

## **National Income Accounting**

One of the most significant concepts in macro economic analysis is **National Income**. It has been widely accepted by economists as the most comprehensive measure of the level of aggregate economic activity in an economy. The modern economy is a complex one. To understand and analyze the behaviour of such an economy we obviously need some indicators or measures of its performance. National income can be considered as an important yardstick of the overall performance of the economy.

In general sense, **National Income (NI)** refers to the aggregate of the money value of all final goods and services resulting from the economic activities of the normal residents of a country over a period of one year. On the other hand, **Domestic income** refers to the sum total of the money value of all final goods and services resulting from the economic activities of the normal residents of a country within its domestic territory over a period of one year.

*Note: The difference between Domestic Income and National Income is income earned from abroad.*

### **Concepts**

#### **Normal Residents**

A normal resident is one who normally resides in a country and whose economic interest coincides with the economic interest of the country.

So, normal residents of our country include:

1. Citizens and institutions of our country who normally reside in the country and whose economic interest also lies in the country
2. Citizens of other nations, who continue to live in our country beyond a period of one year, and whose economic interest lies in our country. Citizens of our country working in international organizations like World Bank and IMF.
3. Citizens of our country working in foreign embassies located in India.
4. Citizens of our country, who are living abroad, but not for a period exceeding one year and whose economic interest continues to be in India.

Following are not to be treated as normal residents:

1. Citizens of other countries who visit our country for recreation, holidays, medical treatment, studies etc.
2. The diplomats and members of armed forces of a foreign country posted in India
3. International Organizations like IMF and World Bank located in India
4. Citizens of other countries, who cross the border daily to work in another country will be treated as normal residents of the country they live in, and not the country they work in. For example, A Nepali daily crosses the border to work in India. So, he will be treated as a normal residents of Nepal only and not of India.

5. Crew of foreign ships, air crafts etc.

### **Domestic Territory of a Country**

The term Domestic territory of a Country is used in a wider sense in economics, and includes the following:

1. Political frontiers including territorial waters upto 12 nautical miles and airspace.
2. Embassies, consulates, military basis, etc. located abroad are a part of the domestic territory of the country, they belong to and not of the country, they are stationed at. So, Indian Embassy in Australia is a part of the domestic territory of India and not of Australia.
3. Ships and aircrafts operated by the resident of a country between two or more countries are a part of the domestic territory of resident's country. E.g. services provided by Air India between United Kingdom and United States of America, are a part of India's domestic territory.
4. Fishing vessels, oil and natural gas rigs etc. operated by the residents in international waters e.g. research projects undertaken by Indian Government in international waters, are a part of India's domestic territory.

### **Closed Economy and Open Economy**

A closed economy is one which has no economic relations with the rest of the world. The term closed economy usually refers to an economy in which no imports, exports or the movement of factors of production are permitted across boundaries.

An open economy is one which has economic relations with the rest of the world. The term open economy usually refers to an economy in which there are no restrictions on imports, exports or the movement of factors of production across boundaries. Modern economies are open economies.

### **Intermediate Goods and Final Goods**

**Intermediate goods** are those goods that enter into the production of other goods. An intermediate good requires further processing before it is ready for final use. Goods meant for resale for a profit are also considered as intermediate goods. Wheat flour, wood, polish, cloth, milk, wool etc. are intermediate goods.

Goods which are purchased for final consumption and not for resale are called **final goods**. A final good does not require further processing. Bread, watch, clock, fan, radio, television, car, shirt etc. are final goods.

The distinction between intermediate goods and final goods is very important in national income accounting. Intermediate goods are components of final goods. If the value of both intermediate and final goods were included in the measurement of final output there would be a double counting of value. This will result in the overstatement of national income. The problem of double counting is avoided by including only the value of final goods in the estimation of national income.

### **Stock and Flow**

**Stock** is the quantity which is measured at a particular point of time. For example, population of India as at 31<sup>st</sup> March 2014. It is static in nature and does not have time dimension.

**Flow** is the quantity which is measured over a specified period of time. For example, demand for air conditioner during July 2014. It is dynamic in nature and has a specified time dimension.

### **Factor Incomes**

There are basically the incomes of the providers of factor services. These are generally received by households from firms.

Factor incomes include:

1. Compensation of employees, including pensions received by retired employees, as they are treated as deferred payments.
2. Interest
3. Rent
4. Profit

### **Transfer Income**

These incomes which are received without rendering any productive services and include gifts in cash, scholarships to students, old age pension, unemployment allowance, family pension etc.

*Note: The factor incomes are a part of the National Income of a country but transfer income are not.*

### **Factor Cost**

It is the aggregate of all factor payments made by the firm to the factors of production for rendering productive services. It is the sum total of salaries and wages, rent, interest and profit.

### **Market Price**

It is the price at which the commodity will be sold in the market. It is arrived at after considering Net Indirect Taxes.

### **Net Indirect Taxes (NIT)**

It is the difference between indirect taxes and subsidies

1. **Indirect Taxes :** These are the taxes whose burden is shifted from the person paying the taxes to the consumer. Excise duty, custom duty, sales tax, octroi, service tax, entertainment tax, value added tax are some examples of indirect taxes.

*Note: Excise duty - it is payable on goods produced or manufactured in India*

*Custom duty : It is payable on goods imported from abroad*

*Sales taxes - It is payable on inter-state sales, ie. Sales between two states.*

*Octroi - It is payable on transportation of goods from one state to another*

*Service tax – It is payable on services availed by a consumer*

*Entertainment tax- It is charged from individuals watching movies, plays etc.*

*Value added tax - It is payable in the course of intra-state sales – ie. Sales within a state.*

2. **Subsidies:** These are financial assistance provided by the government to an enterprise on production of a certain commodity or a compensation that is given to the seller of the commodity for selling the goods at a price fixed by the government, which is generally below the market price.

*Note: Indirect taxes add to the factor price of the product. Subsidies reduce the factor price of the product.*

### **Net Factor Income from Abroad (NFIA)**

It is the difference between factor incomes (rent, interest, profit and wages and salaries) earned by normal residents of a country from abroad and factor incomes earned by non-residents from our country.

If receipts are more, it will be positive and if payments are more, it will be negative.

NFIA consists of the following three incomes:

1. Net Compensation of Employees (COE): It is the difference between compensation of employees (wages and salaries, allowances, bonus etc.) earned by normal residents of our country from abroad and compensation of employees earned by non-residents from India.
2. Net income from property and entrepreneurship: It is the difference between rent, interest, profit and royalty earned by normal residents of our country from abroad and rent, interest, profit and royalty earned by non-residents from India.
3. Net retained earnings of resident companies abroad: It is the difference between undistributed profits of resident countries located abroad and foreign companies in India.

### **Net Exports**

It is the difference between value of exports and imports of goods and services. It is considered while calculating National Income from Expenditure Method.

### **Depreciation**

Usually, the fixed capital used for production loses a part of its value from wear and tear over a given period of time. It is customary, therefore, to make special allowances for the using up of capital. Such allowances, generally referred to as ‘ capital consumption allowances’ indicates the extent to which, capital goods have

been consumed in the process of production. Depreciation is a process whereby some physical equipment wears out and dies a natural death of old age.

In other words, Depreciation refers to a fall in the value or loss in the value of fixed assets due to normal wear and tear, expected obsolescence (due to change in technology) and passage of time.

The difference between gross and net investment is termed as depreciation

Depreciation = Gross Investment – Net Investment

### **National Income Accounting**

It is a method of preparing and presenting National Income accounts, following the principles of double-entry accounting. The various concepts of National Income and the practice of National Income accounting, also known as social accounting was developed by Simon Kuznets of Harvard University in 1941. He was awarded Nobel Prize for his work.

*Note: The double entry system of accounting works on the basic principle that each and every transaction has two aspects: a debt and a credit.*

### **National Income Accounting**

It is useful for the country in the below mentioned ways:

1. It indicates specifically the contribution from various sectors of the economy
2. It shows the distribution of National Income among various factors of production.
3. It helps to find the change in the composition of National Income – how the share of different sectors is changing over the years.
4. It enables comparison of National Income and per-capita income among various nations.
5. It helps us to understand and interpret the working of the economy
6. It also helps to identify the country's strengths and weaknesses.

### **Percapita Income**

The average income of the individual of a country in a particular year is called PCI for that year. Thus PCI can be derived from dividing NI of a country by the population of the country in that year

PCI = NI/Population

### **Various Aggregates of National Income**

Different aggregates of National income are used in economic analysis depending on:

1. What is and what is not included in National Income estimates?

2. What method is used for estimating the National Income?

The main aggregates of National Income are discussed below:

1. **Gross Domestic Product at Market Price ( $GDP_{MP}$ ):** It is defined as the market value of all the final goods and services produced by all the producing units within the domestic territory of a country during a period of one year. It should be remembered that:
  - a.  $GDP_{MP}$  includes depreciation
  - b. It includes Net Indirect Taxes
  - c. It is the primary measure of National Income
2. **Net Domestic Product at Market Price ( $NDP_{MP}$ ):** It is the market value of all the final goods and services produced within the domestic territory of a country during a period of one year excluding depreciation.  
Symbolically,  
$$NDP_{MP} = GDP_{MP} - \text{Depreciation}$$
3. **Gross National Product at Market Price ( $GNP_{MP}$ ):** It is the market value of all the final goods and services produced in the domestic territory of a country by the normal residents during the course of a year including Net Factor from Abroad (NFIA).  
Symbolically,  
$$GNP_{MP} = GDP_{MP} + \text{Net Factor Income from Abroad (NFIA)}$$
4. **Net National product at Market Price ( $NNP_{MP}$ ):** It is the market value of all the final goods and services produced in the domestic territory of a country by the normal residents during a year exclusive of depreciation and inclusive of Net Factor Income from Abroad.  
Symbolically,  
$$NNP_{MP} = GDP_{MP} - \text{Depreciation} + \text{Net Factor Income Abroad}$$
5. **Gross Domestic Product at Factor Cost ( $GDP_{FC}$ ):** It is the aggregate of factor incomes earned by factors of production during an accounting year in the domestic territory of a country.  
Symbolically,  
$$GDP_{FC} = GDP_{MP} - \text{Net Indirect Taxes (NIT)}$$

Note: NIT is the difference between indirect taxes and subsidies)  
It is also known as Gross Value Added at Factor Cost ( $GVA_{FC}$ )
6. **Net Domestic Product at Factor Cost ( $NDP_{FC}$ ):** It is the aggregate of factor incomes earned by the factors of production generated within the domestic territory of a country during an accounting year exclusive of depreciation. It is also known as Net Value Added at Factor Cost ( $NVA_{FC}$ ).  
Symbolically,  
$$NDP_{FC} = GDP_{FC} - \text{Depreciation}$$

(Depreciation is also termed as ‘Consumption of fixed capital’).

7. **Gross National product at Factor Cost (GNP<sub>FC</sub>):** It is the aggregate of factor incomes earned by normal residents from the domestic territory of a country inclusive of Net Factor Income from Abroad.

Symbolically,

$$\text{GNP}_{\text{FC}} = \text{GDP}_{\text{FC}} + \text{Net Factor Income from Abroad}$$

8. **Net National Product at Factor Cost (NNP<sub>FC</sub>):** Economically, this is the National Income of the country. It is defined as the sum total of factor incomes accruing to the normal residents of a country from the domestic territory, as well as from abroad, during the course of a year.

Symbolically,

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

9. **Gross National Disposable Income (GNDI):** It is the income from all sources available to residents of a country for consumption expenditure or saving during a year. It includes current replacement cost.

Symbolically,

$$\text{Gross National Disposable Income} = \text{National Income (NNP}_{\text{FC}}) + \text{Net Indirect Taxes (NIT)} + \text{Net Current Transfers from the World} + \text{Current Replacement Cost (Depreciation)}$$

10. **Net National Disposable Income (NNDI):** It is the income from all sources available to the residents of a country for consumption expenditure or saving during a year. It is exclusive of current replacement cost, commonly known as depreciation.

Symbolically,

$$\text{Net National Disposable Income} = \text{Gross National Disposable Income} - \text{Depreciation.}$$

*Note: 1. To change from Gross to Net, subtract depreciation*

*2. To change from domestic product to national product, add Net Factor Income from Abroad*

*3. To change from market price to factor cost, subtract Net Indirect Taxes*

### Illustration

Find NNP<sub>FC</sub> from the data given below

	(Rs.) in crore
GDP <sub>MP</sub>	20000
Depreciation	1200
NFIA	-3200
Indirect Taxes	2200
Subsidies	800

### Solution

$$\begin{aligned} \text{NNP}_{\text{FC}} &= \text{GDP}_{\text{MP}} - \text{Depreciation} + \text{NFIA} - \text{NIT} \\ &= 20000 - 1200 + (-3200) - (2200 - 800) \\ &= 20000 - 1200 - 3200 - 1400 \end{aligned}$$

$$= 20000 - 5800$$

$$= \text{Rs. 14200 crore}$$

### Other Income Concepts

There are some other income concepts, in addition to the National Income which are as follows:

11. **Personal Income:** It is defined as the sum of all kinds of incomes received by the individuals of a country from all sources of incomes. Personal income includes wages and salaries, fees and commission, bonus, fringe benefits, dividends, interest earnings and income from self-employment. It also includes transfer incomes like pensions, family allowances, social security benefits etc.

Symbolically,

Personal Income

$$= \text{Private Income} - \text{Undistributed Profits} - \text{Corporation Profit Taxes}$$

12. **Private Income :** Private income is the sum of incomes earned by individuals and the private corporate sector within the domestic territory and abroad. Symbolically,

Private Income = Income accruing to private sector from domestic product + Net factor income from abroad + Current transfer from government + Other current transfers from the rest of the world + Interest on public debt

13. **Personal Disposable Income :** It is that part of personal income, which is left after paying direct taxes and fines and penalties. Households can either spend or save this income.

Symbolically,

Personal Disposable Income

$$= \text{Personal Income} - \text{Direct Personal Taxes (Income tax, wealth tax, etc.)} - \text{Miscellaneous Fees and Fines Paid by the Households.}$$

14. **Nominal GDP :** It is the market value of the final goods and services produced within the domestic territory of a country during a year, as calculated using the current year prices. It is also termed as **GDP at current prices or monetary GDP**.

Symbolically,

$$\text{Nominal GDP} = Q * P$$

Where,

Q = Quantity of final Goods and services produced during an accounting year

P = Prices prevailing during that particular accounting year, i.e when quantity is of 2014, prices of 2014 only would be considered.

15. **Real GDP :** It is the market value of the final goods and services produced within the domestic territory of a country during a year, as calculated using the base year prices. It is also termed as **GDP at constant prices**.

Let us try to understand these concepts with the help of an example:

Illustration - 2

Table - A and B illustrate how nominal and real GDP are differentiated:



TABLE - A

Year	Commodity	Quantity	Price	Nominal GDP <sub>MP</sub>
2006-2007	Rice	50 tonnes	200 per tonne	10000
	Cloth	2000 m	10 per metre	20000
	Pulses	100 tones	200 per tonne	20000
			Total Market Value	50000
2013-2014	Rice	50 tonnes	600 per tonne	30000
	Cloth	2000 m	25 per metre	50000
	Pulses	100 tones	500 per tonne	50000
			Total Market Value	130000

In the above table, the GDP in 2006-07 was Rs. 50000 and in 2013-14 it has risen to Rs. 130000 but this rise is due to increase in prices and not due to increase in production. The GDP for 2006-07 is calculated using the prices prevailing in 2006-07.

The GDP for 2013-14 is calculated using the price prevailing in 2013-14.

TABLE – B

Year	Commodity	Quantity	Price	Nominal GDP <sub>MP</sub>
2006-2007	Rice	50 tonnes	200 per tonne	10000
	Cloth	2000 m	10 per metre	20000
	Pulses	100 tones	200 per tonne	20000
			<b>Total Market Value</b>	<b>50000</b>
2013-2014	Rice	120 tonnes	200 per tonnes	24000
	Cloth	5000 m	10 per metre	50000
	Pulses	250 tonnes	200 per tonne	50000
			<b>Total Market Value</b>	<b>124000</b>

The GDP of 2006-07 and of 2013-14 is calculated using the prices prevailing in 2006-07. The real GDP rises with increase in production.

### Gross Domestic Product (GDP) Deflator

It is the ratio between nominal GDP and real GDP. It helps to understand the changes in GDP due to change in the price level.

Symbolically,

$$\text{GDP Deflator} = \text{Nominal GDP} / \text{Real GDP} * 100$$

So, if the GDP deflator is computed to be 3, then it means that compared to the base year, the prices level has risen 3 times in the current year.

### Conversion of Nominal GDP in to Real GDP

Nominal GDP can be converted into real GDP with the help of current year price index

Symbolically,

$$\text{Real GDP} = \text{Nominal GDP} / \text{Current Year Price Index} * 100$$

*Note: Current Year price index measures the changes in the price level between two specified years.*

### Formulas

**TABLE - 1 Different Aggregates of National Income**

1	Gross Domestic Product at Market Prices ( $GDP_{MP}$ )	Market value of all the final Goods and services produced by all the producing units within the domestic territory of a country in a year
2	Gross National Product at Market Price ( $GNP_{MP}$ )	$GDP_{MP} + \text{Net Factor Income from Abroad}$
3	Net Domestic Product at Market Price ( $NDP_{MP}$ )	$GDP_{MP} - \text{Depreciation}$
4	Net National Product at Market Price ( $NNP_{MP}$ )	$GDP_{MP} - \text{Depreciation} + \text{Net Factor Income from Abroad}$
5	Gross Domestic Product at Factor Cost ( $GDP_{FC}$ )	$GDP_{MP} - \text{Net Indirect Taxes}$
6	Gross National Product at Factor Cost ( $GNP_{FC}$ )	$GDP_{MP} + \text{Net Factor Income from Abroad} - \text{Net Indirect Taxes}$
7	Net Domestic Product at Factor Cost ( $NDP_{FC}$ )	$GDP_{MP} - \text{Depreciation} - \text{Net Indirect Taxes}$
8	Net National Product at Factor Cost ( $NDP_{FC}$ ) of National Income	$GDP_{MP} - \text{Depreciation} + \text{Net Factor Income from Abroad} - \text{Net Indirect taxes}$
9	Gross National Disposable Income	$GNP_{MP} + \text{Net Current Transfers from Rest of the World}$
10	Net National Disposable Income	Gross National Disposable Income - Current Replacement Cost (Depreciation)
11	Private Income	Income accruing to private sector from domestic product + Net factor income from abroad + Current transfers from government + Other current transfers from the rest of the world + Interest on

		Public Debt
12	Personal Income	Private Income - Corporate Profit Taxes - Undistributed Profits
13	Personal Disposable Income	Personal Income - Direct Personal Taxes - Miscellaneous Fees and Fines Paid by the Households
14	GDP Deflator	Nominal GDP /Real GDP *100
15	Real GDP	Nominal GDP /Current Year Price Index * 100

### Methods of Calculating National Income

It is quite a lengthy and difficult task. The economists have devised different methods of estimating National Income which is based on the circular flow models.

Under the circular flow, income passes through three different phases:

1. **Phase of production:** Which gives rise to the Production method or Value Added Method of computing National Income.
2. **Phase of Distribution of Income:** Which gives rise to the Income Method of computing National Income
3. **Phase of disposition of Income:** Which gives rise to the Expenditure Method of computing National Income.

It is computed from either of the three methods should be the same. This is the concept of triple identity.

Should remembered that given the diverse Indian economy, it is not possible to use any single method to estimate the National Income. Therefore, a combination of different methods is used for estimating National Income.

### Methods adopted by CSO for estimating National Income of the different sectors

1. Production Method or Value Added Method is used to estimate National Income of the following production sectors:
  - a. Agricultural and allied services
  - b. Forestry and logging
  - c. Fishing
  - d. Mining and Quarrying
  - e. Registered manufacturing
2. Income method is used for estimating National Income of the following sectors
  - a. Unregistered manufacturing
  - b. Gas, electricity and water supply
  - c. Transport, storage and communication
  - d. Banking and insurance
  - e. Trade, hotels and restaurants
  - f. Real estate, ownership of dwellings
  - g. Public administration and defence
  - h. Other services

3. Expenditure Method is used for estimating National Income of the following sectors:
  - a. Construction sector
  - b. Railways

## **I . Value Added Method or Production Method**

Under this method, two approaches can be used for computing National Income:

### **1. Final Output Method**

Under this method, only those goods and services are included in the computation of National Income, which are either a part of final consumption expenditure or final investment expenditure.

Intermediate goods or goods used as raw materials are not considered while calculating National Income.

This method is not commonly used as it becomes difficult for an economist to access whether a particular good is a final good or an intermediate good because it depends on its end use.

So, wheat purchased by Mohan for his house, will be treated as final good, but if it is purchased by him for his bakery, then it will be an intermediate good. But an economist cannot ask each and every person, his intention about using the product.

### **2. Value Added Method**

This is more practical method. It refers to the difference between the value of output and the value of input. The sum total of the value added by all the sectors of the economy give us the Gross Domestic Product at Market Price.

So,

Gross Domestic Product at Market Price ( $GDP_{MP}$ )

$$= \text{Value Added in Primary Sector} + \text{Value Added in Secondary Sector} + \text{Value added in Tertiary Sector}$$

Value Added = Value of Output - Value of Input (Intermediate Consumption)

Value of Output = Sales + Change in Stock

And

Change in Stock = Closing Stock - Opening Stock

Value of input – Value of Non-factor inputs, Primarily Raw Materials

***Note: The producing units of an economy are classified as:***

1. Primary sector : It includes agriculture, fishing, mining etc..
2. Secondary sector : Which includes all the producing units
3. Tertiary sector : Which provides services to other sectors

Calculating National Income ( $NNP_{FC}$ ) from this method

## **NNP<sub>FC</sub>**

= Gross Value Added by All the production Enterprises with in the Domestic Territory of the Country - Depreciation – Net Indirect Taxes + Net Factor Income from Abroad

Where,

Net Indirect Taxes = Indirect taxes - Subsidies

### **Precautions**

While calculating National Income by Production Method, following items should be included:

1. Value of final goods and services
2. Imputed rent of self-occupied houses
3. Imputed value of goods produced for self-consumption
4. Own account production for investment
5. Commission and brokerage paid on sale of second hand goods

While calculating National Income by Production Method,

1. Sale and purchase of second hand goods
2. Sale and purchase of shares and bonds
3. Value of intermediate Goods and services
4. Services produced for self-consumption

*Note: Problem of Double Counting: It means that a single item is counted twice while calculating National Income. For example, Cloth may be final good for a mill owner, but is intermediate good for shirt manufacturer.*

### **Illustration 3**

Calculate Gross Value Added at Market Price and National Income from the following data:

<b>Sl. No.</b>	<b>Items</b>	<b>(Rs. In crores)</b>
1	Value of Output of	
	Primary Sector	2500
	Secondary Sector	3800
	Tertiary Sector	5200
2	Value of Intermediate Consumption of	
	Primary Sector	800
	Secondary Sector	2000
	Tertiary Sector	1000
3	Indirect Taxes	250
4	Depreciation	160
5	Factor Incomes Received by the Residents from Rest of the	75

	world	
6	Factor Income Paid to Non-residents	120
7	Subsidies Offered by Government	50

### Solution

Gross Value Added at Market Price  $GVA_{MP}$  or  $GDP_{MP}$

$GVA_{MP} = \text{Value Added by Primary Sector} + \text{Value Added by Secondary Sector} + \text{Value Added by Tertiary Sector}$

$$= 1700 + 1800 + 4200 = \text{Rs. } 7700 \text{ Crore}$$

Where,

Value Added = Value of Output - Value of Intermediate Consumption

**National Income ( $NNP_{FC}$ )**

$= GDP_{MP} - \text{Depreciation} + \text{Net Factor Income from Abroad} - \text{Net Indirect Taxes}$

$$= 7700 - 160 + (-45) - 200$$

$$= \text{Rs. } 7295 \text{ crore}$$

where,

Net Factor Income from Abroad

$= \text{Factor Incomes Received by the Residents from Rest of the World} - \text{Factor Incomes Paid to Non-residents}$

$$= 75 - 120$$

$$= \text{Rs. } - 45 \text{ crore}$$

And Net Indirect Taxes = Indirect Taxes – Subsidies

$$250 - 50 = \text{Rs. } 200 \text{ crore}$$

### II Income Method

Under this method, National Income is computed by adding the factor incomes and adding Net Factor Income from Abroad.

Factor Incomes are broadly classified as:

1. **Compensation of Employees (COE):** It further comprises of:
  - a. Wages and salaries in cash

- b. Payments in Kind
  - c. Employers contribution to social security schemes such as provident fund, pension plan etc.
  - d. Pension on retirement
  - e. Allowances and perquisites
2. **Operating Surplus (OS):** It refers to income from property and entrepreneurship, and includes the following items:
- a. Rent
  - b. Interest
  - c. Royalty
  - d. Profit
- Profit is further comprises of dividends, undistributed profits and corporate profit tax.
3. **Mixed Income of Self-employed (MISE):** It refers to the income of self-employed which is a combination of profit, rent, wages and interest.
- For example, A potter makes pots at his home. In his work, his wife and children help him. So, the profits he earns is not merely profit, it includes the imputed rent and wages.

Calculating National Income ( $NNP_{FC}$ ) from Income method

$$NNP_{FC} = NDP_{FC} + \text{Net Factor Income from Abroad}$$

Where,

$$NDP_{FC} = \text{Compensation of Employees} + \text{Operating Surplus} + \text{Mixed Income}$$

### Precautions

While calculating National Income by Income Method, following items should be included:

1. Interest paid by production units on capital borrowed is **included** while computing National Income
2. Imputed rent of self-occupied house
3. Production of goods and fixed assets for self-consumption
4. Commissions and brokerage paid on sale and purchase of second hand goods and shares and securities.

While calculating National Income by Income Method, following items **should not be included:**

1. Transfer earnings
2. Income from illegal activities
3. Income from lotteries
4. Income from sale of second-hand goods
5. Income from capital gains

*Note: Capital gain arises from sale of an asset such as house, share, land etc..*

**Illustration – 4**

Calculate National Income  $NNP_{FC}$

Sl. No	Items	Rs. In crore
1	Mixed Income of Self-employed	1600
2	Old Age Pension	60
3	Operating Surplus	2700
4	Net Indirect Taxes	150
5	Consumption of Fixed Capital	150
6	Net Factor Income from Abroad	-30
7	Employer's Contribution to Social Security Schemes	150
8	Profit	1200
9	Wages and Salaries	1500
10	Dividends	300

**Solution**

Net Domestic Product at Factor Cost ( $NDP_{FC}$ )

= Compensation of Employees + Operating Surplus + Mixed Income of Self-employed

= 1650+2700+1600

= Rs. 4950 crore

Where,

Compensation Employees

= Wages and Salaries + Employer's Contribution to Social Security Schemes

= 1500 + 150 = Rs. 1650 crore

Net National Product at Factor Cost ( $NNP_{FC}$ )

=  $NDP_{FC}$  + Net Factor Income from Abroad

= 4950 + (-30)



= Rs. 4920 crore

### III Expenditure Method

According to this method, National Income is measured in terms of expenditure on the purchase of final goods and services in an economy during the course of an accounting year.

It is also called Consumption and Investment Method or Income Disposal Method

Final expenditure is further classified as:

#### 1. Private Final Consumption Expenditure

It refers to the expenditure by households and social service institutions on final goods and services. It includes:

- a. Consumer services
- b. Consumer non-durable goods
- c. Consumer durable goods

#### 2. Government Final Consumption Expenditure

It refers to government's expenditure on purchase of final goods and services

#### 3. Gross Capital Formation

It refers to the expenditure on the purchase of assets which will be used further in the production process.

It is classified as:

- a. Gross Domestic Fixed Capital Formation which is the aggregate of business fixed investment, Government fixed investment and investment on residential construction by households.
- b. Inventory investment or change in stock which is the difference between closing stock and opening stock.

#### 4. Net Exports

It is the difference between exports and imports of goods and services between a country and rest of the world .

Calculating **National Income**  $NNP_{FC}$  by this method

National Income ( $NNP_{FC}$ )

$$= GDP_{MP} - \text{Net Indirect Taxes} + \text{Net Factor Income from Abroad} - \text{Depreciation}$$

$$GDP_{MP} = \text{Private Final Consumption Expenditure} + \text{Government final consumption expenditure} + \text{Gross Capital Formation} + \text{Net Exports}$$

### Precautions

While calculating National Income by Expenditure Method, following items should be included:

1. Only final expenditure is to be taken into account
2. Imputed value of expenditure on goods produced for self-consumption
3. Imputed rent of self-occupied houses
4. Expenditure on commission and brokerage for sale and purchase of second hand goods, share and securities

While calculating National Income by Expenditure Method, following items should not be included:

1. Expenditure on second hand goods
2. Expenditure on purchase of shares and securities
3. Transfer payments by Government
4. Expenditure on intermediate goods and services to avoid double counting

### Illustrations 5

Sl. No.	Items	Rs. In Crore
1	Government Final Consumption Expenditure	600
2	Net Indirect Tax	150
3	Net Current Transfers from Abroad	100
4	Net Domestic Capital Formation	400
5	Net Factor Income from Abroad	(-50)
6	Private Final Consumption Expenditure	2500
7	Depreciation	200
8	Net imports	100
9	Change in Stock	50

### Solution

$GDP_{MP}$

$$\begin{aligned} &= \text{Private Final Consumption Expenditure} + \text{Government Final Consumption Expenditure} + \text{Gross Domestic Capital Formation} - \text{Net Imports} \\ &= 2500 + 600 + 400 - 100 \\ &= \text{Rs. 3600 crore} \end{aligned}$$

Where,

Gross Domestic Capital Formation

$$\begin{aligned} &= \text{Net Domestic Capital Formation} + \text{Depreciation} \\ &= 400 + 200 = \text{Rs. 600} \end{aligned}$$

$NNP_{FC}$

$$\begin{aligned}
&= \text{GDP}_{\text{MP}} - \text{Depreciation} + \text{Net Factor Income from Abroad} - \text{Net Indirect Taxes} \\
&= 3600 - 200 + (-50) - 150 \\
&= \text{Rs. 3200 crore}
\end{aligned}$$

### A Brief of Three Methods of Calculating National Income

Value Added or Production Method	Income Method	Expenditure Method
Gross Value Added in Primary Sector + Gross Value Added in secondary Sector + Gross Value Added in Tertiary Sector (At Market price)	Compensation of employees + Operating Surplus + Mixed Income of the Self-employed	Private final Consumption Expenditure + Government Final Consumption Expenditure + Gross Domestic Capital Formation + Net Exports
$\text{GDP}_{\text{MP}}$	$\text{NDP}_{\text{FC}}$	$\text{GDP}_{\text{MP}}$
(-)	(+)	(-)
Depreciation	Net Factor Income from Abroad	Depreciation
$\text{NDP}_{\text{MP}}$	$\text{NNP}_{\text{FC}}$	$\text{NDP}_{\text{MP}}$
(-)		(-)
Net Indirect Taxes		Net Indirect Taxes
$\text{NDP}_{\text{FC}}$		$\text{NDP}_{\text{FC}}$
(+)		(+)
Net Factor Income from Abroad		Net Factor Income from Abroad
$\text{NNP}_{\text{FC}}$		$\text{NNP}_{\text{FC}}$

### Difficulties in the Measurement of National Income

There are a number of conceptual and statistical difficulties in the estimation of national income, especially in developing countries like India. They are the following.

1. **Non-monetised Sector:** There is a substantial non-monetised sector in India which makes the calculation of NI difficult. A great deal of what is produced in the agricultural sector is either exchanged for other goods or is kept for personal consumption. This tends to understate NI.
2. **Lack of Occupational Specialization:** There is lack of occupational specialisation which makes the calculation of NI by industrial origin difficult. Since the income of a household is derived from several types of activity, it is not possible to classify the income into separate categories.

3. **Inadequate Accounts:** In India people are mostly illiterate and do not keep any accounts. They are also not willing to disclose their correct income. In such a situation, only rough estimates are possible.
4. **Price Changes:** Another difficulty in calculating NI is that of price changes which fail to keep stable the measuring rod of money. When the price level in the country rises, the NI also shows an increase even though the production shows a decline with a fall in the price level, even though the production might have gone up. Thus due to price changes NI cannot be accurately measured.
5. **Illegal Income:** Income earned through illegal activities (Gambling, Black Marketing, smuggling) is not included in NI. Such goods and services do have value and meet the needs of consumers. But by leaving them out, the national income works out to less than the actual.
6. **Public Services:** In calculating NI, a number of public services are also taken which cannot be valued correctly (for example the services of military, police etc).
7. **Valuation of Certain Goods:** There are a number of goods and services which are difficult to be assessed in terms of money. Example, painting as a hobby by an individual, the bringing up of children by the mother. By excluding all such services from it, the national income works out to be less than what it actually is.
8. **Non-availability of Data:** regarding activities like crop production, fisheries, forestry, animal husbandry, construction sector etc also create difficulties in the correct estimation of NI.
9. **Double Counting:** The most important difficulty in the calculation of NI is that double counting arising out of the failure to distinguish clearly between a final product and an intermediate product. Intermediate goods are components of final goods. If the value of both intermediate and final goods is included in the measurement of final output, there would be double counting of value and therefore an overstatement of GNP.
10. **Inventory Changes:** If inventory changes are included in the GNP. For a correct estimation of GNP, inventory valuation is essential which is a very difficult procedure.
11. **Depreciation :** Firms usually base the depreciation provision on the original cost of their assets. When prices of capital goods are changing, a number of statistical difficulties arise, in the valuation of depreciation like the age composition of the whole capital stock, changes in the prices of capital goods every year etc..
12. **Imputation :** GDP covers all goods and services produced by the residents of a country, irrespective of whether they are exchanged for money, bartered or produced for own use. The problem of imputation is one of estimating the value of production which occurs but is not reflected in market transactions. Imputed values are given to crops retained by farmers for personal consumption, commodities produced for own use, rentals of owner occupied buildings, payments in kind to the employees etc. If imputed values are not included in GDP, the nation's output would be underestimated.