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# UNIT 13 CIRCULAR FLOW AND NATIONAL INCOME

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## 13.0 OBJECTIVES

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After going through the unit you would be able to explain

- 1 meaning of the term 'circular flows';
- 1 the distinction between money flows and real flows;
- 1 derivation of national income from circular flows;
- 1 the meaning of production, income generation and expenditure flows; and
- 1 the relationship among various macro-economic aggregates.

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## 13.1 INTRODUCTION

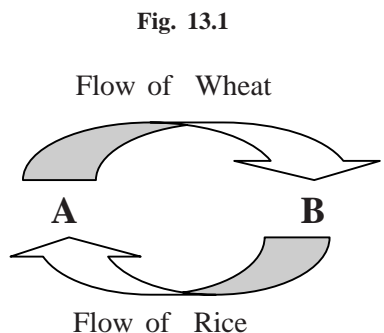
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An economy operates with the help of economic categories like producers, consumers, government, capital sector and rest of the world. These categories perform various economic activities comprising production, consumption, income generation and addition to capital stock and economic transactions with the rest of the world. In the process of performing such economic activities, goods and services flow from one group of agents to another and vice-versa. Corresponding to each such flow, there takes place a counter monetary flow. For example, if one person gets 2 kg. of sugar from a firm, a commodity-flow from a firm to a household is taking place. This flow is matched by a monetary flow, from the household to the firm. Such flows, if aggregated at various ends, can be summed up as national income, gross domestic product etc.

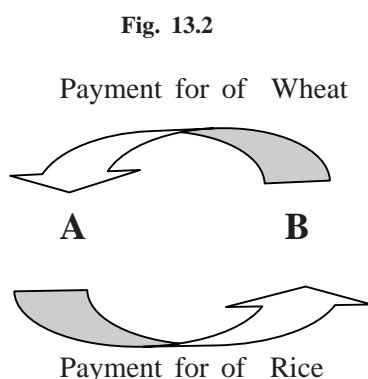
The knowledge of these circular flows along with national income and various other related macro economic aggregates is essential for understanding macroeconomic theory which deals with the determination of levels of national income, employment and prices.

## 13.2 CONCEPT OF CIRCULAR FLOW

The concept of circular flow pertains to the flow of real transaction or money transaction from one economic agent to another. The flow is not one-sided; it is two-sided. Because of this feature it can be termed as circular flow. Suppose person A gives wheat to B and person B in turn gives rice to A, then this can be termed as circular flow which is shown below:



In Fig. 13.1 the direction of the arrows shows the receiving agent. For example, B is receiving wheat from A and therefore, the arrow is pointing towards B. Similarly, A is receiving rice from B. Thus, the arrow is pointing towards A. In the above example, goods have been exchanged so the flows can be referred to as real flows. Instead of goods, if money was exchanged, the flows could have been money flows. Note from the example that when B received wheat from A money would be given by B to A. Similarly, A would have given money to B for the purchase of rice. These money flows can be shown as below:



Comparing Figures 13.1 and 13.2, we would notice that real flows take clockwise movement, i.e., from left to right. On the other hand, money flows take anti-clockwise movement, i.e., from right to left.

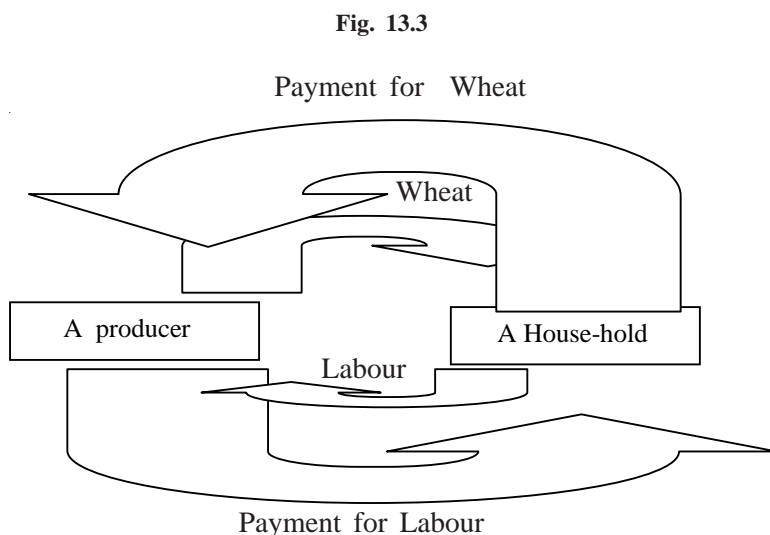
### 13.2.1 Difference between Money Flows and Real Flows

The distinction between money flows and real flows should be clearly understood. Real flows are the flows of goods from one transactor to another and vice-versa. Similarly, real flows can be flows of services from one transactor to another and vice-versa. Real flows are difficult to measure as they comprise bundles of goods or services, expressed in different units and it is impossible to aggregate these transactions or flows. It is precisely because of this reason that we measure money flows.

Money flows, as the name suggests, show the flow of money from one transactor to another. Suppose transactor A supplies goods to transactor B. That is a real flow. The transactor B, in turn must have paid for these goods to transactor A, which is a money flow. Similarly, transactor B may have supplied labour services

or services of land to transactor A which is a real flow. Transactor A, in turn, must have paid for these factor services in the form of wages to transactor B that would be money flow.

The distinction between money and real flows and their interaction can be very well shown with the help of a diagram such as Fig. 13.3, where transactor A is represented as a producer and transactor B as a household.



In Fig. 13.3, a producer supplies wheat to a household. The direction of the arrow indicates who receives the goods. Similarly, the household supplies factor services to a producer as shown by the arrow. Note that clockwise direction of the arrow indicates real flows.

Corresponding to real flows we can also see money flows taking place in the opposite direction or in an anti-clockwise direction. For instance, for the goods supplied by the producer to a consumer, the consumer has paid for these goods in money terms, which can be called consumption expenditure. Similarly, the producer has paid for these factor services. We can call these factor payments. Remember that anti-clockwise arrows indicate money flows.

It is important to realise that a barter economy where goods/services are exchanged for goods/services will have only real flows. On the other hand, in an economy where goods/services are exchanged for money and then money is exchanged for goods we will have real as well as money flows. It is also possible that in a modern economy we may have only money flows taking place without any corresponding real flows. For instance, if a father gives pocket money to his son, money flow may take place from father to son. But son, in turn, has not supplied anything in return and thus the circular money flow is not complete.

Can we think of some cases where the circular money flows may complete circular movement?

### 13.2.2 Flows between Enterprises and Households

Various transactions taking place among transactors or economic agents can be better understood when put in the form of flows.

An enterprise is an economic agent, which employs factor services supplied by households. It creates goods and services, which may either be supplied to other firms in the form of raw materials, or produce consumer goods meant for the final

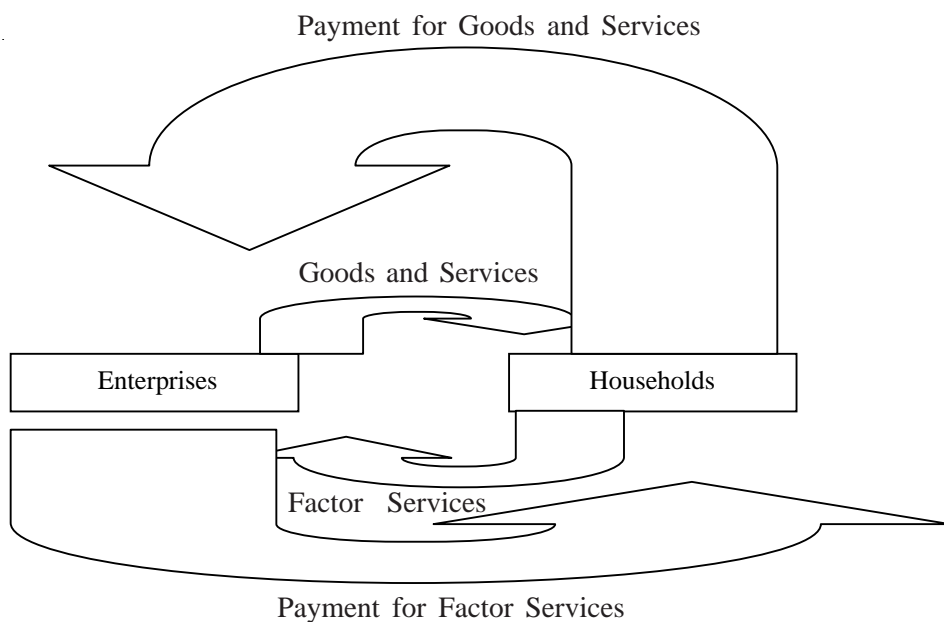
consumption. It may produce machines/plants to help in the creation of more goods and services.

Similarly, we can define a household, which, by definition, supplies the factor services such as land, labour capital and entrepreneurship to enterprises and consumes consumer goods and services produced by enterprises.

The distinction between households and producers is not always mutually exclusive. A person can be a household as well as a producer. To take an illustration, a teacher is a producer when she produces teaching services and will be a household when she buys or consumes the goods and services produced by other producers. Thus, the distinction is not personal, but functional in nature.

The flows between enterprises and households can be shown with the help of Fig. 13.4.

Fig. 13.4



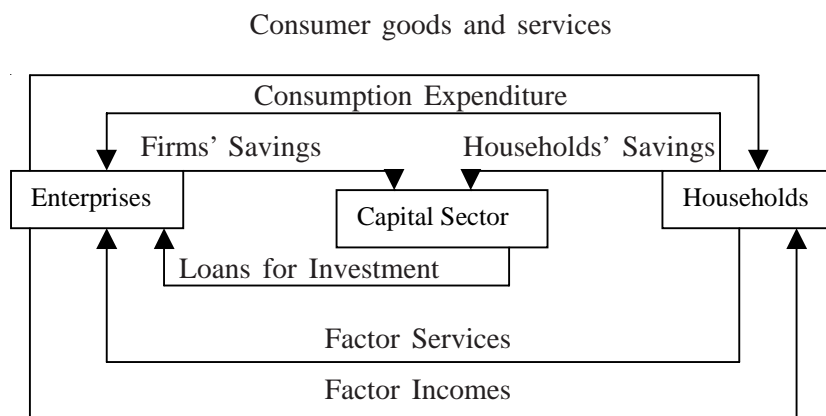
In this figure, both real and money flows are shown. The flow of consumer goods and services from enterprises to households and of factor services from households to enterprises constitute real flows. Similarly, flows taking place from consumers to producers in the form of consumption expenditure and from enterprises to households in the form of factor incomes relate to money flows. It would not be out of place to state that money flows are the counterparts of real flows. Note that Fig. 13.4 is not much different from Fig. 13.3. In Fig. 13.3 we had shown transaction between one firm and one household only, now all the producers and consumers have been added together to make two groups.

### 13.2.3 Flows between Enterprises, Households and Capital Sectors

So far we have discussed flows in a situation where there is no saving and investment. To introduce saving and investment we have to include capital sector along with enterprises and households.

Capital sector collects savings of various sectors and lends these to enterprises for investment. The introduction of capital sector along with enterprises and households is illustrated in Fig. 13.5.

Fig.13.5



In Fig. 13.5 , the flows between enterprises and households are shown as in Fig. 13.4. The additional flows shown here are between (i) households and the capital sector and (ii) enterprises and the capital sector. The factor income received by households need not be fully used for final consumption expenditure; a part of the incomes may be saved in banks or funds used for buying shares, or buying, say, an LIC policy which are all considered a part of capital sector. Thus, the arrow from households towards capital sector is indicative of the savings flowing from household sector to capital sector. These savings are collected by capital sector from households along with savings of the enterprises in the form of undistributed profits, accumulated for expansion purposes, and depreciation fund used for replacement investment purposes.

The savings of capital sector are employed to finance gross investment of the economy, which is shown, with the help of arrow from capital sector towards enterprises. The investment activity of the economy is undertaken by the enterprises, which produce capital goods for net accumulation of capital stock, or for replacing the worn-out capital. Savings in national income accounting are so defined as to be equal to investment.

### 13.2.4 Flows between Enterprises, Households, Capital and Government Sectors

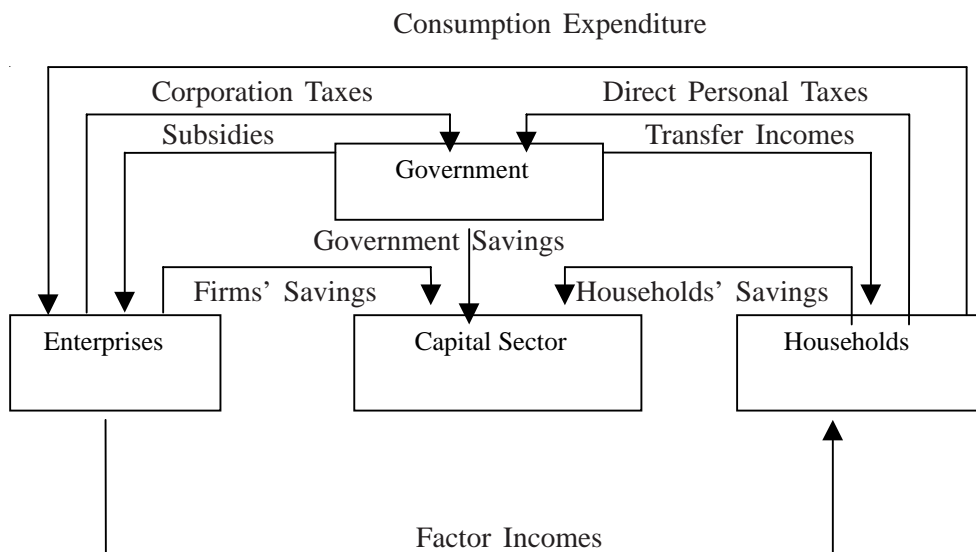
Flows between enterprises, households and capital sector were shown in Fig. 13.5 above. Let us now introduce the government sector.

The government sector can be viewed in two ways: First, the government can act as a producer or enterprise meaning thereby that it can contribute to total production activity along with the private sector. Second, the government can act as a redistributor of incomes, i.e., tax a particular sector of the economy and subsidise another either by giving cash help to the enterprises or offering transfer incomes in the form of old-age pensions or unemployment benefits etc., to households. The government production activity can be categorised as, 'General Government' where the government produces primarily services which are collectively consumed. These can take the form of police, or defence services, which are ordinarily not available for sale; instead they are consumed collectively and are financed from the tax revenue raised by the government. The government has undertaken departmental and non-departmental enterprises, which produce goods and services for sale in the market, are grouped in the category of enterprises. Therefore, General Government is only the activity of the government as a redistributor of income or producer of services, which is meant for collective consumption.

An incorporation of the government sector in flow chart is shown with the help

of Fig. 13.6. We are introducing a change in our presentation here: Now onwards, we will show only the monetary flows without the corresponding real flows. This is being done to keep the diagrams simple in appearance.

Fig. 13.6



In Fig. 13.6, the flows between enterprises, households and capital sector are same as shown in Fig.13.5. In addition, however, Fig. 13.6 has with an additional flow, namely, a part of the saving may come from government sector to the capital sector. These savings may be positive or negative. If the government expenditure on transfer incomes, subsidies or maintenance of collective services is more than the tax revenue raised in the form of direct personal tax, indirect taxes and corporation tax, savings are negative. On the other hand, if government expenditure were less than tax revenue, government saving contributed by the government sector would be positive.

The income received by households for the supply of factor services to the government sector need not be spent only on the purchase of consumer goods produced by enterprises. A part of the factor income may be passed on to the government in the form of direct personal taxes as indicated by the arrow towards government from households. On the other hand, the government can give transfer incomes to households as shown by arrow facing households from government. Similarly, the incomes received by enterprises from the sale of consumer goods to households or for meeting collective consumption of government, may get leaked to government in the form of indirect taxes and corporation taxes as shown by the arrow facing government originating from enterprises. The government may also use tax revenue to subsidise production of goods and services by enterprises. This is shown by the arrow facing enterprises starting from government.

### 13.2.5 Flows in an Open Economy

So far we have shown the flows in a closed economy, i.e., an economy that does not have any transactions in the form of exports and imports. Now, we introduce transactions of an economy with the other countries of the world (referred to as rest of the world) to get flows in an open economy (an economy which has economic transactions with the rest of the world).

When an economy is opened up, the following variables have to be incorporated in the flows of an economy:

- 1) A part of the output produced by enterprises of the economy may be retained for consumption or investment purposes within the economy and the rest may be exported to the rest of the world. The payment for such exports is made by rest of the world to enterprises of the domestic economy.
- 2) Consumption expenditure of households may be not only on goods and services produced within the economy but also on those imported from the rest of the world.
- 3) Households may earn factor incomes not only from domestic enterprises but also from normal residents of an economy who are temporarily, upto one year, stationed in other countries. Similarly the normal residents of the rest of the world may temporarily be stationed within the economy in question and therefore factor income earned by them is a part of the national income of the country of which they are the normal residents. This together gives us the variable called 'net factor income from abroad' which can be positive or negative. It is positive if factor income earned by the normal residents of an economy in the rest of the world is more than factor incomes earned by the normal residents of the rest of the world stationed in the economy.
- 4) Another factor to be considered is the fact that savings accumulated in the capital sector may not originate from household's enterprises or the government. A part of the savings may flow from the rest of the world which is termed as 'net capital inflow from the rest of the world,' which may be positive or negative. It is positive when borrowings from rest of the world are more than lending to rest of the world and negative when lending exceeds borrowing.
- 5) Another factor is that savings generated within the economy and from the rest of the world may be used not only for generating gross domestic capital formation (replacement investment plus net domestic capital formation) but also for the purposes of net investment abroad, which can be positive or negative. It is positive when investment made by the economy in the rest of the world is more than investment made by the rest of the world in the economy in question and negative in case of a reverse situation.
- 6) Lastly, just like there can be unilateral transfers (which do not have quid-pro-quo) within the economy there can be unilateral transfers from the rest of the world to the economy and vice-versa. The variable is termed as 'net current transfers from the rest of the world', which can be positive or negative. It is positive when current transfers from the rest of the world to the economy in question are more than current transfers by the economy to the rest of the world are and negative when the reverse is true.

In Fig. 13.6, the flows in a closed economy were shown and the corresponding flows in an open economy are shown in Fig. 13.7. The incorporation of variables arising because of opening up of the economy would bring in quite a difference to the flows of a closed economy shown in Fig. 13.6.

Enterprises receive money not only through consumption expenditure of households but also by net exports of goods and services of enterprises. Net exports are the difference between exports and imports. It can be positive or negative. It is positive when exports are more than imports and negative when reverse is true. In the figure, the arrow originating from the rest of the world to enterprises indicates exports whereas the arrow originating from enterprises to the rest of the world indicates imports.

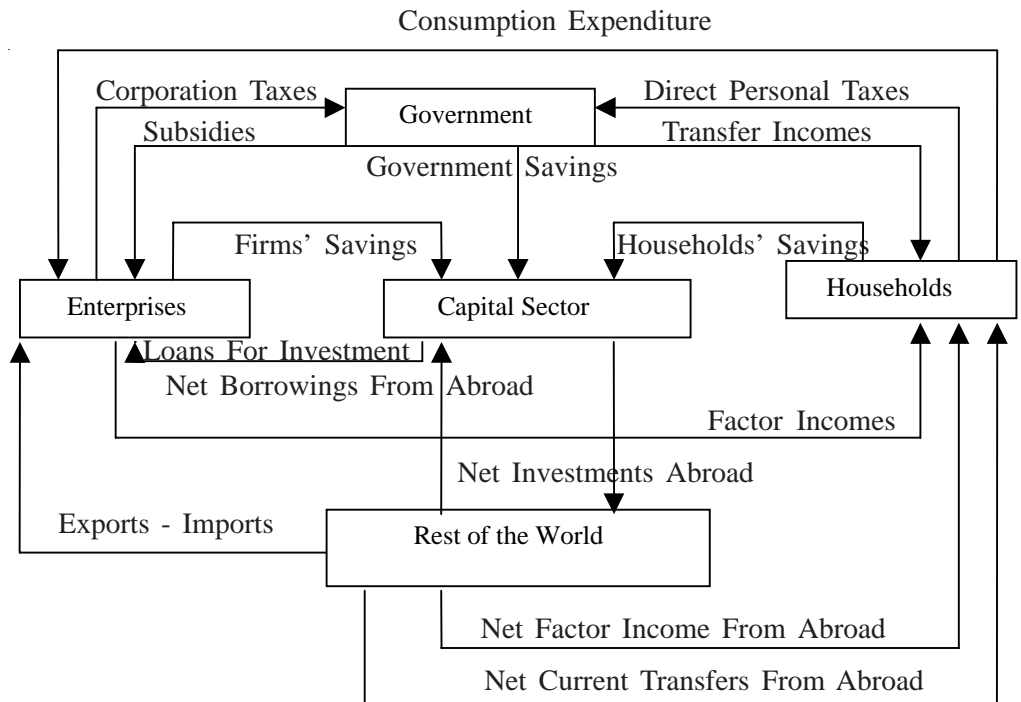
Similarly, 'net factor income from abroad' is shown with the help of an arrow pointing towards households from the rest of the world. The same is true of 'net

current transfers from abroad' where arrow is pointing towards households from rest of the world.

Net borrowings from the rest of the world are indicated by an arrow pointing towards capital sector starting from the rest of the world.

Finally, net foreign investment is shown with the help of an arrow pointing towards the rest of the world from capital sector.

Fig. 13.7



Thus, Fig. 13.7 presents a full picture of the flows taking place in an economy, which has enterprises, households, government, capital sector and the rest of the world sector as the main players. The situation gets more complicated if each of the sectors is sub-divided into smaller units. For instance, enterprises sector is to be divided into a number of enterprises; household sector into individual households; the capital sector into banks, LIC, GIC, share market etc., government into Central Government, State Governments, Local Governments and the rest of the world into a number of countries. The situation will get complicated because inter-unit transactions of a sector are also to be accounted for.

**Check Your Progress 1**

- 1) Distinguish between money flows and real flows with the help of suitable illustrations.

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- 2) State various economic transactions, which are used to study circular flow of an economy

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- 3) How does circular flow get complicated when capital sector is introduced along with enterprises and household sectors?

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### **13.3 CIRCULAR FLOWS AND NATIONAL INCOME**

The circular flows presented in Section 13.2 are essential for the purposes of visualising the working of an economy. By studying these flows it is possible to derive various macro-economic aggregates. Some of these aggregates are gross domestic product (GDP), net domestic product (NDP), gross national product (GNP), net national product (NNP) and national income (NY). In the following subsections let us try to derive these aggregates from circular flows. We would employ Fig. 13.7 to arrive at NY in three phases, viz., as flow of goods and services, as flow of factor incomes and as flow of final expenditures.

#### **13.3.1 National Income as Flow of Goods and Services**

Taking a fresh look at Fig. 13.7, we can try to view NY aggregate at the enterprises end. If we add up the money value of the flow of goods and services produced over a year without duplication, after deducting the production of capital goods meant for replacing worn out capital stock and adding with this net factor income from abroad, it would be possible to get a figure of NY of an economy. To spell out further, enterprises produce consumer goods (C) and take up net domestic capital formation (I). Add with this net factor income from abroad to get NY of an economy. Thus we can say  $Y = C + I + NFIA$  where Y is NY. In this definition it may be kept in mind that the value of goods and services have to be computed at factor cost (FC) and not at market price (MP), where value at  $MP = Value\ at\ FC + NIT$ . NIT is net indirect taxes i.e., indirect taxes minus subsidies. Moreover it is also to be seen that those goods and services which are produced by enterprises meant for the purposes of intermediate consumption (raw materials bought by one enterprises from another are not to be added along with goods and services meant either for final consumption on the part of households or for adding to the total capital stock of the economy. This needs to be done to avoid double counting. To give an example, if we take the total production of wheat along with total production of bread we would indulge in duplication since bread also includes wheat in the form of flour.

This way of calculating NY is known as production method, or product method. Production method as we will see subsequently is also known as value added method.

#### **13.3.2 National Income as Flow of Factor Incomes**

Again, going back to Fig. 13.7, let us view NY aggregate, at the households' end. Households supply factor services to enterprises to produce goods and services. These factor services can be supplied by four factors of production, viz., labour, land, capital and enterprise are to be remunerated in the form of wages, rent, interest and profits, respectively.

Thus, by adding up wages, rent, interest and profits along with net factor income from abroad we get NY of an economy. Or,  $Y = W + R + In + P + NFIA$ , where Y is national income which is equal to the sum of wages (W), rent (R), interest (In),

profits (P) and net factor income from abroad (NFIA). What we have done is to add up all the factor incomes received by households for supplying factor services to enterprises.

By definition, national income viewed, as flow of final goods and services is identical to the one viewed as flow of factor income generated in the process of production.

Sometimes factor incomes instead of being categorised into W, R, In and P are put differently. In this new way of categorisation of factor incomes we have the groups, viz., compensation of employees (CE), operating surplus (OS) and mixed income of self-employed (MY) so that  $Y = CE + OS + MY + NFIA$ , where CE is compensation given to labour for rendering labour services, OS is factor income generated by the ownership and to distinguish between CE and OS and NFIA is net factor income from abroad (already defined). While CE and OS are easy to understand, MY requires a little explanation. MY arises in the case of self-employed. For example, if we ask a petty shopkeeper, running a shop at her own place of residence using her own capital, herself working as labourer or manager and herself undertaking the risk of running the business out of the income of such an enterprise, how much is rent, interest, wages and profits? It would not be possible for her to categorise her income under various heads. Such factor incomes instead can be put under the label mixed income of self-employed.

### 13.3.3 National Income as Flow of Final Expenditures

Making use of Fig. 13.7 national income can also be viewed as sum of final expenditures of various transactors of an economy. In other words, this time we look at not the production of final goods and services but how they are disposed of. The various heads of final expenditures can originate from either households in the form of private final consumption expenditure ( $C_h$ ) or from government in the form of public final consumption expenditure ( $C_g$ ) or from firms in the form of purchase of net capital goods (NDKF) and change in inventories (K) or from the rest of the world in the form of purchase of net exports (NE).

Change in inventories is defined as stocks of finished goods or raw materials/semi-finished products at the end of the year minus the stocks of these goods at the beginning of the year. Change in stocks is positive if closing stocks are more than opening stocks and negative in case of reverse situation.

We are now in a position to arrive at NY viewed as flow of final expenditures as equal to:  $Y = C_h + C_g + NDKF + NE$ . Since NY is defined as NNP at FC, it is important to make final adjustment in the above equation by deducting net indirect taxes (NIT); since  $C_h$ ,  $C_g$ , NDKF and NE are normally presented at market price, in order to convert these figures at factor cost, NIT has to be deducted.

In the final reckoning the equation of national income as flow of final expenditure will be  $Y = C_h + C_g + NDKF + NE - NIT$ .

### 13.3.4 National Income viewed as Production, Income and Expenditure Flows

We are in a position to state now that in Sections 13.3.1, 13.3.2 and 13.3.3 national income aggregate is arrived at considering circular flows from production, income and expenditure respectively. Since production of goods and services requires factor services and factor incomes are generated and such incomes are disposed of for financing final consumption expenditure or saved. Savings, in turn, are used to finance capital formation activity within the economy or for financing net foreign investment.

These three ways of measuring will give us the same magnitude of national income, provided full statistical data required are available. In reality, the requisite information may not be available because of which we are forced to employ a combination of these three methods to measure national income of an economy.

The first step to measure national income of an economy is to divide the economy into a number of industrial sectors like agriculture, mining, logging, manufacturing, construction, real estate, government services, transport services, commercial services etc. Then depending on the availability of data we decide which method to employ. For example, in agriculture and manufacturing sectors production figures may be more readily available and thus we find out the contribution of these sectors by employing production or value added method; for construction sector expenditure figures may be more easily available and its contribution to national income can be estimated by using expenditure method. Finally, for services sector, figures of incomes generated during a year are more easily available which necessitates the employment of income method.

**Check Your Progress 2**

1) Show how Production Flow, Income Flow and Expenditure Flow in an economy are related to each other.

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2) State the main components of National Income as flow of :

i) Currently produced goods and services.

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ii) Currently generated factor incomes

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3) Why does India employ a combination of production, income and expenditure methods to measure its national income?

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**13.4 NATIONAL INCOME AGGREGATES**

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National income is a macro-economic aggregate, which is indicative of economic progress of an economy. There are a number of other related concepts of equally importance and one should clearly understand the inter-relationship among various macro-economic aggregates. These would be extensively employed in units of Block-7.

### 13.4.1 National Income and Various Related Concepts

Some of the important related concepts of national income are as follows:

- 1) **Gross National Product at market price ( $GNP_{mp}$ )** : It is the sum of the values of currently produced goods and services without duplication, over a year, by the normal residents of an economy, gross of depreciation, where goods and services are valued at the market prices.
- 2) **Gross National Product at Factor Cost ( $GNP_{fc}$ )** : It is the sum of the value of currently produced goods and services, over a year, by the normal residents of an economy, gross of depreciation, when goods and services are valued at factor cost (market price minus net indirect taxes).
- 3) **Net National Product at Market Price ( $NNP_{mp}$ )** : It is the sum of value of currently produced goods and services without duplication, over a year, by the normal residents of an economy, net of depreciation, where goods and services are valued at market price.
- 4) **Net National Product at Factor Cost ( $NNP_{fc}$ )** : It is the sum of value of currently produced goods and services without duplication, over a year, by the normal residents of an economy, net of depreciation, where goods and services are valued at factor cost (market price minus net indirect taxes).
- 5) **National Income (NY)** : It is the same as  $NNP_{fc}$ .
- 6) **Gross Domestic Product at Market Price ( $GDP_{mp}$ )** : It is the sum of value of currently produced goods and services without duplication, over a year, within the domestic territory of an economy, gross of depreciation, valued at market price.
- 7) **Gross Domestic Product at Factor Cost ( $GDP_{fc}$ )** : It is the sum of the value of currently produced goods and services without duplication, over a year, within the domestic territory of an economy, gross of depreciation, where goods and services are valued at factor cost (market price minus net indirect taxes).
- 8) **Net Domestic Product at Market Price ( $NDP_{mp}$ )** : It is the sum of value of currently produced goods and services without duplication, over a year, within the domestic territory of an economy, net of depreciation, where goods and services are valued at market price.
- 9) **Net Domestic Product at Factor Cost ( $NDP_{fc}$ )** : It is the sum of value of currently produced goods and services without duplication, over a year, within the domestic territory of an economy, net of depreciation, where goods and services are valued at factor cost (market price minus net indirect taxes).
- 10) **Net National Disposable Income (NNDY)** : It is the factor and transfer incomes earned or enjoyed by the normal residents of an economy, over a year, inclusive of net indirect taxes. It is identical to  $NNP_{mp}$  + net current transfers from rest of the world.
- 11) **Income from Domestic Product Accruing to Private Sector (Z)** : It is the factor income enjoyed by households and private corporate sector in an economy, over a year.
- 12) **Private Income (PY)** : It is the factor income and current transfers within the economy along with net current transfers from the rest of the world enjoyed by the normal residents of an economy, over a year.

- 13) **Personal Income (Personal Y)** : It is factor income and current transfers within the economy along with net current transfers from the rest of the world enjoyed by households of normal residents of an economy, over a year.
- 14) **Personal Disposable Income (PDY)** : It is factor income and current transfers within the economy along with net current transfers from the rest of the world, net of personal direct taxes and other administrative payments, at the disposal of households of normal residents of an economy, over a year.
- 15) **Personal Consumption Expenditure ( $C_h$ )** : It is personal disposable income minus personal savings (i.e., savings of households), over a year.

### 13.4.2 Interrelationships among various Macro-economic Aggregates

In Section 13.4.1 various national income and related concepts are introduced. In this section, it is the interrelationships among these aggregates, which will be introduced.

$$\text{GNP}_{\text{mp}} - \text{Net Indirect Taxes (NIT)} = \text{GNP}_{\text{fc}}$$

$$\text{GNP}_{\text{fc}} - \text{Depreciation (D)} = \text{NNP}_{\text{fc}}$$

$$\text{NNP}_{\text{fc}} - \text{net factor income from abroad} = \text{NDP}_{\text{fc}}$$

$$\text{NDP}_{\text{fc}} + \text{NIT} + \text{NFIA} + \text{net current transfers from RoW (NCT from RoW)} = \text{NNDY}$$

$$\text{NNDY} - \text{X} - \text{NCT from RoW} - \text{NIT} = \text{NDP}_{\text{fc}}$$

$$\text{NDP}_{\text{fc}} - \text{Income from domestic product accruing to Government administrative departments} - \text{savings of non-departmental enterprises} = \text{income from domestic product accruing to private sector (Z)}$$

$$\text{Z} + \text{NFIA} + \text{national debt interest} + \text{transfer payments by government administrative departments} + \text{Net Current Transfers from RoW} = \text{Private Income}$$

$$\text{Pvt. Y} - \text{undistributed profits of private corporate sector} - \text{corporation tax} = \text{Personal Y}$$

$$\text{Personal Y} - \text{direct personal taxes} - \text{miscellaneous receipts of government administrative departments} = \text{PDY}$$

$$\text{PDY} - \text{personal consumption expenditure} = \text{Household savings}$$

$$\text{Household savings} + \text{private corporate savings} + \text{government savings} + \text{depreciation} = \text{Gross domestic savings}$$

$$\frac{\text{Gross domestic saving}}{\text{GDP}_{\text{mp}}} \times 100 = \text{Rate of gross domestic saving}$$

$$\text{Gross domestic capital formation} = \text{depreciation} + \text{net domestic fixed capital formation} + \text{change in stocks}$$

$$\frac{\text{Gross domestic capital formation}}{\text{GDP}_{\text{mp}}} \times 100 = \text{Rate of gross domestic capital formation}$$

Gross domestic savings – Depreciation = net domestic savings

$$\frac{\text{Net domestic saving}}{\text{NDP}_{\text{mp}}} \times 100 = \text{Rate of net domestic saving}$$

Gross domestic capital formation – Depreciation = net domestic capital formation

$$\frac{\text{Net domestic capital formation}}{\text{NDP}_{\text{mp}}} \times 100 = \text{Rate of net domestic capital formation}$$

Rate of gross domestic capital formation – Rate of gross domestic savings =

Rate of net foreign capital inflow = Rate of net domestic capital formation – Rate of net domestic savings.

**Check Your Progress 3**

1) Starting from Personal Consumption Expenditure arrive at  $\text{GDP}_{\text{fc}}$ .

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2) State the relationship between NNDY and PDY.

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3) What are the factors, which help in the distinction between

- i) GDP and NDP
- ii) GNP and GDP
- iii) NY and NNDY
- iv)  $\text{GDP}_{\text{mp}}$  and  $\text{GDP}_{\text{fc}}$
- v)  $\text{NNP}_{\text{mp}}$  and NNDY
- vi) Personal Y and PDY

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**13.5 LET US SUM UP**

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In this unit, we have given you an idea of the concept of circular flows and how national income of an economy can be derived by studying the working of circular flows.

The concept of circular flow relates to the flow of real transactions or money

transactions from one group of transactors to another. Flow of real transactions give us real flows and the flow of money from one group of transactors to another give us money flows.

Real or money flows can be studied between enterprises and households. Their study can be extended in an economy, which has enterprises, households and capital sector as the transactors. Similarly, we can extend this study further by incorporating Government sector and the rest of the world sector. Once enterprises, households, capital sector, government sector and the rest of the world sector are introduced we study the flows of an open economy.

National income can be studied in its three ways viz., as flow of goods and services or as flow of factor incomes or as flow of final expenditures: National income looked at in either of the three ways gives us the same total. Finally, in the last section of this unit we have gone into the discussion of national income and various related concepts and also introduced the inter-relationships among the related concepts.

The main concepts introduced are  $GNP_{mp}$ ,  $NNP_{mp}$ ,  $NNP_{fc}$ , NNDY, income from domestic product accruing to private sector, private income, personal income, personal disposable income, personal savings, rate of gross and net domestic capital formation, rate of gross and net domestic savings and rate of net foreign capital inflow. An attempt is also made to discuss the relationship among these concepts.

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## 13.6 KEY WORDS

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- Capital Good** : It is a good, which helps, in further production of consumer goods or intermediate goods or machines.
- Capital Sector** : It is a group of transactors, which mop up savings of various sectors and use the saving for creation of capital goods (or investment).
- Change in Inventories** : Inventories are stocks of finished goods/semi-finished goods/intermediate goods. Change in inventories is total inventories at the end of the year minus total inventories at the beginning of the year for an economy.
- Circular Flow** : It is a flow of goods or services or money from one (set of) transactor to another (set).
- Depreciation** : It is the loss in the value of capital asset because of normal wear and tear and expected obsolescence.
- Compensation of employees** : Remuneration given by enterprises to employees for rendering labour services.
- Departmental Enterprises** : Part of government sector. It consists of those enterprises, which run as a part of government departments producing goods/services like railways, post and telegraph etc.
- Direct Personal Taxes** : These are the taxes imposed on households in the form of income tax or wealth tax. Those on whom they are imposed pay them.
- Economic Agents** : They are groups of transactors, which indulge in

economic activities like production/income generation/ addition to capital stock. Economic agents can be classified into producers, households, capital sector, rest of the world and government.

- Economic Transactions** : These are the transactions consisting of production, income generation and addition to capital stock.
- Enterprises** : They are the transactors, which employ factors of production to generate a flow of goods and services in the economy.
- Factor Services** : These are the services rendered by factors of production like land, labour, capital and enterprise.
- Final Consumption Expenditure** : This is an expenditure incurred by households, enterprises and rest of the world to purchase final consumer goods, capital goods and net exports respectively.
- Factor Cost** : It is the total cost incurred to employ factors of production to give rise to a flow of goods and services in an economy. It is equal to value of market price minus net indirect taxes.
- GDP** : It is the value of goods and services produced in an economy over a year, without duplication but gross of depreciation. It is the goods and services produced within the domestic territory of an economy,
- GNP** : It is the value of goods and services produced in an economy over a year, without duplication but gross of depreciation. It is the goods and services produced by the normal residents of an economy.
- Government Final Consumption Expenditure** : It is the expenditure incurred by government on the purchase of intermediate goods plus compensation of government employees. This expenditure is incurred to meet the collective consumption of the economy.
- General Government** : It is the sector, which produces goods and services that are not sold at a price. Such goods are meant to meet collective consumption requirements of an economy. The expenses of these goods are met by tax and non-tax revenue of the government.
- Households** : It is a sector, which supplies factor services to producers or enterprises. The factor incomes received by households are used to meet their final consumption requirements and the balance is used for savings, which are passed on to the capital sector.
- Income from Domestic Product accruing to private sector** : It is the factor income enjoyed by households and private sector over a year in an economy.
- Intermediate Consumption** : It is the purchase of raw materials and services by a firm from other firms to produce goods or services.

<b>Investment</b>	: It is the creation of capital goods in an economy over a year. It can be for replacement of worn out capital or for addition to total capital stock of an economy.
<b>Macro Economics</b>	: It is that branch of Economics, which deals with aggregates of an economy like employment, inflation, balance of payment and national income.
<b>Money Transactions</b>	: These are the transactions between one transactor and another or between one group of transactors and another in terms of money to money without being backed by real transactions.
<b>Money Flows</b>	: These are the flows, which are normally a consequence of real flows between transactors.
<b>Market Price</b>	: It is the price at which a commodity or service is actually purchased by a households or a firm.
<b>Mixed Income of Self-employed</b>	: It is the factor income generated by unincorporated enterprises where it is not possible to distinguish between compensation of employees and operating surplus.
<b>Net Domestic Capital Formation</b>	: It is that part of total production of capital goods and inventories which are meant to add to total capital stock of an economy over a year in an economy.
<b>Net Current Transfers from the Rest of the World</b>	: It is the difference between unrequited transfers from the rest of the world, over a year, and such transfers from the economy to the rest of the world.
<b>Net Exports</b>	: It is the difference between total value of exports and imports over a year.
<b>Net factor Income from abroad</b>	: It is the difference between factor incomes earned by the normal residents of an economy stationed abroad temporarily and the factor incomes earned by normal residents of the rest of the world stationed in the economy temporarily.
<b>NDP</b>	: It is the value of goods and services produced in an economy, over a year, without duplication, net of depreciation. This concept is related to the concept of domestic territory.
<b>National Income</b>	: It is the same aggregate as $NNP_{fc}$ .
<b>Net Indirect Taxes</b>	: It is the difference between indirect taxes and subsidies.
<b>Net National Disposable Income</b>	: It is the total income at the disposal of a nation by way of factor income as well as transfer incomes from the rest of the world. It is identical to NP at market price plus net current transfers form abroad.
<b>Non-departmental Enterprises</b>	: These are the government enterprises for which autonomous corporations are set up. The goods or

services produced by these enterprises are sold for a price. They are the profit making enterprises set up in the public sector.

- Normal Residents** : They are the households or institutions, which have their centre of interest in the economy but some of which may temporarily be stationed abroad.
- Open Economy** : It is an economy, which has economic transactions with the rest of the world.
- Operating Surplus** : It is the factor income generated by ownership and management of property. It consists of rent, interest and profits.
- Personal Income** : It is the factor income and transfer incomes enjoyed by the households of an economy over a year.
- Private Income** : It is the factor income and transfer incomes enjoyed by households and private sector of an economy over a year.
- Personal Disposable Income** : It is the factor income and transfer incomes left at the disposal of the households after paying direct personal taxes and miscellaneous receipts of government administrative departments from personal income.
- Private Final Consumption Expenditure** : It is the expenditure incurred by the households of an economy, over a year, on the purchase of goods and services meant for final consumption.
- Quid-Pro-quo** : Whenever you get something from a transactor in return for something it is called quid-pro-quo.
- Real Transactions** : Those transactions, which are related to exchange of goods or services between two transactors or two groups of transactors.
- Real Flows** : These are the flows of goods or services from one set of transactors to another.
- Rest of the World Sector** : This sector deals with economic transactions of an economy with the rest of the world.
- Replacement Investment** : It is that part of currently produced capital goods, which are meant to replace the capital stock arising out of normal wear and tear, and expected obsolescence.
- Rate of Gross Domestic Capital Formation** : It is defined as gross domestic capital formation divided by  $GDP_{mp}$  multiplied by 100.
- Rate of Net Domestic Capital Formation** : It is net domestic capital formation divided by NDP at mp multiplied by 100.
- Rate of Gross Domestic Savings** : It is equal to gross domestic savings divided by GDP at mp multiplied by 100.

**Rate of Net Domestic Savings** : It is equal to net domestic savings divided by NDP at mp multiplied by 100.

**Rate of Net Foreign Capital Inflow** : It is the difference between rate of gross domestic capital formation and rate of gross domestic savings.

## 13.7 SOME USEFUL BOOKS

Studenski, Paul (1972), *Income of Nations*, (Chap 11-12), Macmillan, New Delhi

Beckerman, Wilfred (1980), *National Income Analysis*, (Chap 1-3), Wiedenfeld and Nicolson: London

C.S.O., *National Accounts Statistics* (relevant pages), Ministry of Statistics and Programme Implementation, Govt. of India, New Delhi.

## 13.8 ANSWERS/ HINTS TO CHECK YOUR PROGRESS EXERCISES

### Check Your Progress 1

- 1) Money flows are the flows, which take place between one transactor and another or between one group of transactors to another. For example producers produce goods and services and pass these on to households for which payments are made by them to producers. In return households supply factor services to producers and producers make factor payment to households. Real flows, on the other hand, are the flows of goods and services from producers to households and household supply factor services to producers, which constitute real flows.
- 2) The economic transactions can be grouped into production income generation, addition to capital stock and the rest of the world transactions. The economic transactors can be divided into enterprises, households, government, capital sector and the rest of the world sector.
- 3) When capital sector is introduced along with enterprise and household sectors the circular flow gets complicated. The complication arises from the fact that they buy consumer goods and services produced by enterprises need not use the whole of factor income, which households get from enterprises, and the leakage takes place in the form of households savings, which get transferred to capital sector.

Similarly, the enterprises may also save a part of their revenue, which they get by selling consumer goods and services in the form of depreciation fund and undistributed profits.

These savings of households and enterprises which capital sector accumulates are lent to enterprises for investment or creation of capital goods (fixed capital goods or change in inventories). Thus, it is the savings and the investment, which need to be introduced in the circular flow besides other flows, which we have when only enterprises and households operate.

### Check Your Progress 2

- 1) Production flow is the goods and services produced in an economy over a year. Production of goods and services requires factor inputs, which are supplied by households.

Employment of factors of production leads to generation of factor incomes or income flows. The incomes received by households for supplying factor inputs to producers can be used to either buy consumer goods and services produced by enterprises or save. Whatever is saved is, in turn, used for the purposes of addition to capital stock (or investment of an economy).

Thus, production flow leads to income flow and income flow leads to flow of expenditures or flow of addition to capital stock. The process continues once again by consumption expenditure and capital expenditures going to enterprises and once again the process get initiated.

- 2) i) Currently produced goods and services can be divided into consumer goods and services and capital or investment goods. Goods or services produced can also be of the nature of intermediate goods but they are not included in other two categories because otherwise there would be duplication in the computation of GDP of an economy.
- ii) Factor incomes generated over a year can be classified into compensation of employees, operating surplus and mixed income of self-employed. Operating surplus is constituted of rent, interest and profits. Mixed income of self-employed is that category of factor incomes where it is not possible to distinguish between compensation of employees and operating surplus. Net factor income from abroad has also to be added to domestically generated factor incomes to arrive at national income of an economy.
- iii) Expenditures currently generated can be divided into (a) Private final consumption expenditure; (b) Government final consumption expenditure; (c) Gross domestic capital formation; (d) Net exports to RoW.

From the sum of (a), (b), (c) and (d) we have to deduct net indirect taxes, depreciation and add with this net factor income from abroad to arrive at national income of an economy.

- 3) Production, income and expenditure are three ways of measuring national income of an economy.

National income measured by any of the three methods gives us the same total.

In the case of India we use combination of three methods to measure national income of India. For agriculture etc., we employ production method, for services sector income method and for construction sectors it is the expenditure method, which is employed.

For construction sector, expenditure method is employed because expenditure data are more readily available.

### Check Your Progress 3

- 1) Personal consumption expenditure + personal savings = Personal disposable income.

Personal disposable income + direct personal taxes + miscellaneous receipts of government administration departments = Personal Income.

Personal income + undistributed profits of private corporations + corporation tax = private income.

Private income – net factor income from abroad – net current transfers from abroad – national debt interest – transfers from government = Income from domestic production accruing to private sector.

Income from domestic product accruing to private sector + savings of non-departmental enterprises + income from domestic product accruing to government administrative departments = NDP at fc.

NDP at fc + Depreciation = GDP at fc.

2) NNDY – net indirect taxes – income from domestic product accruing to government administrative departments – savings of non-departmental enterprises + national debt interest + current transfers from government – undistributed profits – corporation taxes – direct personal taxes – miscellaneous receipts of government administrative departments = Personal disposal income.

3) i) Depreciation

ii) net factor income from abroad

iii) net indirect taxes + net current transfers from abroad

iv) net indirect taxes

v) net current transfers from abroad

vi) direct or personal taxes + miscellaneous receipts of government administrative departments.

Total value of output	545981
Intermediate cost	417244
Gross value added, including bank charges	128737
Imputed bank charges	-11901
Gross value added	116836
Consumption of fixed capital	-24184
Net value added	92652

Source: NAS, 1999

#### 14.3.4 Method Employed in Construction Sector

In this sector, expenditure-cum-commodity flow method is used. Construction activity is classified into two groups, namely, (a) kutchha construction, and (b) pucca construction.

Expenditure method is used in kutchha construction, which is labour-intensive. In it hardly any input of construction material having economic market value is used. It uses such freely available inputs as leaves, reeds and mud. Such construction is usually seen in rural areas where poor farmers and labourers construct their huts, small houses and cattle sheds mostly with their own labour and freely available inputs. Data for this sector are obtained through surveys by NSSO.

The commodity flow approach is adopted in pucca construction. Pucca construction is mostly undertaken in urban areas and involves costly inputs and modern techniques of construction.

The inputs used in pucca construction are bricks, cement, steel, wood, electric fittings and sanitary fittings. Estimated values for these items from are collected from ASI, government agencies and also directly from dealers. After deducting the value of intermediate consumption and consumption of fixed capital from the value of output, net value added in each group is obtained. In India, the value added from construction during 1996-97, at constant (1993-94) prices, is as follows:

(Rs. crore)

Value of output	123544
(a) New construction	100399
(b) Repairs and maintenance	23145
Value of intermediate consumption	76162
Gross value added	47382
Consumption of fixed capital	-2308
Net value added	45074

Source: NAS, 1999

#### 14.3.5 Difficulties in Measurement of National Income of India

The difficulties faced in measuring national income of India can be divided into two categories:

- 1) conceptual difficulties, and
- 2) statistical difficulties.

**Conceptual difficulties.** All the countries, whether developed or developing, face difficulties relating to the concepts used in national income accounting. Even economists differ on what constitutes national income, i.e., what to include in national income. Examples of such difficulties are:

- 1 absence of an agreed definition of national income
- 1 difference between final goods and intermediate goods
- 1 transfer payments
- 1 services rendered without remuneration etc.
- 1 consumers' durable goods etc.

### **Statistical difficulties**

#### *Inadequate and unreliable data*

Data available are neither sufficient nor correct and sufficiently detailed. For example, in India, it is possible to get information, though inadequate, from producing units in organised sector. But it is difficult to get data from agricultural and related activities like household, crafts and indigenous credit (functioning of village money lenders). Moreover production is not only unorganised but scattered also.

#### *Non-monetised sector*

A significant part of the product, especially product of agriculture and cottage industries in rural India is bartered. Valuation of such goods, which have been exchanged through barter system, becomes very difficult since they do not reach the market.

#### *Production of goods for self-consumption*

The small farmers who constitute a sizeable number in India produce goods mainly for their own use. The value of such goods cannot be computed because they do not come to market for sale. Hence a good deal of guesswork in such cases become inevitable.

#### *Illiteracy and ignorance*

Majority of the people in India are illiterate, uneducated and ignorant. They do not maintain account of their income and expenditure. These people do not even know, much less give data, about their income and expenditure. They are ignorant of cost accounting, which is being progressively used by most of the developed countries.

#### *Lack of occupational classification*

In India most of the people earn their living from more than one occupation. For example, Indian farmers work primarily in agriculture. But when free, they also work in cottage and small industries. Should they be treated agricultural workers or industrial workers? When people have different sources of income, it becomes difficult to know the main source and consequently a large part of income gets excluded from national income.

*Valuation of a new good at constant prices*

When a new commodity is produced for the first time, it is easy to know its current price but difficult to get its constant price. For example, in India it is difficult to work out the value of a colour T.V. at constant prices of 1970-71 because it was not being produced in that year.

*Consumption of fixed capital*

By deducting depreciation cost from gross national product (GNP), we get the value of net national product. But it is quite difficult to measure the correct value of consumption of fixed capital (e.g., machines, buildings, etc.) during the year. So some sort of arbitrariness gets involved while estimating depreciated amounts.

**Check Your Progress 2**

- 1) Identify the sectors in which production method is employed to find out their contribution to National Income of India.

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- 2) Enumerate the steps involved in finding out net value added of agricultural sector in India.

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- 3) What are the main conceptual difficulties faced in computation of National Income of India?

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**14.4 LET US SUM UP**

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In this unit we have given you an account of three methods to measure national income of an economy. These three methods, namely, production (or value added), income and expenditure have been explained in detail along with various points which should be kept in mind before employing each of them.

It has also been shown how reconciliation of the three measures of national income is achieved.

A detailed discussion of the methods to measure national income of India is also attempted after giving a historical account of national income measurement. The sub-sectors of Indian economy as employed by the Central Statistical Organization of India are presented. The details of the methods employed in agriculture, registered manufacturing sector and construction sector are given by way of illustration.

Finally, difficulties, both conceptual and statistical, faced in measurement of national income of India are explained.

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## **14.5 KEY WORDS**

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- Compensation of Employees** : It is the factor income generated in an economy in the process of production by rendering labour services. It is also referred to as income from work that includes wages and salaries, employers' contribution to social security, commissions and real wages.
- Change in Stocks** : It is the difference between total stocks or inventories (including unsold finished products, semi-finished products and raw materials) at the end of the year and total stocks at the beginning of the year.
- C.S.O.** : Stands for Central Statistical Organization, which is responsible for the publication of 'National Accounts Statistics' every year providing estimates of national income and various other macro-economic aggregates.
- Double Counting** : When the value of output of a product is included along with the other products in which it has entered as raw material, double counting occurs. It should be avoided in estimation of GDP of an economy.
- Depreciation Provision** : It is the provision of funds in an economy to account for normal wear and tear and expected obsolescence of national capital stock.
- Domestic Territory** : It includes geographical or political boundary of an economy besides ships in the international waters and embassies or consulates in foreign countries.
- Direct Taxes** : The taxes which are imposed on persons or institutions and they are to be paid by them alone. In other words, these are the taxes the incidence of which cannot be transferred to others.
- Death Duties** : The taxes, which are paid by those who inherit the property from the parents or relations or friends etc.
- Durable Goods** : These are the goods, which can be used again and again like tables, machines etc. To be more precise they are referred to as durable-use goods.
- Economic Growth** : It is the growth of real per capita income in an economy.
- Economic Development** : It is economic growth of an economy coupled with all those factors, which sustain economic growth over a sufficiently long period of time.
- Economic Welfare** : It is that part of total welfare of an economy, which

is associated with production and consumption of goods and services.

- Expenditure Method** : It is sum of all expenditures by various economic agents on the goods and services produced by an economy.
- Finished Product** : It is that part of total production of an economy which is meant for either final consumption on the part of households, government exports, or for capital accumulation purposes.
- Factor Incomes** : These are incomes distributed to suppliers of factor services (labour, land, capital and enterprise) for work done over a year in an economy.
- Gross Value Added at mp** : It is the market value of output of an enterprise minus intermediate consumption.
- Mixed Income of Self-employed** : It is factor income (compensation of employees plus operating surplus) generated by self-employed.
- Gross Value Added at factor cost** : It is gross value added at market price minus net indirect taxes paid by a producing unit.
- Income Method** : It is sum of factor incomes currently generated, which is used along with net factor income from abroad to arrive at national income of an economy.
- Intermediate Inputs** : Inputs employed by a firm in the process of production, which is bought from other firms or producing units.
- Industrial Sectors** : Sectors, which are identified for the purposes of measuring national income of an economy.
- Imputed Rent** : It is the value of rent worked out for owner-occupied dwellings.
- Intermediate Consumption** : It is the value of inputs used by a producing unit.
- Net Factor Income from abroad** : The factor income (compensation of employees and property and entrepreneurial income) received from abroad by normal residents of an economy minus such factor incomes paid to normal residents of foreign countries.
- Net Value Added at Factor Cost** : It is gross value added at factor cost minus depreciation allowance.
- Net Value Added at Market Price** : It is net value added at factor cost plus net indirect taxes.
- Non-Durable Goods** : These are the goods, which can be used only once.
- Net Exports** : It is value of exports minus value of imports of an economy.
- Output** : It can be physical units of a commodity produced

by a producing unit or it can be physical units of a commodity multiplied by its price over a year.

- Owner-Occupied Dwellings:** These are the houses, which are occupied by their owners.
- Own-Account Production :** It is the production of goods or services by self-employed households or institutions.
- Operating Surplus :** It is the factor incomes consisting of rent, interest and profits arising out of ownership and management of capital.
- Primary Sector :** This is a sector, which consists of agriculture, forestry and logging, fishing, mining and quarrying.
- Secondary Sector :** This is a sector, which consists of manufacturing (registered and unregistered) and electricity, gas and water supply.
- Tertiary Sector :** This is a sector which consists of trade, hotels and restaurants, transport, storage and communication, financing, insurance, real estate and business services and community, social and personal services.
- Transfer Incomes :** These are the incomes, which do not arise on account of factor services; they are incomes transferred from one sector to another or transferred from one unit to another within a sector. They are not included in national income of an economy.

## **14.6 SOME USEFUL BOOKS**

C.S.O, *National Accounts Statistics*, (Latest), Ministry of Planning, Government of India, New Delhi

Hicks J.R., M. Mukherjee and S.K. Ghosh, 1984, *The Framework of the Indian Economy - An Introduction to Economics*, OUP, Delhi (Chapters 11, 12, 13)

C.S.O, *National Accounts Statistics - Sources and Methods*, Ministry of Planning, Government of India, New Delhi, April, 1989.

## **14.7 ANSWERS TO CHECK YOUR PROGRESS EXERCISES**

### **Check Your Progress 1**

- 1) a)  $\text{Gross Investment} - \text{depreciation (or consumption of fixed capital)} = \text{Net Investment.}$
- b)  $\text{Net Factor Income from abroad} = \text{Net compensation of employees from abroad} + \text{net property and entrepreneurial income from abroad.}$   
 $\text{Net exports} = \text{Value of exports} - \text{value of imports.}$
- c)  $\text{Gross national product} - \text{depreciation} = \text{Net national product.}$
- d)  $\text{Gross domestic product} - \text{depreciation} = \text{Net domestic product}$

- 2) Various constituents of net factor income from abroad are:
  - 1) compensation of employees from abroad.
  - 2) property and entrepreneurial income from abroad.
  - 3) net retained earnings of resident companies abroad. Net factor income from abroad can be negative when factor income from abroad is less than factor income paid to the rest of the world.
- 3) a) GDP at MP = Sum of gross value added at market price of all the producing units of an economy.
- b) GDP at mp = Compensation of employees + operating surplus  
+ mixed income of self-employed + net indirect taxes  
+ net factor income from abroad + depreciation.
- c) GDP at mp = final consumption expenditure of households  
+ final consumption expenditure of government  
+ gross domestic capital formation + exports - imports.

### **Check Your Progress 2**

- 1) Agriculture and allied activities of fishing, mining and quarrying and logging.
- 2) a) Identify the crops.
- b) For each crop find out area under cultivation.
- (c) Multiply (b) by yield per hectare.
- d) Multiply (c) by average price.
- e) From (d) subtract the intermediate cost of agriculture and allied activities.
- f) With (e) add the value of operation of irrigation systems.
- g) From (f) deduct consumption of fixed capital.
- h) The figure arrived at (g) will be the net value added of agricultural sectors.
- 3) Conceptual difficulties relate to :
  - a) absence of an agreed definition of national income;
  - b) difference between final goods and intermediate goods;
  - (c) transfer payments;
  - d) services rendered without remuneration etc.;
  - e) consumer durables etc.
 Statistical difficulties consist of :
  - a) inadequate and unreliable data,
  - b) non-monetised sector,
  - c) production for self-consumption,
  - d) illiteracy and ignorance,
  - e) lack of occupational classification,
  - f) value of a new good at constant prices,
  - g) consumption of fixed capital estimation.



Block

# 6

## **MACROECONOMICS AGGREGATES**

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### **UNIT 13**

**Circular Flow and National Income**

**5**

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### **UNIT 14**

**National Income Measurement**

**26**

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# BLOCK 6 MACROECONOMICS

## AGGREGATES

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### Introduction

After going through blocks, 1 to 5, which deal with micro-economic insights of economic theory, the learner is exposed to macro economic concepts through Block-6. Basically, an attempt is made to show that at the aggregate level, the income of the nation can be seen to have generated by interrelationships between various economic activities. **Unit 13** depicts the national income as a result of circular flow of aggregate income and expenditure. The remaining unit of the block, i.e., **Unit 14** accounts for the method followed for measuring the national income.