CHAPTER – 6 : Determination of National Income

UNIT-1 NATIONAL INCOME ACCOUNTING

➢ The central statistical organization (CSO) in the ministry of statistics and programme implementation (MoSP & I) is responsible for the compilation of National Income.

➢ DES's (Directorates of economic and statistics) are responsible for the same at state level.

■ **Usefulness and Significance of National Income Estimates**

(1) It provides a framework for analyzing the short-run performance.

(2) The distribution pattern of national income helps businesses to forecast future demand.

(3) Economic welfare depends on magnitude & distribution of national income

(4) NI shows composition and structure of NI of different sectors & variations in them. Helps to make comparisons of trend and speed of development

(5) Provides quantitative basis for assessing, choosing & evaluating economic policies

(6) Shows income distribution and possible inequality in its distribution. Make comparisons of statistics, such as ratios of investment, taxes, to GDP

(7) Provides guide to make policies for growth and inflation

■ **Concept of GDP**

GDPmp- GDP is the Value of all final goods and services produced in a country during a period of time. It includes value of goods produced at market place and these values add together to GDPmp.

Nominal GDP – it is the GDP calculated at current year price level.

Real GDP- it is the GDP calculated at base year price level.

Nominal GDP increases over time because-

(1) Production of most goods increases over time

(2) Prices of most goods increases over time

GDP deflator- (imp. Topic)

$$\text{GDP deflator} = \frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$$

➢ GDP deflator is the price index used to convert nominal GDP to Real GDP.

➢ It measures the current level of prices relative to the level of prices in base year.

➢ Since nominal GDP & real GDP must be same in the base year, deflator in the base year = 100 (imp. Fact)

> GDP deflator in year 1 = GDP defaltor $_1$
> GDP deflator in year 2 = GDP defaltor $_2$

$$\text{Inflation rate in year 2} = \frac{\text{GDP defaltor}_2 - \text{GDP defaltor}_1}{\text{GDP defaltor}_1} \times 100$$

NUMERICAL ILLUSTRATIONS-

Q. **Find out GDP deflator and Interpret it.**

	Real GDP	Nominal GDP (Cr)
Year 1	400	500
Year 2	450	600

Ans. GDP Deflator = $\frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$

Year 1	Year 2
$\frac{500}{400} \times 100 = 125$	$\frac{600}{450} \times 100 = 133.33$ (approx..)

Interpretation:

> Year 1 GDP deflator is 125, prices have increased by 25% since base.
> Year 2 GDP deflator is 133.33 (approx.), inc. in price since last year.

Q. **Find nominal GDP if real GDP = 450, Price index = 120**

Ans. Nominal GDP = Real GDP $\times \frac{\text{Price Index}}{100} = 450 \times \frac{120}{100} = 540$

■ **Net Domestic Product (NDP)**

Net amount/value of goods and services produced in a country during a given period of time.

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

■ **Gross National Product**

> GNP is total value of all goods and services produced by a country's residents both domestically and abroad in a specific period.
> $\text{GNP}_{MP} = \text{GDP}_{MP} +$ factor income earned by domestic factors of production employed in rest of the world.
> Factor income earned by the factors of production of rest of the world employed in domestic territory.

$$\text{GNP}_{MP} = \text{GDP}_{MP} + \text{Net factor from abroad (NFIA)}$$

NFIA = Net compensation of employees + Net income from property and entrepreneurship + Net retained earning.

National = Domestic + NFIA

■ **Net National Product at Market Price (MP)**

NNP_{MP} and GNP – Depreciation, representing the next net market value of all final goods and services produced domestically.

$NNP_{MP} = GNP_{MP}$ – Depreciation

$NNP_{MP} = NDP_{MP}$ + NFIA

$NNP_{MP} = GDP_{MP}$ + NFIA – Depreciation

■ **Gross Domestic Product at Factor Cost**

GDP_{FC} is the money value of output produced within a country's domestic limits in a year as received by the factors of production.

Market Price = Factor cost + Net indirect tax

= FC + Indirect tax – Subsidies

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

= Compensation of employees + Operating surplus (rent + interest + profit + royality) + mixed income of self-employed + Depreciation.

Factor cost – Actual cost of payments to factors of production like labour, capital and land.

Basic price – Excludes tax, on products that producers received from purchases but includes subsides received from the government to lower prices charged to purchases.

Market Prices – Reflect the final price paid by consumers and includes both product and production taxes while subtracting subsidies.

■ **Relationship:**

Basic Price = Factor cost + Production tax – Production subsidy.

Market Price = Basic Price + Product tax – Product subsidy.

■ **Net Domestic Product at Factor Cost (NDP_FC)**

➢ Total factor income earned by the factors of production.

➢ Sum of domestic factor incomes / domestic factor incomes net of depreciation.

NDP_{FC} = NDP_{MP} – Net indirect tax

= Compensation of employees + operating surplus (rent + interest + profit) + mixed income of self employed.

■ **Net National Product at Factor cost :**

National income is the factor income occurring to normal residents of the country during the year.

NNP_{FC} = National Income = Domestic income + NFIA

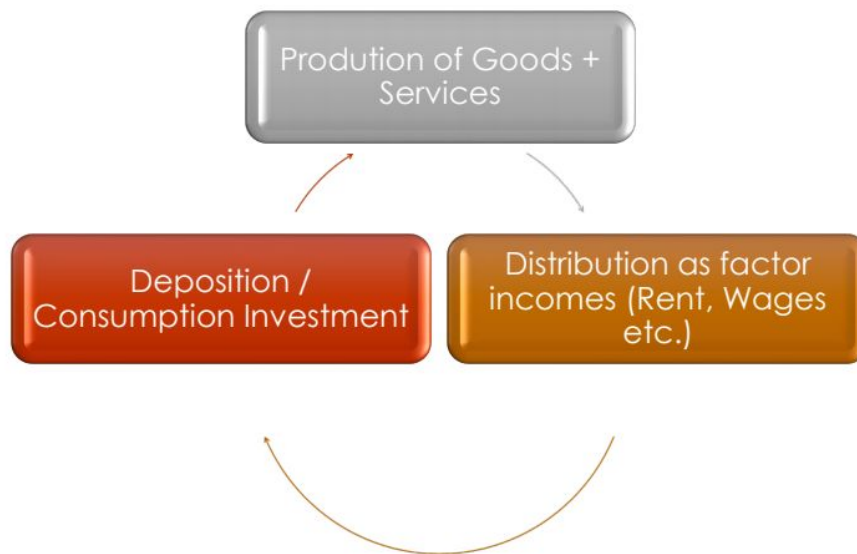If NFIA is +ve, then national income will be greater than domestic national income.

- **Per Capita Income-**

GDP per capita measures a countries output per person, indicating the standard of living.

$$\text{Per capita income} = \frac{\text{GDP (adjusted for inflation)}}{\text{Total population}}$$

- **Measurement of National Income in India**
- **The Circular Flow of Income–**

Phase 1- Production

Firm produces goods/services with help of factor services
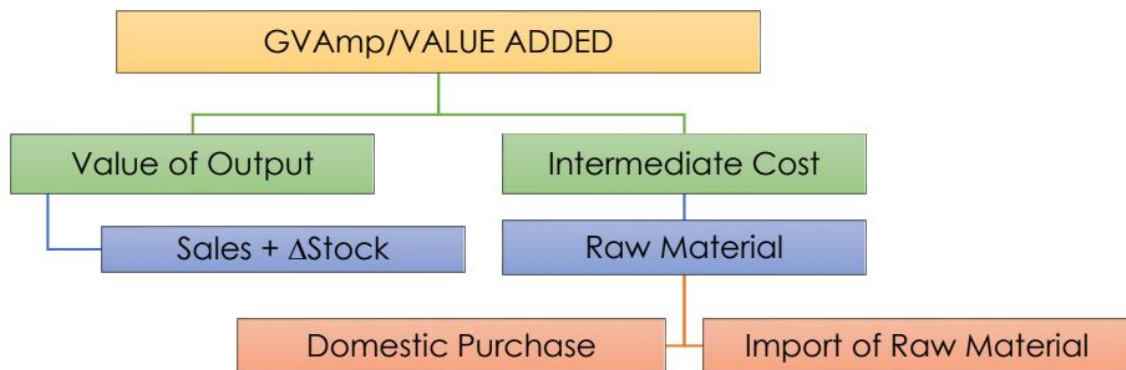
Phase 2- Income/ Distribution

The flow of factor income in form of rent etc, from firms to households.

Phase 3- Expenditure/ disposition

The income received by different factors of production, is spent on consumption of goods and services.

- **Value Added Method/ Product Method**
- **Gross Value Added mp**

- **GVAmp = Sales + Δstock - IC**

  NVA at FC = GVAmp – Dep – NIT

  Estimation of National Income

  [ΣGVA_{MP} – Depreciation = Net value added (NVA_{MP})]

  [NVA_{MP} – Net indirect tax = Net domestic product (NDP_{FC})]

  [NDP_{FC} + NFIA = National income (NNP_{FC})]

- **Income Method**
  - Total factor incomes generated in the production of goods and services is required for calculation.
  - Relative contribution of factor owners is calculated.
  - It sums up incomes earned by all factors of production within a country's economy.

  NNP_{FC} = Compensation of employees + operating surplus (rent + interest + profit + royalty) + mixed income of self employed + Net factor income from abroad **(NFIA)**

  Profit = Corporate Taxes + Dividend + Retained Earnings

- **Expenditure Method/Income disposable method**
  - In this method, national income is the aggregate final expenditure in an economy during an accounting year.

  GDP = ΣFinal expenditure

Captain Love Kaushik

- **Private expenditure-** Spending by households on goods & services for consumption purpose (C)
- **Investment expenditure/Gross domestic capital formation-** Spending by business on capital goods, to inc. production capacity. (I)
- **Government expenditure-** Spending by govt. on goods & services (public services, defence etc.) (G)
- **Net export-** Difference b/w the exports and imports. (NX)

Calculation-

$GDP_{MP} = C + I + G + NX$

$NNP_{FC} = GDP_{mp} - Depreciation - NIT + NFIA$

■ **Personal Income–**

Income received by the household sector, including non-profit institutions, excluding retained earnings, indirect business taxes and corporate income taxes.

PI = NI + Income received but not earned – Income earned but not received.

PI = NI – undistributed profits – Net interest payments made by households – Corporate tax + transfer payments to households from firms and govt.

■ **Disposable Personal Income–**

It's a measure of the amount of money in the hands of the individuals that is available for the consumption/savings.

DI = PI – Personal income taxes – non tax payments
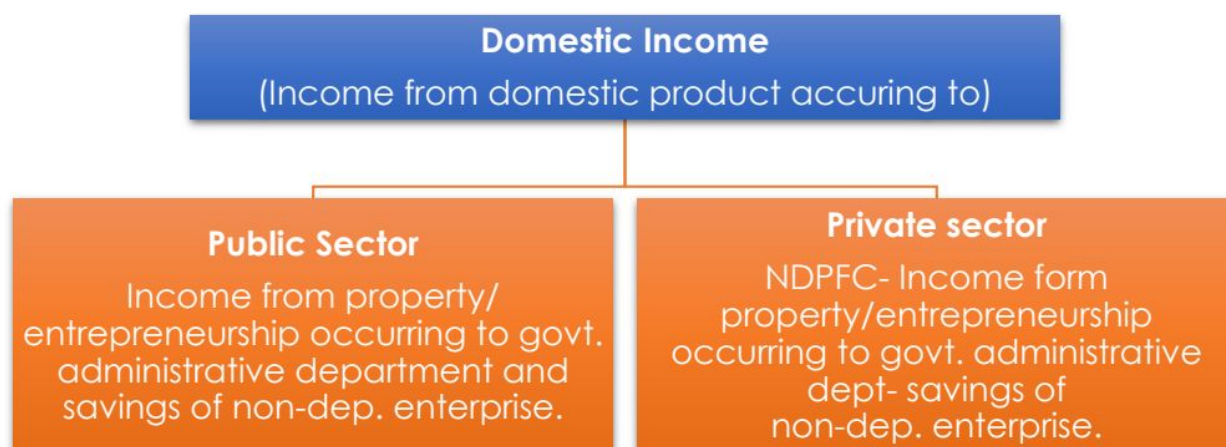
■ **Net National Disposable Income (NNDI)–**

NNDI = Net national income + other net current transfers from the rest of the world.

NNDI = NNI + Net taxes on income and wealth receivable from abroad + net social contributions and benefits receivable from abroad.

■ **Gross National Disposable Income–**

NNDI + CFC = GNI + Other net current transfers from the rest of the world.

Domestic Income
(Income from domestic product accuring to)

Public Sector	Private sector
Income from property/ entrepreneurship occurring to govt. administrative department and savings of non-dep. enterprise.	NDPFC- Income form property/entrepreneurship occurring to govt. administrative dept- savings of non-dep. enterprise.

■ **Private Income**

Measure of income which occurs to private sector from all sources within and outside the country.

PI = Factor income from NDP which accures to private sector + Net factor income from abroad + National debt interest + Current transfers from govt. + other net transfers from the rest of the world.

NDP$_{FC}$	–
Less: Income from Property and Entrepreneurship accruing to Government Administrative	–
Departments (Railways, Post Office etc.)	–
Less: Savings of Non-departmental Enterprises.	–
Income from Domestic Product Accruing To Private Sector	–
Add: NFIA	–
Add: National Debt Interest	–

Add: Current Transfers from Government	–
Add: other Net Current Transfers from rest of the world	–
Private Income	–
Private Income	–
Less: Undistributed Profits	(–)
Less: Corporate Tax	(–)
Personal Income	–
Less:Personal Taxation	(–)
Less: Non-Tax Payment	(–)
Disposable Personal Income	–

- ■ **System of Regional Accounts in India**
  - Provides integrated database on the innumerable transactions in original economy.
  - Net State domestic Product (NSDP)- Measure in monetary terms, volume of all goods and services produced in a state within a given period of time.

$$\text{Per Capita State Income} = \frac{\text{Mid-Year Projected income of state}}{\text{NSDP}}$$

  - State level estimates are prepared by state income units within state directorates of economics and statistics (DESs), with assistance from the central statistical organization.
  - **"Supra-regional sectors"**- Railways, communication, banking insurance, central government administration etc.
  - Estimates of supra regional sector are compiled and then allocated to stats and based on relevant indicators.

- ■ **GDP AND WELFARE**

  GDP is often used as an indicator of a countries welfare.

- ■ **LIMITATIONS OF GDP CONCEPT**
  1. Income distribution is not reflected in GDP per capita.
  2. Technology and managerial improvements are not captures.
  3. Illegal activities are not accounted for.
  4. Non-market and non-economical activities (health/ education) are not included.
  5. Increased GDP due to longer working hours aren't accounted for disability of loss of leisure time.
  6. Economic bads such as crime/pollution aren't deduced from GDP.

7. Volunteer work and unpaid services are not included.

8. Externalities (positive/negative) are not considered in GDP.

■ **Limitations and Challenges-National Income Calculation**

- Lack of agreed definition- national income.
- Accurate distinction of final and intermediate goods. Issue of transfer payments.
- Services of durable goods.
- Difficulty of incorporating distribution of income.
- Valuation of new goods at constant price.
- Valuation of govt. services.

Other challenges related to-

- Inaccurate and unrelatable data.
- Presence of unmonetized sector.
- Production of self-consumption.
- Illiteracy and ignorance leading to unrecorded incomes.
- Lack of proper occupational classification.
- Accurate estimation of consumption of fixed capitals.