

## Concept of National Income : GDP, NDP, GNP, NNP

We hear terms like GDP, NDP, GNP, NNP etc. very frequently in news, magazines and daily discussions. But do we know what they really mean and what are their uses. Here we are trying to make you understand these terms without using technical jargon. These are some of the terms related to National Income which are being asked in competition now and then.

**1. GDP (Gross Domestic Product):**The value of final goods and services produced inside the boundary of nation during one year.

GDP= Value of gross domestic output- value of intermediate consumption

**Different uses of GDP are :**

1. Per annum percentage change in the growth rate of an economy.
2. It is a **quantitative** aspect and its size gives the estimate about the internal strength of economy. But it **DOES NOT** say about the **qualitative** aspect of the produced goods.
3. GDP is used by the IMF or the WORLD BANK to do comparative analysis of its members.

**2. NDP (Net Domestic Product)**

It is the *net* form of GDP.

NDP= GDP – Depreciation

Depreciation is a decrease in an asset's value caused by unfavourable market conditions.

**Uses of NDP**

1. Government announces the rate of depreciation in the economy. In domestic use, NDP is used to understand the loss due to depreciation.
2. NDP is not used for the comparative economies since the rate of depreciation is different for different countries.

In India NDP is announced by the Ministry of Commerce and Industry.

**3. GNP (Gross National Product)**

It is the GDP of a country added with its **income from abroad**.

GNP= GDP + Income from Abroad

Or,  
 $GNP = GDP - \text{Income from abroad}$

**Income from abroad**= trade balance + interest on External Loans+ Private Remittance

**Private remittance**= inflows and outflows on account of private transfer e.g. NRI

**Trade balance** = net outcome at the year end of the total import and export.

**Interest on external loans**= balance of the inflow of interest payment (on money lend out of economy) – outflow of interest payment (on the money borrowed by the economy)

In case of India, GNP is negative. This is because of heavy outflows on account of Trade Deficit and interest payment on foreign loans.

#### **Use of GNP:**

GNP is the “national income” according to which IMF ranks nations based on PPP or Purchasing Power Parity. [India ranked 4<sup>th</sup> after USA, Japan and China]

It is indicative of the qualitative as well as quantitative aspect of the economy.

#### **4. NNP or Net National Product**

$NNP = GNP - \text{Depreciation}$

Or,  
 $NNP = GDP + \text{income from abroad} - \text{depreciation}$

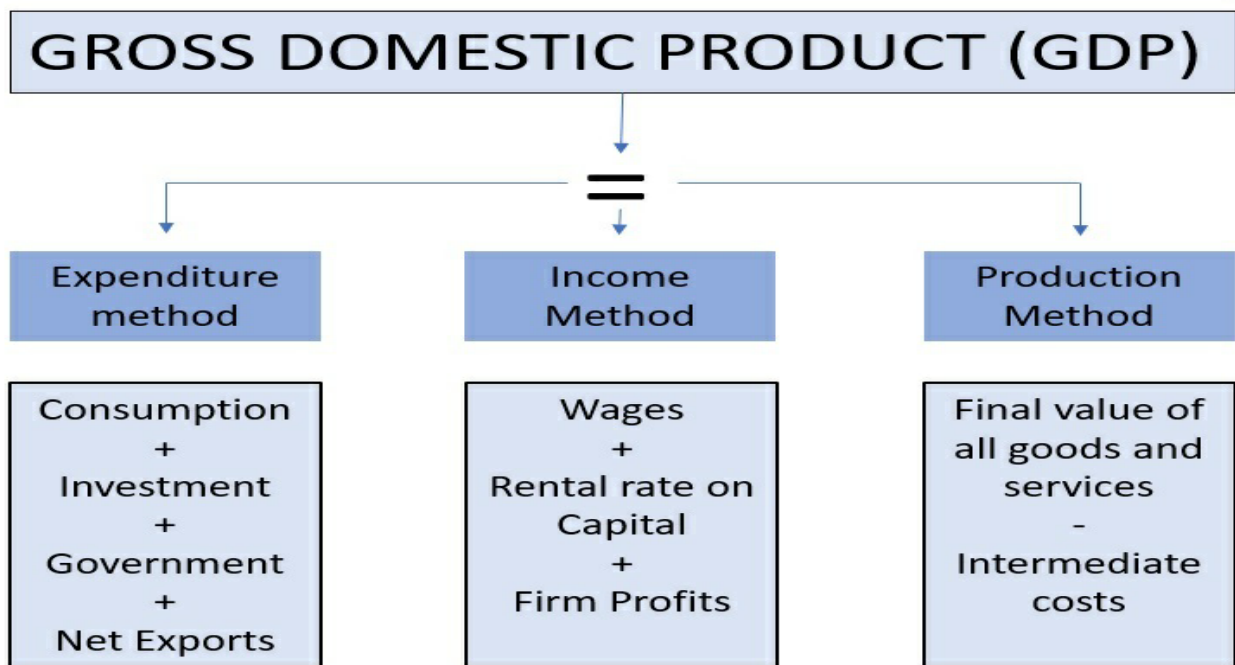
We can find the per capita income of a country if we know the NNP and total population.

e.g.  $(NNP / \text{total Population}) = \text{per capita income}$

#### **Three methods of calculating GDP:**

##### **1. The Expenditure Approach**

2. The Income Approach
3. The production Approach



Gross Domestic Product (GDP) measures the total value of all goods and services produced within an economy. It is used as a macroeconomic measure of the total income of a country.

There are three different methods (Expenditure, Income and Production) which can be used to measure the GDP of a country. All of these methods in theory should sum to the same amount.

### 1. Expenditure method

The expenditure approach is where you add up all the various types of spending which occurs within an economy. There are 4 different types.

#### Consumption (C)

Consumption is all the spending that households do on goods and services. For example, the amount of apples a household purchases; the amount of money spent on healthcare; the amount of money spent purchasing new cars and the money spent on pizza are all examples of consumption spending.

## Investment (I)

Investment is the spending that firms do machinery and equipment to operate their businesses. Examples of investment spending would be a mining company purchases a truck to transport coal; It companies purchasing new computers and the purchase of a new plane for an airline company.

## Government Spending (G)

Government spending is the spending that the government conducts within an economy. Examples of government spending include spending on defense; spending on health care; building of roads and education spending.

## Net Exports (NX)

Net exports is defined at the purchases of domestically produced goods by foreigners subtracted from the purchases of internationally produced goods by local residents. In essence, it is the value of what is sent overseas minus the value of stuff that comes here.

If an airline company operating in USA purchases a new plane from France, this would be considered an import for USA and an export for France. This would cause the net exports to decrease for USA whilst causing the net exports to increase for France.

An interesting case is where a foreign student from China comes and studies at a school in the USA. This is considered an export from USA to China since the USA is producing a service (education) which is essentially being "sent" to a Chinese student who is from the chinese economy. Thus, China is importing education from USA.

Therefore, if we add up these 4 components we get:

$$\text{GDP} = C + I + G + \text{NX}$$

This is also called the demand approach to calculating GDP since all these components are demands for goods and services. It is looking at the demand side of the economy.

## 2. Income method

The income approach is when you add together all factor payments to calculate GDP. Factor payments are all the payments that go to inputs to produce output. Typically, the main factor payments are: profits, returns to labor and returns to capital. The formula for the income approach is as follows:

$$\text{GDP} = \pi + wl + rk$$

where:

$\pi$  = profits that firms make

$wl$  = wage \* total labour provided - this is the returns to labour.

$rk$  = rental rate of capital \* the amount of capital provided

### 3. Production method

The production method (or value added) is where we calculate the total value of all goods produced in the economy minus the value of intermediate goods.

Consider an economy which produces steel and cars. Suppose the economy produces 100 units of steel which it sells for \$1 and it produces 10 cars, using 5 units of steel, which it sells for \$100.

As the production of steel requires no intermediate inputs, the value added from the production of steel is \$100.

The production of cars produces \$1000 worth of cars using \$50 of steel. Therefore, the value added is \$950.

The total value added/GDP of the economy is thus \$1050. Alternatively, we could have added the total amount spent on the cars \$1000 and total spend on steel \$100 giving \$1100 and then subtracted the \$50 of intermediate inputs to also get \$1050.

Numericals:

1. From the following data calculate National Income: Items (in crore) (i) Private income 1,200 (ii) National debt interest 40 (iii) Current transfers from the government administrative departments 40 (iv) Other current transfers from rest of the world 12 (v) Income from property and entrepreneurship accruing to government departments 16 (vi) Savings of government departmental enterprises 8 .

Sol. National Income = Private income – National debt interest – Current transfers from the government administrative departments – Other current transfers from rest of the world + Income from property and entrepreneurship accruing to government departments + Savings of government departmental enterprises

= ₹ 1,200 crore – ₹ 40 crore – ₹ 40 crore – ₹ 12 crore + ₹ 16 crore + ₹ 8 crore = ₹ 1,132 crore

Ans. National income = ₹ 1,132 crore.

From the following data estimate (a) National Income, (b) Personal Income, and (c) Private Income: Items (₹ in crore)

(i) Net national product at market price 1,015 (ii) Income from property and entrepreneurship accruing to government administrative departments 25 (iii) Indirect taxes 150 (iv) Subsidies 20 (v) Saving of non-departmental enterprises 5 (vi) National debt interest 10 (vii) Current transfers from government 25 (viii) Current transfers from rest of the world 10 (ix) Saving of private corporate sector 15 (x) Corporate profit tax 10

Sol. (a) National Income = Net national product at market price – Indirect taxes + Subsidies = ₹ 1,015 crore – ₹ 150 crore + ₹ 20 crore = ₹ 885 crore

(b) Personal Income = National income – Income from property and entrepreneurship accruing to government administrative departments – Saving of non-departmental enterprises + National debt interest + Current transfers from government + Current transfers from rest of the world – Saving of private corporate sector – Corporate profit tax = ₹ 885 crore – ₹ 25 crore – ₹ 5 crore + ₹ 10 crore + ₹ 25 crore + ₹ 10 crore – ₹ 15 crore – ₹ 10 crore = ₹ 875 crore

(c) Private Income = Personal income + Saving of private corporate sector + Corporate profit tax = ₹ 875 crore + ₹ 15 crore + ₹ 10 crore = ₹ 900 crore

Ans. (a) National income = ₹ 885 crore. (b) Personal income = ₹ 875 crore. (c) Private income = ₹ 900 crore.

From the following data, calculate National Income by (a) income method, and (b) expenditure method: Items (₹ in crore) (i) Private final consumption expenditure 2,000 (ii) Net capital formation 400 (iii) Change in stock 50 (iv) Compensation of employees 1,900 (v) Rent 200 (vi) Interest 150 (vii) Operating surplus 720 (viii) Net indirect tax 400 (ix) Employers' contribution to social security schemes 100 (x) Net exports 20 (xi) Net

factor income from abroad (-)20 (xii) Government final consumption expenditure 600  
(xiii) Consumption of fixed capital 100

Sol. (a) Income Method: National Income = Compensation of employees + Operating surplus + Net factor Income from abroad = ` 1,900 crore + ` 720 crore + (-) ` 20 crore = ` 2,600 crore

(b) Expenditure Method: National Income = Private final consumption expenditure + Government final consumption expenditure + Net capital formation + Net exports + Net factor income from abroad - Net indirect taxes = ` 2,000 crore + ` 600 crore + ` 400 crore + ` 20 crore + (-) ` 20 crore - ` 400 crore = ` 2,600 crore

Ans. National income (by income and expenditure methods) = ` 2,600 crore

From the following data calculate Net National Product at Factor Cost by (a) income method, and (b) expenditure method: Items ( ` in crore)

(i) Current transfers from rest of the world 100 (ii) Government final consumption expenditure 1,000 (iii) Wages and salaries 3,800 (iv) Dividend 500 (v) Rent 200 (vi) Interest 150 (vii) Net domestic capital formation 500 (viii) Profits 800 (ix) Employers' contribution to social security schemes 200 (x) Net exports (-)50 (xi) Net factor income from abroad (-)30 Introductory Macroeconomics (viii) Consumption of fixed capital 40 (xiii) Private final consumption expenditure 4,000 (xiv) Net indirect tax 300

Sol. (a) Income Method: Net National Product at Factor Cost = Wages and salaries + Profit + Rent + Interest + Employers' contribution to social security schemes + Net factor income from abroad = ` 3,800 crore + ` 800 crore + ` 200 crore + ` 150 crore + ` 200 crore + (-) ` 30 crore = ` 5,120 crore

(b) Expenditure Method: Net National Product at Factor Cost = Government final consumption expenditure + Net domestic capital formation + Net exports + Private final consumption expenditure + Net factor income from abroad - Net indirect tax = ` 1,000 crore + ` 500 crore + (-) ` 50 crore + ` 4,000 crore + (-) ` 30 crore - ` 300 crore = ` 5,120 crore

Ans. Net national product at factor cost (by income and expenditure methods) = ` 5,120 crore.