit financing and this had led to a situation of inflation.

2. Increase in the Velocity of Money. During periods of boom and prosperity, owing to an increase in the MEC and MPC, the velocity of circulation of money increases.

3. Expansion of Credit. The expansion of credit may resorted to either as a matter of policy by the government or by the commercial banks of the country. The central bank can expand credit by lowering the bank rate or by purchasing government securities. The commercial banks can expand credit by lowering the cash reserves. Expansion of credit is generally resorted to in periods of increasing economic activity and once it starts, it continues for a sufficiently long period of time.

4. Increase in Public Expenditure. Aggregate demand may also increase as a result of an increase in public expenditure either for meeting the requirements of defence, or of economic development or for boosting the level of economic activity in the economy.

5. Expansion of Exports. If the export of commodities increases, less goods are available for domestic consumption. This would make the existing demand at home excessive of the available quantity of goods leading to an increase in their prices.

6. Increase in Population. Increase in the population of the country raises the general level of aggregate demand of the people for goods and services. As Prof. Coulborn states, "If population increases rapidly, while the aggregate volume of money remains stable, the consequent rise in the velocity of circulation is likely to outweigh the countervailing decrease in the volume of money per head; further, a rapid increase of population may increase output less than proportionately – another factor tending to raise prices."

7. Trade Union Activities. These days trade unions are very strong. They continuously agitate for higher wages, shorter hours of work, more holidays with pay and other amenities. In a democratic country, the government is often compelled to accede to the unreasonable demands of the workers. The increase in wages increases the purchasing power of the workers and hence the aggregate demand.

Cost-Push Inflation

This sort of inflation emanates from changes which arise on the side of supply or cost of production, independently of any excess demand in both final goods and factor markets. As the level of unemployment decreases, certain income groups may put pressure to seek money income increases, e.g., producers may seek higher real profit margins and the trade unions may exert pressure for increasing the wage rates. We thus have cost-push inflation – either due to profit push or due to wage push. The market power of these factor inputs is increased, when resources are fully employed. But, even in a situation of less than full employment, the fact that the government is committed to full employment may encourage employees' organisations, especially, if well organised, to press pay increase claims aggressively. Since rates of wages are negotiated collectively for an industry, the cost of all firms in the industry rise owing to the increase in wage rates. Other industries also follow suit and therefore costs rise throughout the economy and are recouped in higher prices. These increases provided additional purchasing power and so the level of aggregate demand increases further.

Since subsequent price increases erode the initial benefits gained from their pay increase, they provide the incentive for the next pay claim. Moreover, each group does not want to lag behind

other groups and so the chain of pay claims continues. The process of cost-push inflation can be self-perpetuating, provided increase in the money supply or income velocity of circulation enables the rising price level to be financed. The pay increases result in higher prices and also generate higher money incomes which sustain the real level of aggregate demand. In the absence of any growth in the economy, real incomes remain constant, though the imperfections of the pay negotiating machinery may result in a redistribution of real income, the more militant groups gaining at the expense of less aggressive ones.

Tests to Indicate the Presence of Cost-Push Inflation

The following may be suggested as indicators of the presence of cost-push inflation.

(1) Devaluation and tax increases or the adoption of new taxes are clearly identifiable external causes, which lead to a significant rise in the cost and hence prices of commodities. These exert both a cost-push and demand-pull influence at the same time. Higher value of imports, especially of raw materials, semi-finished products, and capital equipment, exert a major influence on industrial costs.

(2) Since profits are a residual income they may be expected to fall if companies find themselves faced with rising costs, due to slack demand. They are reluctant to attempt to pass on any part of the increase in costs to consumers for fear of the possible effect on sales. However, if company managements price their products on the basis of a fixed 'mark-up' on costs they may prefer a reduced volume of sales at a higher price to preserve unit profit margin, especially if they anticipate an early improvement in the level of demand as a result of government moves to boost up the economy.

(3) The determination of higher prices by the declining industries is an indication of price increases due to cost-push inflation. Despite falling demand, pay increases are granted because of similar increases in comparable rates of pay, and these cause rise in costs and prices. The operating costs are also likely to increase at a greater rate than the general increases in prices owing to the less efficient use of resources.

Factors Leading to Shortfall in Supply

1. Hoarding of Goods. It has been witnessed that during a period of shortages and rising prices, people have a tendency, particularly the businessmen and the trading class, to hoard essential commodities for earning profits in future. This creates artificial scarcity in the market and raise the prices of these goods further.

2. Attitude of the Trade Unions. During rising prices trade unions also adopt an antagonistic posture. They indulge in strikes and intensify their demand for higher wages. On the one hand, the output level goes down and on the other a rise in wages increase the cost of production. Consequently, the inflationary spiral is further intensified.

3. Scarcity of Factors of Production. The supply of the factors of production is generally inelastic. For example, labour, equipments and raw materials cannot be increased on demand. Consequently, when the demand for goods and services goes up, it is not possible to increase the output to the extent of the increase in demand.

4. Natural Calamities. Sometimes natural calamities like floods, earthquakes, etc., create conditions in which the supply of goods and services declines. Even if the demand remains stationary a decrease in supply leads to the increase in the prices.

5. Increase in Exports. Sometimes the supply of goods and services in the country is reduced by an increase in the exports of such commodities and services. This causes an increase in the inflationary pressure.

6. Operation of Law of Diminishing Returns. The supply of goods and services may also slow down because of the operation of the law of diminishing returns. The law operates when production is sought to be increased by employing more units of variable factors with fixed factors and given technology. Consequently, the cost per unit goes on increasing and the result is a rise in prices.

7. War. During a war owing to an increase in demand for military requirements the supply of essential commodities and services falls short of requirements of civilian population and therefore there is a rise in prices.

8. Global Rise in Prices. Inflation may also occur because of the shortage of basic materials which are generally imported from other countries. If there is a rise in the prices of such basic materials, the prices of final products are bound to increase. This is what has been happening in the developing countries.

8.7 INFLATION AND DEVELOPING ECONOMIES

Do we Need a Separate Theory of Inflation for Developing Economies?

During recent decades it has been held by various economists that the theories of inflation applicable to the developed economies cannot be made to apply to developing economies. These economists hold that for developing countries a separate theory of inflation need to be evolved because such countries are structurally backward, unbalanced and highly fragmented due to market imperfections. Consequently, resources are generally under-utilised, the national income is low, the rate of capital formation is low and such countries are pitiably poor. Therefore, the traditional aggregative analysis of aggregate demand and supply, which is appropriate for the developed economies where markets are efficient and integrated, does not suit to the conditions of developing countries. For these countries, we need a disaggregated sectoral analysis which can focus on the structural and sectoral bottlenecks responsible for generating inflationary tendencies. The economists who hold these views are Myrdal and Streeten in the main, besides several other Latin American economists. To sum up, therefore, we can say that in the developing economies: (i) inflation occurs as a result of the developmental effort and the resultant structural changes, and (ii) the causes and nature of inflation are determined by the socio-economic-political structure which determines the sectoral demand and supply gaps and bottlenecks that emerge in the process of development and impede it. We now discuss these gaps in the following paragraphs.

Gaps Impeding the Development Process

1. Resource Gap. The developing countries generally do not have adequate resources to embark

upon a programme of economic development. Generally these countries depend of their development on the public sector. But the government is not able to raise adequate resources from taxes, public borrowing and profits of the public sector undertakings to execute the various development programmes. Consequently, the government has to take recourse to deficit financing which gives rise to inflation. Further, the private sector also, is short of resources because of low rate of savings and high costs and therefore pressure for expansion in the money stock and bank credit is ever mounting which further intensifies the inflationary spiral.

2. Foodgrains Gap. The developing countries, in general suffer from agricultural backwardness, owing to defective land tenure system, out-dated methods of cultivation, lack of irrigational facilities, growing pressure of population on land, etc. Consequently, the agricultural output falls very much short of the needs of the growing population. This gap between the demand and supply of food grain raises the prices of foodgrains which affect the entire structure of prices.

3. Foreign Exchange Gap. The developing countries have been having a perpetual dis-equilibrium in their balance of payments. They are in dire need to import capital goods, essential raw materials and semi-finished goods, and in many cases foodgrains and other consumers goods. They have a very small exportable surplus and consequently low export earnings, particularly because of the trade restrictions imposed against them by the developed countries and their low competitive power. As a result they have a wide foreign exchange gap. They cannot increase the domestic supply of goods either through domestic production or through imports. And therefore, the prices of goods increase leading to a rise in the general price level.

4. Infrastructural Gap. Most of the developing countries suffer from inadequate infrastructural facilities particularly in the field of power supply and transport services. This stultifies the growth and development in other sectors and also leads to under-utilisation of productive capacity of the economy. consequently, the increase in money supply is not fully absorbed in the productive process and therefore leads to inflation.

5. Resource Utilisation Gap. Such countries suffer from various imperfections like immobility of the factors of production, rigidity of prices, lack of knowledge of market conditions, rigidity of social and institutional structures, lack of training and education, etc. Consequently, optimum allocation and utilisation of resources have not been possible in these countries. Therefore, the output does not increase with an increase in the money supply which increases the inflationary pressure all the more.

6. Capital Gap. The major characteristic of these economies is the low rate of capital formation, which arises from as well as leads to poverty in these countries. Therefore, an increase in money supply instead of breaking the vicious circle of poverty, intensifies the inflationary spiral.

7. Entrepreneurial Gap. Such countries also suffer because of lack of entrepreneurial skill and adventurous spirit. Most of the business people are merchants and traders; and very few are real manufacturers and producers of capital as well as consumer goods. They do not strive adopt innovative techniques and methods. They spend a very low proportion of their capital on R & D activities and therefore, are unable to increase real output. The increase in money supply leads to a rise in prices.

8. Labour Force Gap. The existence of disguised unemployment in these countries does not allow the increased money supply to increase the level of employment and output and therefore, the inflationary pressure is increased.

8.8 EFFECTS OF INFLATION

Inflation is considered to be helpful so long as it leads to an increase in the level of income, output and employment. If it is unable to achieve this objective, it becomes dangerous to the economy. Inflation has, therefore , wide ranging effects on the economic, social, moral and political life of the country. These effects are as follows :

(A) Economic Effects of Inflation

1. Effects on Production. It is generally believed that rising prices boost up the profit expectations of the entrepreneurs. They are encouraged to increase their investments and hence output and employment. Keynes was of the view that so long as the economy does not reach the level of full employment moderate or creeping inflation will have a beneficial effect on the economy. Hyper or galloping inflation is dangerous because it creates uncertainties, which is not good for production. Inflation is harmful for production because it interrupts the smooth operation of the price mechanism, and distorts allocation of resources. Further, it retards saving and capital accumulation by reducing the purchasing power of the people. inflation dampens the inflow of foreign capital in the country, as already explained before. It encourages hoarding of essential commodities leading to exorbitant rise in prices and black-marketing of goods. It encourages speculative activities among the entrepreneurs. The entrepreneurs, instead of increasing heir profits through genuine activities, resort to speculation and make quick profits. Inflation reduces the volume of production by slowing down the process of capital accumulation and by creating business uncertainties. Inflation leads to the diversion of resources from the production of essential commodities tot eh production of non-essential commodities, because the incomes of the rich increase phenomenally and consequently their demand for luxury goods increases rapidly. Finally, inflation leads to the deterioration in the quality of goods and materials. Since the chief objective of the producers is to earn high profits, the consideration of maintenance of quality is relegated to the background.

2. Effects on Distribution. Inflation results in distorting the distribution of income and wealth in the economy. since rising prices mean a fall in the value of money or a fall in the purchasing power of money, inflation leads to a situation in which the distribution of income and wealth becomes more favourable to people with flexible incomes like businessmen, traders, merchants, speculators etc., and it becomes unfavourable for people with fixed incomes like labourers, salaried persons, teachers, interest and rent earners, etc. hence, people with flexible incomes gain during a period of rising prices, while people with fixed income lose. Inflation, thus increase the economic burden of those sections of the society which are not in a position to bear it. That is why, inflation has been called as 'unjust'. Its effects on different sections of the society are discussed below:

(i) Business and Trading Community. During a period of inflation the business and trading community gains because its members earn windfall profits, since the cost of production of their goods does not increase as fast as the prices; and being the borrowers of money they return less, in terms of, purchasing power to their creditors.

(ii) People with Fixed Income. During inflation the fixed income groups suffer the most because, while their incomes remain fixed the real value of their incomes goes down.

(iii) Debtors and Creditors. During inflation the debtors gain and the creditors lose. The debtors gain because they had borrowed the money when the purchasing power of money was high and they repay their debts when the purchasing power of money is low. The creditors lose because they get back their money when it can purchase less quantity of goods and services as compared to the time when they had lent money when it was purchasing more quantity of goods and services.

(iv) Investors. Those investors who have invested their money in equities stand to gain in inflation because of rise in profits; while those investors who have invested their money to debentures and fixed income bearing securities, are losers because their income remains fixed.

(v) Farmers. Farmers are generally the gainers during inflation because of a faster rise in prices of far products, than the cost of production.

(B) Non-Economic Effects of Inflation.

The Non-economic effects of inflation on the social, moral and political life of the people are more serious.

1. Social Effects. Inflation is inequitable because it makes the distribution of wealth more favourable for the rich. The gap between rich and the poor is widened, and the class conflict in the society is intensified.

2. Moral Effects. Inflation erodes the morality and ethics of the business class. It promotes black-marketing and increases the greed of the businessmen and trading community to reap high profits by adopting undesirable and unethical means, by restoring to the creating of artificial scarcity and adulteration in their products.

3. Political Effects. Inflation adversely affects the political life of a country. It increases corruption among the politicians, and erodes the political discipline. There is a growing feeling of discontent-ment among the people which results in the loss of faith in the government. The mass discontent-ment sometimes results in political upheavals, which may even result in the fall of the government.

It has been rightly remarked that inflation is economically unsound, politically dangerous and morally indefensible. Therefore, as far as possible inflation should be avoided and even if it is resorted to, should be kept under check.

8.9 MEASURES TO CONTROL INFLATION

The policy of most of the governments in the world to combat rising prices has been along the following lines :

(A) Monetary Measures

Monetary measure are adopted by the central bank of the country to influence the supply of money and credit in the economy. These measures are discussed as follows :

1. Bank Rate. Bank rate is the rate at which the central bank lends money to the commercial

banks. When the central bank increases the bank rate, the commercial banks have also to increase their lending rate and when the central bank lowers the bank rate, the commercial banks, in turn, have to decrease their rate of interest. In the period of inflation the central bank increases the bank rate which leads the commercial banks to increase their rate of interest, which in turn dampens the enthusiasm of the businessmen and consumers to obtain loans from the bank. The result is that the money supply in the economy is reduced.

2. Open Market Operations. During the period of inflation the central bank sells government securities to the commercial banks in the open market. This reduces the cash reserves the commercial banks. Consequently, the banks are compelled to reduce their lending capacity. This results in the reduction of money supply in the economy.

3. Minimum Reserve Ratio. During a period of rising prices the central bank increases the minimum reserve ratio which implies that the commercial banks are required to keep larger reserves with the Central Bank. Consequently, their deposits decline, the power of the banks to create credit is restricted and thus further expansion of money supply is checked.

4. Service Credit Control. The central bank adopts selective credit control measures to influence certain sectors of the economy. this practice is more prevalent in developing countries. Through such measures the central bank can divert the flow of credit from unproductive and inflation-prone sectors to the productive and growth-oriented sectors. First, measures are taken to curb consumer spending, particularly on consumer durables (by reducing loan facilities for instalment purchasing), and second, by raising the margin requirements for the purpose of giving loans. Margin requirement is the difference between the market value and the maximum loan value of a security.

(B) Fiscal Measures

Fiscal measures include taxation, public expenditure and public borrowing adopted by the government of the country. During a period of rising prices the government's anti-inflationary policy includes the following fiscal measures :

1. Increase in Taxation. The objective of an anti-inflationary taxation policy is to restrict demand for goods and services without affecting their production. The objective is to curtail the purchasing power of the people. That is why, progressive direct taxes are preferred because on the one hand they reduce the disposable income of the people and on the other they are appropriate from the point of view of social equity. Excise duties, sales tax, etc., are such taxes which can be made use of aggressively during a period of price rise.

2. Reduction in Public Expenditure. During a period of rising prices the level of effective demand is very high because of the increase in public and private spending. It is, therefore, necessary that the government should check its unproductive expenditure. Since public expenditure is autonomous, its reduction will have a multiplier effect on the total expenditure of the economy. but it has also its limitations, for example it is not possible to reduce public expenditure in all sectors, for example during water times the defence expenditure cannot be reduced or even during tension on the borders it may not be easy to reduce defence expenditure. Again, in a developing economy heavy reduction in expenditure may adversely affect long-run investment programmes.

3. Public Borrowing. The government may report to excessive public borrowing to control inflation. Through this measure, the government takes away excess purchasing power from the people which reduces the aggregate demand and hence the price level. In inflationary conditions, public borrowing has necessity to be compulsory, which means that the government may deduct compulsorily a certain percentage of wages or salaries in exchange for saving bonds, which may b redeemable after a few years. But it may always be not easy for the government to do so for the simple reason that it involves an element of compulsion on the people. moreover, it may frustrate poor people who are not in a position to contribute anything.

4. Control of Deficit Financing. A deficit budget means excess of government expenditure over its revenue. To meet this deficit, the government may resort to deficit financing which means printing of new currency notes. For controlling inflation the government should reduce deficit financing to the maximum possible extent. The budget deficits, if at all necessary, can be met through saving or taxation. The government can also issue bonds for being purchased by non-banking investors like insurance companies, which will take away the extra spending power from the public and thus help in controlling inflation.

(C) DIRECT CONTROLS :

Direct controls have been used to curb consumption and investment and hence reduce the excess demand. These include rationing of consumer goods, price control, hire purchase restrictions, building licences, industrial licences, wage freeze etc., Prince controls and rationing have not been found to be very effective because of lack of a competent administrative machinery, specially in developing countries, and have often led to black-marketing and corruption. Keynes did not favour price control, because it fails to bring about equilibrium between the purchasing power and available output. Prof. Kurihara also does not support price control because of administrative difficulties. Keynes was also not in favour of rationing because it is wasteful. Kurihara has only supported rationing for 'diverting consumption from particular articles whose supply is below normal," rather than for "controlling aggregate consumption".

Inspite of these, direct controls are considered more effective than monetary and fiscal measures. In the modern world they seem to be inevitable because they are easy to apply and are quick in their effect they are more selective and discriminatory; and the intensity of their operations can be varied from time to time according to the requirements of the situation.

(D) OTHER MEASURES.

Besides the measures stated above there are some other measures as well which could be taken for checking price rise. These measures are :

1. Raising the Level of Output. One of the major courses of inflation is the shortfall in aggregate output relative to aggregate demand. Although it is not possible to increase the output of all the commodities in a general way, because the resources already stand utilised fully, it could, however, be possible to increase the output of certain essential consumer goods, i.e., food, clothing, etc. For increasing the production of such commodities, the resources will have to be diverted from the production of luxury goods. Such re-allocation of resources will help the increase in output and check the rise in prices.

2. Proper Wage Policy. Increase in wages and profits is another reason for rise in prices. It will therefore be helpful for checking inflation if a ceiling is fixed on these, so that the disposable income is kept down and the cost-push inflation is checked. If an increase in wages seems to be inevitable, the government could link wage increase to productivity increases. This would ensure that increase in wages will not lead to increase in cost and hence increase in prices.

3. Population Control. An ever growing population is another cause for bringing about an increase in demand for goods and services and thus creating a short-fall in the supply of these commodities. It is, therefore, necessary that population is kept under control by suitable programmes and measures to check the increasing pressure on general demand for goods and services. This will help to check the rise in prices.

4. Over Valuation. Sometimes over valuation of domestic currency in terms of foreign currency may also help in controlling inflation. First, since the domestic goods will become costlier it will check exports and make available goods and services in the domestic market. Second, by encouraging imports it will add to the domestic stock of goods and services. Third, since the raw materials from abroad would be imported at a lower price, goods could be made available to the domestic market at a lower price. This will check the cost-push inflation.

5. Promotion of Savings. The government should try all possible measures to promote savings among the people. savings reduce the purchasing power and thus disposable income of the people and check the rise in prices. Efforts should be made to control wages and profits through appropriate economic policies. If need be, wages should be freezed or linked with productivity. Such a measure will not permit the costs and prices to rise.

8.10 PHILIPS CURVE

Philips curve examines the relationship between the rate of unemployment and the rate of changes in the money wage. This curve and the relation was first identified by a British economist names A.W.Philips, after whom the curve is name. He was the first person to express the inverse relationship between the rate of unemployment and the rate of increase in the money wages. He expalined this concept by taking the data from United Kingdom. Philips has derived the empirical relationship that when unenemployment is high, the rate of increase in money wage rates is low as employers are under less pressure to increase the wages. On the other hand, when unemployment is low, the rate of increase in money wage rates is high. This is because when the demand for the labour is high and there is less unemploymentso the employer would bid wage rates up quite rapidly.

The nature of business activity would also influence the inverse relationship between money wage and unemployment. In a period of rising business activity when unemployment falls with increasing demand for the labour, the employers will increase the wage rates. Inversely in a period of falling business activities when the demand for the labour is decreasing and unemployment is rising, the employers would be relecutant to increase wages.

The next factor that influences th rate of changes in the money wage is the change in the cost of living, which is indicated by the rate of change in the retail prices. Prices do not rise if labour productivity increases at the same rate as the rise in the money wage. Therefore if the rate of

increase in money wage is same as the rate of increase in the labour productivity, higher wagescan be paid to the workers with no chage in the product prices. If the rateof increase in money wages is higher than the growth rate of labour productivity, prices will rise and vice-versa.

Philips curve depicts the trade-off between unemployment and money wage. Figure8.1 shows percentage change in money wages on the vertical axis and percentage of labour force unemployed on the horizontal axis. The curve is convex to origin which shos that percentage change in money wages rises with the decrease in the unemployment rate.

FIGURE 8.1

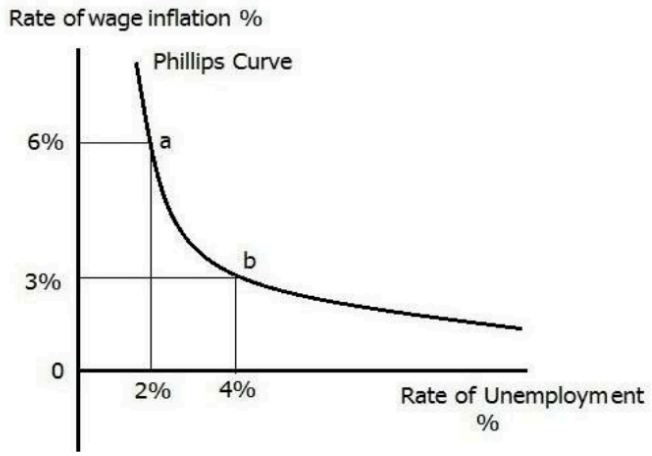


Figure 8.1 shows the philips curve convex to origin. Suppose the rate of unemployment is 4% is associated with growth rate of money wages of 3%. If now the aggregade demand is changed from 3 percent to 6 percent then the unemployment level will be 2 percent. Thus a increase in the money wage rate is in excess of labour productivity and that leads to inflation. To keep wage increase to the level of labour productivity in order to avoid inflation, the rate of unemployment will have to be tolerated.

8.11 SUMMARY

Perhaps the chief source of anti-inflation bias lies in the fact that we are not able to measure inflation properly. The most common method of measuring price level is the use of consumer price index, which is not an index of prices but rather a measure of the cost of living for a particular representative group. Usually, such indices are constructed by taking a weighted sum of quantities multiplied by their prices in a base year. But such indices are difficult to construct properly. They contain built-in biases that make them poor measures of price changes in a growing economy.

8.12 REFERENCE BOOKS

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2. Business Economics - Deepashree
3. Managerial Economics - P.C. Thomas

Lesson – 9

BUSINESS CYCLES

AIMS AND OBJECTIVES:

The main aim of this lesson is to make to students to learn Introduction of Business Cycles, faces of Business Cycles, such as depression, recovery, prosperity, Boom, recession, causes and consequences of Business Cycles.

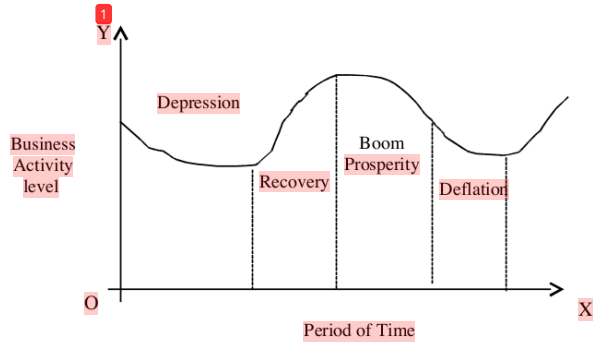
CONTENTS

9.0 INTRODUCTION

A business cycle is a short-term picture of the behaviour of real output in a private enterprise economy. Industrialized economies having free-market mechanism got speedy economic growth over the long period. But the process of economic growth is often shaken by business cycles which show up-turn and down-turn of income, output and employment. A business cycle can be shown to be a wave- like path of the economy's real output as shown in the diagram given below.

9.1 PHASES OF BUSINESS CYCLE

Economists often describe a business cycle with the help of the distinct phases or stages. These have been demarcated in the following diagram.



We can describe the four phases of a typical trade cycle as follows.

Business cycles are said to pass through five different stages or phases: depression, recovery. Prosperity, boom and recession.

9.1.1 DEPRESSION

Depression is a prolonged period when the overall business activity in a country is for less than the normal. It is the first stage of the business cycle. It has the following features:

1. a sharp reduction in production
2. large-scale unemployment
3. low wages
4. contraction of credit
5. a high rate of business failures
6. an atmosphere of pessimism all over

During the period of depression, the levels of production keep declining. Consequently, the volume of employment also gets contracted. Capital goods Industries, such as tractors, come to a virtually complete standstill; compared to capital goods industries, consumer good industries, such as food and clothing, are relatively less affected by unemployment. Prices of finished goods tend to fall though manufacturing costs do not change even one bit. Consequently, every manufacturing activity ends up in substantial losses. If the period of depression continues for long time losses get accumulated and there is no alternative for most firms other than closing down. There

could be frustration sales resulting in a fall in prices lower than the cost prices. During this period, farmers selling their produce at throw away prices is a common sight. Generally, the government announces minimum support prices to save the farmers.

9.1.2 RECOVERY

A slight increase in economic activity after the lowest point of the depression is called recovery. The economic situation appears to be relatively better than in the earlier period. The features of recovery are:

1. There will be a slight improvement in economic activity
2. The volume of industrial production increases slowly and cones- quently the volume of employment also increases
3. prices tend to rise slowly, and this leads to a marginal increase in profits
4. wages also rise marginally. Though not in the same proportion as the prices
5. when prices increase, profits rise marginally, investors tend to get lured by the profits and make fresh investments in capital good industries, banks also come forward and the volume of credit expands. Inventories also move up gradually. Hope and the optimism replace pessimism and frustration prevalent during the period of depression.

Recovery is said to persist till the economic activity reaches more or less the level prevalent before the depression phase. The rate of recovery and the severity of the preceding depression are closely related. The greater the severity of depression, the more likely to be the rate of recovery. The duration of the recovery period may be uncertain, that is, short or long, and is more determined by the forces that initiate recovery. Innovation, additional government expenditure, emerging production techniques and technologies, additional investment in existing and new markets, exploitation of non-conventional sources of energy are some of the propelling factors that are capable of initiating recovery in a depressed economy.

9.1.3 PROSPERITY

The next phase of Business cycle is prosperity. The next stage of prosperity is identified by the following parameters:

1. increased production

2. heavy capital investment in basic industries
3. expansion of bank credit
4. high prices
5. high profits
6. large number of new business enterprises come up
7. full employment.
8. general feeling of optimism in business and industrial circles.

The USA enjoyed the longest sustained period of prosperity between 1923 and 1929, with marginal interruptions in 1924.

9.1.4 BOOM

During boom conditions, business activity expands rapidly to new peaks in terms of commodity prices, high profits and full employment. Its features are:

1. Prosperity conditions of a business cycle pave the way for the emergence of boom.
2. A constant flow of investments beyond the stage of full employment leads to a spirit in the rate of inflation.
3. A feeling of undue optimism develops all around and, consequently, additional investments keep flowing in different various sectors of the economy.
4. The factors of production, already employed to the fullest extent, register a sharp rise in prices. The number of jobs available exceeds the number of workers in a given market resulting in overfull employment.
5. Profits touch a new peak drawing the attention of all investors, business magnets and industrialists. Additional capital investments start flowing in.
6. The economy is not in a position to digest the additional investments; inflationary tendencies seem to surface and gradually grow to an alarming level. This is manifested in sky rocketing prices.
7. There is an atmosphere of over-optimism all around.

Boom conditions may not continue for a long period. They may even portend recession. As the demand for the factors of production increases, they are likely to become scarce. This leads to an increase in their prices upsetting the cost calculations of projects. New projects, promoted with the forecast of large revenues and lower costs may not survive at all. This result, a sense of caution develops in business circles. Further investments stop coming in unless business conditions are carefully evaluated. New projects are discouraged

and expansion decisions are deferred. As a result, the boom phase goes bust giving way to recessionary tendencies.

9.1.5 RECESSION

Recession is characterized by over-pessimism in business circles, accompanied by fear and hesitation about the future trends in economy. The main characteristics are:

1. Even the largest and most successful business houses are on alert, they slow down production. This is likely to crate panic among small and medium businessmen
2. As a caution, even financial institutions roll back their offers for fresh loans and may even insist on withdrawing of loans from business people.
3. Prices drop to a new low, business people become nervous, opting for cool exit rather than doing any business.
4. Many business units collapse. Demand for producers goods such as cement and bricks get affected as building and construction slow down.
5. Unemployment mounts, in basic and capita goods industries to begin with and may spread to other industries. As a result income, expenditure, prices and profits all fall.

Recession in one sector may affect other sectors in the economy resulting in depression once again. This completes one round of a business cycle.

Comparison of Different Phases of Business Cycles

The following table clearly indicates the comparison of different process of Business Cycles

Features	Prosperity	Recession	Depression	Recovery
Income, Output Employment, wages prices, Interest, Bank credit, MEC investments	High	Start Falling	Lowest	Start Rising
Aggregate Economic Activity	High	Start Falling	Lowest	Starts Rising
Business Psychology	Optimism	Doubtful and Fearful	Pessimism	Optimism begins

9.2 CAUSES FOR BUSINESS CYCLES

There are multiple factors, with varying degree of dominance over a period of time that cause a business cycle. The following are the causes of business cycles:

a). Changes in money supply: Higher the money supply, higher the prices and profits likely to be higher. Larger money quantities results in overall confidence, at least in the initial stages. Lower the money supply, lower the production, and larger is the unemployment. Recessionary tendencies set in.

b). Changes in bank credit: Expansion in bank credit may lead to higher volumes of production, full employment and an upswing in the economic trend. On the other hand, reduction in bank credit may force business people to shelve their expansion plans, reduce the volumes of production and retrench labour. This may lad to recessionary tendencies in the economy.

c). Over*: investments in capital goods manufacturing industries:* According to **Dr.Hayek,** excessive expansion in bank credit at artificially lowered rates of interest may lead to excessive investments in capital goods. When the goods so produced are not sold, stocks pile up, prices may fall, margins may erode and labour may lose jobs. All in all, pessimism will rule the industry.

d). Excessive or under-consumption: Excessive savings may not improve the standard of living of the people. In fact, they become more improverished due to low consumption levels. Under-consumption, according to **Major Douglas** and **J.A.Hobson,** is due to unequal distribution of income and wealth in the country.

e) Waves of optimism and pessimism in business circles: Each phase of the business cycle is characterished by varying degrees of optimism or pessimism among business people. During the boom period, for instance, there is an upswing and positive thinking in the business cycles. Everybody is optimistic about the business trends and this also attracts newcomers into business. On the other hand, there is pessimism during recession.

f) ***Technological innovations:*** Schumpeter explains a business cycle in terms of innovations that take place in capitalist economies from time to time. Innovations are not inventions. Invention is the discovery of some thing new and innovation a marginal change in the manufacturing methods and systems of an existing product or service. Innovations include development of new sources of raw materials for the existing business units, developing new types of raw materials, change in organization structures, and development of new markets for the existing products and so on.

g) ***Fluctuations in the marginal efficiency of capital:*** The expected rate of return on investment is also called 'marginal efficiency of capital'. Keynes says that fluctuations in the rate of return on investment are capable of affections in the rate of return on

investment are capable of affecting business cycles. Erosion of marginal efficiency of capital leads to crisis. A sudden collapse in the marginal efficiency of capital results in a sharp downtrend. When marginal efficiency of capital rises from its lower level, the upward trend sets in.

h) ***Meteorological conditions:*** Good crops are the result of good rain. They provide good money to farmers, a better standard of living and prosperity. On the other hand, poor rain leads to poor crops. Consequently, farmers end up in poverty. One of the olders theories of business cycle is based on meteorological conditions which is also called the sunspot theory. According to this theory, variations in the atmosphere of the sun, as evidenced in the frequency and magnitude of sunspots, determine the fluctuations in business activity. The growth of crops was attributed to the transmission of heat to the earth which was affected by certain dark spots appearing on the fact of the sun at definite intervals. The appearance of dark spots leads to crops failure and the entire economy prospers in the absence of dark spots.

i) ***Disturbance factors:*** Disturbance factors such as wars, revolutions and law and order problems are likely to reduce and even kill the tendencies of prosperity and push the economy into recession.

j) ***Rate of growth in population:*** The higher the growth rate of population, the lesser chances for tendencies of prosperity.

k) ***Inventions (scientific break throughs):*** Given a conducive financial environment and a large number of inventions, tendencies of prosperity are likely to reinforce the upswing in the economy.

l) ***Discoveries of new lands and resources:*** Markets can be expanded when new lands are discovered. Similarly when new resources are discovered, the present materials may become uneconomical or outdated. This leads to increased volumes of production of production of the goods with the help of new resources at minimum cost. The is likely to bring the economy out of recession phase.

m) ***Artificial political climate:*** Samuelson makes a very interesting observation about the political climate in an economy. He explains how ruling parties artificially create a favourable climate before elections. No political party dares to announce any type of punitive measures such as power cut and increase in taxes if the elections are within sight. Once elections are over, they do not hesitate in announcing a string of such measures. In other words, political climate is 'made' to turn public opinion in their favour.

Samuelson says politicians in power manipulate fiscal and monetary policies a year before lections in order to get relected. Later or sometimes immediately after the elections, they adopt stringent monetary and fiscal policies.

9.3 CONSEQUENCES OF THE BUSINESS CYCLE

An economy under the influence of business cycle is likely to have evil consequences in terms of lower volume of employment, lower productivity and incomes, lower savings and a lower quality of life etc. It is necessary to understand the consequences of business cycles to prepare business organizations to plan their operations accordingly and minimize losses by taking suitable remedial measures. The following are the consequences of a business cycle:

(a) Business activity is adversely affected, irrespective of the size of business units. Large business houses are marginally affected and small units may face closure.

(b) There is an upswing in the economy during boom conditions. Demand rises, prices rise and, in the process, profits increase. There is all-round prosperity. A long period of boom may carry even seeds of depression.

(c) With the onset of recessionary tendencies, large units cut production, unemployment surfaces and the propensity to consume declines. Small business units are the worst hit. They seldom have the ability to sustain low prices and low profits.

(d) Expansion plans are shelved during recession.

9.4 SUMMARY

A business cycle is a short-term picture of the behaviour of real output in a private enterprise economy. Industrialized economies having free-market mechanism got speedy economic growth over the long period. But the process of economic growth is often shaken by business cycle which shows up-turn and down-turn of income, output and employment.

Business cycles are said to pass through five different stages or phases: depression, recovery. Prosperity, boom and recession. Depression is a prolonged period when the overall business activity in a country is for less than the normal.

Recovery :

A slight increase in economic activity after the lowest point of the depression is called recovery.

Prosperity: The next phase of Business cycle is prosperity. The next stage of prosperity is identified by the following parameters:

Increased production, heavy capital investment in basic industries, expansion of bank credit, high prices, high profits

Boom: During boom conditions, business activity expands rapidly to new peaks in terms of commodity prices, high profits and full employment.

Recession: Recession is characterized by over-pessimism in business circles, accompanied by fear and hesitation about the future trends in economy.

Causes for Business Cycles :

- Changes in Money Supply
- Changes in Bank Credit
- Over investments in capital goods manufacturing industries
- Excessive or under-consumption etc.

Consequences of Business Cycles:

Business activity is adversely affected, irrespective of the size of business units. A long period of boom may carry even seeds of depression. Expansion plans are shelved during recession.

9.5 MODEL QUESTIONS:

1. What do you understand by Business Cycle? What are their phases? Explain
2. What are the causes and consequences of business cycle?

9.6 REFERENCES

1) Macro Economics - ACKLAY GARDENER
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LESSON 10
THEORIES OF BUSINESS CYCLES

Contents

Aims and Objectives : In the previous lesson we have studied about the meaning, definitions and different stages of business cycles or trade cycles. The aim of this lesson is to study some important theories put forward by some economists namely Hawtrey, Keynes and J.R. Hicks who had explained the factors and circumstances that lie behind cyclical fluctuations. According to Hawtrey, the trade cycle is purely a monetary phenomenon. All activities are gone through with the help of money. Changes in the supply of money bring about changes in the levels of economic activities according to Hawtrey. According to Keynes theory, the changes in aggregate demand and aggregate supply are responsible for many stages in trade cycles. J.R. Hicks in his book “A contribution to the theory of trade cycles” builds his theory of trade cycles around the principle of the multiplier accelerator interaction. By these theories we can understand the causes for business cycles and can also suggest the remedial measurer.

16.1. Introduction :

A business cycles is associated with the fluctuations in economic activity, output, employment, prices, wages, interests, profits etc. A trade cycle develops in series of phases which for convenience may be called broadly expansion, Recession, contraction and Revival. There are several theories of trade cycles as told by different economists in different ways of approach. However, they can be

broadly classified as two types. 1. Monetary theories and 2) Non – monetary theories. Monetary theories look upon 'money' as a devil responsible for trade cycles. Where as non-monetary thoeires find some other reason to find some other reason. This lesson deals with the monetary theories given by R.G. Hawtrey, J.M. Keynes and J.R.Hicks. Let us study these theories one after an other.

16.2. Hawtrey's Monetary theory of trade cycle

According to Prof. R.g. Hawtrey "The trade cycle is a purely monetary phenomenon". It is changes in the flow of monetary demand on the part of business men that lead to prosperity and depression in the economy. He opines that non-monetary factors like strikes, floods, earthquakes, droughtss wars etc may at best cause a partial depression but not a general depression. Inactually, cyclical fluctuations are caused by expansion and contraction of bank credit, inturn, lead to variations in the flow of monetary demand on the part of procedures and traders. Bank credit is the principal means of payment in the present times. Credit is expanded or reduced by the banking system by lowering or raising the rate of interest or by purchasing or selling securities to merchants. This increases or decreases the flow of money in the economy and thus brings about prosperity or depression.

The expansion phase of the trade cycle starts when banks increase credit facilities. They are provided by reducing the lending rate of interest and by purchasing securities. These encourage borrowings on the part of merchants and producers. This is because they are very sensitive to changes in the rate of interest. So when credit becomes cheap, they borrow from banks in order to increase their stocks or inventories. For this, they place larger orders with producer, who in turn, employ more factors of production to meet the increasing demand. Consequently, money incomes of the owners of the factors of production increase, thereby increasing expenditure on goods. The merchants find their stocks being exhausted. They place more orders with producers. This leads to further increase in productive activity, in income, outlay, demand and a further depletion of stocks of merchants. According to Hawtrey." Increased activity means increased demand and increased demand means increased activity. Avicious circle is setput, a cumulative expansion of productive activity.

As the cumulative process of expansion continues, producers quote higher and higher prices. Higher prices induce traders to borrow more in order to hold still larger stocks of goods so as to earn more profits. Thus optimism encourages borrowing, borrowing increases sales and sales raise optimism.

According to Hawtrey, prosperity cannot continue limitlessly. It comes to an end when banks stop credit expansion. Banks refuse to lend further because their cash funds are deplected and the money in circulation is absorbed in the form of cash holdings by consumers. Another factors is the export of gold to other countries when imports exceed exports as a result of high prices of domestic goods. These factors force the banks to raise the business community to repay their loans. This starts the recessionry phase.

In order to repay bank loans, businessmen start selling their stocks. This sets the process of falling prices. They also cancel orders with producers. The latter curtail their productive activities due to fall in demand. This, inturn leads to reduction in the demand for factors of production. There is unemployment, Income fall. Unable to repay bank loans, some firms go into liquidation thus

forcing banks to contract credit further. Thus the entire process becomes cumulative and the economy is forced in a depression.

According to Hawtrey, the process of recovery is very slow and halting As depression continues, traders repay bank loans by selling their stocks at whatever prices they can. As a result, money with banks. Even though the bank rate is very low, there is "Credit dead lock" which prevents businessmen to borrow from banks due to pessimism in economic activity. This dead lock can be broken by following a cheap money policy by the central bank which will ultimately, bring about recovery in the economy.

16.3. Criticism of the Hawtrey's theory

Monetarists like Friedman have supported Hawtrey's theory. But majority of economists have criticised him for over – emphasing monetary factors to the neglect of non – monetary factors in explanning cyclical fluctuations. Some of the points of criticism are discussed below.

1. None can deny that expansion of credit leads to the expansion of business activity. Hawtrey believes that an expansion of credit leads to boom. This is not correct because the former is not the cause of the later. At the bottom of depression, credit is easily available. Even then, it fails to bring a revival. Similarly, contraction of credit can not bring about a depression. At best it can create conditions for that. The expansion or contraction of credit cannot originate either boom or depression in the economy.
2. In Hawtrey's theory the traders gets credit from banks and starts the up turn or vice versa. In actually traders do not depend exclusively on bank credit, but they finance business through their own accumulated funds and borrowings from private sources.
3. Hamberg does not agree with Hawtrey that traders react to changes in interest rates. Traders react favourably to a reductions is permanent. Otherwise they do not react. Also, if trades finance their stocks with their own funds, interest rate changes will have little effect on their purchases.
4. Factors other than interest rate also influence the investment decissions. Price changes, cost of storage, business expectations also effect the purchases of the traders.
5. Hawtrey's theory fails to explain the periodicity of the cycle.
6. Finally, Hawtrey's theory is incomplete, because it emphasises only monetary factors and totally ignores non-monetary factors such as innovations, capital stock, multiplier – accelerator interaction etc.

16.4. Keyne's theory of trade cycles

The Keynesian theory of trade cycle is an integral part of his theory of income and employment. Keynes regards the trade cycle as mainly due to a cyclical change in the marginal efficiency of capital, though complicated and often aggravated by associated changes in the other significant short – period variables of the economic system.

According to Keynes, the principal cause of depression and unemployemnt is the lack of

aggregate demand. Revival can be brought about by raising aggregate demand which inturn can be raised by increasing investment and consumption. Since consumption is stable during the short run, therefore revival is possible by increasing investment. Similarly, the main cause of downturn is reduction in investment. Thus the Keynesian theory of trade cycles, fluctuations in economic activity are caused by fluctuations in the rate of investment. And fluctuations in the rate of investment are caused mainly by fluctuations in the marginal efficiency of capital. The rate of interest which is the other determinant of investment, is more or less stable and does not play a significant role in cyclical fluctuations in investment, but at times it reinforces and supplements the primary motivating factor i.e. changes in marginal efficiency of capital. Marginal efficiency of capital means the expected rate of profit on new investment. Therefore the economic fluctuation results from the changes in the expectations about the rate of profit on new investment.

Fluctuations in the marginal efficiency of capital or the expected rate of profit on new investment are due to a) changes in the prospective yield and b) changes in the cost or supply price of the capital goods. It is the prospective yield which makes the marginal efficiency of capital very unstable and subject to violent fluctuations.

To explain the course of the keynesian cycle, we start with the expansion pahse. During the expansion phase, the MEC is high. Businessmen are optimistic. There is a rapid increase in the rate of investment. Consequently, output, employment and income increase. Every increase in investment leads to a multiple increase in income via multiplier effect. This cumulative process of rising investment, income and employment continues till the boom is reached. As the boom progresses, there is tendency for the MEC to fall due to two reasons. First, as more capital goods are being produced steadily, the current yield on them declines. Second, at the same time the current costs of new capital goods rise due to shortages and bottle necks of raw materials and labour. During the downturn, investment falls due to a fall in the MEC and rise in the rate of interest. This lead to a cumulative decline in employment and income via the reverse operation of the multiplier. Further, the fall in the MEC may shift the consumption function downward there by hastening the depression.

The revival depends on the factors which bring about the recovery of the MEC. The interval, between the upper turning point in the trade cycle, and the start of recovery, is conditioned by two factors. I) the time necessary for wearing out of durable capital assets and ii) the time required to absorb the excess stocks of goods left over from the boom. Just as the MEC was pushed down by the growing aboundance of capital goods during the period of boom, similarly as the stocks of capital goods are depleted and there grows a scarcity of capital goods, the MEC rises, thereby inducing the businessmen to invest more. Income increases due to the multiplier effect. So the cumulative process tarts upward.

16.5. Criticism of the Keynes' theory

Keynes' theory of trade cycle is superior to the earlier theories because it is more than a theory of the business cycle in the sense that it offers a general explanation of the level of employment, quite independently of the cyclical nature of changes in the employment. However critics pointed out its weakness.

1. Keynes theory of trade cycle over emphasises the role of business expectations in influencing MEC. Thus Keynes's theory is not much different from Pigou's psychological theory of trade cycle.
2. According to Hazilitt, the term MEC being vague and ambiguous, Keynes's explanation of the crisis of marginal efficiency of capital is either a useless trusim or an obvious error.
3. Another weakness of the Keynes's theory of trade cycle is that some of its variables such as expectations, marginal efficiency of capital and investment cannot explain the different phases of the cycle. So Dillard criticise that this theory is an incomplete theory.
4. Dillard also points an other defect in Keynes's theory that it does not examine closely the empirical data of cyclical fluctuations.
5. One of the serious omissions of Keynes's theory of trade cycle is the acceleration principle. This made the theory one – sided because his explanation centres round the principle of multiplier. As pointed out by J.R. Hicks, "The theory of acceleration and the theory of multiplier are two sides of the theory of fluctuations, just as the theory of demand and the theory of supply are the two sides of the theory of value".

16.6. Hick's theory of trade cycle

J.r. Hicks in his book "A contribution to the theory of the trade cycle" builds his theory of trade cycles around the principle of the multiplier – accelerator interaction. The ingredients of Hick's model of trade cycle are the warrented rate of growth, the consumption function, autonomous investment, an induced investment function and the multiplier – accelarator relation. The warrented rate of growth is the rate which will sustain itself. It is consistent with saving investment equlibrium. The economy is said to be growing at the warrented rate when the real investment and real saving are taking place at the same rate. According to Hicks, it is the multiplier accelerator interaction which weaves the path of economic fluctuations around the warrented growth rate. The consumption function takes the form $C = a^{y}_{t-1}$ consumption in period 't' is regarded as a function income of the previous period (t – 1). Thus consumption lags behind income, and the multiplier is treated as a lagged relation. Autonomous investment is independent of changes in the level of output. Hence it is not related to the growth of the economy. Induced investment, on the other hand is dependent on changes in the level of output. Hence it is a function of the growth rate of the economy. In the Hicksian model, the accelartor is based on indused investment which along with the multiplier brings about an upturn. The accelelerator is defined by Hicks as the ratio of induced investment to the increase is income. Given constant values of the multiplier and the accelerator it is the "leverage effect" that is responsible for economic fluctuations.

Assumptions of the model : The Hicksian Theory of trade cycle is based on the following assumptions.

1. He assumes a progressive economy in which autonomour investment increases at a constant rate so that the system remains in a moving equilibrium.
2. Hicks assums constant values for the multiplier and the accelarator.

3. There is “full employment ceiling” which acts as a direct restraint on the upward expansion of the economy.

4. The working of the accelerator in the down swing provides an indirect rstraint on the downward movement of the economy.

5. The relation between the multiplier and accelerator is treated in a lagged manner, since consumption and induced investment are assumed to operate with time lag.

6. It is assumed that the average capital output ratio (v) is greater than unity and that gross investment does not fall below zero.

Explanation of Hicks Model : Hicks explains his theory of the trade cycle in terms of figure 16.1. Line AA shows the path of autonomous investment growing at a constant rate, EE is the equilibrium level of output which depends on AA and is deduced from it by the application of the multiplier accelerator interaction to it. Line FF is the fullemployemnt ceiling level about the equilibrium path EE and is growing at the constant rate of autonomour investment. LL is the lower equilibrium path of output representing the floor or slump equilibrium line.

Hicks begins from a cycleless situation P_o on the equilibrium path EE when an increase in the rate of autonomous investment leads to an upward movement in income. As a result, the growth of output expansion path from P_o to P_1. According to Hicks, this upswing phase relates to the standard cycle which lead to an explosive situation because of the given values of the multiplier and the accelerator. But this does not happen because of the upper limit or ceiling set by the full employment level FF. Thus certain bottlenecks of the supply emerge which prevent output from reaching the peak and instead encounter the ceiling at P_1.

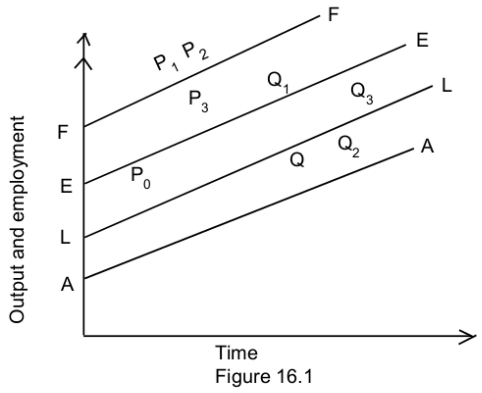

Figure 16.1

When the economy hits the full employment ceiling at P_1, it will creep along the ceiling for a period of time to P_2 and the downward swing will not start immediately. The economy will move along

the ceiling from P_1 to P_2 depending upon the time period of the investment lag. The greater the investment lag, the more the economy will move along the ceiling path. Since income at this level is decreasing relative to the previous stage of the cycle, there is a decreased amount of investment. This much of investment is insufficient to keep the economy at the ceiling level and then the downturn starts.

During the downswing "the multiplier – acceleator machanisms sets in reverse, falling investment, reducing income, reduced income reducing investment and so on progressively. If the accelerator worked continuously, output would plunge downward below the equilibrium level EE and because of the explosive tendencies, to a greater extent than it rose above it". The fall in output in this case might be a steep one, as shown by P_2 P_3 Q. But in the downswing, the acceleartor does not work so swiftly as in the upswing. If the slump is severe, induced investment will quickly fall to zero and the value of the accelerator becomes zero. The rate of decrease in investment is limited by the rate of depreciation. Thus the total amount of investment in the economy is equal to autonomous investment minur the constant rate of depreciation. Since autonomous investment is taking place, tha fall in output is much gradual and the slump much longer than the boom, as indicated by Q_1, Q_2. At Q_2 the slump reaches the bottom of floor provided by LL line. The economy does not turn upwards immediately from Q_2 but will move along the slump equilibrium line to Q_3 because of the existencse of excess capacity in the economy. Finally, when all capacity is exhausted, autonomous investment will cause income to rise which will inturn lead to an increase in induced investment so that the accelarator is triggered off with along with the multiplier moves the economy towards the ceiling again. It is in this way that the cyclical process will be repeated in the ecnonomy.

Hicks also brings the role of the monetary factors in his cycle theory. If during an upswing the banks follow the policy of credit contraction the downswing might start before reaching the full employment ceilying. When profits decline during a downturn, there will be an increase in liquidity preference and consequent decrease in loanable funds. As a result, autonomous investment falls which brings a marked decline in income than otherwise. Thus monetary factors are capable of influencing and aggrovatig the aptitude of the cycle. However, Hicks traces the basic cause of the cycle to the multiplier – accelerator interaction.

16.7. Criticism of Hicks theory

The Hicksian theory of trade cycle has been severely criticised by Duesenberry, Smithes and others on the following grounds.

1) Hicks model assumes that the value of the multiplies remains constant during the different phases of the trade cycle. But this not true as Friedman has proved on the basis of empirical evidence that the marginal propencity to consme does not remain stable in relation to cyclical changes in income. Thus the value of the multiplier also changes with different phases of the cycle.

2) Hicks has also been criticised for assuming a constant value of the accelerator presupposer a constant capital – output ratio. It is unrealistic because the capital output ratio is itself subject to change due to technologic factors.

3) Hicks assumes that autonomous investment continues throughout the different phases of the cycle at a steady pace. This is unrealisstic because financial crisis in a slump may reduce autonomous investment below its normal level. It may also subject to fluctuations due to a technological innovation.

4) Hicks distinction between autonomous and induced investment is not feasible inpractice. As pointed out by Lundberg, every investment is autonomous in the short run and a major amount of autonomous investment becomes induced in the long run.

5) Hicks has been criticised for his explanation of the ceiling or the upper limit of the cycle. According to Desnberry, the ceiling or the upperlimit of the cycle fails to explain adequately the onset of depression. It may at best check growth and not cause a depression.

6) Hicks explanation of the floor and of the lower turning point is not convincing. According to Hicks, it is autonomous investment that brings a gradual movement toward the floor and it is again increase in autonomous investment at the bottom that leads to the lower turning point. Harrod doubts the contention that autonomous investment would be increasing at the bottom of depression. Depression may retard rather than encourage autonomous investment. Hick's contention that revival would start with exhaustion of excess capacity has not been proved by empirical evidence.

7) Another criticism levelled against Hicks's model is that the full employment ceiling as defined by Hicks is independent of the path of output. But fullemployment depends upon the magnitude of resources that are available to the country. When the capital stock is increasing during any period, the ceiling is raised.

8) The role of monetary factors is not clear in his model.

9) Last but not least, Hicks has been criticised for asserting that the contraction phase is longer than expansion phase of the cycle. But the actual behaviour of the post war cycles has shown that the expansionary phase of business cycle is much larger than the contractionary phase.

Despite these weaknesses, Hicksian model is superior to all the earlier theories in satisfactorily explaining the turning point of the business cycles. So this model is at best suggestive.

16.8. Remedial measures

Lack of unanimity, as to the the policy to be followed to eliminate trade cycle, is even more marked than the lack of unanimity about the causes thereof. Most of the economists are agreed that under the existing economic order, crises are unavoidable. We can only delay them or mitigate their severity. We need two sets of measurer to control trade cycles. Those are preventive and curative for stabilisation of the economy.

Preventive measures : For preventing or avoiding crisis, the remedy will depend on the diagonosis. Influences of the climate factors on the supply of raw materials cannot be rule out altogether. In a country like India, where nearly two thirds of the people depend on agriculture, it is necessary that dependence on rains should be reduced as far as possible so that agriculture no longer remains a gamble in the monsoons. A network of canals, wells and resorvoiur may be provided to ensure or

adequate and regular supply of water. Other external factors like wars, earthquakes and epidemics cannot provided against. They do not occur with any degree of regularity.

Imperfect adjustment of demand and supply can be rectified by collecting and disseminating correct and upto date statistical information about the conditions of crops, quantities of goods produced by the main industries, state of employment, imports and exports, percapita income, prices and cost of living index numbers and of company floatations, profits etc. This will help the businessmen to form an intelligent forecast of the probable changes in the demand for and supply of certain types of goods. The intelligent bureau may issue directives and warnings from time to time so that undue pessimism or optimism is nipped in the bad. In a boom period, the companies may be asked to follow a cautions polity in the distribution of the dividends and to build up reserves.

The above – mentioned preventive measurers will not however, be enough. Besides these, a country must always formulate and follow an appropriate monetary policy so as to avoid the occurrence of booms and slumps. Monetary policy embraces banking and credit policy relating to loans and interest rates as well as the monetary standard and public debt and its management. It influences the volume of credit base and through it the volume of bank credit and thus the general level of prices and of economic activity. Money supply during times of inflation can be regulated by means of bank rate policy, open market operations, changes in cash reserve ratio, selective credit control etc. When boom conditions are developing, bank rates Is raised and thus credit is contracted with the consequent brake upon the undue expansion of business – activity. In a depression a policy of cheap money may be adopted to stimulate business investment and thus assist recovery.

But monetary policy is not much effective in the periods of depression. A substantical reduction in the interest rates does not encourage the businessmen to invest for the expansion of production. Therefore any monetary policy will be more useful in times of inflation rather than of deflation or depression.

Monetary policy which is helpful in periods of economic expansion and prosperity may not be much use during a period of depression. In such a situation fiscal policy is best suited. Fiscal policy, broadly speaking, consists of a) Public spending or a policy of public works b) appropriate taxation. In a year of depression, that is when private investment is at low the deficiency in investment will have to be made up by large capital outlay by the state, and conversely, during the upward swing of the cycle, the state will have considerably to cutdown its spending programme. Thus, during the depression years, state must be ready to spend beyond its reserves. The state should prepared to have deficit budgets during depression. Conversely there should be surplus bugets during the years of prosperity. On the revenue side taxes should be lowered during depression. While they should be raised during boom years. To stimulate business investment during depression, not only the rates of taxes should be lowered but also more liberal allowances for depreciation and obsolesence etc should be granted.

Thus Fiscal policy which is also called the contracyclical management of public finance may be operated both through public revenues and public expenditure. Between these two, the expenditure method is far more effective in stimulating business activity. Moreover, the taxation policy leaves the entire initiative to the business community and is also not capable of directing expenditure into channels which may be particularly desired. However best result will be achieved if both of them are combined.

In recent years economists have been advocating the state control of private investment for the purpose of counteracting business fluctuations. But the danger of such policy lies that too much state intervention will hamper private enterprises. But leaving private investment entirely free is also not very safe. A happy mean will have to be struck. When that is done, economic stablisation will become more practicable.

16.8. Summary

A business cycle is associated with the fluctuations in economic activity, output, employment, prices, wages, interests, profits etc. There are several theories put forward by different economists regading the causes of business cycles. Hawtrey's monetary theory, Keynes's theory and J.R.Hicks theory are important among them.

According to R.G. Hawtrey "the trade cycle is a purely a monetary phenomenon". It is the changes in the flow of monetary demand on the part of businessmen that lead to prosperity and depression in the economy. Bank credit plays a vital role in the expansion and contraction of the business activities. The expansion of the trade cycle starts when banks increase credit facilities by reducing the rate of interest o lending. Business people will borrow from banks inorder to increase their stocks. Money incomes of the factors of production icrease leading to a cumulative expansion of productive activity in the ecoomy. According to Hawtrey, prosperity cannot continue limit lessly. It comes to an end when banks stop credit expansion. In order to repay bank banks, businessmen starts selling their stocks. This sets the process of falling prices which finally led to depression.

Monetarists like Friedman hours supported Hautrey's theory. But some economists have criticised his theory for over - emphasing monetary factors and neglect of non-monetary factors in explaining cyclical fluctuations.

The keynesian theory of business cycle is an integrad part of his theory of income and employment. Keynes regards the trade cycle as mainly due to a cyclical change in the marginal efficiency of capital. It is the defficency of effective demand that with brought depression. Revival can be brough about by raising aggregate demand which in turn can be raised by increasing investment. All fulctuations in the rate of investment are caused mainly by flutuations in the marginal efficiency of capital i.e. But preventive measure will not however by enough. Besides these, a country must formulate an appropriate monetary as well as fiscal policies to avoid the occurance of booms and slumps. Monetary policy embraces the credit policy of the banks relating to loans and interest rates. Money supply during infaltion can be regulated by means of bank rate policy, open market opertions, changes in cash reserve ratio, selective credit control etc. In a depression a policy of cheap money may be adopted to stimulate business investment.

Fiscal policy which is called the contracyclical management of public finance may be operated both through public revenves and public expenditure. The public expenditure method is very effective in stimultating business activity during depression. Taxation policy will control the over expansion of the business activities in times of inflation.

By this we can conclud both monetary and fiscal policies are necessary for control of business cycles and establishment of stability in the economy.

16.9. References and Exercises

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16.10. Exercises

1. What do mean business cycles ? Discuss critically the view that “the trade cycle is a purely monetary phenomenon”.
2. Discuss to view that trade cycle is mainly due to fluctuations in the marginal efficiency of capital.
3. Explaint he modern theory of trade cycle with the help of the accelerator principle.
4. Critically disucss the Hicksian theory of trade cycle.
5. Discuss what you consider to be most satisfactory explanation of trade cycle.
6. Discuss the various measures which should adopt to fight cyclical fluctuations.
7. Discuss the policies that can be followed to control cyclical fluctuations.

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