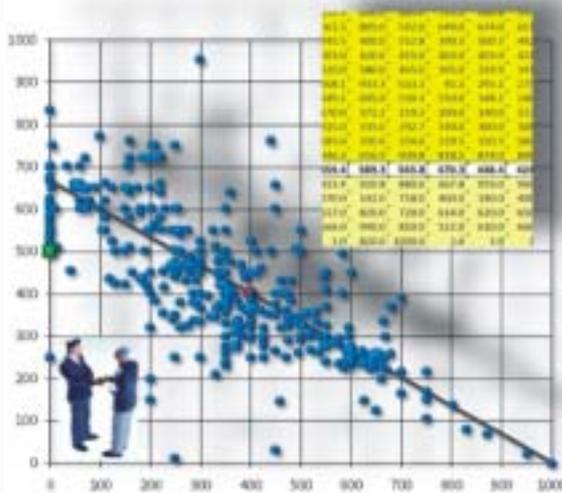


# Fundamentals of

# Business Economics – II



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- Dr. Jayendra J. Bhatt
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# Fundamentals of Business Economics - II

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# *Preface*

This book has been written by taking into consideration, all the students. This book contains very easy and simple language, which will be understood by the students of all the levels.

This book is an attempt of the authors, to reach to the mind of every student, in very simple, easy but in perfect way. It is the result of authors' long experience of teaching economics, which will be useful to students.

Macroeconomics should be studied very carefully, as it is a distinctive and very important subject which includes economic behaviour of all the classes including households, firms and even government.

The book is divided into four topics. The first part contains National Income Accounts. In the second part, the book includes money and credit. In the third part, Keynesian Economic Theory is there and the fourth part contains Business Cycle, Inflation and Interest.

The author is sincerely grateful to the authors of the subject whose works have been referred in the book.

We hope you will give suggestions, comments for the improvement in the future editions.

**Ahmedabad**  
**12-12-2011**

**Authors**

# Syllabus

**Objective:** The main objective of this paper is to introduce the students of Commerce to the basic concepts and tools of macro-economics.

**Outcome:** The student after studying this paper, will get a clear understanding of various concepts used in macro-economics. He will be able to understand the importance and relevance of various macro-economic aggregates used for measuring economical development.

## Unit 1: National Income Accounts

Concepts of GDP and NDP — Sectoral Composition of National Income — GDP at Factor Price and Constant Prices — Concept of GNP and NNP, Factor Cost and National Income — Per Capita, Disposable Income and Personal Disposable Income. Measurement of National Income — Difficulties in Measuring National Income, Trends in India's GDP and Per Capita GDP Post Independence and Concept of GDP Deflator.

## Unit 2: Money and Credit

Meaning and Evolution of Money, Commodity to Fiat Money, Definition of Money, Functions of Money — Demand for Money — Quantity Theory of Money, Fisher's Equation of Exchange, Cambridge Theory and the Relationship between These Two, Supply of Money — Determinants of Money Supply, Components of Money Supply — RBI's Approach;  $M_1$ ,  $M_2$ ,  $M_3$ ,  $M_4$  — High Powered Money — Concepts of Credit — Types of Credit — Methods of Credit Creation — Instruments of Credit Control Bank Rate — Direct Operations — Repo Rate — CRR and SLR — Credit Rationing.

## Unit 3: Keynesian Economic Theory

Simple Classical Model for Income Determinations, Criticisms of Classical Theory by Keynes — Simple Keynes' Model — Consumption Function - Concept and Its Determinants, Investment Multiplier — Investment Function — Marginal Efficiency of Capital and Factors Affecting It.

## Unit 4: Business Cycle and Inflation

Concepts of Business Cycle – Four Phases of Business Cycle – Interest Rate – Loanable Fund Theory and Liquidity Preference Theory; Motives for Liquidity Preference: Transactions Motive, Precaution Motive, Speculative Motive – Factors Affecting Interest Rate, Inflation: Meaning, Types, Causes, Effects — Inflation and Investment — Anti-inflationary Policy.

## Recommended Reading:

- H.L. Ahuja, "Macro-economics", S. Chand Publication.
- H.L. Ahuja, "Macro-economics — Theory and Policy", S. Chand Publication.
- D.M. Mithani, "A Course in Macro-economics", Himalaya Publishing House.
- Misra and Puri, "Principles of Macro-economics", Himalaya Publishing House.
- D.M. Mithani, "Macro-economics", Himalaya Publishing House.
- K.K. Dewett, "Macro-economics", S. Chand Publication.

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# Unit 1

## NATIONAL INCOME ACCOUNTS

### STRUCTURE:

- I. Introduction
  - II. National Income Aggregates
  - III. Sectoral (Composition) Distribution of National Income
  - IV. Measurement of National Income
  - V. The Measurement of National Income in India
  - VI. Method Used to Calculate National Income in India
  - VII. Limitations or Difficulties of Measuring National Income
  - VIII. Deflator
- National Income Accounting — Numerical Examples
- Questions.
- Multiple Choice Questions.

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## I. INTRODUCTION

---

National Income is the total value of income or product in a year. Concepts like Gross National Product (GNP), Net National Product (NNP), Net Domestic Product (NDP) are to know whether the economy is expanding or contracting. In any deficiency like inflationary or deflationary, pressures are around and what measures should be undertaken for national income aggregates like GDP, when policymakers are in a tight drift.

— Samuelson Paul and Nordhaus William

### Meaning of National Income:

“The national income of a country is a monetary measure of the success of its economic activities in a particular year.”

#### Gains of Activities:

May be in two forms:

- (1) Production of goods and services and its consumption which gives (food, clothing, cars, electronic items, which medical and education) direct satisfaction.
- (2) Goods and services which do not provide direct satisfaction, but help produce items like machinery, fertilizers, capital goods, that produce and satisfy human wants indirectly.

Today, majority of the countries have political and economic relations with one another. The nations which have net income from foreign trade, gross national product shall be greater than gross domestic product and *vice versa*. GNP will be lower than GDP if foreign trade is negative.

### Gross National Income, Gross Domestic Product and Gross National Product

Since the system of National Income Accounts is standardised by an International agreement, therefore it is adopted by a large number of countries. To measure National Income, three concepts (GDP, GNI and GNP) are used by majority countries (developed or developing).

In a country, National income is generally estimated by three methods: (1) Product, (2) Income and (3) Expenditure method.

- (a) When product method is used, GNP is ‘value added’ by various industries and activities of the economy for a particular year.
- (b) To know by the income method, adding up of incomes earned by the owners of factors of production for a particular year gives the Gross National Income (GNI).
- (c) When expenditure method, final expenditure of all residents of a country (including consumers’ expenditure, public authorities, current expenditure or goods and services, gross domestic capital formation, and the difference between exports and imports), we get Gross National Expenditure (GNE).

- GNP, GNI and GNE are all of identical values as there are just different ways of looking at one and the same aggregate.
- The Gross Domestic Product (GDP) is the value of final goods and services produced within the country in a particular year.

The difference between GNP and GDP is due to the net income from abroad. If the citizens of a country are earning more from abroad than foreigners are earning in that country, GNP exceeds GDP and *vice versa*.

### Value Added Output and GNP:

Goods that are used in the production of other goods are known as intermediate goods and their value is not included in GNP.

→ GDP Expenditure based:

This is the estimate by adding up the expenditures incurred on the purchase of the final goods produced, in that year. The total expenditure on final goods is expressed in national accounts as a total of three types of expenditures – consumption, investment and net exports.

---

## II. NATIONAL INCOME AGGREGATES

---

**(A) GDP<sub>MP</sub>: Gross Domestic Product at Market Price:** The market value of final goods and services produced within a country during a year is Gross Domestic Product of nation. Resident and non-resident Indian producers produce material within the boundaries of a country. For example, there are many national and international companies producing in India. The final goods and services produced by all producers are added in Gross Domestic Product. As Denburg defines it, "Gross domestic product at a market price is defined as market value of the output of final goods and services produced in the domestic territory of a country by all the producers during an accounting year." By deducting the value of intermediate consumption from the value of output. Thus, GDP<sub>MP</sub> is:

$$(i) \text{ GDP} = P \times Q$$

(P = Price and Q = Final goods and services produced)

$$(ii) \text{ GDP}_{MP} = \text{Value of output} - \text{Value of intermediate consumption}$$

**(B) GNP<sub>MP</sub>: Gross National Product at Market Price:** Net factor income from abroad (exports – imports) is also added along with the value of the final product produced within the territory of a country to get GNP at a market price. In others words, we can say that 'GNP' is the sum total of GDP at a market price and a net factor income from abroad. In the words of Hanson, "The Gross National Product at a market price is defined as the market value of the final goods and services produced in the domestic territory of a country by normal residents during an accounting year including net factor income from abroad."

$$\text{GNP}_{MP} = \text{GDP}_{MP} + \text{Net factor income from abroad}$$

**(C) NNP: Net National Product at Market Price:** There is obviously some depreciation of fixed capital in the process of production of goods and services. This depreciation is also called consumption of fixed capital. We get the value of NNP at a market price by deducting this value of depreciation from the value of GNP in a year. In the words of Peterson, "Net National Product at a market price is the market value of the output of final goods and services produced by normal residents of an economy in its domestic territory during an accounting year exclusive of depreciation and inclusive of net factor income from abroad."

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

**(D) NDP<sub>MP</sub> : Net Domestic Product at Market Price:** The difference between the market value of final goods and services produced in a territory of a country in a year and consumption of fixed capital less depreciation is known as Net Domestic Product at market price. In the words of Denburg, "Net Domestic Product at market price is the market value of final goods and services produced in the domestic territory of a country by its normal residents and non-residents during an accounting year less of depreciation."

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

**(E) NDP<sub>FC</sub> : Net Domestic Product at Factor Cost or Net Domestic Income:** Land, Labour, Capital and Entrepreneur are the important factors of production, as a result of whose efforts production is undertaken. The payment given to these factors in the form of wages, rent, interest and profit is called factor cost. In a way, the factor cost is the cost for the firms and on the other, it is income for the factors. Net domestic product at factor cost is also known as "Net Domestic Income". In the words of Hanson, "Net domestic income is the income generated in the form of wages, rent, interest and profit in the domestic territory of a country by all the producers in an accounting year."

1.  $\text{NDP}_{\text{FC}} = \text{NDP}_{\text{MP}} - \text{Net indirect taxes.}$

2.  $\text{NDP}_{\text{FC}} = \text{NDP}_{\text{MP}} - (\text{Indirect tax} - \text{Subsidies}).$

**(F) GDP<sub>FC</sub> : Gross Domestic Product at Factor Cost or Gross Domestic Income:** The sum total of compensation of employees' income earned by factors of production in an accounting year and depreciation of fixed capital is GDP at factor cost or Gross domestic income. In the words of Hanson, "The Gross domestic product at factor cost is the sum of net value added by all the producers in the domestic territory of the country and the consumption of fixed capital during an accounting year."

1.  $\text{GDP}_{\text{FC}} = \text{NDP}_{\text{FC}} + \text{Depreciation.}$

2.  $\text{GDP}_{\text{FC}} = \text{GDP}_{\text{MP}} - \text{Net indirect tax.}$

**(G) GNP<sub>FC</sub> : Gross National Product at Factor Cost or Gross National Income:** The difference between GNP and net indirect taxes is the Gross National Product at factor cost. It is also called Gross National Income. The sum total of compensation of employees, mixed income, depreciation and net factor income from abroad is Gross National Income. In the words of Peterson, "Gross national product at factor cost is the sum of gross value added at

factor cost by the normal residents of the country during a year and net factor income from abroad."

1.  $GNP_{FC} = NNP_{FC} + \text{Depreciation.}$
2.  $GNP_{FC} = GNP_{MP} - \text{Net indirect tax.}$

**(H)  $NNP_{FC}$ : Net National Product at Factor Cost or Net National Income:**

The sum total of net domestic product at factor cost and net factor income from abroad is called "Net National Product" at factor cost. Net National Product at factor cost is also called as "Net National Income", which is known as national income of economy. In the words of Denburg, "National income is the factor income accruing to the normal residents of a country (rent, interest, profit and wages) during a year. It is the sum total of domestic factor income and net factor income from abroad." And even in the words of Hansen, "Net National Product at factor cost is the sum total of net value added at factor cost by normal residents in the domestic territory of a country and net factor income from abroad in an accounting year."

- (1)  $NNP_{FC} = NDP_{FC} + \text{Net factor income from abroad.}$
- (2)  $NNP_{FC} = NNP_{MP} - \text{Net indirect tax.}$

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### III. SECTORAL (COMPOSITION) DISTRIBUTION OF NATIONAL INCOME

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Sectoral composition of national income shows the components of national products of industrial origin. It shows a background of economic structure of economy having productive activity related to different sectors of a country.

These productive sectors can be broadly classified into three categories, viz., (1) Primary Sector, (2) Secondary Sector and (3) Tertiary Sector.

These three sectors' production added together is the national income.

- (1) **The Primary Sector:** consists of basic productive activities, when in general are useful in providing raw materials (inputs). For Net Domestic Product by industrial origin — India's primary sector's break up consists of —
  - (i) Agriculture, (ii) Forestry,
  - (iii) Fishing and (iv) Quarry and mining.
- (2) **The Secondary Sector:** processes raw materials into final goods — both in rural and urban areas. Industrial products are the major constituents of secondary sector through industrial activities.

Secondary sector for NDP by industry origin is of:

- (i) Manufacturing, (ii) Electricity,
- (iii) Gas, water supply and (iv) Construction.

- (3) **Tertiary Sector:** consists of all distributive, productive services, *viz.*, trading, banking, insurance, transport, professional, community or personal services (break up of tertiary sector).

In the developed economy, tertiary and secondary sectors contributes a major share in the national income which focuses on the economic progress of a country. Tertiary or service sector assumes a different type of production. In the developing countries (less developed economies), primary sector plays a leading role in the national income.

### 1. Private Consumption Expenditure:

It includes expenditures by individuals and households on goods and services produced and sold.

- (i) **Government Consumption Expenditure:** This expenditure is used on goods and services provided to the citizens on education, primary health, street lights. According to Lipsey and Chrystal, "it is important to recognise, that only government expenditure on produced goods and services are included as a part of GDP. A great deal of government expenditure is not a part of GDP, e.g. when the department of health and social security makes a payment to an old age pensioner the government is not purchasing any currently produced goods and services from the retired."\*
- (ii) **Investment Expenditure:** It is the expenditure on production of goods. It is not for the present consumption of citizens of a country. Investment is incurred for those wants that are to be satisfied in the future. Investment expenditure is generally divided into three categories: fixed capital, changes in inventories and net acquisition of valuable products.

Capital formation assumes two forms: (1) increase in the capital stock of the government and (2) housing construction.

Net acquisition of valuables often is not required for productive activity yet it is considered as an important investment expenditure. Market Prices and Basic Prices – according to Lipsey and Chrystal, "there is an important difference that arise when calculating the level of GDP from the expenditure side of an economy, as compared it by summing the value added in production. This difference arises because the price paid by the consumers for many goods and services is not the same as sales revenue received by the producers."\*

The term basic refers to prices of products as received by producers. Market prices are the prices, that the consumers pay. Thus, the market prices and basic prices become equal only by adjustment of taxes on products and subsidies, e.g. a bottle of Dettol Handwash's market price may be ₹ 150 but the base price may be ₹ 120.

### 2. Total Expenditure:

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

where, C = Consumption expenditure,

I = Investment expenditure,

G = Government expenditure,

X = Exports and M = Imports.

\* Lipsey G. Richard and Chrystal K. Alec, *Principles of Economics* (New York: Oxford University Press, 1999), p. 343.

\* *Ibid.*, p. 345.

It is defined by Lipsey and Chrystal as, "The sum of private consumption, government consumption, investment and net expenditures on currently produced goods and services. It is the GDP at market prices.

### (3) Circular Flow of Income, Output and Expenditure:

Business firms demand services and various factors of production, which are supplied by the household. After the completion of productive process, goods and services are sent to the market for disposal and are sold to the households. Thus, circular flow of goods and services between household and the business firms is a real flow. The other flow is the money flow. Firms pay cash for the goods and services they receive from the households. From the earned money, the households demand goods that becomes income of the firms. Figure 1.1 shows the circular flow of income, output and expenditure. According to this circular flow, whatever income is invested in the country is equal to the amount saved and whatever the government spends only is from the taxes collected only.

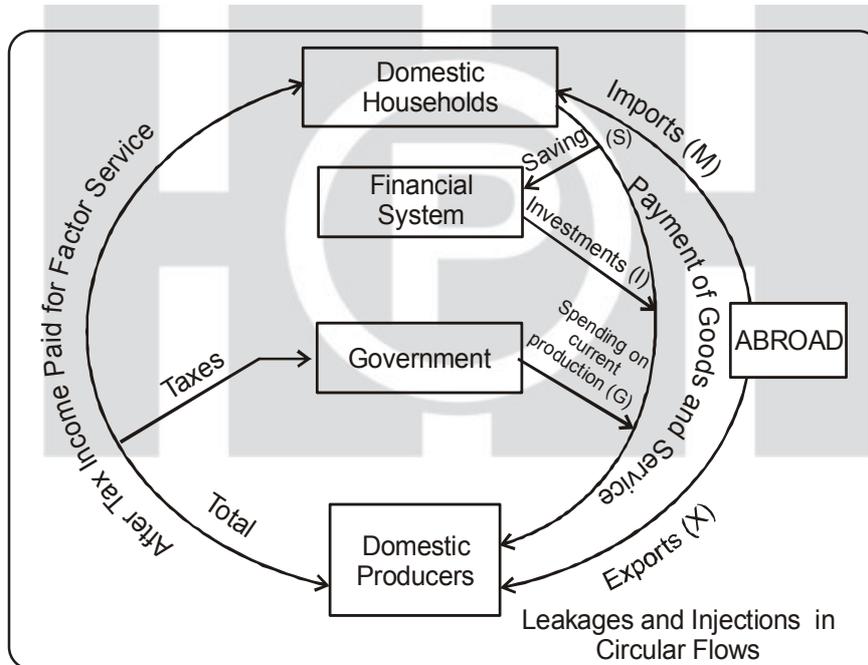


Fig. 1.1 : Income Generated

For the stability in the circular flow of income, it is not necessary that leakages and injections in various sectors of the economy should be equal to each other at the sectoral level. If the leakages are less than injections, the expansionist will function raising the level of income in the economy.

**GDP Income Base:** Increase production leads to higher income generation by land, labour, capital, etc. for the services provided by these factors of production.

Thus, we can say =  $GDP = GDI = GDE$ .

This relationship is expressed in Fig. 1.2.

The calculation of GDP from the income side involves adding up factor incomes so that all of that value is accounted for three aggregates — domestic product, domestic income and domestic expenditure are all one.

**Central Statistical Organization (CSO) explains three concepts:**

The national income by definition is the same whether in terms of production, income generation or final utilization. In other words, **net output, income flows and final expenditure** will be similar, *viz.*, (production, distribution, deposition). Lipsey and Crystal summing up have stated, "Total output produced in the economy, measured by GDP, differs from the total income received measured by GNI owing to net income from abroad."\*

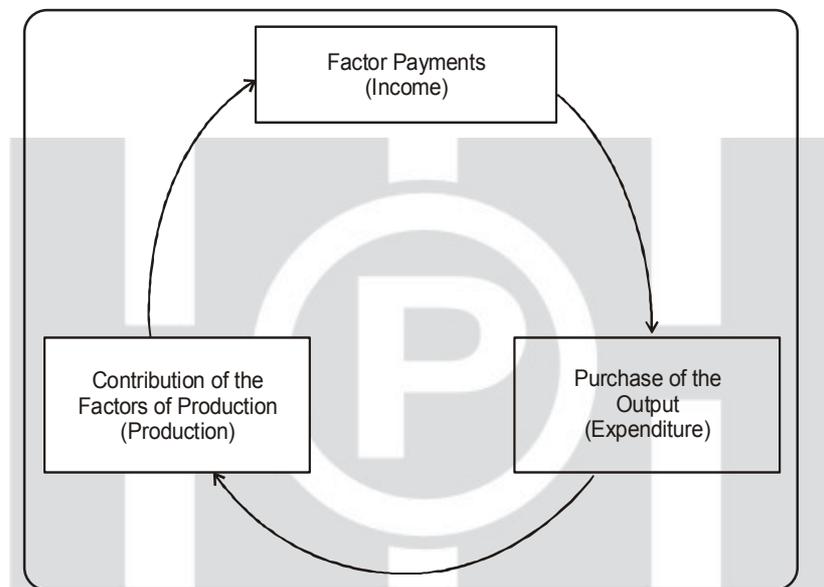


Fig. 1.2: Relationship between Production, Income and Expenditure

**Other Concepts:** The other concepts like personal income and personal disposal income are important, and must be well-understood.

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## IV. MEASUREMENT OF NATIONAL INCOME

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Three methods are used to measure national income, they are as under:

### 1. Product Method

It is also called output method or production method. It has three inclusions:

- We calculate gross value of domestic production of agriculture, industry and service sector.
- We measure cost of production and services rendered to these sectors and also the yearly depreciation of plants and equipments by other sectors and reduce these value from gross value of production to get net product.

→ Net income from abroad has to be adjusted with this figure. From this, the income generated or produced in the different fields like agriculture, industry services should be taken into account to know product method. The net domestic product at factor cost is also represented in it.

- (1)  $GDP_{MP} = \text{Domestic gross value (Agriculture + Industry + Service sectors)}$ .
- (2)  $NDP_{MP} = GDP_{MP} - \text{Depreciation}$ .
- (3)  $NDP_{FC} = NDP_{MP} - \text{Net indirect tax}$ .
- (4)  $\text{National Income (NNP}_{FC}) = NDP_{FC} + \text{Net factor income from abroad}$ .

## 2. Income Method

In this method, we get National income by adding the income of various heads like the wages to workers, salaries to other staff etc. In case of labour, social security contribution, bonus etc. is added. Over and above this, the earnings of self-employed people, dividends to shareholders, rent of land-factories-business house, interest on capital and profits of public sectors is added in the Income Method.

- (1)  $\text{Net Domestic Product Produced}_{FC} = \text{Compensation of employees} + \text{Operating surplus} + \text{Mixed domestic income}$ .
- (2)  $\text{Net National Product}_{FC} \text{ (National Income)} = NDP_{FC} + \text{Net factor income from abroad}$

## 3. Expenditure Method

The total value of consumption and investment means the national income. Here, consumption includes the total amount spent by the consumer on goods and services. Purchase of goods and services like war goods and services like military etc., are included in government expenditure, is also added in it. Moreover, value of investment in fixed capitals and stocks is also taken into consideration. After adding net exports (export – import), total of all give us GDP at market price. By deducting net indirect taxes, from  $GDP_{MP}$  we get  $GDP_{FC}$ . We get  $NDP_{FC}$  by deducting depreciation from  $GDP_{FC}$ . To get  $NNP_{FC}$  we need to add net factor income from abroad in  $NDP_{FC}$ .

- (1)  $GDP_{MP} = \text{Private final consumption} + \text{Government expenses} + \text{Investment} + \text{Net exports}$ .
- (2)  $GDP_{FC} = GDP_{MP} - \text{Net indirect taxes}$ .
- (3)  $NDP_{FC} = GDP_{FC} - \text{Depreciation}$ .
- (4)  $NNP_{FC} \text{ (National Income)} = NDP_{FC} + \text{Net income from abroad}$

## Measurement of National Income

The methods of measurement of national income (or GDP) of a country are: (1) The output or production method, (2) The income distribution method and (3) The expenditure method.

### (1) Production Method or Output Method

What is required to estimate National Income? (I) Statistics (figures) of physical output of all goods and services for the year. (II) Prices of final goods and services to know monetary value after getting all the values, Money values are added that gives Gross Domestic Product (GDP).

After GDP market prices are calculated, depreciation on machinery and capital used is calculated. Subtract depreciation from market price it yields – Net Domestic Product (NDP) at market prices is known. Net Indirect Taxes (less subsidies) are subtracted from aggregate to obtain NDP at factor cost.

Lastly, net factor income from abroad is estimated and added to NDP at factor cost. Net National Product (NNP) at factor cost is also the national income.

For knowing the national income with the help of output method, all industries are divided into handful of industrial divisions. The problem of double counting is avoided by using the method of estimation of national product.

#### (A) Estimating the Gross Value of the Output (Product Method)

Two alternative methods are used.

**(1) Physical product of goods and services:** is multiplied by their prices but data is not complete — much of the production is in the unorganized sector and data if available is of urban areas. Therefore, there is difficulty in selecting prices as there are wholesale and retail prices and the prices would differ according to different parts of the country which changes every time. So it is not easy to select prices.

**(2) Second Method, gross value of output is estimated:** Gross value of output is estimated at gross sales of the firms and their gross sales and change in value of their inventories. But this may be useful and true for organized sector. Unorganized sector output shall be estimated separately.

**(i) Deductible Cost: (Intermediate Cost Deductible)** Two types of costs are subtracted from the gross value of the output: (1) cost of intermediate goods and services and (2) depreciation.

Generally, estimators of National income follow two different procedures for deductible costs for intermediate goods and services. Either directly estimate costs for each industrial division as sum of its purchases of goods and services from other divisions — supplying the intermediate goods and services.

**(ii) Depreciation:** Depreciation is also deducted from gross value to obtain an estimate of net value. During the process of production, capital, equipment and machinery depreciate through wear and tear. Thus, depreciation is the annual allowance for the consumption of fixed capital. In most of the countries, standard rates of depreciation are fixed by law to avoid arbitrary calculations though they lack accuracy in counting depreciation amount.

Adding up the value of net output of all industries, they are added to obtain net domestic product at market prices. Deduction of net indirect taxes minus subsidies

— gives amount of net domestic product at factor cost which is obtained by adding net income from abroad to the net domestic product at factor cost. If net income from abroad is positive (receipts from foreigners exceed payment to foreigners), net national product at factor cost will be greater than net domestic product at factor cost. If net income from abroad is negative, net national product at factor cost will be less than net domestic product at factor cost.

## (2) Income Distributed Method (Income Method)

In income distributed method, income paid to different factors of production for income received by different factors of production for a particular year are obtained. This is equal to the value of final goods and services produced in that year.

There are two variants in income distributed method: (i) income paid out method and (ii) the income received method. Income paid out method is measured as the sum total of income payments made to different factors of production. In this variant, all the incomes to various factors are summed up. Thus, national income is measured by using both the variants.

Special income censuses are conducted to measure income of groups whose income information is not available.

### Income Paid Out Method

Many countries follow income paid out variant to measure or estimate national income, viz., (1) labour income, (2) mixed income and (3) capital income or operating surpluses.

- (1) **Labour Income:** It is of two types: (1) In form of wages and salaries to employees. (2) Supplementary labour income in the form of pension, social security, insurance etc. Payment made in kind is generally difficult and arbitrary. Though normal practice is to estimate payments in kind to domestic and farm labourers, hotel, restaurants and institutional employees and the members of the armed forces in form of uniform subsidised food, residential facilities, etc.
- (2) **Mixed Income:** Income to farmers, shopkeepers, sole proprietorship firms and partnerships, earnings of lawyers, doctors, consultants etc. Income from shares, bonds, lands, buildings are not included. Thus, to estimate income of farmers, wages of agricultural labour and rent paid are deducted from the net value of agricultural produce.
- (3) **Capital Income:** Capital income or operating surpluses are divided into different categories, viz., (i) dividends, (ii) undistributed profits, (iii) rent, (iv) interest and (v) profits from governmental enterprises.

Shares are purchased by the households, institutions and other companies — total dividends paid by a company are not received by the households. To estimate the national income, dividends paid by a company to the other company is not included in the national income. Large companies keep some amount as undistributed profits and do not form a part of disposable income, still they are a part of national income.

The definition of profit for national accounting purposes is different than adopted by the tax authorities.

Income from interest includes all payments receivable by individual and non-profit institutions and life insurance policies, bank deposits and governmental bonds.

Income obtained solely by ownership of land and building is included in rent. Rent on ownership buildings or farms or business is not included on the ground that they are reflected in the profits of the farms and businesses as computed for the national income purposes.

**(B) For Estimating National Income from Income Tax Data, Various Estimates are Made**

Portion of income exempt from income tax have to be added. Incomes that escape taxation have to be assessed and added. Incomes received as transfer payments to be estimated and deducted. As income data is to be collected from various sources, it is necessary to ensure proper corrections for the overlapping data. The usual adjustment in the personal income exemptions given by government tax are given below:

**Additions to Assessed Incomes**

- Personal exemptions,
- Incomes below tax exemption limit,
- Expenditures deductible from personal income,
- Tax evasion,
- Employers retirement, social security and welfare fund contributions,
- Charitable incomes of charitable and religious organizations,
- Undistributed profits of corporations and
- Capital income of government and social insurance funds.

**Deductions to be Done from Assessed Incomes**

- Income transfers,
- Business losses,
- Income included in estimates obtained from other sources. This is necessary to account for duplication or double counting of income.

**Other Adjustments (Additions or Deduction) in Assessed Incomes**

- Capital gains or losses due to changes in prices.
- Revisions of assessment by subsequent audits.

**(3) Expenditure of Final Products Method**

This is the measurement expenditure or final product methods of national income, i.e., constituent elements are the types of final products acquired by expenditures, which are divided into four categories as below:

- (1) Private consumer goods and services,
- (2) Private investment goods,
- (3) Government goods and services and
- (4) Net capital investment abroad.

Since the expenditure method measures national income at the disposition stage, it uses market prices rather than factor cost. For evaluating this preposition of national income at factor cost, it is necessary to deduct net indirect taxes (indirect taxes less subsidies) from final sales value of each product group. Second point stresses on the expenditures of final products. As the value of intermediate goods are already included in the value of final products, they are not considered separately.

### (C) Classification of Final Expenditures

**(1) Private Consumption of Goods and Services (C):** This include all the consumer goods and services of individuals and non-profit organizations. The private consumption expenditure can be stated into four categories: (i) expenditures on non-durables like food, beverages, tobacco, etc., (ii) expenditure on durables excluding land and buildings, (iii) expenditure on services like transport, communication services etc. and (iv) expenditures by consumers on services provided by the government.

Estimating private consumer expenditure, care should be taken that items not related to national income are excluded whereas related to national income be included, i.e., expenditures by the foreign nationals of a country be excluded from expenditures and expenditures by citizens of the country in other countries are to be included.

**(2) Private Investment (I):** Investment in both, private and public sector takes place. Methods of accounting, financing and capital formation are different in both the sectors. For estimating domestic private capital formation, no attention to depreciation is paid. For estimating domestic net capital formation, it is necessary to deduct depreciation from domestic private net capital formation. Private investment includes: (i) expenditure on fixed assets by the business firms, (ii) net income for the stock of expenditure on construction and works (roads, bridges, sanitation projects, telephone lines, electric distribution etc., (iii) expenditure on transport equipments (commercial motor vehicles, ships, railways etc.) and (iv) expenditure on other equipments, tractors, agricultural machinery (office machinery, furniture, schools, hospitals, research equipments etc.). The later include raw materials, finished goods and work in progress in fixed assets like government buildings, bridges, railways, ports, etc.

**(3) Government Expenditure (G):** (i) Capital expenditures on goods and services and (ii) capital expenditures. The government employs number of people to carry on the activities of general administration. Their pay and salaries are available easily. The government spends on defence and maintenance of armed forces, maintenance of law and order, courts, police etc., health services, education, special social services (aged persons, blind, care of mentally challenged etc.), repair and maintenance of roads, bridges and other traffic installations and other governmental activities as fire protection services, public parks, etc. Government

expenditure include some transfer payments like pension, unemployment. These are not taken in calculations as they are not in return for any service.

**(4) Net Capital Investment Abroad:** All free economies of the world have financial trading and business transactionary relationship. To estimate national income of a particular country, it is necessary to have information on its net capital investment abroad — that may be positive or negative which are obtained as discussed below.

Receipts of sales of goods and services abroad (transportation, travels, merchandise, government) and wages of Indian residents, and their as well as government properties abroad.

Payments of purchases of goods and services abroad (merchandise, travel, transportation, government) and payments towards wages, salaries and property income abroad.

**(5) Estimation Method:** There are various techniques to estimate expenditures:

- (i) **Family Budget Survey Method:** To know consumption expenditure.
- (ii) **Retail Sales Value Method:** Retail prices are multiplied for quantities purchased. But proper data is not available. Second problem is the final goods and intermediate goods.
- (iii) **Estimate Domestic Capital Formation:** It is necessary to distinguish between fixed capital and inventories. But complete data is not available. Resort to this is the questionnaire method. Firms assess their inventories at the book value whereas they should be assessed at the replacement cost.
- (iv) **Commodity Flow Method:** This method estimates final sale values of the products available for consumption and investment by calculating the addition of values through various stages of production and distribution, governmental consumption expenditure and net capital investment abroad are added to find out national expenditure.

### National Income Aggregates

There are eight possible aggregates namely GDP/GNP at market prices, GDP/GNP at factor cost, NNP/NDP at market prices and NNP/NDP at factor cost. There are four other aggregates related to national income, *viz.*, personal income and personal disposable income discussed here.

### Gross National Product

Gross National Product (GNP) is the total value of final goods and services produced in the economy during a year plus net income from abroad.

**GNP:** Four types of final goods and services

- Consumer goods and services to satisfy people needs and wants,
- Gross private domestic investment,

- Goods and services consumed by government and
- Net income from abroad or net export of goods and services.

GNP therefore is said to be the total amount of current production of final goods and services.

#### Market Price and Factor Cost:

For calculating GNP at market prices, the output of all final goods are valued at market price, the values obtained are thus added — GNP at factor cost eliminates the influence of taxes and subsidies — provides estimate of the total value of final goods and services produced during a year at the cost of production.

$$\begin{aligned} \text{GNP at factor cost} &= \text{GNP at market prices} - \text{Net indirect taxes} \\ &= \text{GNP at market prices} - (\text{Total indirect taxes} - \text{Subsidies}). \end{aligned}$$

#### GNP and Value Added:

Value of final goods and services in calculating GNP (to avoid double counting). The value of steel includes the value of coal and iron used in its production. Goods used for the production of other goods are known as intermediate goods and their value is not included in GNP. To ensure that intermediate goods are not included, it is necessary to work with value added.

#### Gross Domestic Product (GDP):

Gross Domestic Product (GDP) is the value of final goods and services produced within the country in a particular year. Gross domestic product is different from gross national product.

GNP is produced outside the country, e.g., income of Indian citizens earned abroad. Similarly, incomes of other states in India are a part of India's GDP as produced in India but are not a part of its GNP as they go abroad. This shows boundaries of GNP are determined by the citizens of a country while boundaries of GDP are determined by the geographical limits of a country. In the case of a 'closed' economy or isolated economy (that is an economy having no economic relationships with other countries), GDP and GNP is identical. Just like GNP, GDP is calculated at market prices and factor cost. Both GNP and GDP are comprehensive measures. GDP covers all the goods and services in a particular year with the geographical boundaries. All activities like services of housewives are excluded from production mainly due to the problem of measurement. Also excluded are illegal activities like black marketing, smuggling etc.

**Example:** Calculate GDP at market prices and GNP at factor cost and at market price for the year 2006-07 for India (the base year 2004-05).

GDP at factor cost	= ₹ 30,30,400 crore
Indirect taxes	= ₹ 3,25,215 crore
Net factor income abroad	= (-) ₹ 20,105 crore

**Solution:** GDP at market prices = GDP at factor cost + Indirect tax less Subsidies  
 GNP at factor cost = GDP at factor cost – Net income from abroad  
 = ₹ 33,35,510 crore  
 = ₹ 33,55,615 – (–) 20105

Thus, GNP at factor cost = GDP at market prices + Net income from abroad  
 = ₹ 33,55,615 crore – ₹ 20,105 crore  
 = ₹ 33,35,510 crore

### Net National Product and Net Domestic Product:

The difference between the two is that in the Gross National Product estimates no deduction is made for depreciation or it is known as consumption or fixed capital which takes place in the process of production. Whereas in NDP measures such allowances are made. To find the actual amount of production of a country, calculated depreciation must be deducted.

- \* Net Domestic Product (NDP) is obtained by subtracting depreciation from gross domestic product.
- \* Net National Product (NNP) is total value of final goods and services produced in the economy during a year after deducting depreciation, plus net income from abroad.

Just like GNP and GDP, NNP and NDP are calculated either at the market prices or at factor cost. **NNP at factor cost is known as national income.**

**Example:** Calculate NNP and NDP at market prices and factor cost from information for the year 2006-07 given depreciation of ₹ 2,87,230 crore.

**Solution:** NNP at market prices = GNP at market prices – Depreciation  
 = ₹ 30,95,890 – 2,87,230

Thus, NNP = ₹ 28,07,660 crore

NNP factor cost = GNP at factor cost – Depreciation  
 = 33,35,510 – 2,87,230  
 = ₹ 30,48,280

NNP at factor cost = GDP at factor cost – Depreciation  
 = 33,30,400 – 2,87,230

Thus, NNP at factor cost = ₹ 30,43,170

Since NNP at factor cost is national income, national income in the above case is ₹ 30,43,170.

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## V. THE MEASUREMENT OF NATIONAL INCOME OF INDIA

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The Government of India, follow the same method for concept of national income as the Western world. In India, the national product is defined as the aggregate material and non-material goods — whereas socialistic countries like Russia consider aggregate of material goods only. Thus, India's statistics cannot be compared with such a country.

No proper method was used till independence to estimate national income. National income data of National Accounts Statistics (NAS) published by Central Statistical Organization, Annual Reports of Reserve Bank of India, Currency and Finance published by Finance Ministry of India are put in use. National income in India is measured at current as well as constant prices.

### (A) Indian Method of Measurement of National Income

Both production and income method is used for national income estimates.

**(1) Output Method:** Income generation from agriculture, animal husbandry, forestry, fishery, mining factory establishments are included in output method. It is also known as value added method. In agriculture, gross value of output is calculated as:

- Total production of 64 agricultural commodities is estimated. The cropped area is multiplied by area sown by an average yield per hectare — based on crop cutting average yield estimations.
- Total output of each commodity is valued at market prices.
- Aggregate values of total output of 64 commodities are measured by gross value of agricultural produce.
- Net value of agricultural output, measured by deducting cost of seed, manure and fertilizers, market charges, repairs and depreciation from gross value.

Gross values of other items as animal husbandry, forestry, mining factory are obtained by multiplying total production with the market prices and deducting materials cost used in production and depreciation etc. from gross value of output.

**(2) Income Method:** Contributions of remaining sectors — finance and insurance, small enterprises, commerce and transport, professions, home property, government, foreign sector.

The average earnings per head is accounted by survey. Income of personal enterprise sector is counted by multiplication of average earnings per head with the total.

To calculate factor earning other than wages and salaries, 20% addition to money income is done showing total small enterprise income contribution. Same way is adopted for trade, professions, transport and domestic services.

Public sector income generated, from public authorities records wages data, salaries, dividends or surplus, etc. are considered and aggregated.

Contributions of all different sectors' aggregate values are measured which shows Net Domestic Product at the factor cost.

When net indirect taxes are added to this, Net Domestic Product at market prices is obtained.

Balance of payments of the country shows net income from abroad (foreign sector). The net income from abroad is added to NDP at market prices to derive national income at market prices or current prices.

Though all the precautions are taken, various difficulties and considerations, are found and many economic activities are not considered in national income. Activities pertaining to smuggling, bootlegging, gambling, prostitution, etc. are not considered — for national income. They are illegal. In legal activities, black money transactions are also not accounted.

The interrelationship is shown as follows:

- (1) Gross Domestic Product (GDP) at market prices + Net income from abroad =  $GNP_{MP}$
- (2) Gross National Product (GNP) at market price – Indirect taxes + subsidies =  $GNP_{FC}$
- (3) Gross National Product (GNP) at factor cost – Depreciation =  $NNP_{FC}$
- (4) Net National Product (NNP) at factor cost national income

### (B) Other Related Aggregates

These are four other related aggregates which are obtained from national product — income aggregates. They are: (i) income from domestic product accruing to the private sector, (ii) private income, (iii) personal income and (iv) personal disposable income.

**(i) Income from Domestic Product Accruing to the Private Sector:** This is that portion of net domestic product at factor cost which accrues to the private sector obtained by subtracting from NDP at factor cost, the income accruing to government administration departments and governmental enterprises is also considered in GDP.

**(ii) Private Income:** Income received by individuals from all sources plus profits retained by corporations. It is obtained from the income from domestic product accruing to private sector by adding: (i) net income from abroad, (ii) national debt interest, (iii) government transfer payments and (iv) other transfers from the rest of the world.

**(iii) Personal Income:** Total of incomes received by individual from all sources in a year is personal income = private income minus the retained profits of corporations and corporate taxes. Retained profits of corporations accrue to business while tax to government.

**(iv) Personal Disposable Income:** This is the actual amount of income left with individuals to use it at their will. It is always less than personal income. This is due to higher income groups, people with property have to pay tax, *viz.*, income tax, wealth tax, etc.

deducted from personal income to obtain personal disposable income. Similarly, fees, fines, etc. paid by households to the government are also to be subtracted.

#### **IV.(B)(i) Private Income:**

Income earned by the private sector and the income of corporates, obtained from any source is called the private income. As per Central Statistical Organization (CSO), "Private income is the total of factor income from all sources and current transfers from the government and rest of the world accruing private sector. Private income is a total of all incomes from domestic product accruing to the private sector, transfer payments, undistributed profits, retained income of the corporations and net factor income from abroad."

##### **Difference between National Income and Private Income are:**

- (1) Income earned both in the public sector and private sector is national income. Income earned in the private sector is private income. The income earned in public sector is not included in private income.
- (2) National income consists of income earned by factors of production only. It does not consist of any kind of transfers whereas the private income consist of both the income earned by factors and current transfers from local governments and abroad.

#### **IV.(B)(ii) Personal Income:**

The total current income received by citizens (individuals) from all the sources is called personal income. In other words, it is the sum total of income from all the factors received by the citizens and current transfers. As per Peterson, "Personal income is the income actually received by persons from all sources in the form of current transfer payments and factor income."

##### **Difference between Private Income and Personal Income:**

Private income consists of corporate taxes and corporate savings, whereas no such taxes or savings are included in the personal income. So, it is said that private income is a broader term as compared to personal income.

##### **Difference between Personal Income and National Income**

- (1) The income which is received by individual is called personal income, whereas generation of income is called national income.
- (2) Total income of domestic production include government constitutes part of National income but not of personal income.
- (3) Personal income consist of both factor income and transfer payments while, national income consists of factor incomes only.
- (4) Important these components of national income are corporate savings as well as corporation tax, but these components are not included in the personal income.
- (5) Interest on national debt is a component of personal income, but not of national income.

#### IV.(B)(iii) Disposable Income:

By deducting personal income taxes, personal property taxes and miscellaneous receipts of government and administrative department, i.e., fees and fines from the personal income, we get the disposable income. Citizens can spend the disposable income as per their choice. Purchasing power of the citizens is seen through disposable income. It is either saved or spent. As per Peterson, "Disposable income is the income remaining with individuals after deduction of all taxes levied against their income and their property by the government".

\* Disposable income = Personal income – Direct tax – Fees and fines.

#### Difference between Personal Income and Disposable Income:

Personal income is a broader term than disposable income. Income from all sources, which is in the form of current transfer payments and factor income, including direct taxes is personal income. On the other hand, the income remaining with the individuals after paying income tax, property tax and other fees and fines to the governmental administrative departments is disposable income.

#### IV.(B)(iv) Per Capita Income:

Per capita income is an important concept to the national income. According to UN, nation with per capita income below \$500 is said to be an underdeveloped country. Per capita income is taken as a growth index of a country over a period of time.

Central Statistical Organization (CSO) compiles estimates of national income and per capita of the country. Per capita income refers to an average per head in the country. It is calculated by dividing the national income by the total population of the country. Thus,

$$\text{Per Capita Income} = \frac{\text{National Income}}{\text{Total Population}}$$

**Illustration:** Economic Survey 1981-82 Government of India, Measurement of Per Capita Income

- (1) India's national income at current prices was ₹ 1,04,201 crore in 1980-81.
- (2) India's population for the year was accounted to be 67.8 crore.

Thus,

$$\text{India's per capita income (1980-81)} = \frac{1,04,201}{67.8} = ₹ 1536.9 \text{ at current prices.}$$

#### Example for Calculation:

Personal Disposable Income = Personal Income – Personal Taxes – Fees, Fines etc. paid to the government

**Example:**

GDP at market prices = ₹ 8,79,220 crore, Depreciation = ₹ 85,353 crore, Indirect taxes = ₹ 1,03,126 crore, Subsidies = ₹ 25,251 crore.

Calculate GDP and NDP at factor cost.

**Solution:**

$$\begin{aligned} \text{GDP at factor cost} &= \text{GDP at market prices} - \text{Indirect taxes} + \text{Subsidies} \\ &= ₹ 8,79,220 - ₹ 1,03,126 + ₹ 25,251 \text{ crore} \\ &= ₹ 7,50,443 \text{ crore.} \end{aligned}$$

$$\begin{aligned} \text{NDP} &= \text{GDP at factor cost} - \text{Depreciation} \\ &= ₹ 7,50,443 - ₹ 85,353 \\ &= ₹ 6,65,090. \end{aligned}$$

$$\begin{aligned} \text{Thus, GDP at factor cost} &= ₹ 7,50,443 \text{ crore} \\ \text{- NDP at factor cost} &= ₹ 6,65,090 \text{ crore.} \end{aligned}$$

**Calculate**

- Income from domestic product accruing to the private sector.
- Private income
- Personal disposal income

$$\begin{aligned} \text{Income from domestic product accruing to the private sector} &= 6,97,992 - 11,037 - 1,836 \\ &= ₹ 6,85,119 \text{ crore.} \end{aligned}$$

$$\begin{aligned} \text{Private Income} &= 6,85,119 + 35,783 - 12,080 + 22,541 + 16,514 \\ &= ₹ 7,47,877 \text{ crore.} \end{aligned}$$

$$\begin{aligned} \text{Personal Disposal Income} &= 7,24,979 - 12,925 - 4,362 \\ &= ₹ 7,07,692 \text{ crore.} \end{aligned}$$

**IV.(C) General Limitations of National Income Estimates**

Though national income aggregates do not show proper functioning of an economy and gauge its development level, they do not focus on the economic life of the country. Some major limitations of national income aggregates are:

- (1) Infrastructure changes are not shown.
- (2) Illegal productive activities are not accounted.
- (3) Non-marketable economic activities are not included.

- (4) National income aggregates do not reflect welfare.
- (5) Economic bads and sufferings.

**(1) Failure to show infrastructural changes:** The developing countries spend majority of its outlay on infrastructure, viz., road, transportation, bridges and key industries for the development of the economy. Power, irrigation they needs not only heavy investments, they have a long gestation period. When it starts operating the returns from such investments are low and not profitable. It appears as if the country is passing a stagnation period.

**(2) Non-marketable economic activities not included:** There are certain activities which have cost but are said to be uneconomic activities that are non-marketable. They are housewives doing household work for the family or rearing the kids in childhood. These are not included in the national income. The activity is economic or uneconomic is measured by the returns (in money) and opportunities for doing such work. With the passage of time, washing-cleaning clothes, sewing, knitting etc. job work is shrinking. But in rural areas, such work is in bulk which is non-marketable. Such activities result in underestimation of income. For this purpose, comparison of national income aggregates of developed or developing economies are least comparable.

**(3) Illegal productive activities not accounted:** Production of alcohol or goods are not accounted in national income, though they are economic activities. These are illegal and prohibited by government. They are manufacturing weapons without license or legal permission or producing good to evade taxes, smuggling etc. though such activities provide employment to many and needs heavy investment. National income excludes income generation from them illegal occupations in its estimation.

**(4) Welfare not reflected by National income aggregates:** National income aggregates do not show the degree of satisfaction that one activity gives. Working hours reduction may not affect national income but this provides extra social welfare, e.g., crores of rupees are spent on law and order or on ammunitions for the army or education, satisfaction would differ among members of society. These aggregates do not reflect quality of life. The countries with higher national income face problems of pollution, climatic changes, road accidents, ecological imbalances, housing problems, depressive pressures. Hence, this does not indicate better social welfare.

**(5) Economic bad:** Industrialization and race for a faster development leads to environmental pollution. These are not accounted in GDP aggregate value of output — such as warming of atmosphere and various diseases — national calamities upspring.

#### IV.(D) Method of Deflating National Income

Generally, national income is computed at current Deflator market prices. To know the real changes, deflator method is used. It means to change the national income market prices to constant prices.

Deflation is done through the wholesale price or the cost of living index. Generally, cost of living indices are used to deflate per capita income series. The following formula is used for this purpose.

$$R = \frac{P_0}{P_1} \times Y$$

where,  $P_0$  = base year price index,  $P_1$  = current year price index,  $Y$  = national income or GNP at current price for the current year.

**Example:**

**Deflate the following**

Year	1980	1981	1982	1983	1984
National Income (₹ 100 crore)	250	280	300	350	360
Wholesale Price Index	100	120	150	160	180

**Solution:**

Year	Y	P	$R = \frac{P_0}{P_1} \times Y$	National Income at Constant Price
1980	250	100	$\frac{100}{100} \times 250$	= 250
1981	280	120	$\frac{100}{120} \times 280$	= 233
1982	300	150	$\frac{100}{150} \times 300$	= 200
1983	350	160	$\frac{100}{160} \times 350$	= 218.75
1984	360	180	$\frac{100}{180} \times 180$	= 200

“Personal disposable income is Gross National Income (GNI) minus any part of it that is not actually paid to persons (such as retained profits of companies) minus personal income taxes, plus transfer payments received by individuals.”

#### IV.(E) Real and Nominal Measures

GDP is measured at current or constant prices. When it is measured at current prices, it is the nominal price. In contrast when GDP is measured at constant prices to enable national income analysts to estimate output in real terms, this estimate compared over a period would not alone give a proper measure of the overall real increase in production of the country. To compare it to over a period of time, elimination of effect of prices is necessary. For this, a base year is selected and the wholesale series are calculated at the given prices in

that particular year. This provides GDP at constant prices or national income in the real terms.

The national income measured in real terms (at constant prices) shows the measure of growth of the economy. Considering industry for this purpose, this estimate gives the measure of the structural changes in the pattern of production in of the country, which is vital for an economic analysis. At the point of utilization, the change of the shares of either respective ownership position. The change in the shares of consumption expenditure or capital formation focus on the common welfare of the masses and changes — in terms of assets of the country — increasing or decreasing.

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## **VI. METHOD USED TO CALCULATE NATIONAL INCOME OF INDIA**

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“Income Method” and “Product Method” both combined together has been used by the national income committee to explain national income in the agricultural and industrial sectors of the economy. With the use of product method, the net value of production of a year is taken and added into national income. Whereas income method is used in commercial fields like transport, banking etc. Calculation of national income, had started from individual’s income and then the total income shown in these sectors was taken as a starting point. Then by multiplying this individual’s income by the number of people working in these fields, total income in these sectors was estimated. Thus, National income is the sum total of the incomes shown in these various sectors of economy.

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## **VII. LIMITATIONS OR DIFFICULTIES OF MEASURING NATIONAL INCOME**

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(1) **Absence of proper account:** As Indian people are traditionally suspicious, they do not co-operate in the collection of data. Illiteracy is the another important factor in absence of proper accounts. Economic statistics are collected directly from individual and enterprises in the Western countries, which is not possible in India.

(2) **Lack of reliable statistics:** The most important drawback is the non-availability and unreliability of statistics. Information regarding agriculture and occupation is not correctly available. Information relating to rural or urban population about consumption, expenditure and savings is not available. Therefore, because of these regional inequalities, statistics of one region cannot be used for other.

(3) **Double counting:** Sometimes, value of some output are counted twice. This double counting create difficulties, for example, the value of cotton and cloth are counted separately. In this way, cotton is counted twice, which must be avoided.

(4) **Detailed list of goods:** It is difficult to calculate value of all goods produced in a country. It is not possible for the producers to calculate raw materials, semi-finished and finished goods under their custody. If they go for calculation, it will affect the productive enterprises without any doubt.

(5) **Depreciation:** None generally accepted standard rates of depreciation are applied to various categories of machines. This creates difficulty in estimation of national income. The estimation of net national income is going to be wrong unless corrections for depreciation are not made in the gross national income.

(6) **Lack of uniform base:** It is a fact that large portion of output in India does not come into market at all. The reason behind this is that the output is consumed by the producers themselves or bartered for other commodities and services. As a result, there is an absence of uniform base, which could be used to evaluate commodities and services in terms of money. This situation creates great difficulty in national income calculations.

(7) **Lack of common factor:** Another difficulty is of reducing the numerous activities of millions of people on a common measurable factor, for example, to add together services of a sweeper and the prime minister.

## VIII. DEFLATOR

The implicit deflator points out at the price index that is used for neutralising the effects of changes in prices over time. This is done, by the prices nominal and real GDP change by different amounts over the considered time period. This is done by comparing nominal and real GDP over the same considered period. An index can be easily inferred by comparing the real and nominal GDP at some point of time. The implicit deflator is defined as:

$$\text{Implicit deflator} = \frac{\text{GDP at constant prices}}{\text{GDP at base period prices}} \times 100\%$$

Although some other indexes use fixed weight or weights that change only periodically, implicit deflators are variable weight indexes. Therefore, deflator 1997 use 1997 output weights and 1999-2000 deflator uses 2000 output weights.\*

A hypothetical example, of two commodities' production (cotton and grains) considered in Table 1.1 shows data for output and prices for 2 years.

Table 1.1: Quantity Produced

	Cotton (Bales)	Grains (Thousand bags)	Cotton (Per kg)	Grain Bags (Per Quintal)
Year 1	100	20	10	100
Year 2	110	16	12	110

### National Income Accounting — Numerical Examples

1. If the GNP at market price is ₹ 5,500 crore, subsidies are ₹ 450 crore, indirect taxes are ₹ 1,100 crore, and depreciation is ₹ 550 crore, what will be the national income of country?

$$\begin{aligned}
 \text{NNP}_{\text{MP}} &= \text{GNP}_{\text{MP}} - \text{Net Indirect Tax} \\
 &= 5,500 - (1,100 - 450) \\
 &= 5,500 - 650 \\
 &= ₹ 4,850 \text{ crore} \\
 \\ 
 \text{NNP}_{\text{FC}} &= \text{NNP}_{\text{MP}} - \text{Depreciation} \\
 &= 4850 - 550 \\
 &= ₹ 4,300 \text{ crore}
 \end{aligned}$$

**National income is ₹ 4,300 crore**

2. Assume that GDP at market price is ₹ 6,100 crore, factor income received from abroad is ₹ 2,800 crore, factor income paid abroad ₹ 1,400 crore and subsidies are ₹ 570 crore. Determine the GNP at market price.

$$\text{GNP}_{\text{MP}} = \text{GDP}_{\text{MP}} + \text{Net factor income from abroad}$$

Net factor income from abroad = Factor income received – Factor income paid

$$\begin{aligned}
 \text{Net factor income from abroad} &= 2,800 \text{ crore} - 1,400 \text{ crore} \\
 &= ₹ 1,400 \text{ crore}
 \end{aligned}$$

$$\begin{aligned}
 \text{GNP}_{\text{MP}} &= \text{GDP}_{\text{MP}} + \text{Net factor income from abroad} \\
 &= 6,100 \text{ crore} + 1,400 \text{ crore} \\
 &= ₹ 7,500 \text{ crore}
 \end{aligned}$$

**GNP at market price is ₹ 7,500 crore**

3. The factor income earned by domestic residents abroad is ₹ 800 crore and the factor income earned by foreigners in the country is ₹ 900 crore. If the GNP of the country is ₹ 8,000 crore, the GDP of the country is \_ \_ \_

$$\begin{aligned}
 \text{GDP}_{\text{FC}} &= \text{GNP}_{\text{FC}} - \text{Net factor income from abroad} \\
 &= 8,000 - (800 - 900) \\
 &= 8,000 - (-100) \\
 &= 8,000 + 100 \\
 &= ₹ 8,100 \text{ crore}
 \end{aligned}$$

**GDP of country is ₹ 8,100 crore**

4. Assume National income of a country is ₹ 15,000 crore, factor income received from abroad is ₹ 1,500 crore, factor income paid abroad is ₹ 1,000 crore, indirect tax is ₹ 700 crore and subsidies are ₹ 300 crore, depreciation is ₹ 2,000 crore. Determine the GDP at market price.

National income of a country =  $NNP_{FC} = ₹ 1,5000$  crore

$$\begin{aligned} NNP_{MP} &= NNP_{FC} + \text{Net Indirect Tax} \\ &= 15,000 \text{ crore} + (700 \text{ crore} - 300 \text{ crore}) \\ &= ₹ 15,400 \text{ crore} \end{aligned}$$

$$\begin{aligned} GNP_{MP} &= NNP_{FC} + \text{Depreciation} \\ &= 15,400 \text{ crore} + 2,000 \text{ crore} \\ &= ₹ 17,400 \text{ crore} \end{aligned}$$

$$GDP_{MP} = GNP_{MP} - \text{Net factor income from abroad}$$

$$\begin{aligned} GDP_{MP} &= GNP_{MP} - (\text{Factor income received} - \text{Factor income paid}) \\ &= 17,400 \text{ crore} - (1,500 \text{ crore} - 10,00 \text{ crore}) \\ &= 17,400 \text{ crore} - 500 \text{ crore} \\ &= ₹ 16,900 \text{ crore} \end{aligned}$$

**GDP at market price is ₹ 16,900 crore**

5. If the NDP at factor cost ₹ 4,500 crore, depreciation is ₹ 1,300 crore, Net factor income from abroad is ₹ 1,800 crore, Net indirect tax ₹ 800 crore, what will be the national income of a nation?

$$\begin{aligned} NNP_{FC} &= NDP_{FC} + \text{Net factor income from abroad} \\ &= ₹ 4,500 \text{ crore} + ₹ 1,800 \text{ crore} \\ &= ₹ 6,300 \text{ crore} \end{aligned}$$

**National income of nation is ₹ 6,300 crore**

## QUESTIONS

**Q.1. Answer the following questions:**

1. Differentiate GDP and GNP.
2. "Value added output is one type of measuring national income." Explain.
3. "Sectoral composition is the true measure of National income." Comment.
4. What do you mean by circular flow?
5. What are the adjustments and tax adjustment to be made in calculating income method?
6. What is the difference in private and public expenditure?
7. Write on per capita income, personal income and personal disposable income.

8. What do you mean by real and nominal measures – explain by deflator?
9. What problems come up, with the estimation of National Income of India?
10. What are the components of national income from the viewpoint of expenditure approach?
11. Explain the circular of money income. How do different phases help us in measuring national income in three different ways?
12. Show the difference between nominal and real measures of national income.
13. Private and Public expenditures are the proper aspects of measurement of national income.
14. Describe, with illustrations, the final product and the value added approaches of calculating GNP.
15. Explain briefly the circular flow of economic activity between firms and house holds.
16. What are the uses of National Income Data?
17. What are the causes of inequalities of income in a modern society?
18. Define National income.
19. Trace the relationships between GNP and NNP.
20. Distinguish between:
  - (a) GNP and NNP.
  - (b) Personal and disposable income.
21. (a) What is national income? (b) How could it be measured?
22. Give an account of the different methods of computation of national income.
23. What are the difficulties encountered in the estimation of national income?

**Q.2. Reply in two to three sentences only.**

1. NDP at factor cost
2.  $NNP_{FC}$
3. Meaning of National Income
4. Depreciation
5. Income paid out method
6. Tertiary sector
7. Investment expenditure
8. Private consumption
9. Net National Income at market prices and factor cost prices
10. Government expenditures

**Q.3. Write whether true or false with reasons.**

1. GDP and GNP is the same terms of national income.
2. Second hand goods expenditure is accounted for measuring GDP.
3. Expenditure on intermediate goods are excluded in estimating GDP.
4. The welfare of the people increase with an increase in GNP.
5. National Income is money value of goods only produced during a year.
6. The share of agricultural sector in India's national income has shown a declining trend.
7. National income and per capita income does not reflect the real economic growth.

**Q.4. Short Notes on:**

1. Method of deflating national income
2. Income method of measurement of national income
3. Product method's deductable costs
4. Investment Expenditure
5. Secondary sector's factors accounted for measuring national income

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**MULTIPLE CHOICE QUESTIONS**


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**1. National income is measured as:**

- |                                       |                                      |
|---------------------------------------|--------------------------------------|
| (a) NNP – Direct taxes – Subsidies.   | (b) GNP – Indirect taxes + Subsidies |
| (c) NNP – Indirect taxes + Subsidies. | (d) NNP – Subsidies + Direct taxes.  |

**2. National income does not include.**

- |                        |                        |
|------------------------|------------------------|
| (a) Service of a firm. | (b) Profit of a firm.  |
| (c) Export earning.    | (d) Transfer payments. |

**3. Which of the following two statements is correct?**

- (a) The Gross National Product (GNP) is the money value of the total national production for any given period.
- (b) The GNP is the real value of the total national production for any given period.

**4. National Income is:**

- |                                  |                                     |
|----------------------------------|-------------------------------------|
| (a) Government's annual revenue. | (b) Budget estimates.               |
| (c) Sum total of incomes.        | (d) Revenue of public undertakings. |
| (e) None of these.               |                                     |

5. The difference between gross national product and net national product equals:
- (a) Consumer expenditure on durable goods.
  - (b) Indirect business taxes.
  - (c) A statistical discrepancy.
  - (d) Depreciation.
6. Which is the correct form?
- (a) GNP = Gross Net Production.
  - (b) NNP = Net National Product.
  - (c) NI = German Democratic Production.
7. In calculating a country's GNP at market prices, which of the following is not included?
- (a) Wages and salaries before tax.
  - (b) Indirect taxes.
  - (c) Retirement pensions.
  - (d) Subsidies.
8. The value of total annual output of finished goods and services of a country in a year is defined as:
- (a) Net national income.
  - (b) Gross national income.
  - (c) Gross domestic product.
  - (d) National output at factor cost.
9. In calculating national income, a transfer can be recognised if:
- (a) No money transaction is involved.
  - (b) Consumer income is increased.
  - (c) No goods or services are produced in the process.
  - (d) No tax relief is involved.

10. Real National Income  
Size of Population

- (a) Personal income.
  - (b) Per capita income.
  - (c) Per capita real income.
  - (d) None of the above.
11. Net National Product is:
- (a)  $\frac{\text{Gross National Product}}{\text{Taxes}}$
  - (b) Gross National Product  $\times$  Taxes.

- (c) Gross National Product – Depreciation.
- (d) Gross National Product + Depreciation.

**12. The economy's net final output evaluated at current market prices equals:**

- (a) The sum of all factor incomes (excluding profits) generated through the production of final output.
- (b) The sum of all factor incomes (including profits) generated through the production of final output.
- (c) The market value of all goods and services produced within the economy less depreciation and replacement cost of the capital goods.
- (d) None of these.

**Ans:** 1. (c), 2. (a), 3. (a), 4. (c), 5. (d), 6. (b), 7. (b), 8. (c), 9. (b), 10. (c), 11. (c), 12. (c).

