

B.B.A 2nd Sem.

Macro Economics and
Business Decisions

Macro Economics

Macro economics, studying economic problems from the point of view of entire economy e.g. aggregate consumption, aggregate employment, national income, general price-level etc.

Definition:- "Macro economic theory is that part of economics which studies the overall average and aggregate of the system."
Boulding

Scope:- Scope of macro economics is the use of economic resources at the national level. These resources have their effect on the national income, employment, effective demand, aggregate saving, aggregate investment, price level, economic development etc.. It scope can be divided into the following parts.

- ① Theory of National Income:- Macro economics studies the concept of national income, its different elements, methods of measurement and social accounting.
- ② Theory of Employment:- Macro economics also studies problems relating to employment and unemployment. It studies different factors determining the level of employment viz. effective demand, aggregate supply, aggregate consumption, aggregate investment, aggregate saving, multiplier etc.
- ③ Theory of Money:- Change in demand for, and supply of money have considerable effect on the level of employment. Macro economics, therefore studies functions of money and theories relating to it. Banking and other financial institutions are also parts of its study.
- ④ Theory of general Price-level:- Problems concerning inflation or general rise in prices and deflation or general fall in prices are also studied under macro economics.
- ⑤ Theory of Economic growth:- Study of problems relating to economic growth or increase in per capita real income forms part of macro economics. It studies the economic growth of under-developed economies. Monetary and fiscal policies of the government are also studied therein.

Theory of International Trade :-

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Macro economics also studies trade among different countries. Theory of International trade, tariff and protection etc. are subjects of great significance to macro economics.

Nature :-

Nature of macro economics is the its uses or importance, assumptions, salient features and limitations.

A - Uses or Importance of Macro Economics :- The main use of the study of macro economics are as follows -

- ① Helpful in understanding the functioning of an economy :- Modern economy has become a very complex affair. Several economic factors which are interdependent operate in it. So the study of economy as a whole has therefore become very essential.
- ② Study of National Income :- In modern times, it is the study of national income of almost every country that enables us to know about the economic conditions of different countries of the world. It is possible through macro analysis alone.
- ③ Formulation Economic Policy :- Study of macro economics is of great significance in formulating economic policies. Almost all modern governments take resort to aggregate data pertaining to economic factors, viz. national income, aggregate employment, aggregate investment and general price level etc.
- ④ Study of Trade cycles :- Trade cycles or fluctuations is an economic problem of great importance. These changes have an adverse effect on the economy. It is very essential to check them. So the study of macro economics becomes imperative to know the causes responsible for trade cycles and measures necessary to check them.
- ⑤ Change in General Price-level :- Several change occur in the general value of money or the general price level. Fall in the value of money or rise in price level is called inflation and fall in price level is called deflation. In order to put under control, change in value of money, the economists heavily draw upon the study of macro economics.

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- ⑥ Economic Growth :- The problem of increasing the rate of economic development has assumed great significance in under-developed countries. Macro economic analysis has made it possible to know the factors, accounting for economic growth and policies to be pursued to achieve the same.
- ⑦ International Comparisons :- Macro economics helps in making international comparisons. It can compare rate of per capita income, investment rate, consumption and saving levels of different countries.
- ⑧ Inter-relationship among different sectors :- Nature of every economic system depends on the interrelationship among different economic ~~parts~~ sectors and their mutual dependence, viz. public and private sectors, agricultural and industrial sectors internal and international trade sectors.

B Assumptions :- Main assumption of macro economics as propounded by Keynes are as follows.

- ① Short period :- Macro economic theories are applicable in short period. In short period production is increased by installing new plants or new machines. Because in short period production capacity, techniques, no. of labourers, taste habits fashions of the consumers remain constant.
- ② Perfect competition :- Macro economics is based on the assumption of perfect competition, in this condition there is no external interference in the determination of price. Price may rise or fall in accordance with change in demand and supply.
- ③ Closed Economy :- Macro economic analysis is also based on closed economy. A closed economy is one which is free from the influence of foreign trade on income and employment or aggregate demand.
- ④ Diminishing Marginal Productivity :- Macro economics is that as more and more units of labour are employed, their marginal productivity goes on diminishing.

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- ⑤ Labour is the only variable factor of production:- Macro economics assumes that labour alone is a variable factor of production in the short period. It means production increases when the number of labourers are increased.

$$P = f(N)$$

- ⑥ No Time lag:- Macro economics assumes that adjustment among different economic variables takes place without any time lag. For example the consumption expenditure of Monday depends the income of Monday or that present consumption is based upon present income.

- ⑦ Under Employment Equilibrium:- Macro economics assumes that position of equilibrium ($AD = AS$) is also possible in case of under employment. This equility is possible both under the condition of full employment and under employment.

- ⑧ Saving and Investment function:- Macro economics is based on the assumption that savings depend on income, that is $S = f(Y)$. on the other hand, investment depends upon the rate of interest, that is $I = f(r)$.

c- Salient Features:-

The salient features of macro economics are as under:-

- ① The short run nature of macro economics:- Macro economics is a short run study. In short run period production can not be increased by installing new plants or new machines or by changing the techniques of production.
- ② Study of the whole economy:- Macro economic analysis is a study of the economy as a whole. It deals mainly with national income, national output, aggregate consumption, aggregate investment etc.
- ③ Macro Economics - A systematised and comprehensive body of thought of all conditions of inflation and deflation, boom and depression, full employment and under employment.

- ④ Macro Economics - mainly institutional :- Another feature of macro economics is that it is institutional in nature. We can not understand its real nature unless we examine such economic factors as rate of interest, savings, investment, supply of money and psychological and institutional factors influencing propensity to consume.
- ⑤ The crucial role of Investment :- In macro economics, a very important role is assigned to investment. Change in employment depends on change in effective demand. Effective demand depends on consumption demand and investment demand. In short run consumption does not increase in same proportion as the increase in income. So effective demand is decreased and create unemployment. To fill this gap and to raise the employment it becomes necessary to increase investment.
- ⑥ Role of consumption :- Consumption expenditure and psychological law of consumption are of great importance in macro economics. In determining the level of employment the role of consumption is no less important than that of production. It is consumption that gives rise to demand and hence to production.
- ⑦ Role of National Income :- Macro economics has given greater importance to the study of national income. According to Keynes, without the help of national income, problems of national output and employment can not be solved.

D - Limitation of Macro Economics :-
main limitation of macro economics are as under :-

- ① Dependence on Individual units :- Several conclusions of macro economics are based on the sum total of individual units. In fact it is not correct, because what is true for individuals may not necessarily be true for the whole economy. For instance an individual may save in terms of money but everybody start saving, the aggregate demand fall causing reduction in national income.
- ② Heterogeneous Units :- Under macro economics, heterogeneous units are studied. It is not possible to express these units in uniform numbers as homogeneous units.

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Prof Boulding has illustrated this point as follows -

6 apples + 7 apples = 13 apples (Meaningful aggregate)

6 apples + 7 orange = 13 Fruits (Meaningful aggregate)

6 apples + 7 Houses = 13. (It is meaningless aggregate)

③ Different Effects of aggregate:- Another difficulty in the study of macro economics is that it does not study the different effects of an aggregate on different sectors of an economy. For instance rise price level benefits the traders and industrialists but the wage earners are the losers.

④ Limited Application:- Another limitation of macro economics is that most of the models relating to it have only theoretical significance. They have very little use in practical life.

Circular Flow of National Income

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Meaning :- We know national income is a flow. Every year a large number of goods and services is produced by the firms with the help of different factors of production. Firms or producers buy the services of these factors. In return for the factor services firms pay rewards either in cash or kind. The reward that the factors get in terms of money from the firms is used by them in buying goods from these very firms. Thus there is a flow of monetary income from the factors to the firms and goods and services from the firms to the factors.

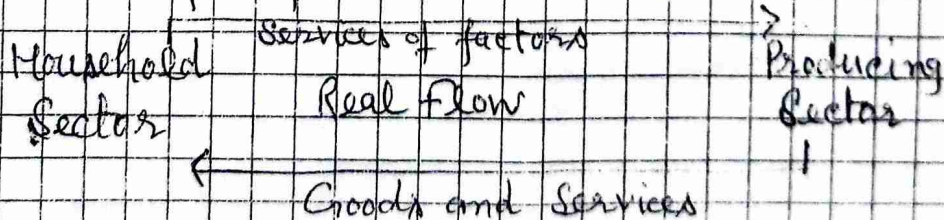
From the point of view of an economy, income of one person is expenditure of another. In other words national income and national expenditure are always equal. An economy is divided into four sectors -

① Household sector ② Producing sector ③ Government sector ④ Foreign Sector. There is mutual flow of national income among these sectors in the form of income and expenditure. For instance, expenditure of household sector become income of producing sector and expenditure of producing sector become income of household sector. It is called circular flow of income because it has no end.

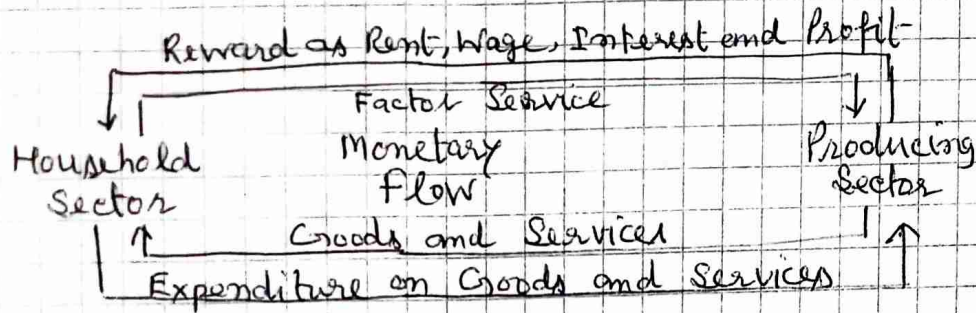
Circular flow of income can be viewed from two different angles -

① Real flow of Income ② Monetary flow of Income.

① Real flow of Income :- Real flow of income implies the flow of factor services from the household sector to the producing sector and the corresponding flow of goods and services from the producing sector to the household sector. In figure illustrate the real flow of income.



- ② Monetary flow of Income:- Monetary flow refers to the flow of factor income, viz rent, interest, profit and wages from the producing sector to the household sector as rewards for their factor services. The household spend their incomes on the goods and services produced by the producing sector. Accordingly money flows back to the producing sector as household expenditure. The following figure explain the monetary flow.

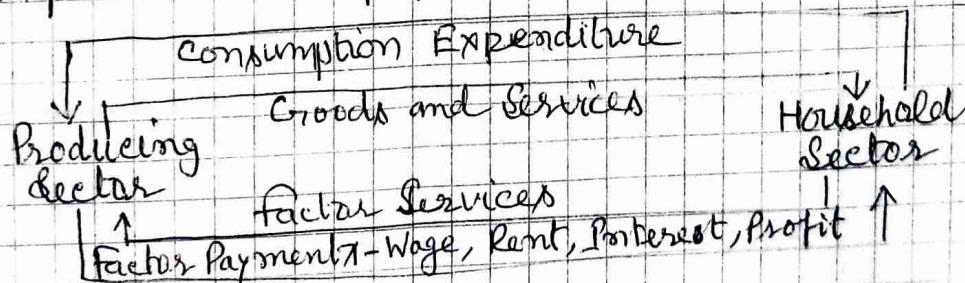


Circular flow of income in different Sectors:- In order to facilitate study circular flow of income is analysed under three different situations based on certain simplifying assumptions.

- ① Two Sector Model:- Under this model circular flow of income between two sector of the economy i.e. household and producing sector is studied.

Assumptions:- ① It is assumed that there only two sectors in the economy. Producers sector provide the goods and services to Household and Household sector provide factor services to producing sector. ② Government has no influence over the economic activities. ③ It is a closed economy.

On the basis of above assumptions, circular flow of income is explained with help of the following diagram.

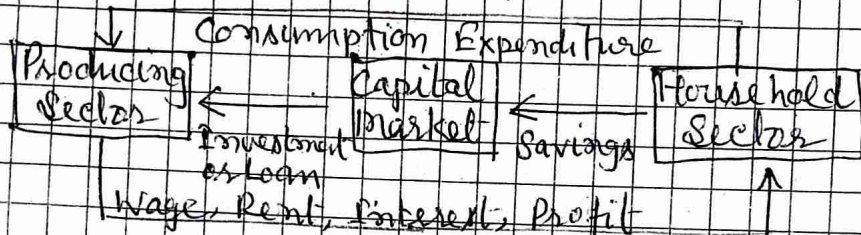


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Saving and Investment in the economy:-

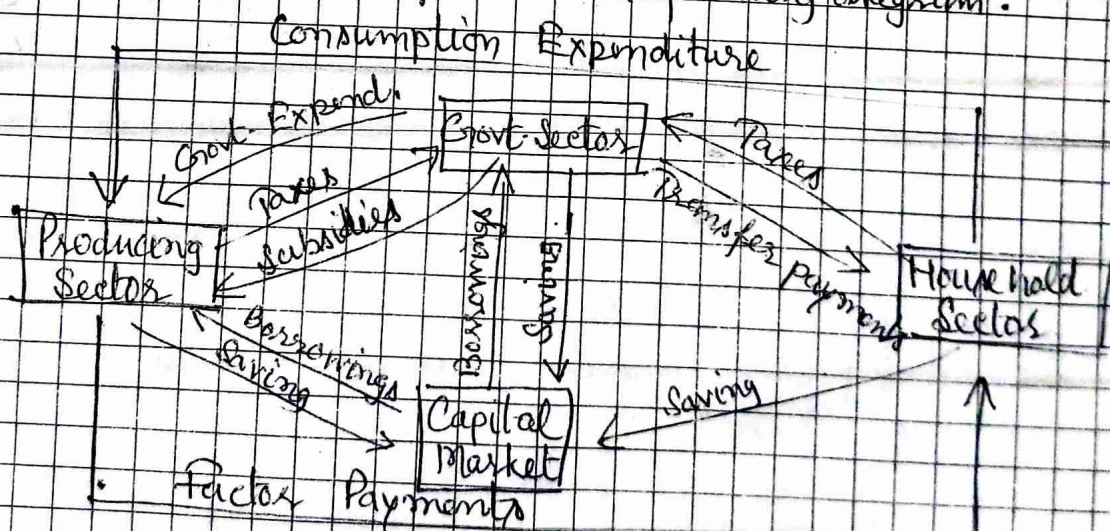
In reality, the household sector does not spend all its income, rather it saves a part of it. Consequently, the total income of household sector will not reach the producing sector in the form of consumption expenditure. The firms can produce capital goods which will be bought and sold among them. Expenditure on the purchase of capital goods is called Investment expenditure. If the investment of producing sector is equal to saving of household sector then the economy will be once again in equilibrium $I = S$.



② Three sectoral model:- This model is more close to reality.

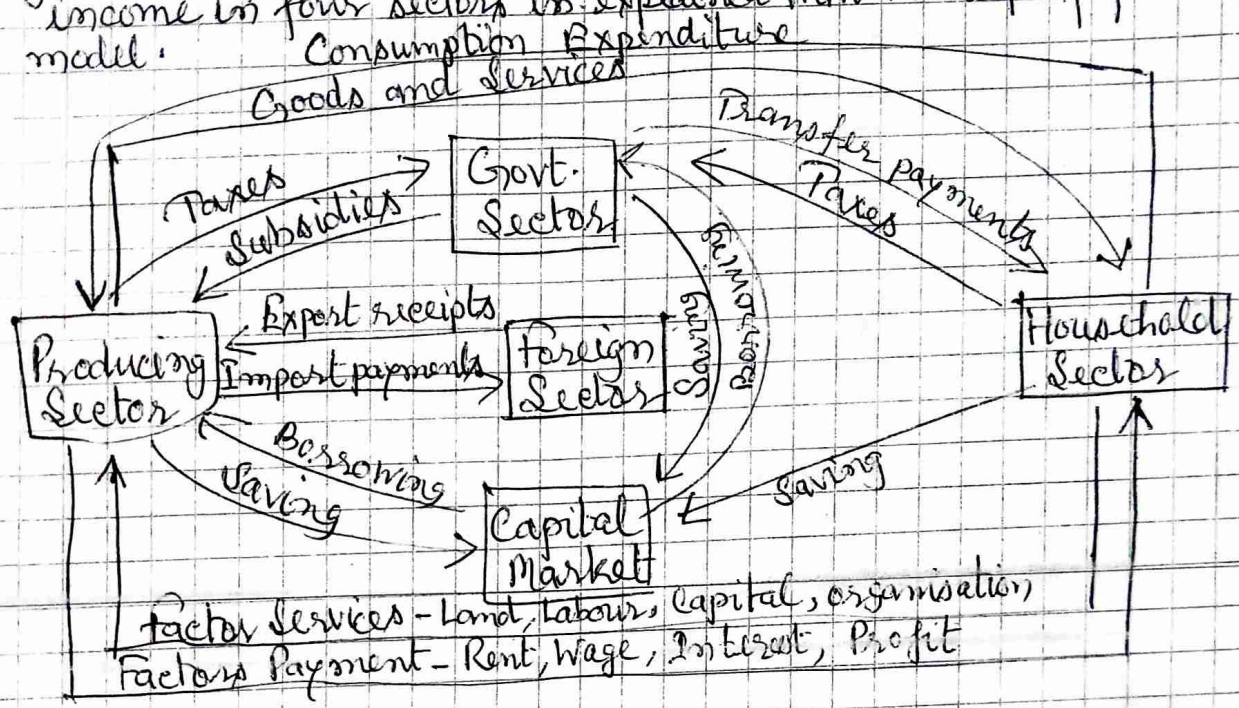
In this model economic activities of the government have also been accounted for. And we also assume that economy is a closed economy, no involvement of foreign sector at all.

Income flows from producing and household sector to the government sector in the form of taxes. Flow of income from the government sector to the producing sector in the form of government expenditure on goods and services. The government also gives subsidies to the producing sector and transfer payment to the household sector. In this three sector model of circular flow of income is explained with following diagram.



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③ Four Sectoral Model:- It is complete model of circular flow of income. It studies the circular flow in an open economy. An open economy comprises of four sectors - household, producing, government and rest world of the sector. Circular flow of income in four sectors is explained with the help of following model:



National Income

Meaning:- National Income refers to the aggregate of factor income earned by the normal residents of a nation during a given period as a result of their productive services.

According to Shapire, "National income is the sum of wages, rent, interest and profit or the sum of the earnings of the factors of production."

Concept of National Income:-

① Domestic territory of a country:- By the point of view of National income account the term domestic territory is used in a broad sense, it includes the following-

- (i) Political boundaries including sea-shore of a country.
- (ii) Ship and aeroplanes owned by the residents of a country and operating between two or more countries.
- (iii) Fishing boats of a country's fishermen and ships engaged in the exploration of oil and natural gas in the international waters.
- (iv) Embassies and other military bases in other countries. etc.

② Normal Resident of a country:- Following points must be taken into account in this respect:-

- (i) Normal residents refers not only to individuals but to institutions also.
- (ii) A person who is citizen of a country or may be citizen of another, but residing more than a year and doing some job.

(iii) Person's who are employed in international organisation (like as IMF and WHO.) and living in the country for more than a year are deemed as its normal residents.

- (iv) Local citizens of a country working in the embassies.

③ Depreciation or consumption of fixed capital:-

During the course of production process fixed capital

like machines suffers wear and tear and obsolescence. Consequently, there is fall in its value. Technically this fall in value is called depreciation.

During the process of production, capital goods such as machines, building and equipments suffer wear and tear and hence fall in value.

Obsolescence means loss of value of fixed capital assets due to change in techniques of production or due to change in demand for goods and services produced.

On many occasions, the capital goods are damaged. It causes a fall in their value. This loss of value is called normal rate of accidental damages.

④ Gross Versus Net concepts:- The basis of difference between gross and net national or domestic product or income is depreciation or consumption of fixed capital.

⑤ Net Indirect taxes:- Net indirect taxes is the difference between indirect taxes and subsidies.

$$NIT = \text{Indirect taxes} - \text{Subsidies}.$$

⑥ Subsidies:- Subsidies are monetary help by the govt. to the producers with a view to encourage the production of certain commodities.

⑦ Market price Versus factor cost:- The market price is the total price, paid in the market to buy goods and services. It includes the price of the goods and net indirect taxes. Contrary to it the factor cost of goods and services is the payment made to the factors used in their production or factor income or cost of production. The basis of the difference between the concept of market price and factor cost is net indirect taxes.

$$\text{Factor Cost} = \text{Market Price} - \text{Net Indirect taxes}.$$

$$\text{Market Price} = \text{Factor cost} + \text{Net Indirect taxes}.$$

- ⑨ Net Factor Income from Abroad:- NFIA is the difference between factor income earned from abroad by the normal residents of a country and income paid for the factor services rendered by non-residents within the domestic territory of the country.

$$NFIA = \text{factor income from abroad by the normal residents} - \text{factor income of non-residents in the domestic territory.}$$

- ⑩ National Versus Domestic:- The concept domestic is narrow concept in comparison to the concept national. Basis of difference between national and domestic is Net factor Income from abroad.

$$NP = \text{Domestic Product} + \text{NFI from abroad.}$$

$$DP = \text{National Product} - \text{NFI from abroad.}$$

- ⑪ Social Security Contributions:- Social security contributions refer to all those contributions made by the employers on behalf of their employees in the form of provident fund, gratuity, unemployment insurance, sickness benefits etc.

- ⑫ Factor Income and Transfer Income:- Factor income is the income of factor owners received from producing sectors in exchange for the productive services rendered by factors of production. Transfer income or payments, the individuals and households in an economy get some payments without rendering factor services from the government like as old age pensions, scholarships.

Different Aggregates of National Income or Product:- The following are some important aggregate of national income -

① Gross Domestic Product_{mp}:- G.D.P_{mp} of the final goods and services produced within the domestic territory during one year. So $G.D.P_{mp} = P \times Q$

The some features of G.D.P_{mp} are, ① The word gross along with domestic product indicates that we are calculating domestic product inclusive of the depreciation.

② It includes the final value of good and services produced in an accounting year. ③ The price of goods and services refers to the prevailing price or current price.

④ G.D.P includes only new goods and services not second hand. ⑤ G.D.P generally includes those goods which come to the market for sale. ⑥ G.D.P does not include transfer payments, capital goods and income earned through illegal means.

② Gross National Product_{atmp}:- G.N.P_{mp} is a broader concept than G.D.P. G.N.P_{mp} is the sum of G.D.P and net factor income from abroad.

$$G.N.P_{mp} = G.D.P_{mp} + \text{Net income from abroad.}$$

Difference between G.D.P_{mp} and G.N.P_{mp}:- The following are main difference between G.D.P_{mp} and G.N.P_{mp} are:-

① The concept of G.N.P is wider concept than G.D.P. In addition to G.D.P, it also includes net factor income from abroad. ② G.D.P is concerned with some specific territory of production. G.N.P can take place in any part of the world, where normal residents of the concerned country work. ③ We add up net factor income from

broad to domestic product to obtain Nation product.

- ② If net factor income from abroad is positive, national product would be greater than domestic product. On the other hand if NFIA is negative then GDP is greater than GNP.

- ③ Net National Product at market price:- The concept of NNP_{mp} is more practical than that of GDP. It is the difference between GDP_{mp} and consumption of fixed capital or depreciation.

$$NNP_{mp} = GDP_{mp} - \text{Depreciation}$$

In the word of Peterson, "The NNP_{mp} is the market value of the net output of final goods and services produced by an economy during an accounting year and net factor income from abroad."

- ④ Net Domestic Product $_{mp}$:- NDP_{mp} is the difference between market value of final goods and services produced in the domestic territory of a country during an accounting year and consumption of fixed capital or depreciation.

$$NDP_{mp} = GDP_{mp} - \text{Depreciation}$$

or

$$NDP_{mp} = NNP_{mp} \pm \text{Net Factorial Income from abroad}$$

- ⑤ Net domestic income or Net Domestic Product at factor cost:- In every economy, the production in accounting year is the result of the co-operative efforts of owners of land, labour, capital and enterprise. The payment made to these factors for their contribution in the production process is called factor cost and the result of production is called product at factor cost. On the one hand, the factor cost is the cost for the firms, while on the other hand, it is the income for the factor.

The main constituents of net domestic at factor cost or net domestic income are ① compensation of employees ② Operating surplus and ③ mixed income.

Compensation of employees :- Wages in cash and kind + contribution of employers to social security on behalf of the employees + pension to retired employees.

Mixed income of the self employed :- Rent + Interest + Profit (Dividend + Corporation tax + Saving of corporations).

Difference between Net domestic at factor cost and Net Domestic product at market price :-

The main difference between NDP_{fc} and NDP_{mp} is that, the NDP_{fc} is the measure of the income received by the factors of production. The NDP_{mp} is the measure of market value of production. It is due to this fact that indirect taxes are not included in NDP_{fc} because they are paid to the government and not received by the factors.

They are included in the market price and result in its increase. Contrary to it the subsidies are received by the factors and not included in the market price. It results in a fall in the market price. So

$$NDP_{fc} = NDP_{mp} - \text{Indirect taxes} + \text{Subsidies}$$

or

$$NDP_{fc} = NDP_{mp} - \text{Net Indirect taxes}.$$

$$\text{Net Indirect taxes} = \text{Indirect taxes} - \text{subsidies}.$$

⑥ Gross Domestic product at factor cost or

Gross Domestic Income :- GDP_{fc} or GDI is the sum total of the compensation of employees, operating surplus and mixed ^{income} earning by the factors of production in an accounting year and depreciation or consumption

- ⑧ Gross National Product at factor cost or Gross National Income :- The GNP_{FC} is also called GNI . GNP_{FC} is the sum total of compensation of employees, operating surplus, mixed income, depreciation and factor income from abroad. So

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

$$GNP_{FC} = GNP_{mp} - \text{Net indirect taxes.}$$

- ⑨ Income from Net Domestic Product Accruing to Private sector :- There are two sectors in every economy. ① Private sector :- It includes all corporate and unincorporated owned and controlled by the private individuals. ② Public sector :- It includes administrative departments, departmental enterprises and non-departmental enterprises of the government. Income from net domestic product accruing to private sector is income earned by the private sector. So, factor income from Net domestic product accruing to the private sector = Net domestic product at factor cost - Income from property and entrepreneurship accruing to the government - Saving of non-departmental enterprises.

- ⑩ Private Income :- Private income is the income of the private sector obtained from any sources productive or otherwise, and the retained income of the corporations. Private income includes income from domestic product accruing to the private sector, transfer earnings, undistributed profit and net factor income from abroad. So, private income = Income from domestic product accruing to the private sector + NFIA + Net transfer payment from the govt. + Transfer payment from the rest of the world + Interest on National debt.

of fixed capital. So $GDP_{FC} = NDP_{FC} + \text{Depreciation}$.

Difference between Gross domestic Product at factor cost and Gross domestic Product at market price:- The main difference between GDP_{FC} and GDP_{MP} is that GDP_{FC} includes all the elements of GDP_{MP} except indirect taxes.

$$GDP_{FC} = GDP_{MP} - \text{Net indirect taxes}$$

$$(\text{Net indirect taxes} = \text{Indirect taxes} - \text{Subsidies})$$

⑦ Net National Product at factor cost or National Income:- NNP_{FC} is total earning of all factors, in the form of wages, rent, profit and interest and net factor income from abroad. This is also called National Income. In other words, NNP_{FC} is the sum total of NDP_{FC} and net factor income from abroad.

$$NNP_{FC} = NDP_{FC} - \text{Net factor income from abroad.}$$

Difference between National Product at factor cost and market price:- While calculating national product at factor cost, only those payments are included which are made to factors of production as rewards of their factor services viz, wages, rent, interest and profit. On the other hand, while calculating national product at the market price, market value of the final goods and services produced in a year is determined. The two calculations may and may not be equal and generally they are not. The market price include indirect taxes, while indirect taxes excluded from factor cost.

$$NNP_{FC} = NNP_{MP} + \text{Net indirect taxes.}$$

$$NNP_{MP} = NNP_{FC} + \text{Net indirect taxes.}$$

Difference between National Income and Private Income:-

The following are the difference between national income and private income. ① National income includes income earned both in the public and private sectors and private income includes only the income earned in the private sector. ② National income includes only factor income earned, but the private income includes both the income earned as well as current transfer payments from the government and rest of the world. ③ Interest on national debt is not included in national income but it is included in private income.

⑪ Personal Income:- Personal income is the total of all current income received by households from all sources. It is, in fact, the sum total of all types of factor income actually received by the households and current transfer payments.

$$\text{Personal Income} = \text{Private income} - \text{Savings of private enterprises} - \text{Corporation taxes.}$$

⑫ Disposable Income:- DI is the personal income minus personal income taxes and personal property taxes and miscellaneous receipts of the govt. (fees and fines). Disposable income is the part of personal income which the households can spend the way they like. Disposable income shows purchasing power of the households. DI is either spent or saved.

$$\text{Disposable Income} = \text{Consumption} + \text{Saving}$$

$$\text{DI} = \text{Personal income} - \text{Direct taxes (Income and property tax)} - \text{Miscellaneous receipts of the govt administrative departments (fees and fines).}$$

Estimation or Measurement of National Income :-

National Income of a country can be measured at three different levels ① Income level ② Production level

③ Expenditure level.

① Income level Method :- Income method is that method which measures national income from the side of payments made in the form of wages, rent, interest and profit to the primary factors of production i.e. land, labour, capital and enterprise respectively for their productive services in an accounting year. It is also known as distributed share method or factor payment method.

Measurement of National Income using Income method involves the following steps :-

① Identification of Producing Enterprises :- The first step of this method involves identifying all those producing enterprises which employ factor inputs. All the producing enterprises are classified broadly in the three sectors

Primary sector, Secondary sector and Tertiary sector

In practice, these three sectors are further divided into 14 sub sectors.

② Classification of factor Income :- The factor income is divided into the following groups.

(i) Compensation of Employees :- It includes wages and salaries in cash, payment in kind, Employers contribution to social security schemes and Pension on retirement.

(ii) Operating Surplus :- The operating surplus includes income from property and entrepreneurship like as Rent, Interest and Profit (Dividend + Corporation tax + saving of enterprises and undistributed profit).

(iii) Mixed Income :- Mixed income refers to the incomes of the self employed persons using their labour, land, capital

and entrepreneurship.

(v) Net factor Income from abroad :- The net factor income from abroad is the difference between the income received from abroad for rendering factor services, and the income paid for the factor services rendered by non-residents in the domestic territory of a country.

② Estimation of factor Income :- Income paid out by each producing enterprise can be measured by multiplying the number of units of each input employed and income paid to each unit. The resultant will be the income generated by the enterprise. Income generated by all the enterprises in a particular industrial sector can be found out by adding the incomes paid out by each enterprises. By adding the incomes paid out by all the industrial sectors we get net domestic income.

② Product level Method :- Product method is that method which measures the national income by estimating the contribution of each producing enterprises in the domestic territory of the country in an accounting year. It is also known as Value added method or Net output method.

① Identification of productive enterprises :- The first step in product method involves the identification and classification of producing enterprises. All the producing enterprises are classified into three categories - Primary sector, secondary sector and Tertiary sector. In practice, these three sectors are further divided into 14 sub sectors.

② Classification of output :- The national output is classified into different categories - Production of consumer goods and services, production of capital goods or gross private domestic investment and production by the government.

③ Measurement of Value output :- There are two methods for the measurement of the value of output

(i) Final output method (ii) Value Added Method.

(i) Final Output Method :- It involves the estimation of following items -

= Value of output :- The value of output is estimated by multiplying the volume of physical output of each producing enterprises with the appropriate market price.

= Value of Intermediate consumption :- The value of intermediate consumption is estimated using the price paid by the enterprises for the purchase of intermediate goods and services.

= Consumption of fixed capital or depreciation :- The consumption of fixed capital or depreciation is estimated according to existing rules and regulations.

The following types of output are included in the estimation of gross domestic product from this method -

" Production of consumption goods :- It includes the production in the current year of final consumer non-durable goods like milk, butter etc., consumer durable goods like TV and car, value of services, the value of second hand goods and illegal production is not included in it.

" Production of capital goods or gross private domestic investment.

" Goods and services produced by the government.

Problem of double Counting :- While estimating national income by using final output method, the value of only final goods and services is taken into consideration. As far as enterprise is concerned, its sales are treated as final sales as sales of final goods and services. For example, a farmer produces one ton of wheat and sell it for Rs. 400 in the market to

flour mill. The flour mill convert the wheat into flour and sells it for Rs. 600 to a baker. Baker uses it as an intermediate goods and produced bread. And baker sells bread to the shopkeeper for Rs. 800. And in last shopkeeper sells the entire bread to final consumer for Rs. 900. As far as concerned the farmer wheat is the final good, flour is the final good of flour owner, bread is the final good of baker and bread sells by the shopkeeper as the final good for consumer. Thus -

$$\text{Value of output} = \text{Rs. } 400 + \text{Rs. } 600 + \text{Rs. } 800 + \text{Rs. } 900 = \text{Rs. } 2700.$$

So the national income by the product method using final output method is Rs. 2700/=-

Because the value of wheat is counted four times, the value of flour thrice and the value of bread twice. In the other word the value of wheat, flour, bread has been counted more than one. So the counting of the value of the commodity more than ones is called double counting.

In order to avoid the problem double counting, we have another technique of measuring national income. This is the Value added techniques discussed as under:-

(ii) Value Added Method :- Value added is another technique of product method of measuring national income. According to this technique, national income is the sum total of value added by different producing units of a country in the process of production. Values of following parameters need to be estimated here - ① Value of output ② Value of intermediate consumption and ③ Consumption of fixed capital.

Net value added by all the producing units across three sectors of the economy is added up to obtain net domestic product at market price.

The following table illustrates the concept of value added.

Stage of Production	Selling Price (Rs.)	Cost of Material Used (Rs.)	Value Added
Wheat	0.50	-	0.50
Maida	1.00	0.50	0.50
Bread	2.00	1.00	1.00
Total	3.50	1.50	2.00

From the above table the total value added till the production of final good viz bread is $\text{Rs. } 0.50 + \text{Rs. } 0.50 + \text{Rs. } 1.00 = \text{Rs. } 2.00$. In case the selling price of all the three producers is added it would amount to $\text{Rs. } 0.50 + \text{Rs. } 1.00 + \text{Rs. } 2.00 = \text{Rs. } 3.50$. It is on account of double counting of selling price of wheat and maida. To avoid the mistake of double counting value added approach is adopted.

③ Expenditure Method:- The third method of measuring National Income is expenditure method. This is also called Income disposal method or consumption and investment method. Expenditure method is the method which measures the final expenditure on gross domestic product at market price during an accounting year. This total final expenditure is equal to the gross domestic product at market price.

The expenditure method involves the following steps.

① Identification of Economic units incurring final expenditure:-

- All the economic units which incur final expenditure in the domestic territory of a country are broadly classified in Household sector, Producer sector and Government sector and Rest of the world sector.

② Classification of final expenditure:-

(i) Private final consumption expenditure:- Private final consumption expenditure involves the volume of

final sale of the durable goods, semi durable goods, non-durable goods, and services to the consumer household and non-profit institutions

(ii) Goverment final consumption Expenditure:- To measure goverment final consumption expenditure,

1- The total volume of sales to the goverment by the enterprises is multiplied by retail price 2- compensation of employees is added to it 3- purchases from abroad is also added.

(iii) Production for self consumption:- The volume of production for self consumption has to be multiplied with the prices prevailing in the neighbourhood market of the producer. The imputed rent of owners occupied houses is also included in it.

(iv) Expenditure on construction:- The volume of material inputs like steel, cement, bricks and labours is multiplied by the price and paid by the builders.

(v) The final expenditure on machinery and equipment is also included in it.

(vi) The Expenditure on change in stock:- The change in stocks is measured by multiplying the volume of physical change with the market price of the stock.

(vii) Net Exports:- Finally the value of net-exports (Export - Import) is calculated.

Trade Cycles

Meaning:- Every country witnesses boom and depression periodically. These change of boom and depression are cyclical in form. Hence, these are called trade or trade cycles.

Definition:-

- ① "A trade cycle is composed of periods of good trade characterised by rising price and low unemployment percentage alternating with periods of bad trade characterised by falling prices and high unemployment percentage." 'Keynes'
- ② "Trade cycles are alternations of prosperity and depression." 'Arnold Murray'

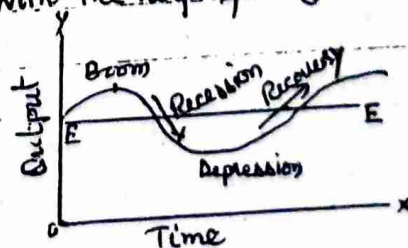
Types of Trade Cycles:- Prof. Schumpeter has divided trade cycles into three types.

- ① Major Cycles:- These are the duration of 8 to 12 years. They were first explained by French economist Juglar. Hence they are called Juglar cycles.
- ② Minor cycles:- Duration of these cycles is from 2 to 5 years. They were first mentioned by an English economist Kitchen. Hence, they are called kitchen cycles. A major cycle comprises many minor cycles.
- ③ Very long Cycles:- These are prolonged cycles with their duration ranging from 50 to 60 years. These were first referred to by Russian Economist Kondratieff. Hence, they are called Kondratieff Cycles. A very long cycles may contain in itself many major and minor cycles.

Phases of trade cycles:- According Prof. Schumpeter a trade cycle can have four phases - ① Expansion or Boom

② Recession ③ Depression or Contraction ④ Recovery. The different phase or stages of trade cycle describe with the help of diagram.

① Expansion or Boom:- This phase of trade cycle represents the best stage of



prosperity. The objective of the national economic policy of each country is to attain this stage. The main characteristics of this stage are Income or production is the maximum, The economy reaches full employment by removing unemployment, Price rise very high, Traders earn huge profits, There is expansion in bank credit, All kind of investment increases, Increase in consumption expenditure, All traders or entrepreneurs become optimists.

② Recession :- Under the phase of prosperity, the entrepreneurs make investment in certain ventures which do not prove to be profitable. Their optimism gives way to pessimism. Investment shows signs of decline, many enterprises are closed down. The main features of this phase are as - fall in income and output, workers are rendered unemployment, Prices begin to fall, wages fall, profits fall, no borrowing despite fall in the rate of interest, contraction of bank credit, fall in investment and reverse action of multipliers, demand of the consumer goods fall, There sharp decline in the stock of goods, there is feeling of doubt and fear among the people.

③ Depression or Contraction :- Once the process of recession starts it becomes almost difficult to stop the rot. Consequently, economic activities are faced with depression or contraction. Level of output and employment is extremely low. Thus, under depression all economic factors like income, output, employment, prices, profit, interest, wages, demand etc. have a tendency to contract.

④ Recovery :- It is worth noting that depression phase cannot last for ever. During the phase of depression the entrepreneurs do not even replace machines and other capital goods, production falls considerably. Stocks of goods are at their lowest. Need for replacement of machines becomes so imperative that the entrepreneurs are obliged to buy new machines to replace old. As a result more demand for capital goods. And interaction of multipliers and accelerator comes in to play and there is increase in income, output, employment, prices, investment, loan advances, etc. Thus, the economy gradually move from depression to recovery.

Aggregate Demand - Aggregate Supply and Macro Economic Equilibrium:

The concept of Macro Economic Equilibrium refers that situation where the aggregate demand and aggregate supply is equal in any economy and also that point is called Effective Demand. Effective demand is, therefore, is that level of aggregate demand at which it is equal to aggregate supply. According to Keynes, theory of employment, level of employment depends on that level of aggregate demand at which it is equal to aggregate supply.

In the word of Lord Keynes, "The value of aggregate demand at the point of aggregate demand function where it is intersected to aggregate supply function will be called the effective demand."

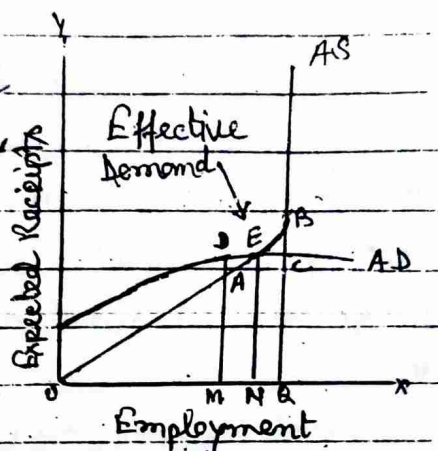
Explanation :- The concept of effective demand tells that like other economic factors, level of employment is also determined by demand and supply. Aggregate demand of an economy tells as to how much money is expected to be received by all the entrepreneurs by selling the output produced at different level of output. In other word, aggregate demand represents aggregate expenditure. On the other hand aggregate supply tells as to how much money must be received by all the entrepreneurs of an economy by selling their output produced at different level of output. In other words, aggregate supply or aggregate income represents aggregate production cost. When entrepreneurs make more investment there is ~~an~~ increased in aggregate supply.

Increase in aggregate supply leads to increase in the volume of employment. Increased volume of employment leads to increase in aggregate demand. With increase in effective demand there is increase both in aggregate demand and aggregate supply. Hence level of employment also increased. On the contrary, with fall in

effective demand there is fall both aggregate demand and aggregate supply. Consequently, level of employment also falls.

The explanation of effective demand can be describe with help of a diagram.

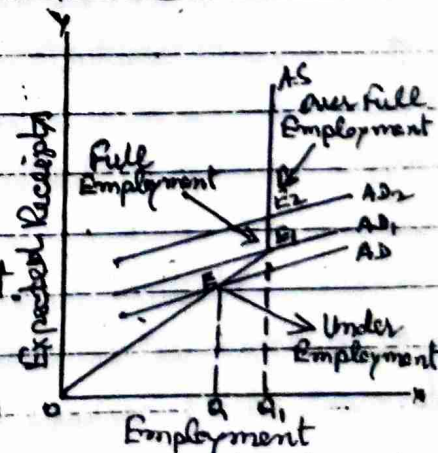
In the diagram AD is aggregate demand curve and AS is the aggregate supply curve. Both AD and AS curve intersects with each other at point E . At equilibrium point E the aggregate demand and aggregate supply is equal ($AD=AS$) and ON number of labourers will get employment. Before the equilibrium



point E the $AD > AS$, therefore the producer increase their production and level of employment increased. If the entrepreneur employ more than ON labour i.e. OA labourers, then $AD < AS$. In this case the entrepreneurs will not be able to sell all their output. In short level of employment, according to Keynes is determined by level of effective demand.

Equilibrium Not Necessarily at Full Employment:-

It is clear that at equilibrium point where $AD = AS$, it does not mean that full employment is necessary under equilibrium situation. As a matter of fact, equilibrium can be possible even in case of under employment. In figure AS is Aggregate supply curve and AD , AD_1 and AD_2 are different aggregate demand curve. When AD intersects the AS at point E it signifies under employment equilibrium and economy achieve OQ level of employment.



Economy will have full employment only when OQ_1 number of labourers get employment.

It can happen only when aggregate demand (AD_1) increases and intersect AS at point E_1 corresponding to full employment level. If demand curve rises to AD_2 the new equilibrium point E_2 will indicate over full employment equilibrium.

Consumption function

The amount of money that people spend out of national income on the purchase of goods and services for the direct satisfaction of their wants is called aggregate consumption expenditure and consumption. Keynes therefore held the opinion that total consumption expenditure of an economy mainly depends on income, as it can be said that consumption is a function of income as $C = f(Y)$.

Cyclical and Secular Consumption function :-

Psychological law of consumption says that when income increases consumption also increases but by less than the increase in income. It means that increase in income is followed by decrease in marginal and average propensity to consume. With a view to verifying the veracity of this law, the economists have compiled short term and long term statistical data relating to income and consumption. On the basis of factual data they concluded that this concept is valid in the short run but has little relevance in the long run.

In other words in the long run, increase in income does not lead to fall in marginal and average propensity to consume. It remains constant in the long run. In order to know the real nature of propensity to consume, we must study both short-run and long run consumption function.

① Cyclical or Short run consumption function :-

Keynes had propounded only short run consumption function. According to him following relations are found between income and consumption in the short period.

① No proportional relation between consumption and income :-

Keynes believed that change consumption is not in the same proportion as change in income. Upto a limit, consumption expenditure is more than income. After that limit, consumption expenditure

become equal to income and subsequent to that as income goes on increasing consumption expenditure goes on diminishing. It can be expressed in terms of the following equation -

$$C = C_0 + bY$$

(Here C - Consumption, C_0 - autonomous consumption, b - MPC and Y - Income)

Suppose, $C_0 = \text{Rs. } 100 \text{ Cr.}$, $b = 0.5$ and $Y = \text{Rs. } 100 \text{ Cr.}$

$$C = 100 + 0.5 \times 100 = 100 + 50 = \text{Rs. } 150 \text{ Cr.}$$

If income increased four times $\text{Rs. } 400 \text{ Cr.}$ then

$$C = 100 + 0.5 \times 400 = 100 + 200 = \text{Rs. } 300 \text{ Cr.}$$

It means increase in consumption is less than proportionate increase in income.

(ii) Declining MPC and APC :- Second feature of consumption function is that as income increases MPC and APC go on declining.

(iii) APC is greater than MPC in short run consumption function.

Many economists like, Tobin, Smithies etc. compiled statistics regarding income and consumption pertaining to a short period ranging from 1929 to 1940. These statistics confirmed Keynes' concept that short run consumption function is non-proportional.

⑤ Secular or Long run Consumption function :- Relationship between income and consumption over a period of about 100 years or more is called long run or secular consumption function. Prof. Kuznets, Goldsmith, Duesenberry, Friedman etc. concluded on the basis of long run statistics of income and consumption that in the long run there is a proportional relation between income and consumption. Secular consumption function has the following features.

(i) Proportional relation between C and Y :- In the long run there is a proportional relationship between consumption and income. In the long run consumption changes in the same

proportion as change in income. It can be expressed in the form of an equation as under :- $C = by$

(Here, C = consumption, b = MPC, y = Income)

It there is no autonomous consumption (C_0) in the long run. There is a constant relationship between consumption and income and it is governed by MPC or by the value of b .

Supposing: $b = 0.5$ and $Y = Rs. 100 Cr.$

$$C = 0.5 \times 100 Cr = Rs. 50 Cr.$$

If increases 4 times then ($C = 0.5 \times 400 = Rs. 200 Cr.$)

then consumption will also increase in the same proportion.

(ii) In long run APC and MPC remains constant. There is no fall in them when income increases.

(iii) In long run APC and MPC are equal.

Theories of Consumption function :-

According to the Simon Kuznets and others regarding short-run and long run consumption function reveals that short run consumption function is non-proportional while long run consumption functional is proportional. There is a controversy among the Keynesians and post Keynesian economists regarding the following points concerning the true nature of consumption function.

(i) Whether consumption function is basically non-proportional or not. (ii) If the consumption function basically proportional, why is it non-proportional in the long run. (iii) If the consumption function is basically proportional, why is it non-proportional in the short run.

The different theories propounded to answer the above questions may be classified in three broad categories -

- (i) Absolute Income Hypothesis
- (ii) Relative Income Hypothesis.
- (iii) Permanent Income Hypothesis.

① Absolute Income Hypothesis :-

The absolute income hypothesis is based on Keynesian concept of consumption function. It regards that current consumption is a non-proportional function of current income. The current income is the absolute income. Absolute income hypothesis states that individual consumer's spending depends on the absolute level of income his income. The absolute level of income implies that if the income of each household should rise in the next higher income bracket, its expected consumption will be absolutely the same, as the level of consumption of a family that previously occupied that bracket.

Characteristics of absolute income hypothesis :- The main characteristics are as following :-

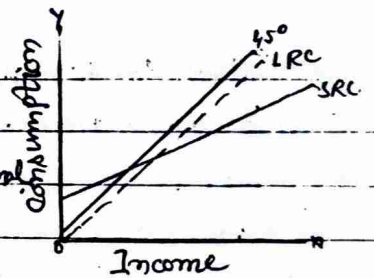
- ① Consumption is a stable function of income.
- ② The MPC is positive but less than one. And MPC also less in short run than long run.
- ③ It has not taken into account of windfall gains and losses and how it affects consumption.
- ④ In the long run a small proportion of income will be consumed as income increases and hence $MPC < APC$.
- ⑤ Change in the stock of wealth of household will directly affect their level of consumption.

Reconciliation of Short run and long run consumption function :-

The absolute income hypothesis indicates a non-proportional relationship between consumption and income but according to Prof. Kuznet's that the APC in the long run was fairly constant. So that long run MPC equals to long run APC.

In short run non-proportional relation and proportional relation in long run explained through a diagram.

In figure that long run consumption LRC function is proportional to 45° or 45° line. On the other hand, short run consumption SRC is non-proportional



Theoretical reconciliation of the long-run and short-run consumption function :- Arthur Smithies suggested that consumption drifts upwards overtime, due to change in factors other than income. So the several factors other than income could be responsible in the upward drift in the consumption function.

- ① Rural-urban migration of population from rural to urban areas has contributed to an upward shift in the consumption function.
- ② Redistribution of Income also one of the another factor in the upward drift of the consumption function.
- ③ The increase in the number of children, young families and old persons tends to increase consumption function.
- ④ New product and product improvement.
- ⑤ Credit Cards and credit expansions.
- ⑥ Social insurance and more assets.

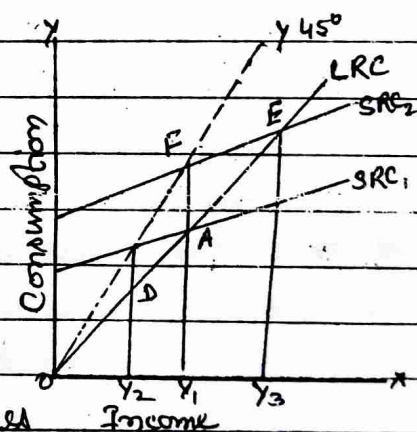
All the above factors contributed to an upward shift in the consumption function.

② Relative Income Hypothesis :-

James Duesenberry propounded that relative income hypothesis. He was the opinion that the basic relation between consumption and income was one of proportionality. The relative income hypothesis lays down that consumption is a function of relative income and not of absolute income. According to this hypothesis, household consumption is based on its relative position in the distribution of income among other households. Duesenberry, argues that the fraction of a family's income devoted to consumption depends upon the level of its income.

relative to the income of the neighbouring family or families with which it identifies and not on the absolute level of the family's income. Thus, if the family's income rises but its relative position on the income scale remains unchanged because the income of other families, with whom it identifies, have risen at the same rate

Reconciliation of short run and long-run consumption function:- Duesenberry maintained that the consumption function is non-proportional in the short period due to fluctuation of income during the course of business cycle. However, in the long run, in the absence of business cycle, the consumption function is proportional. Duesenberry's reconciliation of short run and long run consumption function can be explained with the help of a diagram. In figure LRC



represents long run consumption and SRC₁ and SRC₂ represent short run consumption function. Now suppose recession occurs when Y_1 is reached and disposable income falls to Y_2 . According to Duesenberry the consumption will not fall back along LRC to point E. In recovery as income increases back to past peak Y_1 , real income increases non-proportionally back to point A. Along SRC, once past peak level of income Y_1 is attained, increase in real income from Y_1 to Y_3 will again increase consumption proportionally along LRC from point A to B as long as distribution of real income does not change and people maintain their real consumption level.

This behaviour of short run and long run consumption function is due to the following two effects.

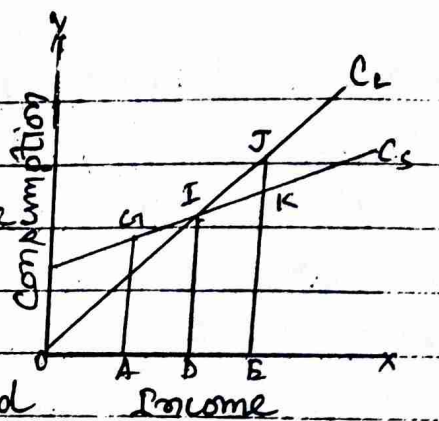
(i) Ratchet Effect:- Duesenberry holds that consumption is a function of previous peak level of income. When income falls

consumers try hard to maintain their consumption expenditure at higher level previously reached. They may do so because they do not want their neighbours to see that they can no longer afford their previous level of expenditure. The Ratchet Effect refers to the tendencies for an economy's consumption expenditure not to call back to earlier level when its income does fall.

(ii) Demonstration Effect:- The demonstration effect explains the behaviour of the consumers at the expansion phase of the business cycle. The reason why the consumption function is proportional may be that it is the income of a family relative to that of other families which determine how much it saves. Family may base their spending not only on their taste but on the expenditure of their neighbours.

③ Permanent Income Hypothesis:- The noble prize winning economist Milton Friedman propounded another explanation of inconsistency of short run and long run consumption function. His theory assumes that the income of an individual can be divided between a permanent and transitory component. The individual's permanent income is the income which he reasonably expects to receive over a period of at least several years, while the transitory component consists of unexpected or unforeseen additions or subtraction to his income. Over the long run such additions or subtraction ought to cancel out. Friedman's basic hypothesis is that permanent consumption is proportional to permanent income. Saving may increase or decrease whenever there is an increase or decrease in the transitory component of income. This will account for such short run fluctuations in the consumption to permanent income. Since permanent consumption is proportional to permanent income, in long run $APC = MPC$ and in the long run equation $C = b \cdot Y_p$. In short run consumption function is of the form $C = a + bY$. The permanent income hypothesis can be explained

with the help of a diagram. In diagram C_L is the long run consumption function shows the proportional relation between permanent income and permanent consumption. On C_L $APC = MPC$. C_S is short run consumption function shows the non-proportional relation between measured income and measured consumption and $APC > MPC$. At the equilibrium point I the income is OD . Here permanent income and measured income is equal and also permanent consumption and measured consumption is equal. At the point of equilibrium G , OA is measured income and there is negative transitory income element (windfall loss). At this point consumption is greater than measured income (showing non-proportionally hypothesis).



The permanent income theory suggests that permanent consumption out of any given level of permanent income will be unaffected by a distribution of that income. This theory holds that the ratio of permanent consumption to permanent income is the same at all levels of family income and that there is zero correlation between transitory consumption and transitory income.

Keynesian Model of Income, Output and Employment Determination

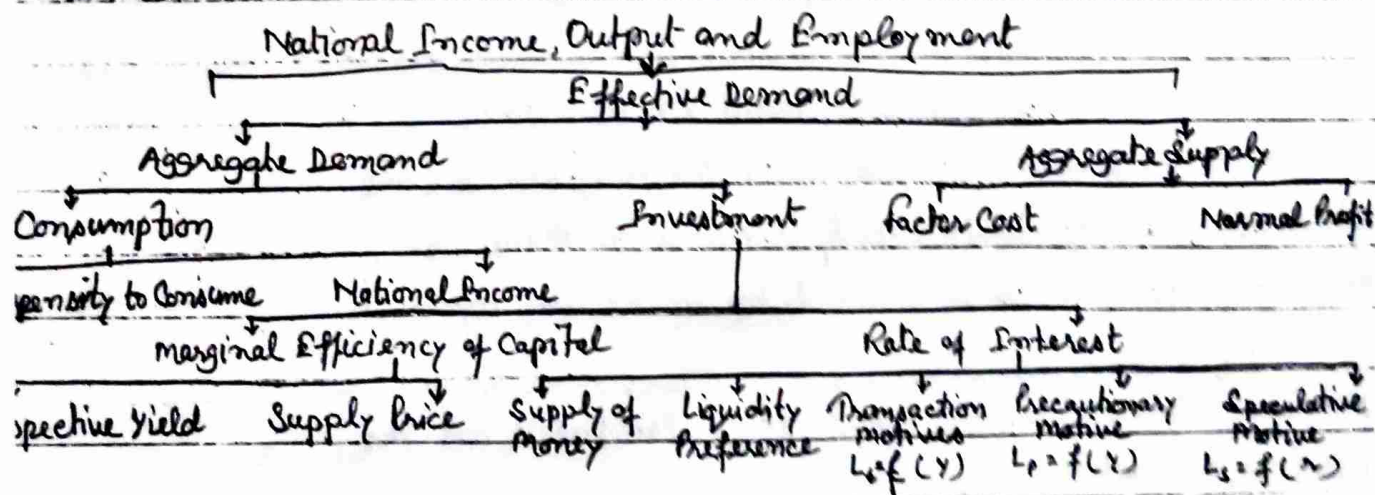
Lord J. M. Keynes has, in his book, "The General theory of Employment, Interest and money" (1936) propounded modern theory of employment. According to Keynes, there is not always full employment in a developed capitalist economy. As a matter of fact, there can be unemployment in every economy. The main reason for this unemployment is deficiency of aggregate demand. Unemployment can be removed and full employment can be restored by increasing the aggregate demand. This view of Lord Keynes are based on his experience of the great depression 1930. According to him aggregate demand comprised of demand for two types of goods ① Demand for consumption goods and ② Demand for capital or investment goods. In short period, consumption of goods remains more or less constant. Hence aggregate demand can be increased by increasing autonomous investment. Hence to achieve the objective of full employment, investment by government was called for.

Assumptions:- Keynes theory of employment is based on the following assumption.

- ① Short Period:- The problem of unemployment in developed countries was a short run problem, because 'in the long run we are all dead'. In short period, aggregate supply remains constant. At such level of employment can be increased by increasing aggregate demand.
- ② Perfect competition:- Like classical theory, it is also based on the assumption of perfect competition.
- ③ Keynesian theory is also based on closed Economy, where level of income and employment remain unaffected by the foreign trade.
- ④ The theory is also based on Diminishing Marginal Productivity, means as more and more units of labour are employed, their marginal productivity goes on diminishing.

- ③ Labour is the only one variable factor of production. It means that with increase in the number of labours there is increase in output.
- ④ Money also acts as a store of value not serve as medium of exchange alone.
- ⑤ No Time lag :- That different economic factors get adjusted without any loss of time. The period in which income increases is the period in which consumption and investment also increase.
- ⑥ Keynes assumes that equilibrium ($AD = AS$) is possible even when there is under employment.
- ⑦ Theory is based on the assumption of saving is function of Income. ($S = f(Y)$)
- ⑧ And also, investment is function of rate of interest. $I = f(r)$.

Explanation of Keynesian Theory :- Keynesian theory of Income of employment, in capitalistic economy, in short period total output or national income depends on the level of employment $Y = f(N)$.
 Level of employment is depend on Effective demand $N = f(ED)$.
 And ED depends on aggregate demand and aggregate supply $ED \rightarrow (AD = AS)$.
 According to Keynes theory of employment can be explained in the following manner.

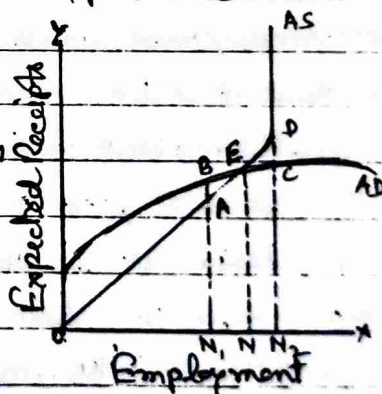


Determination of Employment :- In the short period aggregate supply remains constant, as such, effective demand and level of employment can be increased by changing aggregate demand. In a closed economy, aggregate demand depends upon consumption, national income and

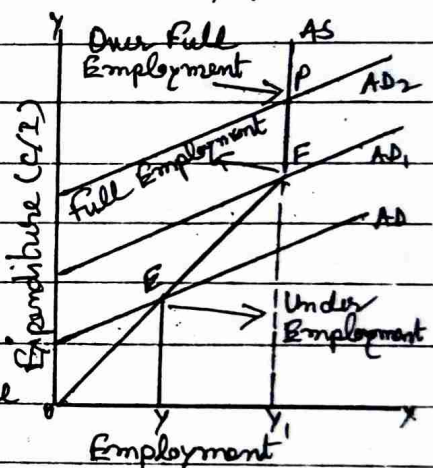
propensity to consume. So the determination of level of employment is explained with the help of following table.

Employment N (In lakhs)	Aggregate Supply (Rs. Cr.)	Aggregate Demand (Rs. Cr.)	Trends in Employment
0	0	60	Rise
10	60	100	"
20	90	120	"
30	120	140	"
40	150	160	"
50	180	180	Equilibrium
60	210	190	Fall
70	240	200	"

From the above table it is clear when the level of employment is zero even then aggregate demand is Rs. 60 cr. and aggregate supply is zero. It is so because even unemployed persons do spend some amount on consumption. As employment increases to 40 lakhs there is an increase in AD along with AS, although AD is more than AS. When 50 lakhs persons get employment, aggregate demand becomes equal to aggregate supply, i.e. Rs. 180 cr. It will be the position of equilibrium ($AD = AS$). However in the economy 70 lakh persons are willing to work. Consequently, 20 lakh persons will remain unemployed in this position of equilibrium. The equilibrium level of employment can be explained with the help of diagram. In figure, income and employment are shown on the X-axis and expenditure or expected receipts on the Y-axis. AS is the aggregate supply curve and AD, the aggregate demand curve. At point E, AD is equal to AS. Thus point E is an equilibrium point. If the level of employment is reduced, then AD becomes greater than AS. If however, the level of employment rises, AD becomes less than AS. It will cause loss to the producers and they will reduce the production. Less production will result in a fall in employment, till it once again comes down to the level where AD is equal to AS.



Achievement of Full Employment :- According to theory that equilibrium is possible in an economy even with unemployment. It is called under employment equilibrium. With a view to removing unemployment and achieving full employment, it is essential to increase aggregate demand, in short period autonomous investment must be increased. As a result of increase in investment the AD curve will shift upwards. The new demand curve will intersect the supply curve at full employment level. The position of full employment equilibrium can be explained diagrammatically by a figure. In this diagram, when AD is equal to AS equilibrium at point E. Although economy is in equilibrium yet YY_1 lakh persons unemployed. Hence, it is an under-equilibrium employment equilibrium. If, as a result of increase in investment, there is increase in aggregate demand. Then the new demand curve will shift upwards as shown by AD_1 , intersect AS curve at point F, which will indicate new equilibrium position. In the new equilibrium all OY_1 workers will get employment. Hence, it will be called full-employment equilibrium. If investment increases still more there will be further increase aggregate demand, and AD curve will shift further upwards as shown by AD_2 . This new demand curve intersects AS curve at point P which will be the new equilibrium point. In this situation there will be no increase in employment and output, as the economy has already been reached the level of full employment. Hence, after the attainment of full employment situation if AD continues to increase it will simply lead to rise in price. Such a situation is referred to as over full employment situation.



Multipliers Analysis

Lord Keynes in his famous book, "The General theory of Employment, Interest and Money" (1936) has propounded Investment Multiplier. Concept of multiplier is an important concept of Keynes' theory of income output and employment. This concept relates to change in income as a result of change in investment. It is an economic fact that when investment increases there is also an increase in income. But increase in income is not exactly the same as increase in investment, rather it is many times more than the increased investment. The number of times it increases is called multiplier. For example, if by increasing investment by Rs. 5 Cr., ultimate increase in income is Rs. 20 Cr. then multiplier will be $\frac{20}{5} = 4$. In short it can be said that multiplier that is 4, means due to increase investment increase in income four times.

In the word of Kurihara, "The multiplier is the ratio of change in income to the change in investment."

Multiplier can be expressed in terms of a formula as under:- $\Delta Y = K \Delta I$ or $K = \frac{\Delta Y}{\Delta I}$

Relation between multiplier and MPC :- In the word of Kurihara, "The value of multiplier is in fact determined by the MPC." Higher the marginal propensity to consume, greater is the size of multiplier. On the contrary, lower the MPC, smaller is the size of multiplier. Their relation can be expressed in terms of an equation as under:- $K = \frac{\Delta Y}{\Delta I}$ (i)

We know that $Y = C + I$

$$\Delta Y = \Delta C + \Delta I, \quad K = \frac{\Delta Y}{\Delta Y - \Delta C} \quad (\text{Dividing by } \Delta Y)$$
$$K = \frac{\frac{\Delta Y}{\Delta Y}}{\frac{\Delta Y}{\Delta Y} - \frac{\Delta C}{\Delta Y}} \quad \text{or} \quad K = \frac{1}{1 - MPC} \quad (MPC = \frac{\Delta C}{\Delta Y})$$
$$K = \frac{1}{1 - MPC} = \frac{1}{MPS} \quad (MPS = 1 - MPC)$$

Working of the Multiplier:- Working of the multiplier can be analysed in terms of:

① Comparative Static and ② Dynamic analysis.

① Comparative Static analysis:- This analysis simply tells as to what will be the final change in income as a result of change in investment. Keynes' concept of multiplier is a comparative static concept. The process of multiplier can be expressed as under:-

$$\Delta I \longrightarrow \Delta Y \longrightarrow \Delta C \longrightarrow \Delta Y \longrightarrow \Delta C \longrightarrow \Delta Y$$

Above figure shows that change in investment causes change in income. As a result, there is change in consumption. Consumption expenditure of one person is an income of the other. Hence, change in consumption leads to change in income. This process continues till ΔC falls to zero.

Process of multiplier works in two ways. With increase in investment, multiplier increases income many times more. It is called forward action of multiplier. On the contrary, with decrease in investment, multiplier decreases income many times more. It is called backward action of multiplier.

Prof Samuelson in this context says, "The multiplier is a two-edged sword. It will cut for you or against you."

② Dynamic Concept of Multiplier:- Keynes' concept of multiplier is criticised as a static concept. It is a static concept because it simply tells how many times more increase in income will be there as a result of a given increase in investment. However, this concept does not reveal how and with what time lag this increase in income will take place. According to Prof. Hart, Keynes' concept of multiplier is a static concept tells about the final consumption conclusions. Modern economists study multiplier in dynamic form. There is time lag

between change in investment and consequent change in income. Whenever initial investment is increased it takes time for income to increase. This increase in income is not immediate. In this time lag, many other changes may take place, e.g. increase in investment, increase in consumption expenditure etc. having their effect on income. So the dynamic concept of multiplier tells us how, from the time of initial change in investment, the process of multiplier moves on. It is explained with following diagram.

Period	Initial Investment	Change in Income	Induced change in Consumption $MPC=0.5$	Leakage or Saving
0	100	100	50	50
1	-	50	25	25
2	-	25	12.5	12.5
3	-	12.5	6.25	6.25
4	-	6.25	3.12	3.12
5	-	3.12	1.56	1.56
6	-	1.56	0.78	0.78
7	-	0.78	0.39	0.39
8	-	0.39	0.195	0.195
9	-	0.195	0.0975	0.0975
Total		Rs. 200	Rs. 100	Rs. 100

Table shows that as a result of initial increase in investment by Rs. 100 Cr. There is change in income by Rs. 100 Cr. Our assumption that MPC is 0.5 ($\frac{1}{2}$). Hence, on account of increase in income by Rs. 100 Cr. consumption will increase by Rs. 50 Cr.

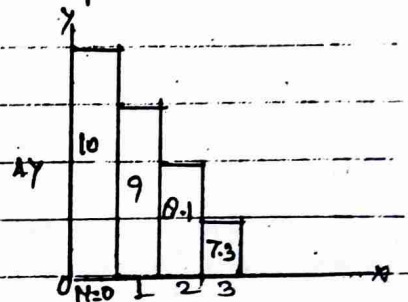
Expenditure of one man is an income of another in an economy. Hence, due to expenditure of Rs. 50 Cr. on consumption, there will be an increase in income by Rs. 50 Cr. in the second time period. As a result of it, there will be increase in consumption by Rs. 25 Cr. and saving also by Rs. 25 Cr. Thus in different time periods, as shown in the table, income will go on increasing as a result of increase in consumption expenditure. Ultimately income will increase to Rs. 200 Cr. It proves the multiplier (K) is $\frac{\Delta Y}{\Delta I} = \frac{200}{100} = 2$.

Dynamic Multiplier and change in Investment:-

Process of dynamic multiplier depends on change in investment. There can be two kinds of change in investment

① Single Projection of Investment:- If investment increased only once, it will result in to change in income only once, thereafter income will revert back to its old level. Suppose MPC is 0.9. An increase investment by Rs. 10 Cr. will cause an increase in income by Rs. 10 Cr. in that period.

Thereafter, as is shown in figure in the first time period income will increase by Rs. 9 Cr. In the second time period income will increase by Rs. 8.1 and in the third time period income will increase by Rs. 7.3 Cr. This way after a few time period effect of increase in investment will fade away and increase in income will fall to zero.



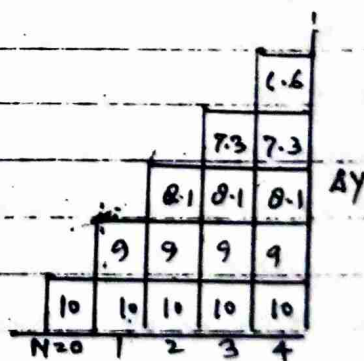
② Continuous Projection of Investment:-

Effect of multipliers will be permanent if there is continuous injection of investment in the economy. It will enable the income to move from its initial level to a new level.

Changes due to continuous injection of investment are shown in figure. Continuous injection of investment is based on two assumptions (i) An investment of Rs. 10 Cr. is made in each time

period (ii) MPC is 0.9. To begin with investment by Rs. 10 Cr. Out of this increased income Rs. 9 Cr. will be spent on consumption because MPC is 0.9.

In this way during the first time period, total increase in income due to an investment of



Rs. 10 Cr. and consumption expenditure of Rs. 9 Cr. will be Rs. 19 Cr.

Thus, total income in second time period will be Rs. 27.1 Cr. Similarly as is shown in the figure, income in different time periods will go on increasing.

Supply of Money and Money Multiplier ⁽¹⁾

Meaning of the supply of Money:- According to modern economists

money is not only a medium of exchange but also a store of value. As such all those financial assets which act as medium of exchange and store of value should be included in the supply of money.

According to Central Banking approach, "Money is the credit extended by a wide variety of sources." As such it can be expressed as:-

Money Supply = Currency + Demand Deposits + Time Deposits + Saving bank deposits + Shares + Bonds + Securities + Credit from unorganised sector.

Supply of Money in India:- Reserve Bank of India classifies the supply of money as follows:-

M_1 = Currency with the people + Demand deposits with banks + Other Deposits with the Reserve Bank.

M_2 = M_1 + Deposits with the Post Office Saving Banks.

M_3 = M_1 + Time deposits with banks.

M_4 = M_1 + Deposits with the post office Saving Banks + Time deposits with banks.

For our purpose, we are taking only M_1 as our study of money supply with the people.

Factors Influencing the Supply of Money:- According to Prof.

Chandless, supply of money in an economy depends mainly on the following factors:-

① Size of the Monetary Base:- One of the main factor influencing the supply of money is the size of the monetary base. According to Desnberg, "monetary base consists of total banking reserves and currency held by the public." Supply of money expands with the increase in the size of the monetary base and contracts with the decrease in the size of the monetary base. Size of monetary base generally depends on two factors - Gold Stock, and Reserve Assets of central Bank.

② Proportion of Cash and Demand deposits :- Supply of money also influenced by the ratio between cash holdings and demand deposits. Larger the proportion of total money people desire to hold in the form of deposits greater will be the power of the banks to create credit on their deposits (strength). Volume of credit creation depends on Cash Reserve Ratio. Lower the CRR greater is the capacity of the banks to create credit and supply of money increase accordingly.

③ Velocity of Circulation :- Velocity of money is number of times a unit of money changes hands in the course of a year. Thus, velocity of money means the number of times one unit of money is used during a given period to buy goods and services. Thus, the Supply of money = $M \times V = MV$. So greater the velocity of money as a result greater the supply of money.

Who Supplies Money :- In the modern times, the sources of supply of money are government, Central Bank and commercial banks. In India it is Ministry of finance that issues one rupee notes and all the coins. Money is mainly supplied by RBI. RBI issues currency on the basis of Minimum Reserve System. And commercial banks create money on the basis of demand deposits. When the commercial banks provide credit to the people or buy the securities sold by the RBI then they add to the supply of money.

Determination of Money Supply :- Money supply is determined by currency and money multipliers. It can be expressed in the form of the following equation :-

$$M = m H$$

M = Supply of money, m = Money multiplier, H = Monetary base or High powered money.

Above equation explains that supply of money is determined by two factors.

① Monetary Base or H:- It includes currency and total deposits. In a modern economy supply of money and credit are created on monetary base. Monetary base can be expressed in the form of the following equation:-

$$H = R + C$$

H = Monetary base, R = Total Reserve of Banks, C = Currency in circulation.

② Money Multiplier:- Money multiplier is the ratio of change in supply of money to the change in monetary base.

$$m = \frac{M}{H}$$

Supposing due to change in the monetary base to the tune of Rs. 10 cr. there is consequent change in the supply of money to the extent of Rs. 30 cr. then money multiplier will be 3. So greater the size of money multiplier, greater its supply of money.

Money or Credit Creation:- Money or credit creation is considered to be the main function of commercial banks these days. Commercial banks create credit on the basis of their deposits. In the word of Newlyn,

"Money of credit creation refers to the power of commercial banks to expand secondary deposits either through the process of making loans or through investment in securities."

In short credit creation refers to that power of the banks which enables them to expand their secondary deposits through loans, advances and investments, more than the primary deposits.

Basic Concepts Used in the process of Credit Creation:-

① Bank Deposits:- The basis of credit creation is bank deposits have been two types. ④ Primary or Cash deposits:- The amount deposited in cash by the public in banks is called cash or primary deposits. ⑤ Derivative or Secondary deposits:- Derivative or secondary deposit is the result of primary deposit because the bank create secondary deposit by keeping a part of the primary deposit in reserve. Whenever a person approaches a bank for loan he is not given this loan in cash, rather an account is opened in his name and he is allowed to withdraw the required amount by issuing a cheque.

② Cash Reserve Ratio:- Banks always keep some part of the total amount deposited as cash reserve to meet the needs of the depositors. That part of the total deposits which the banks keeps with itself in cash form is called simple CRR.

③ Excess Reserve:- The amount lying with the bank in excess of CRR is called excess reserves.

④ Credit Multiplier:- Credit multiplier refers to the ratio of increase in total deposits to increase in primary deposits. If as a result of increase in primary deposit to the tune of Rs. 1000, credit is created to the extent of Rs. 10,000 then credit multiplier is 10. The inverse relation between credit multiplier and CRR can be shown in the following equation:

$$\text{Credit Multiplier} = \frac{1}{\text{CRR}}$$

Process of Credit Creation OR How do Banks

Create Credit:- Process of credit creation can be studied in two parts:-

① Single Banks System ② Multiple Banking System

(1) Credit Creation in a Single Banking System:-

Single banking system means there is only one bank in the economy. All transactions are done by this bank. Banks often create credit (creation of secondary deposits) on the basis of their primary deposits. It can be illustrated with the help of an example. Supposing a person deposits Rs. 1000 in a bank. To the bank, this amount of Rs. 1000 = constitutes primary deposit or cash deposit. Banks know by experience that all depositors do not withdraw their money at one time. Supposing the bank keeps 10% of the total deposits in cash and advances the rest of the amount as loans. In this example bank keeps Rs. 100 in cash reserve and the remaining amount of Rs. 900 is given as loan to Mr. A. Bank does not give this loan in cash but opens a current account in his favour and credits this amount of Rs. 900 to it. Let us suppose that Mr. A owes Rs. 900 to one Mr. B and Mr. B deposits this amount in some bank in his account. After that the bank will keep 10 percent of this deposit as reserve and give a loan of Rs. 810 to yet another borrower Mr. C. It is evident from the above example that loans create deposits and deposits create loans. In this case total credit created will be Rs. 9000 and total bank deposit i.e. primary deposits + secondary deposits (Rs. 1000 + Rs. 9000) will be Rs. 10,000.

Process of credit creation by the banks can also be explained with the help of following table:-

Round	Primary deposit	CRR (10%)	Loans or Secondary deposits
First	1000	100	900
Second	900	90	810
Third	810	81	729
Total	10,000	1000	9000

Credit equation and credit multiplier can be expressed as

under :-
$$CRR = \frac{\text{Primary deposit}}{\text{Total deposit}} \quad \text{or} \quad r = \frac{P}{D}$$

② Credit Creation by Multiple Banking :- In real world, there is not only one bank in an economy, rather there are many banks. A single bank can not create more credit than its excess reserves. But multiple banking system can create many times more credit than its primary deposits. Suppose a person deposits with bank 'A' a sum of Rs. 1000 in cash. Bank 'A' keep 10% of total deposit as cash Rs. 100 reserve and rest amount Rs. 900 as loan to one Mr. 'M'. This man issues a cheque of Rs. 900 to another person who has his account in bank 'B'. That person deposits this cheque of Rs. 900 in bank 'B'. Now bank B keeps 10% of Rs. 900 that is Rs. 90 as cash reserve and give the rest amount Rs. 810 to a person who has his account in bank 'C'. This process will continue till all banks create credit to the tune of Rs. 9000 on the basis of primary deposits of Rs. 1000 only. Following table elucidates the process of credit creation:-

Banks	Primary Deposit	CRR (10%)	Loans or Secondary Deposits
A	1000	100	900
B	900	90	810
C	810	81	729
D	—	—	—
E	—	—	—
Total	10,000	1000	9000

Central Bank OR

Reserve Bank of India

①

It is the apex bank of a country. It is responsible for maintaining the economic stability of a country. In case of under-developed economies, it is instrumental in the process of growth.

In India Reserve Bank operates as Central Bank

Definitions:- According to Samuelson, "Every Central bank has one function. It operates to control economy, supply of money and credit."

Difference between Central Bank and Commercial Bank:-

Central Bank of a country differs from the commercial banks in the following respects:-

- ① The main aim of the Central Bank is public welfare while the aim of the commercial bank is profit motive.
- ② Central bank has no direct link with public while the commercial banks have.
- ③ Central bank is a state owned institutions whereas commercial bank may or may not be state owned.
- ④ Central bank has monopoly of note issuing. Commercial banks cannot issue notes.
- ⑤ Central Bank control entire banking system of the country. Commercial banks operates under the direct control and supervision of the central bank.

Function of Central Bank:- Main functions of the central bank are as follows:-

- ① Issuing of Notes:- In modern times, central bank alone has the exclusive right to issue notes in every country of the world. The notes issued by the central bank are unlimited legal tender throughout the country. In accordance with the law enacted by the government central bank issues notes against the security of gold, silver and credit instruments.
- ② Banker to the Government:- Central Bank act as a banker, agent and financial advisor to the government. As a banker to the government it keeps the accounts of all government banks and

manages government treasuries. It performs the same functions for the government as the commercial banks do for their customers. The loans are given to the government without any interest for short-term. It also transfers government funds. It also buys and sells securities, treasury bills on behalf of the government.

③ Banker's Bank :- It performs the functions of a banker to all other banks in the country. Central Bank has almost the same relation with all other banks as an ordinary bank has with its customers. Central Bank keeps part of the cash balances of all commercial banks as deposit with a view to meeting liabilities of these banks in the times of crises.

④ Lender to the last Resort :- The central bank also acts as lender of last resort for the other banks of the country. It means that if a commercial bank fails to get financial accommodation from any where it approaches the central bank as a last resort.

⑤ Custodian of the Nation's Reserves of foreign Exchange :- Central Bank also functions as the custodian of nation's foreign exchange reserves. It is the responsibilities of the central bank to keep the external value of country's currency stable. In order to discharge this function successfully central bank maintains reserves of foreign currencies.

⑥ Control of Credit :- The most important function of central bank is to control the credit activities of the commercial banks. Credit control refers to the increase or decrease in the volume of credit money in accordance with the monetary requirement of the country.

⑦ Collection of Statistics :- Central Bank collects a variety of statistical information and publishes the same periodically.

⑧ Other function :- (i) Agricultural credit (ii) International monetary conferences (iii) Return of Dem. notes.

Objective of Credit Control:- A central bank controls credit in order to achieve the following objectives:-

- ① Domestic Price stability
- ② Exchange rate stability
- ③ Achievement of a high level of Employment and production
- ④ Control over Trade cycles
- ⑤ Economic planning.

Central Bank and Credit Control:- In modern times, to manage or control the monetary system of the country is recognised as the principal function of the central bank. In every country, the central bank has the full authority to control and regulate the functioning of the credit institution of the country. Credit control refers to the regulation of credit by the central bank for achieving definite objectives. Central Bank controls credit basically to achieve the twin objective of economic stability and economic growth.

Methods of Credit Control:- Central bank usually controls credit by two methods:- ① Quantitative ② Qualitative.

① Quantitative Credit Control:- Main objective of quantitative credit control is to control the total volume of bank credit and rate of interest. Under these methods are included:-

- ① Bank rate
- ② Open market operations
- ③ Change in Cash Reserve Ratio
- ④ Change in liquidity ratio

① Bank Rate:- Bank rate is an important instrument of credit control. Bank rate is the rate of interest at which the central bank rediscounts the first class securities of other banks. The bank rate is variable. In the words of R. A. Young, "Bank rate is the publicly announced charge applied by the central bank on discounts of securities or advances to member banks".

Bank rate policy is that policy by which the central bank controls the credit creation of the banks. Whenever a central bank wants to contract credit in the country it raises the bank rate and

on the other hand, when the central bank wants to expand credit in the country, it lowers the bank rate.

(B) Open Market Operations:- In modern times, open market operations are being used increasingly as an instrument of credit control. Open market operations refer to the sale and purchase of securities by the central bank in the open market.

The open market operation policy is a monetary instrument used by the central bank of a country to contract or expand the credit by way of sale or purchase of securities in the open market. When credit is to be contracted in the country, the central bank begins to sell securities in the open market. If the central bank wants to expand credit, it begins to buy securities in the open market.

(C) Change in Cash Reserve Ratio:- Central bank can control by varying the minimum cash reserve of commercial banks. It is also known as statutory minimum reserve. According to it, all banks must keep a certain percentage of their deposits with the central bank as reserve fund. When the central bank is to contract credit it raises the ratio of cash reserve. On the contrary, if the central bank is to expand credit it lowers the cash reserve ratio.

(D) Change in Liquidity Ratio:- A new method of credit control was evolved during world war II. According to it, the banks have to keep compulsorily a certain portion of their assets in liquid form. It comprises of cash and government securities; it also curtails the power of the commercial banks to create credit. When the central bank has to contract credit it increases the statutory liquidity ratio. The banks have to keep a large portion of their deposits in the form of cash. It reduces their capacity of creating credit. On the other hand when central bank has to expand credit it reduces the statutory liquidity ratio. Consequently, the banks have to maintain less proportion of their deposits in the form of cash. It enhances their capacity to create credit.

② Qualitative Credit Control :- It aims at regulating the volume of credit given for specific purposes. It different forms are as under-

(A) Change in marginal Requirements of loans :- It is yet another method of credit control. Marginal requirement is the difference between the value of the security and the amount of the loan sanctioned against that security. Supposing a person pledges goods worth Rs. 100 with a bank and get loan amounting to Rs. 80 then the difference between the two that is Rs. 20 is margin requirement. If the marginal requirement increased, the borrower will have to pledge goods of greater value in order to get loan of the same amount. As a result there will be contraction of credit. For example, if marginal requirement is increased to 40 percent then on a security worth Rs. 100 the bank will give a loan of Rs. 60 only.

(B) Rationing of Credit :- Central Bank of a country also functions as a lender of the last resort. Central bank can introduce rationing of credit in four ways : (i) It can decline to give loans to a particular bank (ii) It can scale down the amount of loans to given to different banks. (iii) It can fix quota of the credit to be given to different banks. (iv) It can fix the limit of loans to be given to different industries and traders.

(C) Moral Persuasion :- Sometimes central bank exercising moral persuasion over other banks get them agree to its credit control policy. For instance, if the central bank desires that other bank should not advance loans to traders for speculation, it advise them accordingly.

(D) Publicity and propaganda :- Central bank gives wide publicity to its credit policy. It serves as a brief for other banks and they act accordingly.

(E) Direct Action :- Sometimes the Central Bank is obliged to take direct action against other banks. Under this action the central bank

Monetary Policy

Monetary policy refers to that policy through which the government or the Central Bank of the country controls : the supply of money, availability of money and cost of money or rate of interest.

According to C. K. Shaw, "By monetary policy we mean any conscious action taken undertaken by the monetary authorities to change the quantity, availability or cost of money."

Objectives of Monetary Policy or Credit Control:- Main objectives of monetary policy or credit control are as under :-

- ① Domestic price stability
- ② Exchange rate stability
- ③ Achievement of high level of employment and production.
- ④ Control over trade cycles.
- ⑤ Economic planning.

Parameters or Instruments of Monetary Policy:- The principal parameters of monetary policy are.

① Supply of money :- Supply of money ordinarily refers to the currency issued by the monetary authority and the demand deposits lying in the banks of the country. In order to arrange for appropriate supply of money, the central bank of the country should adopt flexible method of note issue such as minimum reserve funds.

② Cost of money or Rate of Interest :- Rate of interest is another important parameter of monetary policy. Underdeveloped countries should adopt cheap money policy in agricultural and industrial sectors. Low rate of interest be charged from the priority sectors like small industries, and high rate of interest should be charged on loans for unproductive purposes.

③ Availability of money :- In fact, availability of money refers to credit control. There are two methods of credit control :-

① Quantitative Credit Control :- Bank rate, Open market operations, change in CRR, change in liquidity ratio.

② Qualitative Credit Control :- change in marginal requirements of loans, Rationing of the credit, and direct action.