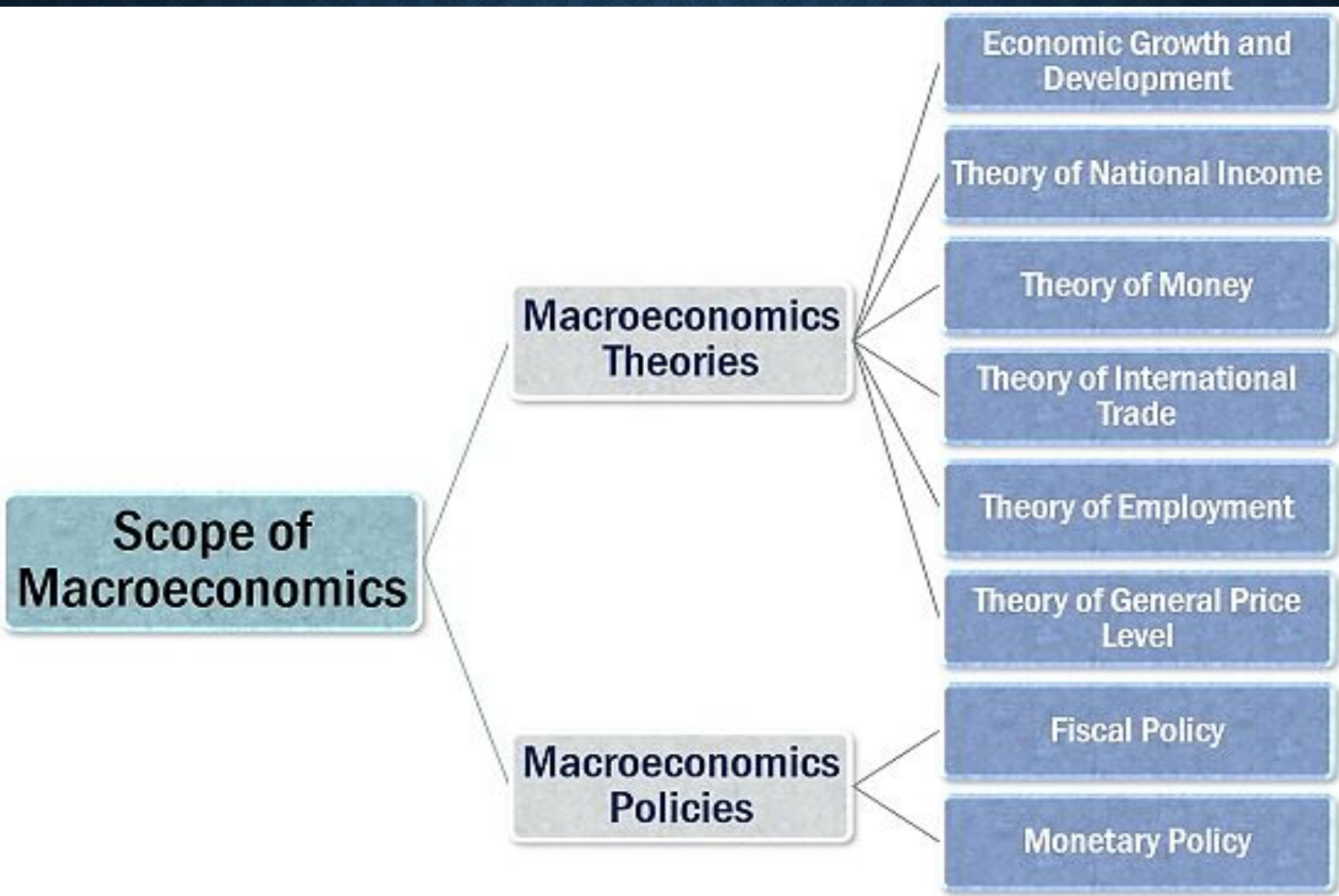


# MACROECONOMICS

- Macroeconomics is that specialized field of economics which focuses on the overall economy. It works on the aggregate value of the various individual units, to determine its more substantial impact on the whole nation. All the prominent reforms and policies are based on this concept.

# SCOPE OF MACROECONOMICS

- Macroeconomics is a vital field of study for the economists, government, financial bodies and researchers to analyze the general national issues and economic well-being of a country.
- Macroeconomics widely covers two major fundamentals which are further sub-parted into multiple topics, as explained below:



# MACROECONOMIC THEORIES

- There are six significant theories under macroeconomics:
  - 1. Economic Growth and Development:** The status of a country's economy can be evaluated in terms of the per capita real income, as studied under macroeconomics. One of the first models that explained growth theory was Harrod-Domar Model.
  - 2. Theory of National Income:** It covers the various topics related to the evaluation of national income. It focuses on concepts such as GDP, GNP, per capita income etc. and how they impact growth of an economy.
  - 3. Aggregate Demand and Aggregate Supply:** Macroeconomics emphasizes the importance of aggregate demand and supply and their impact on the stability and growth of an economy.

- 4. Theory of Money and price level:** Macroeconomics analyzes the demand and supply of money in the economy, functions of the reserve bank in maintaining the balance between money demand and supply, the phenomena of inflation, deflation and stagflation along with their relation to the employment level. Quantity theory of money given by Fisher or Keynes' liquidity preference theory of money are important macroeconomic theories.
  
- 5. Theory of Employment:** This stream of macroeconomics helps to figure out the level of unemployment and prevailing employment conditions in the country. Also, to know how it affects the supply, demand, savings, consumption, expenditure behaviour.
  
- 6. Theory of International Trade:** It is a field of study that enlightens upon the export and import of goods or services as well as inflow and outflow of capital. Concepts like Balance of Payments and exchange rate are integral part of theories of international trade. Heckscher-Ohlin theory or Ricardo's theory of international trade form important part of macroeconomics.

# IMPORTANCE OF MACROECONOMICS

**1. Functioning of an Economy:** Macroeconomic analysis is of paramount importance in getting us an idea of the functioning of an economic system. It is very essential for a proper and accurate knowledge of the behaviour pattern of the aggregative variables as the description of a large and complex economic system is impossible in terms of numerous individual items.

## **2. Formulation of Economic Policies:**

Macroeconomics is of great help in the formulation of economic policies. The days of 'laissez faire' are over and government intervention in economic matters has earned importance.

Governments deal not with individuals but with groups and masses of individuals, thereby establishing the importance of macroeconomic studies.

### **3. Understanding Microeconomics:**

The study of macroeconomics is essential for the proper understanding of microeconomics. No Microeconomic law could be framed without a prior study of the aggregates; for example, the theory of individual firm could not have been formulated with reference to the behaviour pattern of one single firm, howsoever representative it might have been; the theory was possible only after the behaviour pattern of several firms had been examined and analyzed.

#### **4. Understanding and Controlling Economic Fluctuations:**

Economic fluctuations are a characteristic feature of the capitalist form of society. The theory of economic fluctuations can be understood and built up only with the help of macroeconomics, for here we have to take into consideration aggregate consumption, aggregate saving and investment in the economy. Thus, we are led to analyse the causes of fluctuations in income, output and employment.

## **5. Inflation and Deflation:**

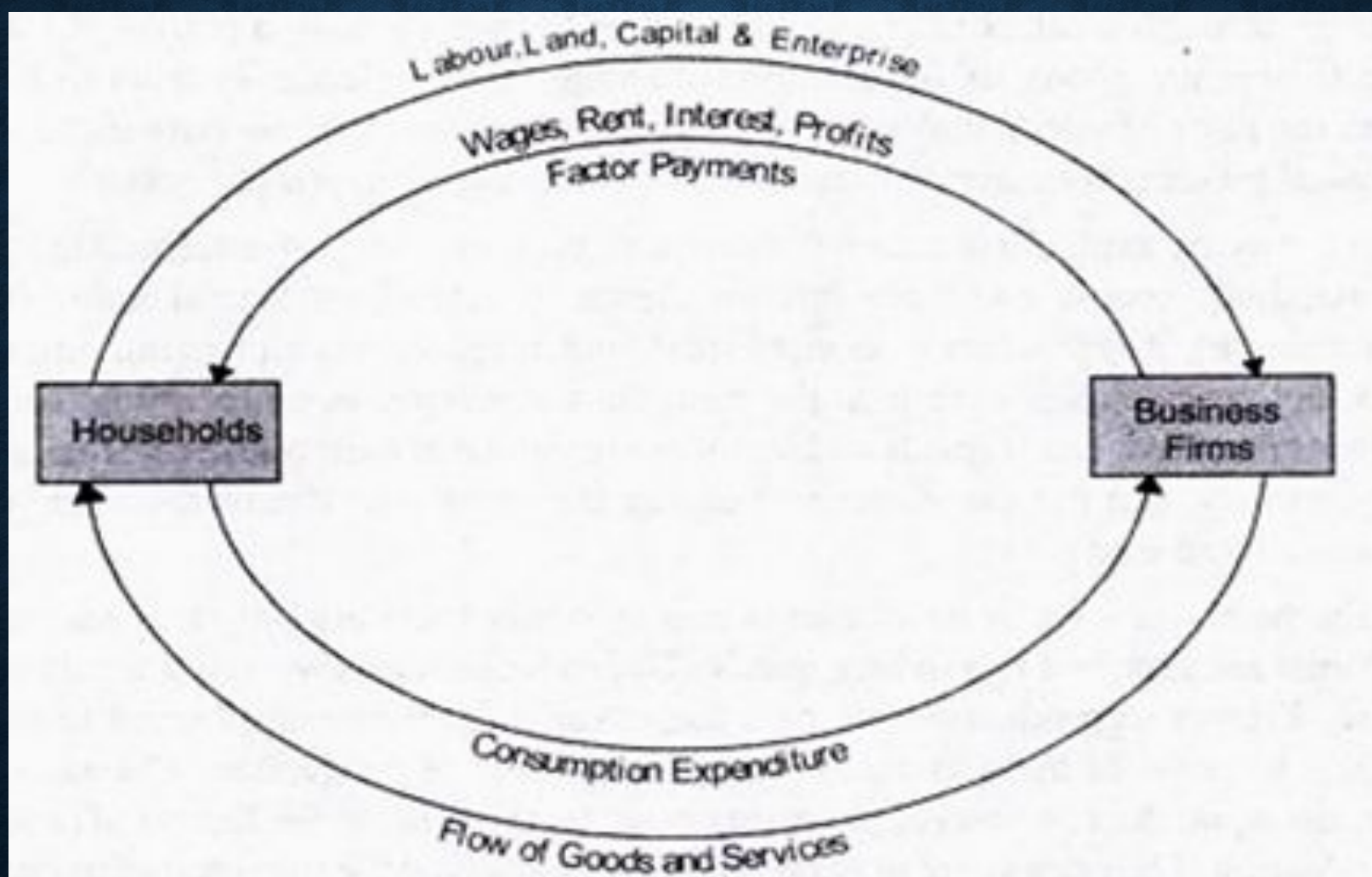
Macroeconomic approach is of utmost importance to analyse and understand the effects of inflation and deflation. Different sections of society are affected differently as a result of changes in the value of money. Macroeconomic analysis enables us to take certain steps to counteract the adverse influences of inflation and deflation.

## **6. Study of National Income:**

It is the study of macroeconomics which has brought forward the immense importance of the study of national income and social accounts. In micro-economy such a study was relegated to the background. It is the study of national income which enables us to know that three-fourths of the world is living in abject poverty.

# CIRCULAR FLOW OF INCOME IN A TWO SECTOR ECONOMY

- According to circular flow of income in a two-sector economy, there are only two sectors of the economy, i.e., household sector and business sector.
- Government does not exist at all, therefore, there is no public expenditure, no taxes, no subsidies, no social security contribution, etc.
- The economy is a closed one, having no international trade relations.



- **Household Sector:** The household sector is the sole buyer of goods and services, and the sole supplier of factors of production, i.e., land, labour, capital and organisation.
- It spends its entire income on the purchase of goods and services produced by the business sector. Since the household sector spends the whole income on the purchase of goods and services, therefore, there are no savings and investments.
- The household sector receives income from business sector by providing the factors of production owned by it.

- **Business Sector**: The business sector is the sole producer and supplier of goods and services.
- The business sector generates its revenue by selling goods and services to the household sector. It hires the factors of production, i.e., land, labour, capital and organisation, owned by the household sector.
- The business sector sells the entire output to households. Therefore, there is no existence of inventories.

- In a two-sector economy, production and sales are thus equal. So long as the household sector continues spending the entire income in purchasing the goods and services from the business sector, there will be a circular flow of income and production.
- The basic identities of the two-sector economy are as under:

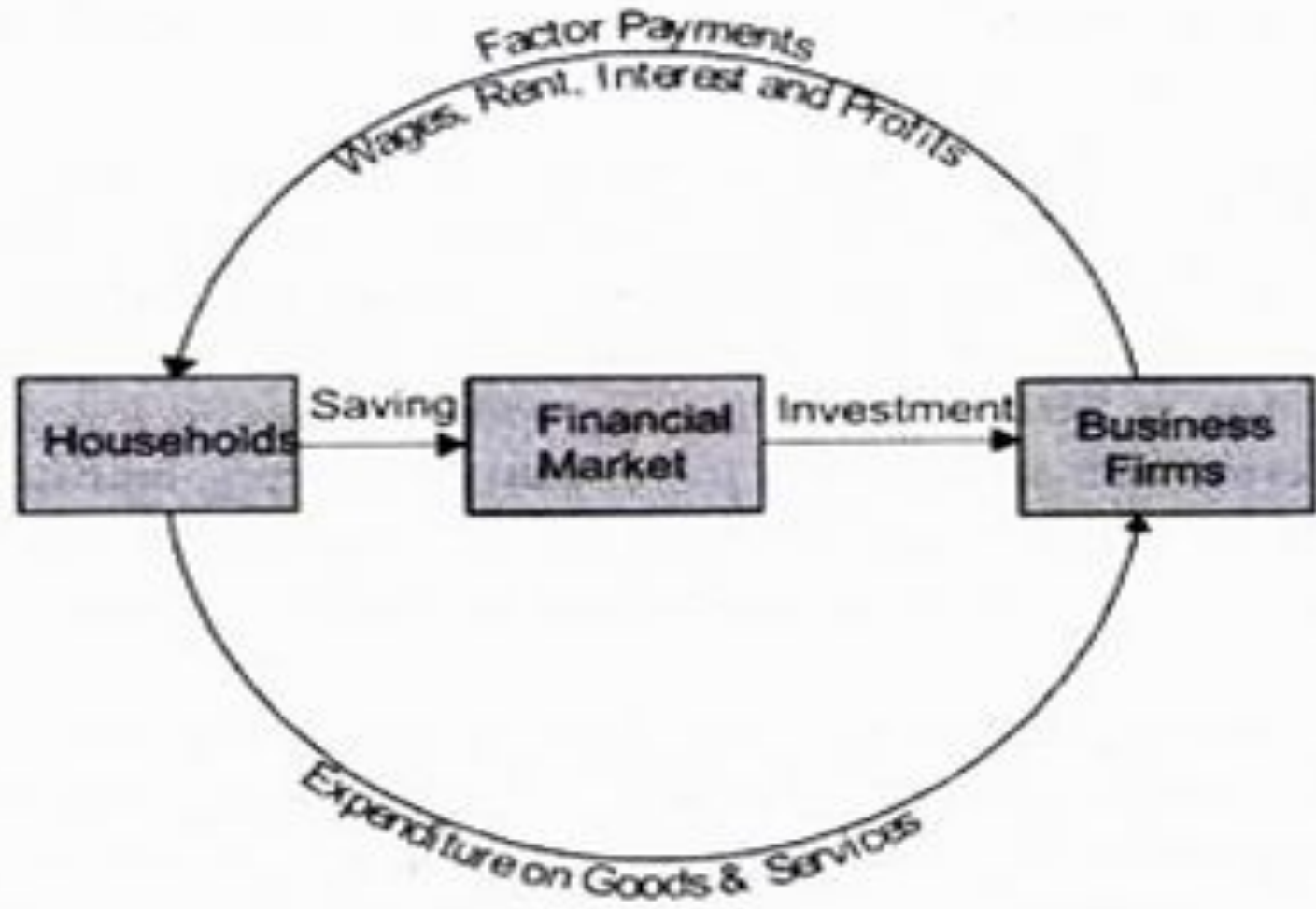
$$Y = C$$

where, Y is Income and C is Consumption.

# CIRCULAR FLOW OF INCOME IN A TWO SECTOR ECONOMY WITH SAVINGS AND INVESTMENT

- In a two-sector macro-economy, if there is saving by the household sector out of its income, the goods of the business sector will remain unsold by the amount of savings. Production will be reduced and so the income of the households will fall.

- In case the savings of the households is loaned to the business sector for capital expansion, then the gap created in income flow will be filled by investment.
- Through investment, the equilibrium level between income and output is maintained at the original level. It is illustrated in the following figure:



- The equilibrium condition for two-sector economy with saving is as follows:

$$Y = C + S \quad \text{or}$$

$$Y = C + I \quad \text{or}$$

$$C + S = C + I \quad \text{or}$$

$$S = I$$

Where Y is Income

C is Consumption

S is Saving

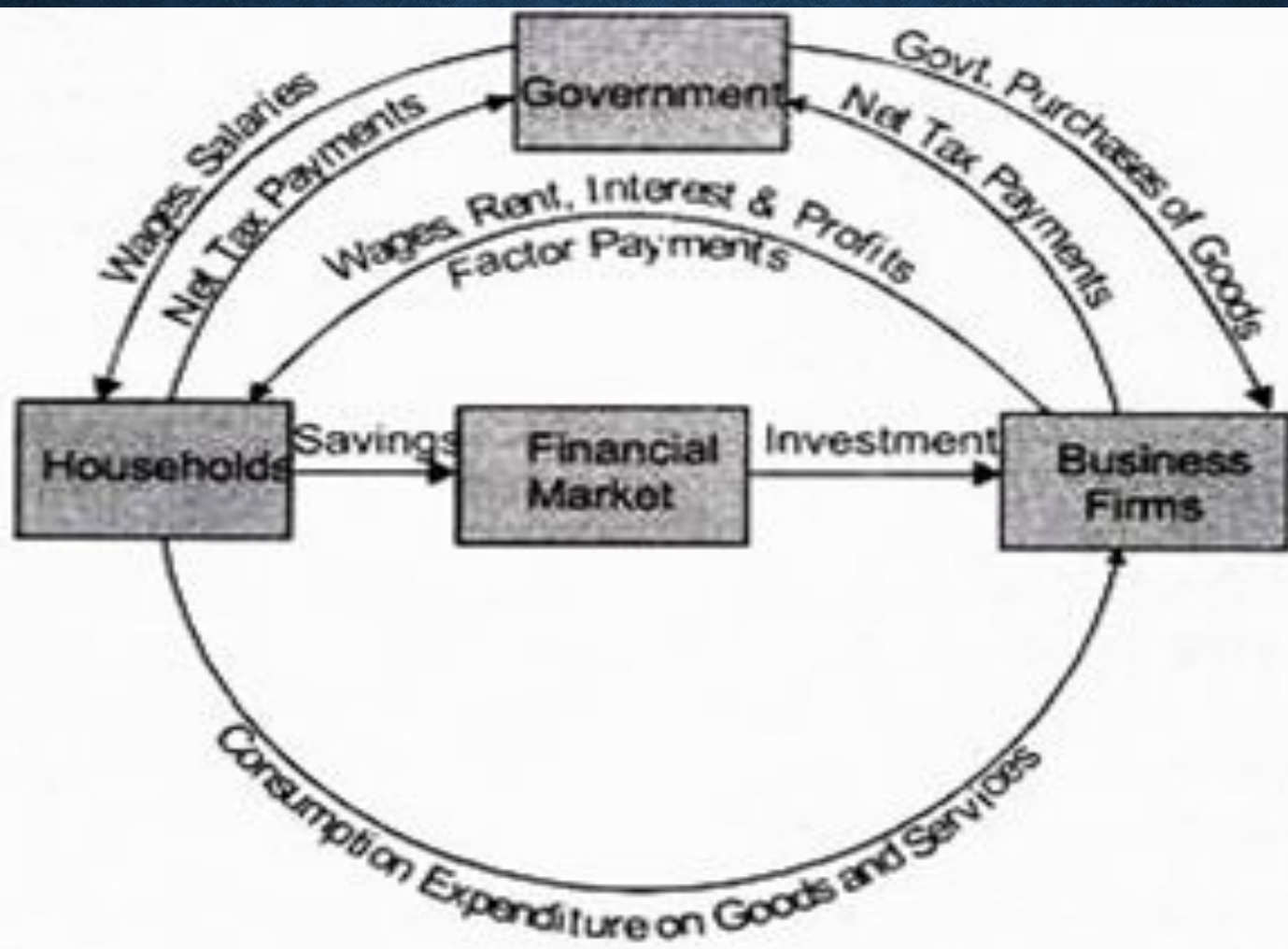
I is Investment

- **Savings:** On the average, households spend less each year than they receive in income. The portion of household income that is not used to buy goods and services or to pay taxes is termed 'Saving'. Since there is no government in a two-sector economy, therefore, there are no taxes in this economy.
- **Investment:** Business firms, on the average, spend more each year than they receive from the sale of their products.
- They do so because, in addition to paying for the productive resources they need to carry out production at its current level, they desire to undertake *investment*.
- Investment includes all spending that is directed toward increasing the economy's stock of capital.

- **Financial Market:** The economy contains a special set of institutions whose function is to channel the flow of funds from households, as savers, to firms, as borrowers.
- These are known as ‘financial markets’. Financial markets are pictured in the center of the circular-flow diagram in the given figure.
- Banks are among the most familiar and important institutions found in financial markets.
- Banks, together with insurance companies, pension funds, mutual funds, and certain other institutions, are termed ‘financial intermediaries’, because their role is to gather funds from savers and channel them to borrowers in the form of loans.

# CIRCULAR FLOW OF INCOME IN A THREE-SECTOR ECONOMY

- Under three-sector economy, the additional sector is the government.
- Two-sector economy is a hypothetical economy, whereas the three-sector economy is much more realistic.
- The inclusion of the government sector is very essential in measuring national income.
- The government levies taxes on households and on business sector, purchases goods and services from business sector, and attains factors of production from household sector.



- In the above diagram, in one direction, the household sector is supplying factors of production to the factor market. Business sector demands the factors of production from factor market. Inputs are used by the business sector, which produces goods and services that are purchased back by the households and the government.
- Personal income after tax or disposable income that is received by households from business sector and government sector is used to purchase goods and services and makes up consumption expenditure (or C).
- The money spent in the product market is the market value of final goods and services (or GDP). That money goes to business sector that pays it back in the form of wages, rent, profits and interests.

- Total spending on goods and services is known as '*aggregate demand*'. The total market value of output produced and sold is also known as '*aggregate supply*'. To measure aggregate demand in a closed economy, we simply add consumption spending (C), investment spending (I) and government spending (G). Therefore:

$$Y = C + I + G$$

Where Y is Income,

C is Consumption,

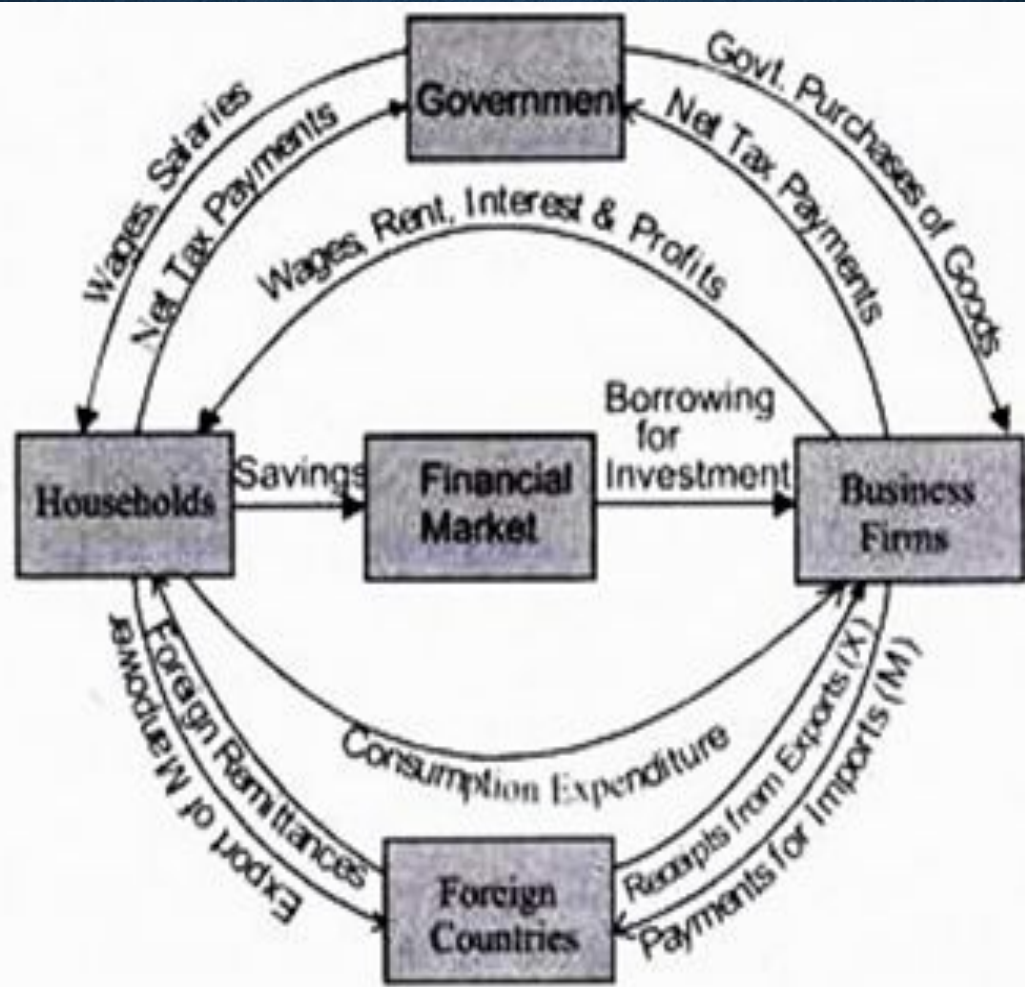
I is Investment, and

G is Government Spending.

- Note that government spending ( $G$ ) includes its buying of labour from factor market, buying of goods and services from product market, and transfer payments to the household sector.
- Transfer payments are payments the government makes in return for no service, for example, welfare payments, unemployment compensation, pension, etc. The government collects its money in the form of tax, which makes up most of the government revenue.

# CIRCULAR FLOW OF INCOME IN AN OPEN ECONOMY

- Two-sector economy and three-sector economy are briefly discussed in previous sections. These are hypothetical economies. In real life, only four-sector economy exists. The four-sector economy is composed of following sectors, i.e.:
  - (i) Household sector,
  - (ii) Business sector,
  - (iii) The government, and
  - (iv) Transaction with '*rest of the world*' or foreign sector or external sector.



- The household sector, business sector and the government sector have already been defined in the previous sections.
- The foreign sector includes everyone and everything (households, businesses, and governments) beyond the boundaries of the domestic economy.
- It buys exports produced by the domestic economy and produces imports purchased by the domestic economy, which are commonly combined into net exports (exports minus imports).
- The inclusion of fourth sector, i.e., foreign sector or transaction with '*rest of the world*' makes the national income accounting more purposeful and realistic.
- With the inclusion of this sector, the economy becomes an open economy. The transaction with '*rest of the world*' involves import and export of goods and services, and new foreign investment.

- In four-sector economy, goods and services available for the economy's purchase include those that are produced domestically (Y) and those that are imported (M). Thus, goods and services available for domestic purchase is Y+M. Expenditure for the entire economy include domestic expenditure (C+I+G) and foreign made goods (Export) = X. Thus:

$$Y + M = C + I + G + X$$

$$Y = C + I + G + (X - M)$$

Where, C = Consumption expenditure

I = Investment spending

G = Government spending

X = Total Exports

M = Total Imports

X - M = Net Exports

- *Economy Leakages and Injections:*
- **Leakages:** When households engage in savings and purchase of goods and services from abroad, we experience temporary withdrawal of funds from circulation. Therefore, leakages in the circular flow are savings, taxes and imports
- **Injection:** On the other hand, when we sell abroad (export) we receive income. More so when foreigners invest in our country the level of income will also increase. These two activities are injection into the income stream. Therefore, injections are investment, government spending and exports.

# NATIONAL INCOME

- National Income refers to the money value of all the goods and services produced in a country during a financial year.
- In other words, the final outcome of all the economic activities of the nation during a period of one year, valued in terms of money, is called as a National income.

# METHODS OF MEASURING NATIONAL INCOME

- There are three measures of national income of a country:
  1. It is the sum of value of all final goods and services produced in a year.
  2. It is the sum of all incomes accruing to the factors of production in a year.
  3. It is the sum of consumer's expenditure, net investment expenditure and government expenditure on goods and services.

**Thus, national income = national product = national expenditure**

# FEATURES OF NATIONAL INCOME

1. Flow Concept
2. Value of final goods
3. Macroeconomic concept
4. Monetary measure
5. Adds net exports
6. Measure of economic progress

(Explained in detail in notes)

# IMPORTANCE OF NATIONAL INCOME ACCOUNTING

## 1. Measures economic performance of countries:

- A Standard performance indicator of countries.
- Countries are ranked on the basis of their GDP.

## 2. Compares standard of living:

- Per capita income shows distribution of wealth in the country

## 3. Sectoral contribution

- Helps to study occupational structure, income distribution, investment and consumption pattern.

#### 4. Measurement of economic welfare

- Composition of national income acts as an indicator of economic welfare.

#### 5. Changes in price level:

- National income statistics helps in estimating trends in price level and forecast future inflationary and deflationary trends.
- E.g. GDP deflator

#### 6. Business forecast:

- Growth rate trends and national income measures help in forecasting future business trends.
- Useful, especially, for the financial investors.

#### 7. Global income distribution:

- Helps identify global inequalities in the distribution of income.

#### 8. Economic planning and policies:

- National income measurement helps the government to make long term plans frame policies.

# CONCEPTS OF NATIONAL INCOME

## 1. Gross Domestic product (GDP):

It is the money value of final goods and services produced within the domestic territory of a country in a given period of time. It is the value produced irrespective of the nationality of the factors of production.

- The domestic territory of a country differs from its political territory:
  - Territory lying within the political territory of a country including the territorial waters.
  - Ships and aircrafts operated by the residents of a country between two or more countries. Residents of a country includes individuals as well as institutions residing within the country irrespective of their nationality.
  - Embassies, consulates and military establishments of a country in the lands of other countries.

GDP of a closed economy:

$$Y = C + I + G$$

GDP of an open economy:

$$Y = C + I + G + (X - M)$$

## 2. Gross National Product (GNP)

- It is equivalent to Gross National Income (GNI)

$$\text{GNP} = \text{GDP} + \text{Net factor Income from abroad}$$

- Net Factor Income from Abroad (NFIA):

Some of the countries' national output is produced by factors owned by foreign nationals or foreign firms.

- Similarly, some of the factors owned by the domestic nationals or firms are employed abroad and produce the there.
- The difference between the value of output produced by these two is called as NFIA. Thus,

$$\text{NFIA} = \text{R} - \text{P}$$

Where, R = Income received by the domestic factors employed abroad.

P = Payments made to the foreign factors employed in the domestic economy.

- GNP can also be described as

$$\text{C} + \text{I} + \text{G} + (\text{X}-\text{M}) + (\text{R}-\text{P})$$

# DISTINCTION BETWEEN GDP AND GNP

## GNP

1. It is the total money value of goods and services produced by the nationals in a given time period.

2. Income earned by the nationals whether inside or outside the economy is included.

3. The part of income produced within the country but earned by foreigners is excluded by GNP

4.  $GNP > GDP$  if people or firms of a country hold large amounts of the stocks and bonds of firms or governments of other countries and derive income from them. i.e.  $R > P$

$$5. GNP = C + I + G + (X-M) + (R-P)$$

## GDP

1. It is the total money value of goods and services produced within domestic territory in a given time period.

2. It doesn't include the income earned by the nationals residing outside the country.

3. All the income produced in a country by nationals or foreigners working in the country are included.

4.  $GDP > GNP$  when much of the income from a country's production flows out of the country. i.e.  $R < P$

$$GDP = C + I + G + (X-M)$$

### 3. NET NATIONAL PRODUCT (NNP)

$$\text{NNP} = \text{GNP} - \text{Depreciation}$$

- **Depreciation:** In the process of production, some physical capital like equipments, machines etc are worn out which is called as depreciation.
  - The investment made in replacement of the worn out capital does not lead to any addition to the national income.
  - Therefore, the expenditure incurred on this is deducted from the gross national product to arrive at the net national product.

## 4.NET DOMESTIC PRODUCT (NDP)

$$\text{NDP} = \text{GDP} - \text{Depreciation}$$

### Distinction between GNP and NNP

GNP	NNP
1. It is the sum of money value of final goods and services produced by the country's factors during a given year.	1. It is the net value of final goods and services produced by the country's factors during a given year.
2. $\text{GNP} = \text{GDP} + \text{Net factor Income from abroad}$	2. $\text{NNI} = \text{GNI} - \text{Depreciation}$
3. It does not give the correct picture of a country's wealth.	3. It gives correct picture of a country's wealth.

# GNP AND GDP AT MARKET PRICE AND AT FACTOR COST

- Market Price: It's the price paid in the market.
  - It is distorted by the indirect taxes and subsidies.
  - Indirect taxes increase the price of good, while subsidies reduce the price.
- Factor cost: the amount paid to the factors of production in return of their contribution in the production.

•Factor cost = Market price – Indirect taxes + subsidies

OR

•Market price = Factor cost + Indirect taxes - subsidies

- $\text{GNP at market price} = \text{GNP at Factor cost} + \text{indirect taxes} - \text{subsidies}$
- $\text{GDP at market price} = \text{GDP at Factor cost} + \text{indirect taxes} - \text{subsidies}$
- $\text{NNP at market price} = \text{NNP at Factor cost} + \text{indirect taxes} - \text{subsidies}$
- $\text{NDP at market price} = \text{NDP at Factor cost} + \text{indirect taxes} - \text{subsidies}$

- $\text{GNP at factor cost} = \text{GNP at market price} - \text{Indirect taxes} + \text{subsidies}$
- $\text{GDP at factor cost} = \text{GDP at market price} - \text{Indirect taxes} + \text{subsidies}$
- **NNP at factor cost** =  $\text{NNP at market price} - \text{Indirect taxes} + \text{subsidies}$
- $\text{NDP at factor cost} = \text{NDP at market price} - \text{Indirect taxes} + \text{subsidies}$

# DISTINCTION BETWEEN NNP AT FACTOR COST AND AT MARKET PRICE

NNP at factor cost	NNP at market price
1. It is the value of the final goods and services valued at their cost of production.	1. . It is the value of the final goods and services valued at their market price.
2. It is the sum total of all the income paid to the factors of production.	2. It is the sum total of value of all the final goods and services adjusted for depreciation.
3. It shows the income actually earned by the factors of production and therefore does not include taxes.	3. It shows the value of goods and services produced at market price which is inclusive of indirect taxes.
4. The factor cost of goods and services would be equal to its market prices plus the subsidy paid on it in the absence of indirect taxes.	4. Subsidy reduces the market price to be less than the factor cost.
5. $NNP \text{ at factor cost} = NNP \text{ at market price} - \text{Indirect taxes} + \text{subsidies}$	5. $NNP \text{ at market price} = NNP \text{ at Factor cost} + \text{indirect taxes} - \text{subsidies}$

# FOR PRACTICE...

□ Calculate:

- GDP at market price = GNP at factor cost +.....
- GNP at market price = NDP at factor cost +.....
- NNP at factor cost = GDP at market price +.....
- NDP at factor cost = NNP at factor cost +.....
- GNP at market price = NDP at factor cost +.....

## 5. NATIONAL INCOME AT CURRENT PRICE AND CONSTANT PRICE

- All the concepts of national income can be valued at current price and constant price.
- Current price: Prices prevailing in the market at current times.
- Constant price: It is the price prevailing in any of the passed years, which is considered to be the price of current year as well while calculating the national income.

- National income calculated at current prices doesn't give correct picture of the economy.
- Prices increase every year, thus the national income shows an increase too.
- If the price are constant and then national income shows an increase, it reflects that there is an economic growth.
- Therefore, national income is calculated at constant prices.

- To calculate the national income at constant price, a reference year from the past is selected which is called base year.
  - The base year should be a normal year.
- Through this, the measures of inflation are deflated from their measurement at current price.

# REAL V/S NOMINAL GNP

- Real GNP is the GNP at constant prices.
- Nominal GNP is the GNP at current prices.

If the prices increase without any increase in the production of goods and services, the nominal GNP will still increase, which is not the real growth.

- This nominal GNP is deflated to calculate the real GNP. This is done with the help of GNP deflator which is also called as price deflator.

$$\text{GNP Deflator} = \frac{\text{Nominal GNP}}{\text{Real GNP}} \times 100$$

## 6. GROSS VALUE ADDED METHOD OF CALCULATING NATIONAL INCOME

- GVA is defined as the value of output minus the value of intermediary consumption.
- 'Value added' represents the contribution of the labour and capital to the production process.
- GVA is a measure of the contribution to GDP made by an individual producer, industry or sector.
- At its simplest, it gives the rupee value of goods and services produced in the economy after deducting the cost of inputs and raw materials used.
- $GDP = \Sigma GVA + \text{product taxes} - \text{product subsidies}$

## 7. PERSONAL INCOME

- It is the sum total of all the income actually received by all the individuals or households in a country during a year.

$$\text{PI} = \text{NI} + \text{income received but not earned} - \text{income earned but not received}$$

- Income earned but not received:

Social security contributions, corporate income taxes and undistributed corporate profits

- Income received but not earned:

Transfer payments

## **8. Disposable Personal Income (DI):**

There are personal taxes which are not considered when calculating personal income. In order to derive disposable personal income we must subtract these personal taxes from personal income.

$$\mathbf{DI = PI - Personal Income Taxes}$$

# 9. PER CAPITA INCOME

- $PCI = \frac{\text{National Income}}{\text{Population}}$

## 10. Purchasing Power Parity Income:

The level of GDP can be compared by calculating their values in the currencies of two nations.

This can be done either through the current exchange rate or through PPP exchange rate.

- PPP is the method of comparing the relative purchasing power of currencies over the same type of goods.
- Calculating the national income through PPP rate helps in comparing standard of living in two different countries.

# GREEN GDP

- The green gross domestic product (green GDP or GGDP) is an index of economic growth with the environmental consequences of that growth factored into a country's conventional GDP.
- Green GDP monetizes the loss of biodiversity, and accounts for costs caused by climate change.
- It is a measure of how much a country is prepared for sustainable development.

- The concept has its origin in the works of the economists James Tobin and William Nordhouse, who for the first time accounted for environmental change in the process of economic development.
- India began its GGDP initiative in 2009. MSPI has set up a working committee for estimating green national account. The Process of green accounting is yet to be completed.

# NEED FOR GREEN GDP

1. Limitations of conventional measures of national income.
2. Gives idea of sustainability of a country's income.
3. The natural resources and their positive externality are never accounted.
4. Brings in the accountability for the future generations.
5. Indicates social well-being of the people.

# CALCULATION OF GGDP

The calculation of GGDP involves measurement of stock and flow of natural resources in the ecosystem of region.

- The process of consumption involves the consumption of natural capital which is called as net natural capital consumption. Thus, in this process the calculation of natural capital accounting is necessary.

- It involves following steps:
  1. Physical accounting: it involves the state, type and extent of resources over space and time.
    - Both qualitative and quantitative accounting is done here.
  2. Monetary valuation of natural capital:
    - e. g. Conservation International's Ecosystem Values and Accounting (EVA) system helps place a price tag on an ecosystem's "goods."
      - EVA provides a framework to quantify a region's individual resources and how each resource flows, or works to provide services, within a community or country.

3. Net change in natural capital in monetary terms:

$$\text{GGDP} = \text{GDP} - \text{Cost of net natural capital consumption}$$

Cost net natural capital consumption includes cost of natural resource consumption and cost of environmental depletion

## Criticism of Green GDP

1. Difficulty in assigning monetary value
2. Gives too much importance to environmental factors and doesn't focus on social welfare
3. Cannot indicate sustainability of the growth rate.

# NATIONAL INCOME AND ECONOMIC WELFARE

- Economic welfare is the level of prosperity or standard of living of an individual or a group of people.
- In 1972, William Nordhouse and James Tobin developed Measure of Economic Welfare (MEW) to replace GDP.
  - MEW included the leisure value and the amount of unpaid work which increased the value of GDP.
  - They also added the value of environmental damage which reduced the value of GDP.

- Government spending leads to an increase in economic welfare, provided the spending is distributed in desired manner.
- An increase in national income leads to an increase in government spending and thus improves the economic welfare.
- But the direct relation between national income and economic welfare depends on following factors:
  1. Size of national income
  2. Change in price level: If price level increases, the national income rises, but welfare goes down.
  3. Expenditure pattern: essential goods Vs luxury goods
  4. Production pattern: essential goods Vs luxury goods or defence goods
  5. Changes in income distribution

# **PROBLEMS IN MEASURING NATIONAL INCOME**

- **1. Exclusion of Real Transactions**
- **2. The Value of Leisure**
- **3. Cost of Environmental Damage**
- **4. The Parallel Economy**
- **5. Imputed Income**