UNIT 4 CONCEPT AND MEASUREMENT OF NATIONAL INCOME

Structure

4.0 OBJECTIVES

This unit aims at discussing various methods of estimating national income and related aggregates. For that the unit discusses the basic concepts that are used in defining and distinguishing among various aggregate measures of economic activity.

After going through this Unit you would be able to:

- explain the meaning of economic territory;
- define a resident unit;
- define the term 'factor income';
- explain the meaning of national income at constant price;
- describe the production, income, and expenditure methods of estimating national income; and
- explain the considerations involved in choosing a method.

4.1 INTRODUCTION

In the three earlier units, you have been acquainted with the meaning of national income, the circular flow of income in an economy, the basic concepts of consumption, saving and investment, and also with production— both intermediate and final — and finally, with value added. In this unit we take a closer and more detailed look at what constitutes national income and what the concept means. National income of a country equals the sum total of factor incomes accruing to the residents of economic territory of that country. This meaning of national income requires familiarity with at least three terms: (1) Economic territory, (2) Residents, (3) Factor incomes. Let us explain these terms.

4.2 SOME BASIC CONCEPTS

4.2.1 Economic Territory

You must be familiar with the term geographical territory that is defined strictly on the basis of political boundaries of a country. Economic territory is derived from physical territory but on economic basis. It crosses marginally the political frontiers of a country. In nutshell, the concept of economic territory is carved out of geographical territory by adding some portions of the rest of the world and by subtracting some portions of geographical territory. This addition and subtraction is made strictly on the basis of some well defined economic criterion. We are taking here the criterion laid down in the System of National Accounts (SNA) developed by the United Nations. We will have occasion to study the SNA in greater detail a little ahead in the course.

According to the SNA, the economic territory of a country consists of geographical territory administrated by a government within which persons, goods and capital circulate freely. It includes: (a) the airspace, territorial waters, and continental shelf lying in the international waters over which the country enjoys exclusive rights; (b) territorial enclaves in the rest of the world such as embassies, consultants, military basis, etc. and (c) any free zones, or bonded warehouses or factories operated by offshore enterprises under customs control. It does not include (a) territorial enclaves used by foreign governments such as foreign embassies, foreign consultants, etc. and (b) international organizations.

The implications of the above can be explained with the help of an illustration. To take an example, consider the British High Commission in New Delhi. It is taken as part of British Economic Territory. All economic activities of the British High Commission are taken to be taking place in the economic territory of Britain and are accounted for in the Britain's GDP. Similarly all economic activities of Indian embassy in Washington are accounted for as part of India's GDP.

4.2.2 Resident

The term resident is different from the term citizen. Citizenship of a country is linked with birth or some other non-economic criterion. The term 'resident' on the other hand is linked strictly with economic criterion. Accounting to SNA, a resident unit is one whose center of economic interest lies in the

economic territory of the country in question. This unit may be an individual, a household, a government, a corporation, a non-profit institution etc.

By centre of economic interest is meant that the institutional unit is located within economic territory and carries out its economic activities and transactions on a significant scale over a long period of time from that location. As a working arrangement the term 'long period of time' is usually taken to mean a period of one year or more. On the basis the travellers or visitors who leave economic territory for less than one year continue to be resident of that economic territory. Similarly, workers working outside economic territory for a part of the year, border workers, locally recruited staff in international originations, in foreign embassies, staff working in ships, aircrafts etc operating on international routes are all residents. For example, an Indian resident working in British embassy remains Indian resident. A Briton posted in New Delhi office of the British Airways remains the British resident. The time period rule does not apply to students studying abroad, medical patients abroad even if they stay for more than one a year in foreign countries.

In SNA, the ownership of land and structure with the economic territory of a country is deemed to be sufficient in itself for the owner to have a center of economic interest in that country. Along with this the SNA has adopted the convention that all land and structures are owned by residents, actual or national. Let us explain the meaning of the term 'notional'. If a non-resident owns a building, the owner is treated as if he transferred his ownership to a notional institutional unit which is actually resident in that country. In this sense all production units within the economic territory are resident production units. But the factor services supplied to these units need not necessarily be supplied by the residents only. Non-residents may also supply factor services and claim in return the factor income. Similarly residents may also supply factor services to production units outside the economic territory and claim factor income in return.

The overall conclusion is simple. First, all factor payments (wages, rents, interest, profits, etc.) by the resident production units need not necessarily be made to the residents only. A part may be made to non-residents. Second, all factor incomes received by the residents need not necessarily be received from production units within the economic territory only but may be received also from outside the economic territory.

4.2.3 Factor Income

Conventionally, factors of production are classified into four groups viz. labour, land, capital and entrepreneurship. Labour includes all types of mental and physical efforts involved in production. Land includes all natural resources. Capital includes all physical assets used in production. The entrepreneurship implies the risk taking ability of the owners of production units.

The owners of factors of production sell their services, called factor services, to the production units. In turn, production units make payment for these services. These payments are called factor payments. These payments are termed as compensation of employees, rent, interest and profits. These are made respectively to the owners of labour, land, financial assets and entrepreneurship. The exact meaning and components of these factor payments are explained in section 4.3.4 below. These payments are the factor payments

or factor costs from the angle of production units but factor incomes to the owners of factors of production. In this way factor costs and factor incomes are same in national income accounting.

Broadly thus a factor income is the income received by a factor owner from rendering services to the production unit. Labour receives compensation of employees, i.e. wages, salaries, etc. Land owner receives rent. Capital owner, i.e. the one who provides finance, receives interest. The entrepreneurship, who is the owner of production unit, receives profit.

The sum total of factor payments made by resident production units of an economy territory is termed domestic income or technically, net domestic product at factor cost. The sum total of factor incomes received by the residents of an economic territory, both from with the economic territory and from the rest of the world, is called national income, or technically, **Net National Product at factor cost**.

4.2.4 Intermediate Consumption

We can explain this concept with the help of an example. A farmer producing grain buys seeds, fertilizers, power, water, pesticides, etc. from other production units. These inputs are entirely used up in the process of production and transformed into grain during the year. The consumption of such inputs in the process of production is termed as intermediate consumption. SNA defines intermediate consumption as the value of goods and services that are entirely used up in the course of production during the accounting period.

To classify the use of a good or service as intermediate consumption, two conditions must be fulfilled. First, it is purchased or acquired by a production unit from another production unit. Second, it is acquired for resale which amounts to being used up entirely in the course of production during the accounting period. For example, milk purchased by a restaurant, cloth purchased by a garment manufacturer, petrol purchased by a taxi driver, bricks purchased by a construction company, expenditure on repairs by a production unit, etc. are all intermediate consumption. Goods and services acquired for intermediate consumption are called intermediate products. Expenditure on intermediate products is called intermediate cost. This intermediate cost is a part of the price of the product produced from these.

4.2.5 Final Product

The concept of final product is opposite of the concept of intermediate product. Intermediate products are identified on the basis of 'resale' criterion. Final products are identified on the basis of 'not for resale' criterion. Goods and services acquired not for resale but for own use, are final products. When one acquires a good or a service for own use, the good or service in question is said to reach its final use. It implies that it is no more required to be processed or treaded further.

When a consumer acquires a good or a service, she acquires it for consumption, or to be more precise, for final consumption. When a production unit acquires a good, not for resale, it acquires the same for investment. For example, purchase of a machine for use in production by production unit is an investment (but purchase of raw materials is intermediate consumption). We can now

conveniently define final products. Goods and services acquired for final consumption and investment (and not for resale) are final products. For example, milk purchased by a household, cloth purchased by a household, motor vehicle purchased by a taxi driver, crane purchased by a construction company, refrigerator purchased by a restaurant are all final products.

4.2.6 Value Added

The concept has been explained in detail in Unit 3 section 3.8. Value added, gross value added at market price (GVA_{mp}) to be more specific, equals the excess of value of gross output over intermediate costs. The specific measures of value added are:

GVA_{mp} = Value of gross output minus Intermediate cost

NVA_{mp} (net value added at market prices) = GVA_{mp} minus Consumption of fixed capital

NVA_{fc} (net value added at factor cost) = NVA_{mp} minus Indirect taxes plus Subsidies

The above measures relate to one production unit. By summing up value added by all the production units located within an economic territory, we get different measures of domestic products.

ΣGVA_{mp} (where " denotes summation) = GDP_{mp} .

$\Sigma NVA_{mp} = NDP_{mp}$

$\Sigma NVA_{fc} = NDP_{fc}$

By adding net factor income received from abroad (NFIA) to the above measures we get measures of national product.

$GDP_{mp} + NFIA = GNP_{mp}$

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

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

NNP_{fc} is what we call national income. Our purpose in this lesson is to explain the different methods of estimating national income.

4.2.7 National Income at Constant Prices

Let us first try to understand the purpose behind introducing this concept. We try to understand the same first at micro level. Suppose an individual was earning money incomes of Rs,10,000 and Rs,20,000, respectively in the years 1995and 2005. It means that during the ten years the individual's money income has doubled. Further suppose that during this ten years period the average prices of goods and services he consumed also doubled. Where does this individual stand in 2005 as compared to 1995? What happened to his real position over these years? Since both money income and price level have doubled, the individual gets the same quantity of goods and services in 2005 as he got in 1995. It means that there is no change in his real income position with respect to the availability of goods and services. This real position is nothing but his real income. Over the 10 year period the individual's money

income doubled while his real income remained the same. So which is better, money income or real income, for comparing the performance of the individual? Clearly, real income is better. Money income may give a false picture. Money income and real income at the macro level are more appropriate termed as 'current prices' and 'constant prices' estimates of national income, respectively. For comparing the national income performance of the economy over the years only the constant price estimates are relevant.

Why do we call real income estimates as constant price estimates? National income from the production angle is a measure which is derived from the value of final products. The value of final products equals 'price x quantity' or 'PQ' . Therefore $\Sigma P_{95}Q_{95}$ and $\Sigma P_{2005}Q_{2005}$ would represent the national incomes of the year 1995 and 2005 respectively. Since these values are derived with the help of current year's prices (i.e. 1995 income at 1995 prices and 2005 income at 2005 prices), these measures are termed as current price measures. The two years are strictly not comparable because of the element of price change. To compare 1995 with 2005 we require both years national income to be expressed either at the prices of 1995 or at the prices of 2005. At the prices of 1995 it would mean $\Sigma P_{95}Q_{95}$ and $\Sigma P_{95}Q_{95}$. At the prices of 2005 it would mean $\Sigma P_{05}Q_{05}$ and $\Sigma P_{05}Q_{05}$. Such measures is called constant price measure because in this each year's national income is expressed at some single year's price.

There is a simple method of expressing current price estimates into constant price estimates. The entire exercise is known as the process of deflation. The technique used is that of price index number. There are many theoretical issues involved in applying this technique. We will not go into these issues. We will only describe the method.

Quantity wise and price wise different goods and services have different importance in national income. So, weighted price index, instead of un-weighted, is used to deflate national income. The simple most formula is:

$$\text{Constant Price Estimates} = \frac{\text{Current price estimates}}{\text{Current Year Price Index}} \times \text{Base year price index}$$

Example

Suppose following is known about an economy.

Year	National Income at Current Prices (Rs.crores)	Price Index
1995	1000	100
2005	2000	160

$$\text{2005 Constant Price Estimates} = \frac{\text{2005 Current Price Estimates}}{\text{2005 Price Index}} \times \text{Base Year's Price Index}$$

$$= \frac{2000}{160} \times 100$$

$$= \text{Rs.1250 crores}$$

Constant price estimate reveals that national income in real terms rose only by 25% (from 1000 to 1250). On the other hand current price estimates had indicated that national income rose by 100% (from 1000 to 2000). Thus current price estimate gives an inflated picture while the constant price estimate gives the real picture.

Check Your Progress 1

1) Who is called a resident unit?

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2) Tick the correct alternative.

Economic territory of a country:

a) Is same as geographical territory.

b) Is derived after subtracting some portions from geographical territory.

c) Is derived after adding some potions to geographical territory.

d) Is derived after adding and subtracting some portion to and from geographical territory.

3) Define intermediate consumption.

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4) A good or service is treated as a final product when acquired for :

a) For consumption only

b) For investment only

c) Both for consumption and investment

d) Neither for consumption nor for investment

4.3 METHODS OF ESTIMATING NATIONAL INCOME

4.3.1 Origin

Our aim is to estimate national income. It is defined as sum total of factor incomes accruing to the residents of economic territory of a country. From where do we get data about the same? We can get answer to this if we first answer these questions. Where are factor income generated? Who generates factor income? On what are incomes spent?

Factor incomes are generated in production units. These are generated by the factor owners hired by the production units. Factor owners in turn get factor incomes from production units. When we estimate national income by collecting data at the generation stage, the entire process of estimation is termed as production method. When we collect data when factor incomes are distributed among the factor owners, the process is termed as income – distribution method. When the data are collected, when income are being spent, the process is termed as expenditure method. Conventionally thus there are three methods of estimation national income.

4.3.2 Classification of Production Units

There are innumerable production units in the economic territory of a country. For example, in a big country like India, we find millions of units: big and small factories, shops, service centers, service institutions, etc. Is it really feasible to get data adequate enough to estimate value added by each individual production unit separately? What is normally done in practical estimates is to first classify all the production units into some convenient number of sectors and then make an estimate of national income originating in each sector separately, and then take the sum of sectoral value added to arrive at GDP.

All production units of similar type are grouped into one sector. For example, all production units engaged in raising crops are grouped as agriculture sector. All banking institutions are grouped as banking sector. All factories are grouped as manufacturing sector and so on. On this basis, the production units located on India's economic territory are classified into the following sectors:

1) Agriculture and allied activities
2) Forestry and logging
3) Fishing
4) Mining and quarrying
5) Manufacturing
6) Construction
7) Electricity, gas and water supply
8) Trade, hotels and restaurants
9) Transport, storage and communication
10) Banking and insurance
11) Real Estates, ownership of dwellings and business services
12) Public administration and Defence
13) Other Service

Irrespective of the method one adopts, the classification of production units into convenient number of sectors, called industrial sectors, is the first exercise required to be undertaken. We now turn our attention to explain the steps required to be taken in estimating national income by different methods.

4.3.3 Production (or value added) Method

When, to estimate national income, data are obtained at the income creation stage, the exercise is termed as production method (or value added method). The method involves the following steps:

1) Classify production units into some convenient numbers of industrial sectors. Each sector should contain similar type of production units as far as possible. (This step has been explained in detail in section 4.3.2).

2) Estimate NVA_{fc} by each industrial sector

   NVA_{fc} by a sector can be obtained by taking the following sub-steps:

   1) Estimate value of gross output: The same can be obtained (a) as sum of sales and net change in inventories or (b) as quantity of output multiplied by price.

   2) Estimate intermediate cost and deduct the same from the value of gross output to obtain GVA_{mp}.

   3) Estimate consumption of fixed capital and subtract the same from GVA_{mp} to arrive at NVA_{mp}.

   4) Subtract indirect taxes from and add subsidies to NVA_{mp} to arrive at NVA_{fc}. All taxes on production such as excise duty, sale tax, octroi, custom duties, license fees etc. are indirect taxes. The estimate so arrived gives the contribution of the sector to national income.

Take the sum of NVA_{fc} of all industrial sectors of the economic territory. This sum equal NDP_{fc} at current prices.

Add net factor income from Abroad to NDP_{fc}. This gives us an estimate of NNP_{fc} or national income at current prices.

Deflate current price national income into constant price national income. The process of deflation was explained in sector 4.2.7. By doing so, we arrive at an estimate of real national income. This enables us to compare the performance of national income of given year with the previous year.

While taking the above steps there are certain things which must be kept in view. First, only newly produced goods and services must be counted. Sale and purchase of second- hand goods should not be treated as production. Second, transactions in financial assets like shares and debentures are not counted. However, any service charge or brokerage paid as payment for the service rendered and is included in production. Third, goods and services produced for own use, must be counted. For example, grain produced by farmer but used for family consumption, building one's own house, cooking one's food and son on. It is different thing that the estimators may sometimes find it difficult to include these goods and services because no estimate of their value can be made.

Now let us discuss the methods.

4.3.4 Income Distribution Method

Income paid out versus. Income received variants

Factor incomes are paid out by production units and received by factor owners. So we can get data about factor incomes either from the records of production units, or from the records of factor owners. Accordingly there are two variants of the methods: (i) income paid out and (ii) income received.

Income-paid-out variant

Factor incomes are paid out by production units in the form of compensation of employees, rent, interest and profits. Before we describe the required steps let us first explain the meaning of the individual factor income.

i) **Compensation of employees (COE)**

SNA defines COE as the total remuneration, in cash or in kind, payable by an enterprise to an employee in return for work done by the latter during the accounting period. It has two main components: (a) wages and salaries in cash or in kind and (b) social contributions payable by the employers.

Cash payments includes regular periodic payments like monthly salary, allowances, bonus, compensations, etc. related to the amount of work done by the employees. Wages and salaries in kind consist of consumption good or service provided as remuneration by the employee like meals, housing, clothing, vehicles including goods and services produced and provided free by the employers.

Social contributions include contributions, actual or imputed incurred by employers in order to obtain social benefits for their employees. Actual social contributions include payment by employers to social security funds, insurance companies, pension funds, etc. Imputed social contributions include social benefits provided by the employers directly to their employees without involving specialized institutions like insurance companies etc. for the same.

ii) **Rent**

Rent is the amount payable by the tenant to the landlord. It may be paid in cash, or in kind as in agriculture. The entire amount payable as rent is not factor income. A part of this may be payable by landlord as tax. Another part of rent may be incurred as maintenance expenses. The 'net rent' after deducting tax payable and maintenance changes is factor income.

Royalty payments on granting the leasing rights of subsoil assets in the form of deposit of minerals like coal, oil or natural gas, are also treated as rents.

It should be kept in mind here with payments made for the use of buildings or other structure is not rent but rental. Very often rent payable on building covers both rent of land and rental of structures. Only that part of such payable which is rent of land should be counted as factor payment. (Rental of structure is simply payment for services offered by the owner of structure and is intermediate cost for the production units and final consumption expenditure for the consumers).

iii) **Interest**

Interest is amount actual or imputed payable by production units on the financial assets provided by the creditors including the funds provided by the owner. It is the amount payable on the liabilities of enterprise. It is recorded on accrual basis. Only interest payable on loans taken for the purpose of production are treated as factor payments. Interest payable on loans taken for meeting consumption expenditure is not a factor payment because such a loan is not used as a factor of production

iv) **Profit**

Profit is the factor income accruing to the entrepreneur. It is also called entrepreneurial income broadly. It is normally divided into three parts: (a) profit tax (b) distributed profits i.e. dividends, etc. and (c) retained profits (or undistributed profits).

Concept of Operating Surplus (or mixed income)

Operating surplus and mixed income are two alternatives names for the same item. The difference is that Operating surplus relates to 'Corporate and quasi-corporate' group of enterprise. Mixed income relates to non-corporate enterprises. It is defined as:

Operating Surplus = NVA_{mp}

(or mixed income) Compensation of Employees (COE)

- Indirect Taxes
- Subsidies

In brief, operating surplus (or mixed income) equals the sum of rent, interest profits.

A distinction is made between gross and net operating surplus. The above concept is 'net' Gross operating surplus equals net operating surplus plus consumption of fixed capital. Alternatively, it is sum of rent, interest, profit and consumption of fixed capital.

National Income

In terms of income paid out variant, the sum total of COE, rent, interest, profits, or that of COE and operating surplus or (mixed income), paid out by resident production units located in economic territory equals NDP_{fc}. By adding net factor income received from abroad (NFIA) to NDP_{fc} we get a measure of NNP_{fc} or simply national income

Steps in estimation

The following steps are required to be taken for estimating national income by the income paid out variant. Most steps are same as in case of production method.

1) Classify production units into a convenient number of industrial sectors.

2) Estimate factor payments made by each sector. The factor payments are in the form of COE, rent, interest and profits; or in the form of COE,

operating surplus and mixed income. The sum total of these factor payments equals NVA_{fc}.

3) Take sum of NVA_{fc} by all sectors to obtain the measure of NDP_{fc}.

4) Add NFIA to NDP_{fc} to obtain NNP_{fc} i.e. national income at current prices.

5) Deflate national income by using appropriate index numbers.

4.3.5 Expenditure Method

Expenditure method measures national income at the disposition stage. Disposition here means disposition of income or final products. In this way it has two variants: income disposal and product disposal. Income disposal variant classifies expenditure into consumption expenditure and savings. Product disposal variant classifies expenditure on final products as expenditure on consumption and investment. This is way it is also called final products method. In actual practice, product disposal variant is used because of the comparatively easy position of the availability of data. As such we will explain the product disposal variant in detail.

Expenditure method (product disposal variant) estimates national expenditure by disposition of final products. This method attempts to answer the question: who buys final products? Resident, consumers, resident investors, or non-residents?

The uses of final products, for the purpose of estimating national income, are usually classified into four groups : (1) Private final consumption expenditure (PFCE), (2) Government final consumption expenditure (GFCE) (3) Gross Domestic Capital Formation (GDFC) and (4) Net Exports. The first two are consumption uses and last two investment uses (1) The sum of C and I gives GDP_{mp}. Let us now explain the meaning of each component.

i) **Private Final Consumption Expenditure (PFCE)**

PFCE is further subdivided into: (a) Households Final Consumption Expenditure (HFCE) and (b) Non-Profit Institutions serving households final consumption expenditure (NPISHCE).

a) HFCE

It consists of expenditure, both actual and imputed, incurred by resident households on consumption goods and services, whether that expenditure is incurred within the economic territory or abroad. Expenditure by residents abroad constitutes imports. So HFCE has an element of import. It does not constitute entirely of final products produced within economic territory.

b) NPISH-FCE

It consists of imputed expenditure incurred by the resident NPISHs on providing free services of households. Imputed expenditure means actual expenditure incurred on providing services (like COE, intermediate consumption, CFC etc.) less sales (like token price, fees etc.).

The sum total of HFCE and NPISH FCE is called PFCE.

ii) **Government Final Consumption Expenditure (GFCE)**

It consists of imputed expenditures, incurred by general government. Incurred on providing services like COE, intermediate consumption, CFC etc. less receipts from sales (like token fees, price, etc.).

iii) **Gross Capital Formation (GCF)**

GCF represents addition to the stock of capital during an accounting period. It consists of (a) value of gross fixed capital formation (GFCF) and (b) changes in inventories. 9SNA 1993 also includes acquisition of valuables like precious stones and metals, painting, jewelry, etc. in GCF).

GFCF is measured by net acquisition (i.e. acquisition less disposals of tangible and intangible assets during the accounting period. Main types of tangible fixed assets are dwelling; other buildings and structures; machinery and equipment; cultivated assets like trees and livestock. Main types of intangible fixed assets are mineral exploration; computer software; entertainment, literary or artistic originals, etc. Expenditure on improvements of fixed assets is also included in GFCF.

Change in inventory equals the value of the net acquisition (Acquisition less disposal) of the inventories acquired by enterprises during the accounting period. Inventories consists of materials and supplies, work in progress, goods for resale and finished goods. Materials and supplies consists of goods meant for intermediate consumption. Work in progress consists of output produced by an enterprise that is not yet finished. Goods for resale are goods acquired by enterprises such as wholesalers or retailers, for the purpose of reselling.

GCF, also called gross domestic capital formation (GDCF) in India equals expenditure on investment by the residents during the accounting period.

iv) **Net exports**

Net exports equal exports less imports of goods and services. Exports consist of sales, barter, gifts or grants from resident to non-resident. Net exports is value of sale of final products to non-residents.

Steps in estimation

1) Classify production units into distinct industrial sectors.

2) Estimate final expenditures incurred in the output produced by different sectors.

3) Take the sum of final expenditures on the output of all the industrial sectors to obtain GDPmp.

PFCE (= HFCE + NPISH FCE)

\+ GFCE

\+ GDCF (=GDFCF + Net changes in inventories)

\+ Net exports (=Exports – Imports)

= GDPmp

4) Subtract consumption of fixed capital and net indirect taxes from GDPmp to get NDPfc.

5) Add NFIA to NDPfc to get NNPfc (i.e. national Income) at current prices.

6) Deflate final expenditures by using appropriate indexes to obtain national income at constant prices.

The exercise of identifying final expenditures must be undertaken with great care. Many precautions are necessary. First, intermediate expenditures must be carefully identified and ignored. Second, only expenditures on goods and services are to be counted. Expenditures on financial assets like that on shares, debentures etc. are not to be included. Third, expenditures on gifts, donations, taxes, fines etc. are transfer expenditures and not final expenditures. Fourth, expenditures on second hand goods are not to be included. Only expenditure on newly produced goods and services produced during the accounting period is to be included.

4.4 CHOICE OF METHOD

We have seen that there are three methods of estimating national income. Should national income be estimated from all the three methods simultaneously? If only one method is to be chosen, which one? What determines the choice? The choice, in practice, is determined by two main considerations. What is the purpose? What types of data are actually available?

i) **Purpose**

Each method serves a different purpose. Production method, by measuring values added by a sector, reveals the contribution of different industrial sectors to national income. Such an information is extremely useful in planning allocation of resources.

Income method reveals as to how much equally or unequally is national income distributed. This information is useful in planning the reduction of inequalities.

Expenditure method, by measuring consumption and investment expenditure reveals the standard of living of the people. Distribution of consumption expenditure reveals standard of living of different groups. Investment expenditure indicates the potential of raising the standard of living in the future.

ii) **Data Position**

The data availability position is more important than the purpose of estimation. It is a big constraint. Planners may have a particular purpose of national income in mind, but if the relevant data are not available, what one can do. So many times, in practical world, the purpose has to be sidelined in the absence of required data. National Income is estimated with the help of the method about which data can be conveniently collected. In Indian estimates, for example, data position is so acute that so far it has not been possible to apply a single method to all the sectors. Different methods have been sued for different sectors.

The ideal position for any economy would be to estimate national income originating from each individual sector of the economy by all the three methods simultaneously to extract maximum out of national income data.

Check Your Progress 2

1) What is the basis of the three methods of estimating national income?

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2) Name the two variants of the income distribution method. What is their meaning?

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3) Name the two variants of the expenditure method. What is their meaning?

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4) What is the purpose of estimating national income through the production method?

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4.5 LET US SUM UP

National income is the sum of factor incomes accruing to the residents of an economic territory during an accounting year. Economic territory consists of geographical territory administrated by government within which persons, goods and capital circulate freely. A resident unit is one whose center of economic interest lies in the economic territory of the country in question. A factor income is the income received by a factor owner from rendering services to the production unit. These are in the form of COE, rent, interest and profits.

Intermediate consumption is the value of goods and services that are entirely used up in the course of production during the accounting period. It consists of all goods and services acquired by one production unit from other production units and meant for resale, directly or indirectly. Final products ae those which are acquired for consumption and investment and not for resale. Excess of value of output over the intermediate consumption is termed as value added or

to be more precisely GVAmp. Sum total of GVAmp of all the resident production units equals GDPmp. By subtracting consumption of fixed capital and net indirect axes from and adding NFIA, we get NNPfc (or national income).

Constant price estimation of national income is a measure of real income. It is derived by dividing current price estimate by the price index. The entire process of derivation is called deflation.

Factor incomes are generated in production units; distributed to the factor owners; and disposed of on consumption and saving (or investment). Accordingly there are three sources of data, i.e. accounts of production units, of factor owners and data on expenditures, for obtaining information on national income. This had resulted in three methods, production, income and expenditure methods of estimating national income.

The first step, irrespective of the method used, is to classify production units into a convenient number of industrial sectors. The second step differs from method to method. In production method, we measure value added; in income method, factor payments; and in expenditure method, expenditures incurred on final products. The third step is to take sum of all these variables of all sectors. This step is summarised as below:

Production Method	Income Method	Expenditure Method
Σ GVAmp		PFCE
-CFC	COE	+GFCE
-Net indirect Tax	+Rent	+GDCF
	+Interest	+NET exports
	+Profits	-CFC
		-Net Indirect axes
=NDPfc	=NDPfc	=NDPfc

The fourth step is to add NFIA to NDPfc to get NNPfc or national income at current prices. The fifth step is to deflate current price estimates into constant price estimates by using index numbers.

The choice of method, in actual estimates, is determined by (i) the purpose at hand and (ii) availability of data. The purpose of production method is to measure the contribution of industrial sectors to national income. Income method measures equitableness of distribution of income. Expenditure method measures standard of living of the different groups in the society. Depending on the data position, the estimators have to many a time compromise with the purpose at hand.

4.6 KEY WORDS

Compensation of employees : Total remuneration, in cash of in kind, ayable by an enterprise to an employee in return for work done.

Deflation : The process of converting current price estimates into constant price estimates.

Economic territory : Consists of geographical territory administrated by a government within which persons, goods and capital circulate freely.

Factor income : Income received by a factor owner by rendering services to a production unit.

Final Products : Goods and services acquired for final consumption and investment.

Gross Capital Formation : Sum of gross fixed capital formation and changes in inventories

Household final consumption expenditure : Expenditure, both actual and imputed, incurred by resident households on consumption goods and services within economic territory and abroad

Intermediate Consumption : Value of goods and services that are entirely used up in course of production during accounting period.

Mixed Income : Excess of NVAfc over the COE in case of non-corporate enterprise.

Operating Surplus : Excess of NVAfc over the COE in case of corporate and quasi-corporate enterprises.

Rent : The amount payable, in cash or in kind, by tenant to the landlord for land including royalty payments on the sub-soil assets.

Resident unit : One whose center of economic interest lies in the economic territory in question.

Social Contribution : Contribution incurred by employers in order to obtain social benefits for their employees.

4.7 SOME USEFUL BOOKS

Abraham, W.I. (1969), *National Income and Economic Accounting*, Prentice Hall, New Jersey.

Agarwala, S.K. (1998), *National Income Accounting*, Bookland Publishers, Delhi.

Beckerman, W. (1976), *An Introduction to National Income Analysis*, Macmillan, London.

Hicks, J.R. (1971), The Social Framework, Oxford University Press, Delhi.

Hicks, J.R. Mukerjee M. and Ghosh, Shyamal K. (1984), *The Framework of the Indian Economy*,Oxford University Press , Delhi.

Ruggles, R and Ruggles, N.D. (1956), *National Income Accounts and Income Analysis*, Mcgraw Hill, New York

Studenski, Paul (1958), *The Income of Nations, Part-II*, New York University Press, New York

4.8 ANSWERS OR HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

1) A resident unit is one whose center of economic interest lies in the economic territory in question.

2) (d)

3) Value of goods and services that are entirely used up in he course of production during the accounting period.

4) (c)

Check Your Progress 2

1) Incomes are generated, distributed and then spent. Accordingly these are three sources of data. These constitute the three methods.

2) i) Income paid out variant : measures national income when incomes are paid out by production units.

   ii) Income received variant : measures national income when incomes ae received by factor owners.

3) i) Income disposal variant : measures national income when incomes are spent on consumption and saved.

   ii) Product disposal variant : measures national income when products are acquired for consumption and investment.

4) To know the relative contribution of the different industrial sectors of the economy.

UNIT 5 DISPOSABLE INCOME AGGREGATES

Structure

5.0 OBJECTIVES

After going through the lesson, you would be able to:

- explain the concept of transfer payments;
- distinguish between current and capital transfers;
- differentiate between transfers in cash and in kind;
- define disposable income;
- describe the computation of national disposable income;
- discuss the computation of disposable income aggregates of different sectors of an economy; and

- Explain the various steps taken to compute personal disposable income in India.

5.1 INTRODUCTION

In the last unit we were mainly concerned with the understanding of the concept of national income. There we learnt that national income is essentially the sum of factor incomes accruing to the residents of the economic territory of a country during an accounting year. It is the income which residents 'earn'. The emphasis in this concept is on earning aspect. But what one earns may not really be equal to what is really available for spending on consumption. Suppose an individual earns Rs.60,000/- during the accounting year. Is this whole amount really available to the individual for spending as she wishes? Can she spend more than this amount? The answer is 'not necessarily'. A person may have to pay a tax of say 10% on this income. It means the person has no option but to pay Rs.6,000/- compulsorily to the government. So what is available to her is Rs.54,000/- and not Rs.60,000/- for spending on income during the year. Now, suppose the person concerned got a cash help of Rs.10,000 from some institution, say the government. This raises the person's income available to her for spending to Rs.64,000/-. Both these transactions, i.e. tax and cash help, are termed as 'current transfers' in national income accounting. The measure we get after adding current transfers received and subtracting current transfers paid is called disposable income. What is true at the individual level is also true at the national level. There is a concept called national disposable income. Such a measure of income can be greater or less than national income. This lesson aims at explaining the concepts of transfer income and disposable income relating to the nation and its sectors.

5.2 CONCEPT OF TRANSFER

The concept and measure of disposable income is linked and dependent on the concept of 'transfer'. Disposable income of a country equals:

National income
\+ Current transfers receivable
\- Current transfers payable

A clear understanding of the concept of transfer is thus essential to measure disposable income whether of the country as a whole or of its individual sectors.

5.2.1 Meaning of a Transfer

According to the System of National Account developed by the U.N. (referred to as SNA) "a transfer is a transaction in which one institutional unit provides a good, service or asset to another unit without receiving from the latter any good, service or asset in return as counterpart". Suppose government makes a cash help of Rs.5,000/- to a needy family during a year. What does government get in return from that family? Nothing. Sometimes a unit making a transfer receives no specific quantifiable benefit in return. Similarly, a household paying taxes is not entitled to receive any benefit from the government simply on account of tax payment. All such transactions whether voluntary or legally compulsory, or, whether in cash or in kind are treated as transfers.

5.2.2 Current Versus Capital Transfer

A distinction is made between current and capital transfers. There is no unique criterion for distinguishing between the two. Broadly, the transfers which influence the current income of both the parties involved in the transactions are treated as current transfers. On the other hand, transfers involving transfer of ownership of assets, whether in cash or in kind, thus influencing capital or wealth of both the parties are treated as capital transfers.

Briefly thus, current transfers influence disposable income of both the parties. Disposable income of the payment is reduced and that of receiver increased. Capital transfers influence capital or wealth, reducing the same in the case of payer and increasing in the case of receiver.

Criteria

Three criteria, though not fully satisfactory, can be used to identity whether a transfer is current or capital. First, the amount involved in capital transfers is comparatively large. Second, capital transfers are made less frequently than current transfers which are made comparatively more frequently. Third, capital transfers are often irregular as compared to current transfers which are often regular.

Mixed transfer

The above three criteria are not foolproof. This we have already stated above. Sometimes, it is possible that a transfer may be regarded by one party as capital transfers and as current by the other. For example, suppose a rich man makes a gift of Rs.5,000/- out of his current income to a poor man. The rich man may treat this as a current transfer while the poor man may treat the same as a capital transfer. Let us call such a transfer as a mixed transfer. SNA treats all such transfers as capital transfers. Thus, any transfer which involves an asset for at least one party is treated as a capital transfer.

5.2.3 Kinds of Current Transfers

SNA distinguishes between three kinds of current transfers: (1) Current taxes on income, wealth, etc., (2) Social contributions and benefits, and (3) Other current transfers.

1) **Current taxes on income, wealth, etc.**

Under this category fall the taxes on income of households or profits of corporations and of taxes on wealth that are payable regularly every year. These are receivable by general government and payable by other sectors of the economy.

2) **Social benefits and social contributions**

Social benefits are current transfers receivable by households on account of sickness, unemployment, retirement, housing, education or family circumstances. These are of two kinds: Social insurance benefits and social assistance benefits. Benefits provided through the organized social insurance schemes are termed as social insurance benefits. Social insurance schemes are schemes in which social contributions are paid by employees, or by employers

on behalf of their employees to secure benefits. The schemes may be organized by government or private bodies/institutions.

Social contributions are actual or imputed payments to social insurance schemes made by employers on behalf of their employees or by the employees, self-employed, or non-employed persons on their own behalf. Social contributions are payable by households. Social benefits are receivable by households.

2) **Other current transfers**

This category includes several kinds of transfers serving quite different purposes. Some examples are: net premiums paid for non-life insurance, claims received, transfers between different kinds of government units, from households to households, etc., transfers to non-profit institutions serving households, fines and penalties, payment for lottery tickets, receipt of lottery prizes, payments of compensation on account of injury, etc.

5.2.4 Current Transfers in Cash vs. in Kind

Transfers can be in cash or in kind. A cash transfer consists of payment of currency or transferable deposits by one unit to another without any counterpart. A transfer in kind consists either of transfer of ownership of a good or asset, other than cash, or the provision of a service, a gain without any counterpart.

Transfers in kind are of two types: (1) social transfers in kind and (2) other transfers in kind. Social transfers in kind consist of individual goods and services provided as benefits in kind to individual households by government units, and NPISHs. It includes reimbursements of expenses incurred by households from social security funds like on medical treatment and free services. For this purpose, a distinction is made between "individual" and "collective" consumption expenditure. Individual consumption expenditure is one which is incurred on their behalf. Collective consumption expenditure is for the benefit of community at large. By convention, all final consumption expenditures of the NPISHs are treated as being for the individual. But government consumption expenditure is partly collective and partly individual.

The expenditure by NPISHs and general government to benefit individual consumers is social transfers in kind. The final consumption expenditure incurred by general government for the benefit of community at large is 'other transfers in kind'.

The concept of social transfers in kind is relevant in the context of distinction between 'disposable income' and 'adjusted disposable income'. (Refer to sections 5,3 and 5,4).

Check Your Progress 1

1) Tick the correct alternative.

A) A current transfer influences:

a) income

b) wealth

c) both income and wealth

d) neither income nor wealth

B) A mixed transfer, by convention, is treated as:

a) current transfer

b) capital transfer

c) both current and capital transfers

d) neither current nor capital transfer

C) Tax on profits is a

a) current transfer

b) capital transfer

c) mixed transfer

d) none of the above

2) Distinguish between 'individual' and 'collective' consumption expenditure by government.

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5.3 CONCEPT OF DISPOSABLE INCOME

We first take up the meaning of the term: SNA defines disposable income as the maximum a unit or a sector can afford to spend on consumption goods or services during the accounting period without having to finance the expenditure by reducing its cash, or by disposing of assets or by increasing its liabilities. It is taken as equal to:

GNP accruing to the unit

\+ Current transfers in cash receivable

\- Current transfers in cash payable

The above measure is termed as Gross Disposable Income. By subtracting consumption of fixed capital, we can get a measure called Net Disposable Income.

5.4 CONCEPT OF ADJUSTED DISPOSABLE INCOME

This is relatively a new concept and used for the first time in the 1993 version of SNA. It is defined as the maximum value of final consumption goods and services that a sector can afford to consume in the accounting period without having to reduce its net assets. It is taken as equal to:

Disposable income = income earned

+ social transfers in kind receivable

- social transfers in kind payable

The concept of 'social transfer in kind' has been explained in Section 5.2.3. It is clear that the concept of adjusted disposable income is more comprehensive as compared to the concept of disposable income. The concept is yet to be adopted in actual estimates. As such we confine out attention to the concept of disposable income in the following sections.

5.5 NATIONAL DISPOSABLE INCOME (NDI)

There are two angles of looking at NDI: (1) Sources and (2) Uses

5.5.1 Sources Angle

We have already explained the concept of disposable income (in Section 5.3). Let us apply this concept to the country as a whole. The country here means the residents of economic territory of that country taken together. The concept of NDI when applied to the country can be 'gross' or 'net'. As gross (i.e. GNDI) it means:

GNDI = GNP_{mp}

+ current transfers in cash receivable

- current transfers in cash payable

As net (i.e. Net NDI or NNDI) it means:

NNDI = NNP_{mp}

+ current transfers in cash receivable

- current transfers in cash payable

Remember our unit in the present context is the 'country' consisting of residents of the economic territory of that country. Any transfer from one resident to another does not make any difference to NDI, whether 'gross' or 'net'. A transfer say from one resident A to another resident B only reduces the disposable income of A and raises that of B in an equal amount. This leaves the sum total of disposable incomes of A and B together unchanged before and after the transfer. What affects NDI is current transfers to and from the non-residents. All non-residents taken together are described as the rest of the world (ROW). So, any current transfer made to all the ROW reduces the NDI. Similarly, any current transfer received from ROW and NDI. As such the concept of NDI, say NNDI is described as follows:

NNDI = NNP_{mp}

+ current transfers in cash receivable from ROW

- current transfers in cash payable to ROW

or NNDI = NNP_{mp}

+ net current in cash transfers receivable from ROW

Remember the subscript 'net' in the net current transfers means 'receivable less payable'. So, the value of this 'net' can be positive (+) or negative (-). When positive, it makes NNDI more than NNP_{mp}. When negative, it makes NNDI less than NNP_{mp}. When zero, it makes NNDI equal to NNP_{mp}.

5.5.2 Uses Angle

The above angle of looking at the concept of NDI can be termed as 'sources' angle because we have estimated NDI as the sum of sources of NDI. There is another angle called 'uses' angle. NDI is used for incurring consumption expenditure and saving. As such the sum of consumption expenditure and saving would also equal NDI.

NDI = Residents' consumption expenditure
+ Residents' gross saving

It is gross saving (i.e. including consumption of fixed capital i.e. CFC), it is GNDI. If it is net saving (i.e. excluding CFC), it is NNDI, So,

GNDI = Residents' consumption expenditure
+ Residents' gross saving

and NNDI = Residents' consumption expenditure
+ Residents' net saving

Remember Residents' consumption expenditure is the sum of Private (i.e. household + NPISH) Final Consumption Expenditure and Government Final Consumption Expenditure.

5.5.3 The Two Angles Reconciled

The two angles of looking at NDI are reconciled in the form of an account called national Disposable Income and its Appropriation Account. This is one of the Consolidated Accounts of the Nation recommended in the SNA.

Table 5.1: GNDI and its Appropriation Account

USES		SOURCES	
Consumption expenditure	---	GNP at Market Price	---
+ Gross Saving	---	+ **Net** current transfers receivable from ROW	---
Appropriation of GNDI	---	GNDI	---

Table 5.2: NNDI and its Appropriation Account

USES		SOURCES	
Consumption expenditure	---	NNP at Market Price	---
+ Net Saving	---	+ **Net** current transfers receivable from ROW	---
Appropriation of NNDI	---	NNDI	---

5.6 SECTORAL DISPOSABLE INCOME

GNDI or NNDI is the sum total of the disposable income of the constituent sectors of the economic territory of a country. The economy for this purpose can be classified into production Units. Households, NPISHs and General Government.

The basic approach for estimating disposable income of each sector is the same, i.e. disposable income equals "share in GNP ± current transfers". But to distinguish it from GNDI or NNDI, we have to make a distinction between domestic sectors and the external sector, i.e., ROW. We have to separate the current transfer transaction between one domestic sector and the other on the one hand, and between a domestic sector and ROW. The reason for this the 'domestic sector to domestic sector' transactions and the 'transaction with the ROW', while the NDI is influenced only by the latter.

Sector's GDI = GNP_{mp} accruing to the sector
+ Net current transfer receivable from other domestic sectors
+ Net current transfer receivable from ROW

The GNDI is merely the sum of GDI of its constituent sectors, i.e.,

GNDI = Σ Sector's GDI = Σ(GNP accruing to the sectors)
+ Σ(Net current transfer receivable from other domestic sectors)
+ net current transfers receivable from ROW

Now, the sum of net current transfers receivable by all the domestic sectors taken together must be zero. Such a transfer leads to a rise in GDI of the receiving sector and fall in the GDI of paying sector by an equal amount, leaving the total GDI of all the sectors taken together unchanged. So,

GNDI = GNP_{mp}
+ Net current transfers receivable from ROW

Similarly, NNDI can be taken as the sum of NNP_{mp} accruing to all sectors and net current transfers receivable from the ROW by all the domestic sectors.

Check Your Progress 2

1) Define disposable income.

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2) How do we compute Gross National Disposable Income from the 'sources' side?

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3) How do we compute Net National Disposable Income from the 'uses' side?

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4) Why should the sum total of net current transfers receivable from domestic sector by all the domestic sectors of an economy must be zero.

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5.7 DISPOSABLE INCOME AGGREGATES OF INDIA

Disposable income aggregates are prepared and published by the Central Statistical Organisation (CSO), a unit of the Ministry of Planning and Programme Implementation, Government of India. The name of the publication in which the estimates are published is National Accounts Statistics (White Paper). This is published annually.

The basic approach towards estimation is explained in sources and methods (1989) also a publication of the CSO.

Outwardly, the Indian estimates of disposable income are confined to NDI and private sectors disposable income only. However, a computation of government disposable income can be made from the data available in the CSO's White Paper.

5.7.1 National Disposable Income in the Indian Estimates

NDI, in the Indian estimates, is computed in the same manner as in the SNA. However, Indian estimates confine only to Net NDI (or NNDI). There is no mention of GNDI probably because of unreliable estimates of consumption of fixed capital. This factor has also prompted SNA to rely more on NNDI than GNDI. From the resources angle, it is defined as :

NNDI = NNP_{mp}

\+ Net current transfers from the ROW

From the 'Uses' angle, it is defined as:

NNDI = final consumption expenditure

\+ net saving

The two angles are reconciled in the following consolidated account of India relating to the year 2003-04

Table 5.3: NNDI AND ITS APPROPRIATION ACCOUNT (2003-04)

(At current prices) (rounded to Rs.billion, i.e. 100 crores)

USES		SOURCES	
Final consumption Expenditure	6,646	NNPmp	8,440
Net Savings	1,432	Net current Transfers from ROW	195
St. discrepancies	557		
Appropriation of NNDI	8,635	NNDI	8,635

Source: CSO National Accounts Statistics (2004)

5.7.2 Personal Disposable Income (PDI)

Private sector comprises of production units, households and non-profit institutions serving households (NPISHs). PDI in India is the sum of disposable income of households and NPISH. It can be computed as:

PDI = GNP accruing to households (including NPISHs)

\+ Net current transfers receivable from other domestic sectors

\+ Current transfers receivable form ROW
(Households here are consumer households).

Let us take each variable on the right hand side one by one. Consumer households are not producers. So, they neither make provision for consumption of fixed capital nor they pay any indirect tax. So, GNP accruing to households means the same as their NNP_{fc}. But, NPISHs may spend on consumption of fixed capital and pay indirect taxes and receive subsidies. The assumption (or convention) in the Indian estimates seems to be that NPISHs neither provide for consumption of fixed capital nor pay any indirect tax or receive any subsidy. This is apparent from the fact that computation of personal income in the Indian estimates is derived from NNP_{fc} and not from GNP_{mp}. Therefore, PDI in the Indian estimates is Net PDI (NPDI).

NPDI = NNP_{fc} accruing to households (inc. NPISHs)

\+ net current transfers receivable from other domestic sectors

\+ net current transfers receivable from ROW

Steps in computation of PDI

The main steps are:

1) **Compute NDP_{fc} accruing to the Private Sector**

Private sector consists of Households (including NPISHs) and Private Production Units. By deducting, NDP_{fc} accruing to government from the NDP_{fc} of the country, we can get NDP_{fc} accruing to the private sector.

Government sector has three parts: General government, Departmental enterprises and Non-departmental enterprises. General government is engaged in administration of the country. It is also called Producers of Government Services (PGS). Departmental enterprises are termed as Departmental

Commercial Undertakings (DCUs) and are owned, controlled and run by public authorities. Non-departmental enterprises are referred to as Non-departmental Commercial Undertakings (NDCUs) and comprise of government companies and statutory corporation.

In the Indian estimates, income accruing to the PGS and DCUs is termed as 'Income from Property and Entrepreneurship (IEP) accruing to the Government Administrative Department (GAD). Income accruing to the NDCUs is termed as savings of non-departmental enterprises. By deducting these two incomes from NDP_{fc}, we can get 'NDP_{fc} accruing to the private sector'.

NDP_{fc} accruing to the private sector = NDP_{fc}
- IEP accruing to GAD
- Savings of non-departmental enterprises

2) **Compute NNP_{fc} accruing to the private sector**

This can be done by adding net factor income received from ROW to NDP_{fc}. Remember that in the Indian estimates the whole of net factor income received from abroad is assumed to be received by the private sector only (refer to section 5.7.1). This puts a limitation on NNP_{fc} accruing to the private sector.

NNP_{fc} accruing to the Private Sector = NDP_{fc} accruing to the private sector
+ net factor income received from abroad

3) **Compute private income by accounting current transfers**

Transactions is an economy take place between private sector, government sector and ROW sector. So, private sector possibly receives current transfers from and pays current transfers to the government and the ROW Sectors.

All current transfers are 'non-factor' incomes and payments. There is another income, interest on national debt, whose status as a transfer income may be questionable but which is unquestionably a non-factor income. Interest on national debt is the interest paid by the general government on loans taken to run the administration, a consumption activity. Those who lend money sacrifice and receive interest in return. So, it is not strictly a transfer income. But at the same time it is also true that this money is not used for production activity and, therefore, does not serve as a factor of production. As such, it is a non-factor income and treated like a current transfer. (Remember that if the interest is paid on the money lent to the government enterprise, it is a factor payment).

Private income can now be computed by adding net current transfers receivable from the general government and the ROW sectors and non-factor interest income received from general government.

Private income = NNP_{fc} accruing to the private sector
+ net current transfers from the government administrative departments
+ net current transfers from the ROW
+ National debt interest

Private income is not strictly disposable income. It takes account of only voluntary current transfers and not legally compulsory current transfers like direct taxes, compulsory fees, fines, etc. (By deducting direct taxes etc. paid by corporations and households, we can obtain a measure of private disposable income. But such a measure doesn't find a place in the Indian estimates).

4) **Compute personal income by deducting income accruing to production units**

In business accounts, the legal entity of a production unit is separate from the legal entity of its owners. Income is generated in a production unit which in turn distributes the same among the owners. The entire income generated may not really be distributed among the owners. A part of this income may be retained in production unit. (In actual terms, it is the decision of the owners to pay themselves the whole of income generated or retain a part in production unit itself). Another part may be paid as profit tax. As such only a part of profits earned by production units may be at the disposal of owners who belong to the household sector.

We find that profit is disposed on (1) profit tax, (2) income distribution among owners and (3) income retained in business. By deducting profit tax and retained income from private income, we get a measure called personal income in the Indian estimates.

Personal income = Private income
- corporate profit tax
- Retained earnings of Private Corporation Sector (net of retained earnings of foreign companies)

The above measure is still not the disposable income of the households (inc. NPISHs) in the strict sense. It does not take into account the involuntary transfers. At the most, it can be described as households' disposable income before tax.

5) **Deduct legally compulsory current transfers from personal income**

This step will finally give us PDI.

NDPI = Personal income
- Direct taxes paid by households
- Miscellaneous receipts of government administrative departments (paid by households)

"Miscellaneous receipts etc.". i.e., compulsory fees, fines, etc. when paid by production units are treated as indirect taxes and when paid by household as direct taxes. In Indian estimates there is data problem in bifurcation of these receipts into direct and indirect taxes. This has led to the assumption of treating all such receipts as if paid by households. This puts a small limitation on PDI data".

The above five steps give us the measure NPDI as understood in national income accounting. As compared to the Personal Income which 'disposable income before tax', PDI is 'disposable income after tax'.

Steps summarised

The steps leading to the derivation of NPDI are summarized in the following Table 5.4. The table is based on the pattern adopted by the CSO. The figures (rounded upto 100 crore = billion of rupee) relate to India for the year 1994-95.

Table 5.4: Computation of Net Personal Disposable Income of India (2004-05) (At current prices)

(Figures rounded upto Billions, i.e., Rs.100 crores)

Given	NDP_{fc}	7637
Step 1	Less: Income from property and entrepreneurship accruing to the government administrative departments Less: Saving of non-departmental enterprises	 118 66
Step 2	= Income accruing to private sector from domestic product. Add: Net factor income from abroad	7453 (-)150
Step 3	= NNP_{fc} accruing to the private sector Add: Interest on public debt Add: Net current transfers from government administrative departments Add: Net current transfers from ROW	7303 450 296 195
Step 4	= PRIVATE INCOME Less: Saving of private corporate sector net of retained earnings of foreign companies Less: Corporation tax	8244 165 138
Step 5	= PERSONAL INCOME Less: Direct taxes paid by households Less: Miscellaneous receipts of government administrative departments	7941 163 80
=	PERSONAL DISPOSABLE INCOME	7698

Source: National Accounts Statistics 2005 (C.S.O.)

5.7.3 Other Sectoral Disposable Income Aggregates

C.S.O. does not explicitly publish disposable income aggregates of government or private units. But these can be conveniently derived from the same variables as are used in computing PDI in India. The basic method is the same. Take, for example, government's disposable income (GDI). To be exact it net GDI (NGDI) because no gross disposable income estimates are made in the Indian estimates due to the unreliable estimates of consumption of fixed capital.

NGDI = NNP_{mp} accruing to government

+ Net current transfers receivable from other domestic sectors

+ Net current transfers receivable from ROW

Let us remind ourselves of certain assumptions in Indian estimates. First, the entire net factor income received from abroad (NFIA) accrues to only private sector. As such NFIA received by government is taken as nil. Second, government does not receive any net current transfers from ROW. So,

NGDI = Income from property and entrepreneurship accruing to the government administrative departments

+ Saving of non-departmental enterprises

+ Net indirect taxes (receivable from production units)

+ Corporate taxes

+ Direct taxes paid by households

+ Miscellaneous receipts of government administrative departments

- Net current transfers to private sector

- National debt interest

The sum of first two items is NDP_{fc} and the sum of first three is NNP_{mp} according to government. The sum of next three is current transfers receivable and the sum of last two is the current transfers payable.

Besides NGDI, we can also take the sum of retained earnings of private production units as the disposable income of the private corporate sector. So,

Net private corporate sector's disposable income (NPCSDI) = Saving of private corporate sector net of retained earnings of foreign companies

Net National Disposable Income (NNDI) can now also be taken as the sum of NPDI, NGDI and NPCSDI.

NNDI = Net personal disposable income

+ Net government's disposable income

+ Net private corporate sector's disposable income

5.7.4 Computation from the Uses Side

Disposable income from the 'uses' side equals consumption expenditure plus savings. Gross disposable income equals consumption expenditure plus gross savings, while net disposable income means consumption expenditure plus net savings. (when net saving = gross savings less consumption of fixed capital).

When computation from the 'uses' and 'sources' sides are compared, the two results must be the same, but in actual estimates they are not the same. It is because of differences in the sources of data for the two sides. This leads to errors in estimation and make the two results unequal. The equality is, however, imposed in presentation of data by introducing the item called '**statistical discrepancy'**.

CSO presents the two measures of NNDI in the form National Disposable Income and Appropriation Account and brings the equality between the two with the help of statistical discrepancy.

Table 5.5: NNDI and Appropriation Account of India (2004-05)

Rounded to Rs.billions (billion = 100 crores)

USES		SOURCES	
Private final consumption Expenditure	1004	NNP_{mp}	8440
Govt. final cons expenditure	5642	Net current transfers	
Net Savings	1432	From ROW	195
Statistical discrepancy	557		
Uses of NNDI	8635	Sources of NNDI	8635

Source: CSO – National Accounts Statistics (2005))

Like NNDI, we can also compute disposable income of private and government sectors from the uses side.

Check Your Progress 3

1) What is the assumption regarding treatment of 'net factor received from abroad' in computation of disposable income in India?

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2) Name the two variables the sum of which equals NDP_{fc} accruing to government sector.

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3) Why is interest on national debt a non-factor income?

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4) What is the assumption regarding the treatment of net-current transfers receivable from the ROW in computation of disposable income in India?

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5.8 LET US SUM UP

The concept of 'transfer' provides the link between national income and disposable income. A transfer is a payment against which no good or service or an asset is provided in return. A transfer which influences current income of both payer and receiver is called a 'current transfer'. A transfer which influences capital or wealth position of both the parties involving transfer of ownership of assets is called a 'capital transfer'. A transfer which is current for one party and capital for another party is called a 'mixed transfer' and by convention treated as a capital transfer.

Current transfers are of three kind: (1) current taxes (2) social benefit and social contributions and (3) others. Out of these, social benefits are receivable by households on account of sickness, unemployment, etc. Social contributions are actual or imputed payments to social insurance schemes made by employers.

Current transfers can be in cash or in kind. A cash transfer is in the form of payment of currency or transferable deposit. A transfer in kind is in the form of transfer of ownership of a good or asset or a service.

Disposable income is the maximum a unit or a sector can afford to spend on consumption goods or services during the accounting period without having to finance its expenditure by reducing its cash, or by disposing of assets or by 'increasing its liabilities'. It equals GNP accruing to a unit + net current transfers in cash receivable.

'Adjusted disposable income' is the maximum value of final consumption goods that a sector can afford to consume without having to reduce its net assets. It equals disposable income plus net social transfers in kind receivable.

From the sources angle, Gross National Disposable Income (GNDI) equals GNP_{mp} + net current transfers receivable from ROW. By subtracting consumption of fixed capital from GNDI, we get Net National Disposable Income (NNDI). From the uses angle, GNDI residents consumption expenditure plus residents gross saving. NNDI equals residents consumption expenditure plus residents net saving.

A sector's disposable income equals GNP_{mp} accruing to the sector plus net current transfers receivable from other domestic sector and ROW.

In India, disposable income aggregates are prepared and published by CSO. Only national disposable income and personal disposable income estimates are published. The computation is based on two assumption necessitated by data problems. First, only private sector receives or pays net factor income from and to ROW. Second, all transfers (whether current or capital) on private account received by private sector are current transfers (and all transfers on government account as capital transfers).

The various steps involved in computation of personal disposable income are summarized in Table 5.4. Al though CSO does not publish disposable income aggregates relating to government and corporate sectors, the same can be derived from this table.

5.9 KEY WORDS

Adjusted disposable income : Disposable income + social transfers in kind.

Capital transfer : A transfer involving ownership of assets in cash or in kind.

Current transfer : A transfer influencing current income of both payer and receiver.

Disposable income : Maximum a unit can afford to spend on consumption goods or services during the accounting period without having to finance its expenditure by reducing its cash, or by disposing of assets or by increasing its liabilities.

Social transfers in kind : Individual goods and services provided as benefits in kind to individual households by government and non-profit institutions serving households.

Transfer : A transaction in which one unit provides a good, service or asset to another unit without receiving from the latter any good, service or asset in return as counterpart.

5.10 SOME USEFUL BOOKS

United Nations, (1993); *System of National Accounts*, Oxford Unversity Press, New York.

Studenski, Paul, (1958); *The Income of Nations*, Part II, New York University Press, New York.

Central Statistical Organisation, Government of India: (1989); *National Accounts Statistics: Sources and Methods*, New Delhi.

Central Statistical Organisation, Government of India (2005). *National Accounts Statistics 2004-2005*, New Delhi

Agarwala, S.K. (1998), *National Income Accounting*, Bookland Publishers, New Delhi.

5.11 ANSWERS OR HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

1) A) a, B) b, C) c

2) The expenditure by general government that benefits individual consumers is individual consumption expenditure. The expenditure that benefits community at large is collective consumption expenditure.

Check Your Progress 2

1) Maximum a unit afford to spend on consumption during an accounting period without having to finance its expenditure by reducing its cash, or by disposing of assets or by increasing its liabilities.

2) GNDI = GNP_{mp} + Net current transfers from ROW

3) NNDI = Residents consumption expenditure

   \+ Net current transfers from ROW

4) It is because such transfers lead only to rise in disposable income of the receiving sector and fall in that of paying sector by an equal amount.

Check Your Progress 3

1) Whole of net factor income received from abroad is assumed to be received by private sector only.

2) i) Income from entrepreneurship and property accruing to the government administrative departments.

   ii) Saving of non-departmental enterprises.

3) Because it is an interest on loan taken to meet consumption expenditure by general government.

4) all transfers, whether current or capital, received by the private sector are treated as 'current transfer' received by the whole of country.

UNIT 6 NATIONAL CAPITAL

Structure

6.0 OBJECTIVES

After reading this unit, you should be able to:

- distinguish between stock variables and flow variables and explain the relation between them;
- explain the concept of balance sheet;
- explain the meaning of national capital;
- explain the problems in measurement of national capital; and
- explain the uses of estimation of national capital.

6.1 INTRODUCTION

The use of economic resources gives rise to the flow of goods and services, and the factor incomes generated in this process is called national income. We have already studied the methods of measurement of national income in Unit 4. The topic of this unit is now measurement of values of economic resources in a country. Such resources comprise of land, subsoil assets, man made capital

and human capital. The population term used for all such resources in national income accounting is national capital. So far, in the practical world, there is not much of a serious attempt to measure national capital on a continuous basis.

Before we study methods of estimating national capital a distinction must be made between capital and wealth. Out of the two wealth is a broader term because there are certain assets which are wealth but not capital. Before we take up what constitutes wealth and which part of wealth is capital let us understand the distinction between the meanings of wealth and capital.

Wealth, in general terms, may be defined to be all the material possessions of a country. A wider definition of wealth would also include human beings in its scope. But since it is difficult to assign values to human resources, the scope of wealth is restricted to non-human resources i.e. to the material possessions. In comparison, capital may be defined as that particular portion of these possessions which is employed to earn profit, or, which is same thing as to produce further goods and services. Thus, all wealth is not capital though all capital is wealth.

Now, what is that non-capital portion of wealth? It is nothing but consumer durable assets. Thus, national wealth includes both capital goods and consumer durable assets. National capital includes only capital goods.

Sometimes a question is raised about the status of dwelling houses. These are no doubt part of wealth, but the question is that should they be included in the category of capital goods or not. There are arguments for and against. We will not go into these arguments. In our last five units, we have followed the treatment suggested by the UN System of National Accounts (SNA). If we go by the SNA, dwelling houses are included in capital stock of the country. In fact there is a distinct industrial sector called ‘services of owner occupied dwellings in the estimates of national income. So consistency in the estimates of national income and national capital requires that dwelling houses are treated as part of national capital. Indian estimates also follow this practice.

6.2 CONCEPTS USED

One way of explaining the difference between national capital and national income is through the distinction between ‘stocks and flows. The concepts of stocks and flows can also be used at the same time to explain the inherent relation and inter-dependence between capital and income.

As far as the measurement of national capital is concerned, the concept of national balance sheet comes most handy. Just like an individual unit’s balance sheet records the assets, liabilities and net worth of that individual, national balance sheet records assets, liabilities and net worth of the nation.

In the next three sections, we will explain he concepts of (1) Stocks, (2) Flows and (3) National balance sheet. More concepts will emerge in the process of explaining these concepts.

6.3 STOCKS AND FLOWS

A variable is treated a stock variable when its value is measured at a point of time. In national income accounting, stocks are a position in, or holding of, assets and liabilities at a point of time.

The crucial aspect of definition of a stock variable is the measurement of its value at 'a point of time'. It is usual practice in business accounts to value their stock position at the end of last day of the financial year, say, on 31st March. The position at the beginning of the first day of the next financial year, say, on 1st April is taken to be the same. All items which find place in the balance sheet are stock variables, like assets, liabilities and net worth. As such the balance sheet itself can be treated as a stock account. Other examples of stock variable are capital wealth, inventories, bank balance etc. When one talks of wealth, he would say that he had so much of wealth on so and so date. It means that his wealth position may have been different before or after that point of time.

A variable is treated a flow variable if its value is measued within a period of time. In national income accounting, flows refer to actions and effects of events that take place within a period of time. Accounting to the United Nations SNA (1993): "Economic flows reflect the creation, transformation, exchange, transfer or extinction of economic value; they involve changes in volume, composition, or value of an institutional unit's assets and liabilities".

The crucial aspect of the definition of 'flows' is measurement of its value 'within a period of time'. The usual practice in business accounts is to take of profits, wages, interest, rent, purchases, sales, payment of taxes, etc. during the accounting period, say, during 1.4.2004 to 31.3.2005 as from variables. As such, the profit and loss account of a business can be treated as flow account because most items recorded in this account are flow variables. Income, saving, consumption expenditure, investment, depreciation, dividends, retained earnings, rent, wages, interest, sales, output, change in inventories, etc. are all flow variables.

SNA distinguishes between two kinds of flows: (1) transactions and (2) other than transactions. All transaction, whether monetary or non-monetary are flows. All examples given above are transaction flows. Flows, other than transaction flows, are changes in the value of assets and liabilities that do not take place in transactions like discoveries, depletion of sub-soil resources, destruction by war, changes in value of assets due to change in price level, etc.

Stocks and flows, in national income accounting, are connected with each other. First, a stock variable is nothing but an accumulated sum of flows. For example, the amount of capital that exists at the beginning of a year is the accumulated sum of investments or capital formations (which are flows) of previous year.

Second, the use of stocks gives rise to flows. For example, use of capital (a stock) leads to flow of output and factor income (all flows). Bigger the stock bigger may be the flows. More the capital employed more may be the amount of output flowing.

Third, stocks are further built up or reduced by the flows. For example, fresh investment during the year (a flow) makes capital (a stock) higher during the beginning of the next year. Consumption of fixed capital (a flow) reduces the amount of capital (a stock) at the end of the year.

In this way national capital (a stock) and national income (a flow) are not only interconnected they are interdependent also. Large national capital means a bigger flow of national income. More the national income more is likely to be saving and investment and in consequence more national capital next period. It may again mean yet bigger flow of national income. Thus, when we study flows then a study of stocks is must. When we measure national income measurement of capital is must. It is in this context we study the measurement of national capital of a country.

6.4 CONCEPT OF BALANCE SHEET

A balance sheet is a statement, drawn up at a particular point in time, of the value of asset owned and the claims against these assets.

The assets are usually classified into two groups: physical (or non-financial) assets and financial assets. Physical assets are in the form of land, sub-soil assets, building, machinery and equipment, inventories, valuables, etc. Financial assets are in the form of currency, deposits, share, bonds, debentures, loans, securities, etc.

Claims against the assets owned by a unit are of two types: (1) Claims of other units, i.e. other than the owners and (2) Claims of the owners of the unit. Claims of non-owners are called 'liabiities'. These comprise of borrowings, bonds issued, securities issued, debentures issued, taxes payable, etc. If, for example, a borrows from B, then B has the claim on the assets of A to the tune of sum borrowed by A. If a corporate firm issues bonds these represent liabilities of the corporate firm but assets of those who buy it. Thus each liability is matched by an equal amount of financial assets in the whole system. Claims of the owners of the unit, in the language of balance sheet are called 'net worth (NW). It is a residual item and equals the excess of value of assets (A) over the liabilities (L). The balance sheet of a unit is thus best summarized as 'A=L+NW. A highly simplified format of a balance sheet of an institutional unit is presented below (Table 6.1). Imaginary figures are used to bring out the relationship more clearly.

Table: 6.1

Balance Sheet of an institutional unit
(As on March 31, 2005)

(Rs. Lacs)

Assets		**Claims**	
Physical assets	70	Liabilities (L)	40
Financial assets	30	New Worth (NW)	60
Total assets (A)	100	Claims on assets	100

The balance sheet thus brings out the capital position of an institutional unit. The above balance sheet states that net worth (or capital), as indicated by net worth, is Rs.60 Lacs. This provides a clue to the estimation of national capital of a country. It is merely the sum of net worths of all the resident institutional

units of a country. The methods of estimation of national capital are explained in detail in the coming sections.

Check Your Progress 1

Tick the correct answer:

1) Which one of the following is a stock variable?
   a) income
   b) investment
   c) capital
   d) change in inventory
2) Which of the following is flow variable?
   a) capital formation
   b) inventory
   c) wealth
   d) loans
3) Which of the following is correct?
   a) only stock variables influence flow variables
   b) only flow variables influence stock variables
   c) both stock and flow variables are influenced by each other.
   d) There is no relation between stocks and flows
4) A balance sheet is a statement which records:
   a) assets only
   b) liabilities only
   c) net worth only
   d) all these three
5) What indicates wealth of an institutional unit?
   a) physical assets
   b) financial assets
   c) excess of financial assets over liabilities
   d) excess of both physical and financial assets over liabilities

6.5 DERIVATION OF NATIONAL BALANCE SHEET

In the last section we explained the format of a balance sheet of an institutional unit. We can derive national balance sheet by summing up the balance sheets of all the resident institutional units of a country. We are not shifting from micro to macro level with the aim of measuring the national capital of a country. Keeping our aim in mind it is necessary to expose the composition of assets and liabilities. In this process we will come across certain relationship between financial assets and liabilities on the one hand, and between physical assets

and net worth on the other, which are true at macro level but not necessarily true at micro level.

6.5.1 Assets

Definition of an asset

By asset we mean economic asset. An economic asset is defined an entity which has two characteristics: (1) over which ownership rights are enforced, and (2) from which economic benefits may be derived by holding it or using it over a period of time. Thus, any asset which does not meet these characteristics is not treated as economic asset.

Categories of assets

Assets can be physical or financial. Physical assets are more popularly termed as non-financial assets. The later term is more comprehensive in that it includes both tangible assets and intangible assets while physical assets may be mistaken to be confined to just tangible assets. In view of this, in national income accounting assets are categorised into non-financial and financial assets.

a) **Non-financial assets (NFA)**

NFA are further categorised into produced and non-produced assets. **Produced assets** are those which come into existence as outputs from production processes. It consists of fixed assets, inventories and valuables.

Fixed assets can be tangible and intangible. Buildings, machinery and equipment, cultivated assets (like livestock, plantations) etc. are examples of tangible fixed assets. Mineral exploration, computer software, original entertainment films, sound recordings, manuscripts, tapes, models, etc. are examples of intangible assets. These assets are treated as economic assets only when acquired for production and not for final consumption. As such consumer durable held by households are not treated as economic assets.

Inventories include materials and supplies, work-in-progress, finished goods, goods for resale i.e. with traders, etc.

Valuables consist of precious metals and stones, antiques and other art objects like painting, sculptures, etc.

Non-produced assets come into existence other than through the process of production. These assets either occur in nature or come into existence by legal or accounting actions. Non-produced assets can be tangible or intangible.

Tangible non-produced assets are natural assets and consist of land, subsoil assets, non-cultivated biological resources and water resources, but only those over which ownership may be established and transferred and from which economic benefits may be derived. As such environmental assets (like open seas, air, etc.) are not treated as economic assets because no ownership rights can be established over these.

Intangible non-produced assets include patented entities, transferable contracts, purchased good will, etc. These come into existence by legal or accounting actions.

b) **Financial assets**

Financial assets are in the form of currency, deposits, securities (bills, bonds, debentures, etc.), loans, shares, trade credit, monetary gold, SDRs, etc.

All these meet general criteria of an economic asset. By monetary gold is meant the gold owned by the monetary authorities as a component of foreign reserve. SDR are Special Drawing Rights are international reserve assets created by the IMF and allocated to its members.

There is another characteristic of financial assets. Each financial asset held by one institutional unit has a counterpart liability on the part of another institutional unit. For example, consider a loan extended by company A to company B. This is a financial asset of company A but liability of company B. Currency held by public is the financial asset of the public and at the some time liability of the Central Bank of the country. As such all financial assets must have counterpart liabilities within the economic territory of the country or outside it. This is an important observation and is used in the measurement of national capital.

Another important aspect of financial assets relevant for estimation of national capital is **classification of these assets into 'domestic' and 'foreign'.** Domestic financial assets represent claims of residents over residents. Foreign financial assets are the claims of resident over non-residents.

6.5.2 Liabilities

Liabilities are simply the counterparts of financial assets. Each financial liability must have a counterpart financial asset in the system. Like assets, liabilities can be domestic or foreign. Domestic liabilities are counterparts of domestic financial assets held by residents. Foreign liabilities are counterparts of domestic financial assets held by non-residents.

6.5.3 Domestic vs. Foreign Financial Assets and Liabilities

Putting our observations about financial assets and liabilities together we can draw two conclusions:

1) Domestic financial assets held by residents **must equal** domestic liabilities of residents.

2) Foreign financial assets held by residents **may not equal** foreign liabilities of residents.

These two conclusions are extremely useful in measurement of national capital of a country.

6.5.4 Net Worth

Net worth of an institutional unit is the difference between the value of all asset-produced, non-produced and all financial liabilities at a particular moment in time. It is a balancing item. It represents the claims of the owners of the unit over the total assets held by the unit and equals the net wealth of unit. Net worth for the total economy is, therefore, the sum of net worth of its constituent sectors and represent the total capital of the economy.

6.5.5 Derivation of National Balance Sheet (NBS)

Given balance sheets of the constituent resident institutional sectors of an economy, we can derive national balance sheet (NBS) by simply combining and netting these balance sheets. When we combine we simply add balance sheets of the constituent sectors. It means that each variable in the NBS will be merely the sum of values of the same variable in the balance sheets of the constituent sectors. While netting we offset liabilities against financial assets. Netting gives such a shape to the NBS that it is possible to read directly the value of national capital.

Suppose there are only two resident institutional sectors A and B in an economy whose balance sheets are given to us (Tables 6.2 and 6.3)

Table 6.2: Sector A's Balance Sheet as on March 31, 2005

(Rs. Crores)

Assets		**Claims**	
Non-financial assets	120	Domestic liabilities	50
Domestic Financial assets	40	Foreign liabilities	20
Foreign financial assets	10	Net Worth	100
Total assets	170	Claims on assets	170

Table 6.3: Sector B's Balance Sheet as on March 31, 2005

(Rs. Crores)

Assets		**Claims**	
Non-financial assets	150	Domestic liabilities	40
Domestic Financial assets	50	Foreign liabilities	5
Foreign financial assets	5	Net Worth	160
Total assets	205	Claims on assets	205

Let us now combine the above balance sheets by combining them to obtain NBS netting.

Table 6.4: National Balance Sheet as on March 31, 2005

(Rs. Crores)

Assets		**Claims**	
Non-financial assets (120+150)	270	Domestic liabilities (50+40)	40
Domestic Financial assets (40+50)	90	Foreign liabilities (20+5)	5
Foreign financial assets (10+5)	15	Net Worth of A	100
		Net Worth of B	160
Total assets	375	Claims on assets	375

Note that in the above NBS the value of domestic financial assets equals domestic liabilities both equal to Rs.90 crores. This equality (but only at total economy's level) is a conceptual truth because each domestic financial asset

must have corresponding domestic liability of the equal amount. The same is not true about foreign financial assets and liabilities.

6.6 NATIONAL CAPITAL

6.6.1 Meaning

A nation's capital consists of all its resources that contribute to output. In the comprehensive sense both 'human and non-human resources are part of national capital. But due to the difficulties of measurement of the values of human resources, the scope of national capital as confined to only non-human resources.

National capital of a country equals the sum of non-financial economic assets and net claim on the rest of the world (ROW). An economic asset is one which is (1) acquired for production (and not for final consumption); (2) over which ownership rights can be enforced and (3) from which economic benefits are derived.

Non-financial assets (NFA) are of two kinds, produced and non-produced. **Produced assets** come into existence as outputs from production process and consist of fixed assets, inventories and valuables**. Non-produced assets** come into existence by legal or accounting actions and include both tangible (land, subsoil assets, water resources, etc.) and intangible (patents entities, transferable contracts, purchased goodwill, assets etc.) (See Section 6.7.1 for detail).

Net claim on ROW equals the excess of foreign financial assets over foreign liabilities. The value is positive when assets exceeds liabilities and negative when assets fall short of liabilities.

National capital can also be defined as the sum of net worth of the resident sectors. Net worth equals value of assets (both non-financial and financial) less value of liabilities. Net worth thus represents net capital of a sector. The sum total of such net worths of all the resident sectors of the economy represent national capital.

6.6.2 Measurement

The two angles of looking at national capital are reconciled in the National Balance Sheet (NBS) when netted. In the process of netting we offset liabilities against financial assets. Refer to Table 6.4 which gives NBS before netting. There are two pairs to be netted, domestic financial assets and liabilities and foreign assets and liabilities. Since by definition domestic financial assets, must equal domestic liabilities the netted domestic financial assets must be nil. As such this netted item can be removed from the netted NBS. But this is not so with foreign financial assets and liabilities. The two need not be equal at national level. As such the netted foreign financial assets is positive or negative depending upon the relative values of assets and liabilities. In our NBS, foreign financial assets equal Rs. (-)10 crores (=15-25). This represents net claims on ROW. The NBS when netted in this way is as follows:

Table 6.5: National Balance Sheet (netted) as on March 31, 2005

(Rs. Crores)

Assets		Liabilities	
Non-financial assets	270	Net Worth of Sector A	
Net claim on ROW	(-)10	Net Worth of Sector B	
National Capital	260	Claims on National Capital	

The above NBS (Table 6.5) now records the two angles looking at national capital of the country. The left hand side shows the composition of national capital. The right hand side shows the distribution of national capital among the resident sectors.

6.6.3 Composition of National Capital

SNA (1993) gives the following composition of national capital:

1) **NON-FINANCIAL ASSETS**

a) **Produced Assets**

i) **Fixed Assets**:

1) **Tangible fixed assets**: Dwellings other buildings and structures, machinery and equipments cultivated assets (livestock, orchards etc.

2) Intangible fixed assets: Mineral exploration; computer software; entertainment, literary or artistic originals; new information; specialized knowledge etc.

3) Inventories: Work in Progress: finished goods; goods for resale

4) Valuables: Precious metals and stones; Antiques and other affects like paintings, sculptures etc.

b) **Non-produced assets**

i) Tangible:

1) Land under buildings, structures, cultivation, recreation, surface water.

2) Subsoil Assets: Proven and economically exploitable coal, oil, natural gas, metallic minerals, non-metallic minerals.

3) Water resources

ii) Intangible

1) Patented entities

2) Lease and other transferable contracts

3) Purchased goodwill

2) **NET CLAIMS OVER THE REST OF WORLD**

i) Foreign financial assets

Less ii) Foreign liabilities

6.6.4 Problems in Estimation

In most countries estimates of national capital are not made on continuous basis. There are two major type of problems. First, there is lack of data. Second, there are problems in valuation of assets and liabilities.

1) **Lack of data**

Balance sheet of production unit is the direct source of data. But this source is limited by many factors. First, only organized units (mainly corporate and quasi-corporate) do really prepare balance sheets. The unorganized units (unincorporated) normally do not care to prepare balance sheet. The problem is bigger in developing countries, like India, where the proportion of unorganized unit is very high.

Second, even if balance sheets are available, how should estimators reach these balance sheets. Only corporate sector is legally required to submit balance sheets to the concerned government departments. How to obtain other balance sheets is a problem. There is no alternative but to make some indirect estimates. This may involve high degree of guess work.

2) **Problems of valuation**

There are large number of assets and liabilities in the whole economy. The valuation must be such that it reflects the economic behaviour of the units. Also, the same method, as far as possible, must be used for all units. There are different types of problems in valuation of non-financial and financial assets.

i) **Non-financial assets**

These assets can be produced or non-produced. Normally, there is a choice between two methods of valuation, book-value and current market value. Book value is the cost at which the asset was originally acquired. Out of the two, the current market value is preferred because it forms the basis of decisions by investors, producers, consumers and other economic agents. But balance sheets by convention record only book values. So, even if balance sheets are available, there is the problem of converting book-values into current market values.

There is an additional problem regarding tangible non-produced assets consisting of land, sub-soil assets and water resources. It is difficult to determine the physical dimensions of such resources. Since, such resources are not actively traded in the market, it is also difficult to assign meaningful values of these resources.

ii) **Financial assets**

Valuation of financial assets creates special problems in estimation of national capital. The problem is not much of determining current market value, the real problem is that the accounts of debtors and creditors may record different value of liability and asset . Suppose company A (debtor) issues bonds of

Rs.100 each. The original buyer (the creditor) pays Rs.100 for a bond. But the market value of bond fluctuates with change in the market rate of interest. Suppose after one year, it comes down to Rs.90. In this situation, the company's account would continue to record the value of bond asRs.100 while the creditor would have Rs.90 in its record. This defies our basic assumption that each liability has an equal amount of asset somewhere in the system. This creates problems in netting process. The value of financial assets may not match the value of financial liabilities.

6.6.5 Uses

Estimates of national capital have number of uses:

1) **Indicates the composition of economic resources of a nation**

Data on natural resources is useful for monitoring the availability and exploitation of these resources and for formulating environmental policies. Data on produced assets, i.e. fixed assets, inventories, etc. is useful for analyses of production and productivity.

2) **Useful for assessing distribution of capital**

The data on net worths of different sectors of the economy can be used to assess the equitableness of distribution of wealth among different sectors of the economy.

3) **Useful for assessing economic and financial conditions and behaviour**

Wealth variables often determine consumption and saving functions of households. In turn, they determine the purchasing patterns of households.

4) **Indicates external debtor or creditor position of a country**

Data on foreign financial assets and liabilities measure net claims of resident units over the rest of the world. From this, we can assess the creditworthiness of the country.

Check Your Progress 2

1) What are the two characteristics of an economic asset?

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2) Distinguish between produced and non-produced assets.

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3) What is the meaning of 'net worth'?

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4) Define national capital?

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6.7 LET US SUM UP

The concepts of 'stocks' and 'flows' are useful in explaining inter-relationship and inter-dependence between national capital and national income. A stock variable is a variable which is measured at a point of time. Capital, wealth, assets, liabilities are some examples. A flow variable is a variable which is measured within a period of time. Profits, income, investment, sales, output are some examples.

Stocks and flows are inter-related. First, a stock variable is nothing but the accumulated sum of flows. Second, the use of stock gives rise to flows. Third, stocks are further built up or reduced by flows.

Balance sheet is the source of data for estimation of national capital. It is a statement drawn up at a particular point in time, of the values of assets owned and claims against these assets. Claims are in the form of liabilities and net worth. The balance sheet of a unit is best summarized as A = L+NW. The net worth indicates the capital position.

We can obtain national balance sheet by summing up the balance sheets of its constituent sectors. In national balance sheet, assets are classified into non-financial and financial assets. Non-financial assets can be 'produced' and 'non-produced. Produced assets consist of fixed assets, inventories and valuables. Non-produced assets can be 'tangible' and 'intangible' Tangible assets are land, sub-soil assets, water resources, etc. over which ownership may be established and economic benefit derived. Intangible assets are patented entities, transferable contracts, purchased goodwill, etc. and come into existence by legal or accounting actions. Financial assets are in the form of currency, deposits, securities, loans, shares, trade credit, monetary gold, SDR etc. Each financial asset has a counterpart liability. Liabilities are simply the counterparts of financial assets. Net worth is the difference between value of all assets and all liabilities at a particular moment in time. The sum total of net worths of all the resident sectors of an economy is the national capital of the whole economy. By combining the balance sheets of resident sectors, we can obtain national balance sheet (NBS).

A nation's capital consists of all its resources that contribute to output. The estimation of national capital is confined to non-human resources. National capital equals the sum of non-financial economic assets and net claim on the rest of the world (ROW). Net claim on ROW equals the excess of foreign financial assets and foreign liabilities. National capital also equals the sum of net worth of the resident sectors. The two sides of the netted NBS show these two angles of looking at national capital.

The main problems in estimation of national capital are (i) lack of data and (2) problems in valuation of both non-financial and financial assets. The main uses of the estimates of national capital are: (1) indicates the composition of

economic resources; (2) useful for assessing distribution of wealth; (3) useful for assessing economic and financial conditions and behaviour, and (4) indicates external debtor or creditor position of the country.

6.8 KEY WORDS

Flow variable : A variable whose value is measured within a period of time. Economic asset: An entity over which ownership rights are enforced and from which economic benefits may be derived.

Intangible non-produced assets : Assets which come into existence by legal or accounting actions like patented entities, transferable contracts, purchased goodwill, etc.

National capital : All resources that contribute to output.

Net Worth : Difference between value of all assets and all liabilities as a particular moment in time

Non-produced assets : Assets which occur in the nature or come into existence by legal or accounting actions.

Produced assets : Those assets that come into existence as output from production process.

Stock variable : A variable whose value is measured at a point of time.

Tangible non-produced assets : Natural assets consisting of land, sub-soil assets, water resources etc.

6.9 SOME USEFUL BOOKS

United Nations (1993), *System of National Accounts (1993)*, New York, U.N.

Abraham, W.I. (1969), *National Income and Economic Accounting*, New Jersey: Prentice Hall.

Hicks, J.R.; (1997), *The Social Framework*, New Delhi, Oxford University Press.

Agarwala, S.K. (1998), *National Income Accounting*, New Delhi, Bookland Publishing Co.

6.10 ANSWERS OR HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

1) c

2) a

3) c

4) d

5) d

Check Your Progress 2

1) Economic assets are those (a) over which ownership rights are enforced and (b) from which economic benefits may be derived by holding it or using it.

2) Produced assets come into existence as outputs from production process. Non-produced assets either occur in nature or come into existence by legal or accounting actions.

3) Net Worth is the difference between the value of all assets and all liabilities at a particular moment in time. It indicates capital position.

4) A nation's capital consists of all its resources that contribute to output. It is also the sum of net worths of all the resident institutional sectors sum of non-financial economic assets and net claim on the rest of the world. It is of a country.