# LESSON 15

# NATIONAL INCOME AND ITS RELATED AGGREGATES

In Economics, it is essential to study the level of income (National Income) of a country. In 1934, Simon Kuznets used national income data for calculation of economic growth . Even in India, the study and analysis of national income has been conducted by various economists. Before independence, Dadabhai Naoroji in 1868, William Digby in 1899, Findlay Shirass in 1911, 1922 and in 1932 respectively. Shah and Khambher in 1921, Dr. V.K.R.V. Rao (1925-1929) and C.R. Desai (1931-1940) attempted to measure national income in India.

After independence in 1949 , a committee to measure national income was constituted under the chairmanship of Shri P.C. Mahalanobis. Professor Simon Kuznets was the advisor of this Committee. From 1956 onwards, Central Statistical Organization (CSO) has been publishing the estimates of national income of India every year.

## Meaning and Definitions of National Income:-

To understand the meaning of National Income, we must first know the definition of National Income. Some of the important definitions of National Income are given by Marshall, Pigou, Fisher and Simon Kuznets which are as follows :

**According to Marshall :** The labour and capital of a country acting on the natural resources, produce annually a certain net aggregates of commodities, material and immaterial, including services of all kinds. This is the true National Income or service of the country or the national dividend."

**According to Pigou :** National Dividends is that part of the objective income of the factual community including of income derived from abroad, which can be measured in Money. (Economics of Welfare).

**In Dr. Fisher's Words :** "The national dividend or income consists solely of services as received by ultimate consumers , whether from their material or from their human environment. Thus , a piano made for me this year is not a part of this year's income, but an addition to capital . Only the services rendered by these goods in current year is income.

The definition given by Simon Kuznets is considered as modern definition of national income. According to Simon Kuznets, "It is the net output of commodities and services flowing during the year from the country's productive system in the hands of ultimate consumer or into the net addition to the country's capital goods."

In other words, net value of final goods and services produced by the residents of a country at prevailing market price in terms of country's currency is known as flow of national income. Here final goods and services refer to those goods and services which are consumed by both consumer and producer.

Marshall emphasized on time period of one year and net aggregates of physical goods and non-physical goods and services. Pigou included productions which can be measured in terms of money. Fisher made consumption, instead of production as basis of measurement of National Income.According to him , a part of net production of physical and non physical goods received in form of services in a year i.e the part consumed is National Income.

On the basis of various definitions given by eminent economists the features of National Income can be summed up as :

1. National Income is related to the economy of a country.
2. National Income relates to a fixed time period, normally a financial year. (In India it is from $1^{st}$ April to $31^{st}$ March of the following year.)
3 National Income is related to economic activities of the residents of a country. But presently, economic activities of residents and non-residents of geographical area of a country are also included in the study of National Income.
4. National Income is related with productive

economic activities, that is non-productive activities are not included in National Income.

5. Calculation of National Income is related to the production of final goods and services. It means that production of intermediate or semi-finished goods and services are not included in National Income.
6. National Income is calculated at current market price.
7. National Income is expressed in terms of currency of a country.
8. National Income is the aggregate monetary value of goods and services.
9. National Incomes is a flow and not a stock.
10. National Income is calculated in net form i.e. depreciation is deducted from gross National Income / Output.

## Different Concepts of National Income :-

National Income is calculated on two basis :

1. Geographical basis
2. Political basis

**1. On Geographical Basis :** To calculate national income on the domestic basis, the study is conducted on basis of the geographical boundary of a country. We add the value of total production of residents, foreign residents and companies in a geographical boundary of a country to find out the level of gross domestic product (GDP).

**2. On Political Basis :** The citizenship of a country is considered, to measure National Income on political basis. For measurement of National Income the citizenship of a person is taken into consideration. The income earned by the citizen of a country (whether residing in in the geographical boundary of a country or abroad ) is considered in the measurement of Gross Domestic Product (GDP). The productive activities of the citizen of a country anywhere in world are taken into account to measure the level of gross national product (GNP).The above explanation can be understood from the flow chart given below :

There are various concepts related to National Income. The analysis regarding these are as follows

**1. Gross Domestic Product at Market Price ($GDP_{MP}$) :** The Gross Domestic Product at Market Price is the sum of the money value of all final goods and services produced and increase in inventories in a year, in the domestic territory by the resident of a country, foreign citizen and companies

$$GDP_{MP} = C+I+G+(X-M)$$

Here

C = Consumption expenditure

I = Investment expenditure

G = Government expenditure

( X – M ) = Net export

**(a) Net domestic product at market price ($NDP_{MP}$)**

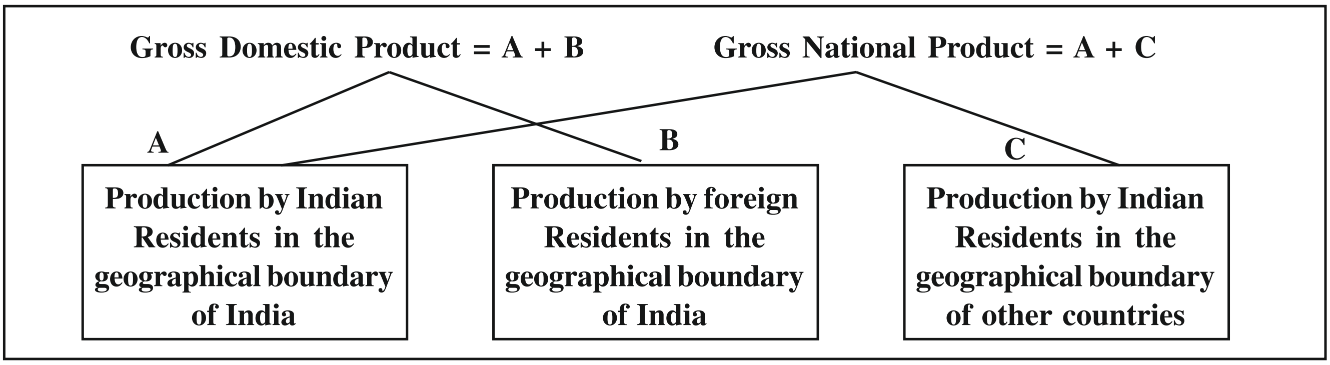
Net Domestic Product at market price can be calculated by deducting depreciation from Gross Domestic Product at market price.

· $NDP_{MP} = GDP_{MP} - D$

· D = Depreciation

**(b) Net Domestic Product at factor cost ($NDP_{FC}$) :**

Net Domestic Product at factor cost can be calculated by deducting indirect taxes and adding subsidy to net domestic product at market price.



- $NDP_{FC} = NDP_{MP} - IT + S$
- IT = Indirect Taxes
- S = Subsidy

### (2) Gross National Product at market price ($GDP_{MP}$)

Gross National Product at market price is defined as the market value of the final goods and services produced in the domestic territory of a country during an accounting year, by residents and non residents of a country,and companies including net factor income from abroad. In order to measure real gross national product, it is to be adjusted to change in prices. The following are the components of gross national product at market prices :

- $GNP_{MP} = GDP_{MP} + NFIA$
- Here NFIA = Net Factor Income from Abroad

or

- $GNP_{MP} = C + I + G + (X\text{-}M) + NFIA$
- Here = (X-M) = Net Export

C= denotes the value of consumption of final goods and services in a financial year by the household sector.

I = denotes the production of capital goods which includes finished and semi-finished goods, inventories and fixed capital formation in a financial year.

G = represents the value of expenditure on goods and services or the value paid by the government in a financial year.

NFIA = The net difference between income earned by our physical and human resources in other countries and the income earned by physical and human resources of other countries, in our country it is denoted by NFIA.

X-M = Similarly, net exports are denoted by X-M. It is obtained by deducting value of foriegn imports from the value of domestic exports.

### Net National Product at market price ($NNP_{MP}$)

Fixed capital is used, in the production of goods and services. During the production process machines get depreciated or sometimes they get damaged (wear and tear) or because of innovations old machines become obsolete. In this way the reduction or depreciation in productive capacity of capital assets is deducted from Gross National Product at market price. Accurate evaluation of a country's economy can be done by measurement of Net National Product at market price ($NNP_{MP}$). In this way, Net National Product ($NNP_{MP}$) is calculated after deducting depreciation in the following way :

$(NNP_{MP}) = (GNP_{MP}) - D$

D = Depreciation

### 4. Net National Product at factor cost ($NNP_{FC}$).

Net National Product at factor cost refers to expenditure made on the factors of production for producing goods/services in a country. For instance,the cost of labour- wages, cost of capital- interest, cost of land used-rent, cost of use of entrepreneurship-profit etc. is collectively known as Total Cost. Indirect Taxes levied by the government are deducted and grants or subsidies provided by Government are added to calculate Net National Product at Factor cost.

$NNP_{FC} = NNP_{MP} - IT + S$

Here

- IT = Indirect Taxes
- S = Subsidy
- Or $NNP_{FC} = R + I + W + P + NFIA$

Here

- R = Rent
- I = Interest
- W= Wages
- P = Profit

The most suitable measure of National Income of a country is its Net National Product at factor cost ($NNP_{FC}$)

**5. Private Income (PI) :** Income obtained from the entire private sector, income obtained from other sources and residual income of corporation is included in private income. Elements which are added in net National Product at factor cost include transfer payments (unemployment allowance and pension) obtained from the government and abroad, interest on national loans, gifts and unexpected profits. While elements which are deducted are income obtained from government enterprises and property, non-institutional savings and contributions to social security( provident fund, life insurance) etc.,

Private income is calculated as :

**Private Income = $(NNP_{FC})$ + TP + IPD – CSS - PPU**

**Here** $NNP_{FC}$ = Net National Product at Factor Cost

TP = Transfer payments from Government and abroad

IPD= Interest on Public Debts

CSS=Contribution to Social Security

PPU=surplus profit of public undertakings

**6. Personal Income (PI) .** Personal Income is the sum total of income actually received by an individual or household sector. Personal income may be calculated as follows :

**Personal Income (PI)** = $NNP_{FC}$ – Undistributed corporate profit –tax-social security contribution+Transfer payments+Interest on Public Debts

**PI = $NNP_{FC}$ - UCP – CT – CSS +TP + IPD**

Here UCP = Undistributed Corporate Profit

CT=Corporation Tax

CSS=Contribution to Social Security

TP=Transfer Payments

IPD=Interest on Public Debts

Transfer Payments are those payments which if paid by the Government, without rendering any type of productive service to weaker sections of the society in the form of pension, unemployment allowance and for disabled. Here, purchasing power is transfered from one group to other.

**7. Personal Disposable Income (PDI).** Personal Disposable Income is calculated by deducting income tax and miscellaneous fees, fines etc. paid by the individuals from their income. Therefore:

Personal Disposable Income (PDI) = Personal Income (PI) – (Personal Taxes like Income Tax) – (fees and fines)

Per Capita National Income (PCI) :- Per Capita Income of the country is also important just like National Income of a country. It is obtained by dividing national income of the country with its population :

Per Capita Income (PCI) = National Income/ Population

**8. National Disposable Income (NDI) :** Standard of living is estimated by finding out the availability of different goods and services to the people of a particular country. Generally, level of availability of goods and services is determined by National Disposable Income (NDI). While calculating National Disposable Income, net indirect tax and net transfer earning from rest of the world are also included. This increases government's ability to spend more. Just like an individual's personal Disposable Income, components of National disposable income are as follows-

1. Government's final consumption expenditure
2. Private final consumption expenditure.
3. Savings.

NDI = NI + NIT + NTEW

Here NI = National Income

NIT = Net Indirect Taxes

NTEW = Net transfer earning from the rest of the world

## Calculation of National Income in India :-

A hypothetical numerical example of calculation of various aggregates of National Income is as follows:

On the given information about National Income of a country calculate the following :

1. Net Domestic Product at Market Price $(NDP_{MP})$
2. Net Domestic Product at Factor Cost $(NDP_{FC})$
3. $(GNP_{MP})$ Gross National Product at Market Price
4. $(NNP_{MP})$ Net National Product at Market Price
5. $(NNP_{FC})$ Net National Product at Factor Price
6. Private Income
7. Personal Income (PI)
8. Personal Disposable Income (PDI).

9. PCI Per Capita Income.

Given values:-

1. $GDP_{MP}$ = 400,000 Crores
2. X-M = 10,000 Crores value of net export
3. D = 10,000 Crores Depriciation
4. IT = 10,000 Crores Indirect Taxes
5. Subsidy = 5000 Crores
6. Populations of Country = 100 Crores
7. Income Tax from government Dept, Railways etc. = 10,000 Crores
8. Profit from government Non-department like SBI =10,000 Crores
9. Contribution of government employees for current year =5,000 Crores
10. Receipts from government to individuals for current year =5,000 Crores
11. Current year receipts from foreign countries to individuals =2,000 Crores
12. Interest receipts on government loan = 3000 Crores
13. Savings of Private Companies = 10000 Crores
14. Corporate Taxes of Private Companies = 15,000 Crores
15. Income Tax from People=10,000 Crores
16. Fees from individuals = 4000 Crores
17. Fines =2,000 Crores

## Solution of Numerical Example-

1. Net Domestic Product at Market Price ($NDP_{MP}$)= GDP-D= 400000-10000= 3,90,000 crores Rs.
2. Net Domestic Product at Factor Cost ($NDP_{FC}$)= $NDP_{MP}$ –IT+S = 3,90,000-10,000=3,85,000 crores Rs.
3. Gross National Product at Market Price ($GNP_{MP}$)= $GDP_{MP}$+ Net profit income= 4,00,000+10,000= 4,10,000 crores Rs.
4. Net National Product at Market Price ($NNP_{MP}$)= $GNP_{MP}$-D = 4,10,000-10,000 = 4,00,000 crores Rs.
5. Net National Product at Market Price ($NNP_{FC}$) = $NNP_{MP}$ –IT+S = 4,00,000-10,000+5,000= 3,95,000 crores Rs.
6. Personal Income (PI) = $NNP_{FC}$- (Income from government department like railways+ non-government department profit like bank + contribution from government employees like pension) +(receipts from government for current year+ receipts from foreign countries for current year+ Interest receipts on government loan)

   =3,95,000 – (10,000+5,000)+(5,000+2,000+3,000) = 3,80,000 crores Rs.
7. Personal Income = Private Income (PI) – (Savings of Private Companies+ Corporate Taxes of Private Companies) = 3,80,000- (10,000 + 15,000) + 3,55,000 crores Rs.
8. Personal Disposable Income(PDI)= PI- ( Income Tax of People) + (Fees of population + Fines)= 3,55,000- (10,000+4,000+2,000)= 3,39,000 crores Rs.
9. Per Capital Income (PCI)= National Income(NI)/ Population of country

   = 3,95,000 Cr./100 Cr. = 3,950 Rs. per person

## Difficulties in Measurement of National Income :-

Number of problems are faced while estimating national income. Some of the theoritical problems are as follows:

1. It is a difficult task to calculate the income of self employed.
2. Problem of calculation of the value of old and intermediate goods.
3. Transaction of shares and debentures is a mere ownership transfer in papers, therefore it is not included in National Income.
4. Illegal activities like black marketing etc. also give rise to theoretical problems.
5. Calculation of holiday for leisure etc. is difficult.

## Importance of National Income :-

National Income of a country is considered very important. National Income gives a picture of a country's economy. Estimation of National Income presents correct economic information of a country. It helps the government to formulate suitable economic policies. The use of national income statistics helps, in equal distribution of income and increase in employment. It also gives factual information of inequalities in economic development of various regions. National Income data can be used to remove regional disparities by formulating suitable economic policies. Analysis of National Income is also used to compare economies of different countries.

National Income estimates help us to formulate economic policies for development of agriculture and livestock breeding. Every country in the world evaluates the progress of industry, trade and other business activities on the basis of National Income statistics. Data of National Income is very useful for research.

Level and structure of National Income gives useful information for purpose of economic planning. Per capita income can be calculated on the basis of national income. Per capita income encourages the government to adopt various financial empowerment programme for redistribution of income.

## Important Points :-

- National Income estimates were used for the first time by Simon Kuznets in 1934 to evaluate economic growth.
- Before independence, National Income estimate was made by Dadabhai Naoroji (1868), William Digby (1899), Findly Shirass (1911, 1922 & 1931) Shah and Khambhar (1921) Dr. V.K.R.V. Rao (1925-1929), and C.R. Desai (1931-1940).
- From 1956 onwards, Central Statistical Organization (CSO) is regularly publishing estimates of National Income every year.
- National Income is the aggregate monetary value of production of final goods and services by the residents in a financial year ($1^{st}$ April to $31^{st}$ march next year in India) at Market Price . It is a flow concept.
- To calculate National Income on domestic basis, we consider the geographical boundaries of a country.
- Income earned by citizen within the geographical area of a country and of those residing in geographical boundaries of other countries, is considered for estimation of National Income.
- Formulation of economic strategy for development of a country is done on the basis of National Income Statistics.
- Every country does evaluation of expansion of industry, trade and other economic activities on the basis of National Income Statistics. National income data is useful for research.

## Excercise Questions :-

## Objective Type Questions :-

1. Who was the first to estimate National Income in the world ?
   (A) William Digby
   (B) Dada Bhai Naoroji
   (C) Fisher
   (D) Dr. V.K.V.R. Rao
2. Who gave the concept of national income as net aggregates of production of material and non-material goods / services ?
   (A) Marshall
   (B) Fisher
   (C) Simon Kuznets
   (D) Pigou
3. Which of the following is not a transfer payment?
   (A) Pension
   (B) Gift
   (C) Unemployment Allowance
   (D) Salary
4. Which of the following is not a feature of national income?
   (A) National income is related to one year.
   (B) National income is a flow concept.
   (C) It is calculated as final production of goods and services.
   (D) Unproductive activities are included in it.

5. Suitable measure of National Income is :
   - (a) GNP
   - (b) GDP
   - (c) $NNP_{FC}$
   - (d) $NNP_{MP}$

## Very Short Answer Type Questions :-

1. Who publishes the National Income estimates in India every year?
2. From which year are estimates of national income issued regularly?
3. Explain in brief the meaning of final goods and services.
4. What is the measurement of National Income called on domestic basis?
5. What is the measurement of National Income on citizenship basis called?

## Short Answer Type Questions :-

1. Explain the following :

(a) $NDP_{MP}$

(b) $NDP_{FC}$

(c) $GNP_{MP}$

(d) $NNP_{MP}$

(e) $NNP_{FC}$

(f) Private Income

(g) Personal Income

(h) PDI

(i) Per Capita National Income

2. Explain in brief the importance of National Income.
3. Explain in brief the difficulties in measurement of National Income.

## Essay Type Questions :-

1. Explain in detail the National Income and its characteristics.
2. With illustrations of an hypothetical example, explain various concepts of National Income.

### Answer Table

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| B | A | D | D | C |