The Circular Flow of Income and Expenditure

The circular flow of income and expenditure refers to the process whereby the national income and expenditure of an economy flow in a circular manner continuously through time. The various components of national income and expenditure such as saving, investment, taxation, government expenditure, exports, imports, etc are shown on diagrams in the form of currents and cross-currents in such a manner that national income equals national expenditure.

We begin with a simple hypothetical economy where there are only two sectors, the household and business. The household sector owns all the factors of production, that is, land, labour and capital. This sector receives income by selling the services of these factors to the business sector. The business sector consists of producers who produce products and sell them to the household sector or consumers. Thus the household sector buys the output of products of the business sector. The circular flow of income and expenditure in such an economy is shown in Figure 5.1 where the product market is shown in the upper portion and the factor market in the lower portion. In the product market, the household sector purchases goods an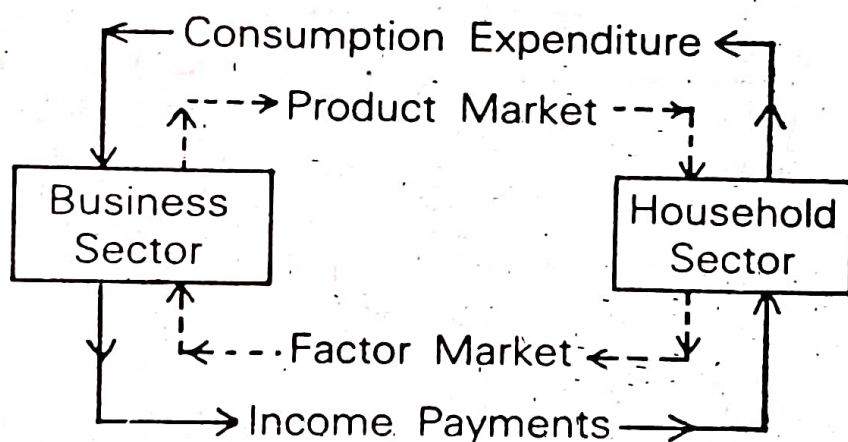d services from the business sector while in the factor market the household sector receives income from the former for providing services. Thus the household sector purchases all goods and services provided by the business sector and makes payments to the latter in lieu of these. The business sector, in turn, makes payments to the households for the services rendered by the latter to the business—wage payments for labour services, profit for capital supplied, etc Thus payments go around in a circular manner from the business sector to the household sector, and from the household sector to the business sector, as shown by arrows in the outer portion of the figure.
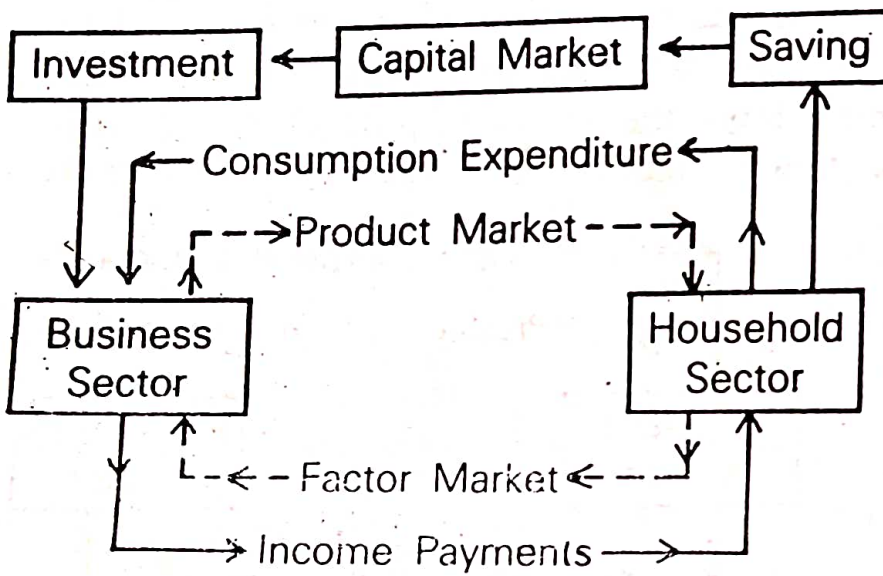

FIG. 5.1

There are also flows of goods and services in the opposite direction to the money payments flows. Goods flow from the business sector to the household sector in the product market, and services flow from the household sector to the business sector in the factor market, as shown in the inner portion of the figure. These two flows give GNP = GNI.

The Circular Flow with Saving and Investment Added

The actual economy is not as explained above. In an economy, "inflows" and "leakages" occur in the expenditure and income flows. Such leakages are saving, and inflows or injections are investment which equal each other.

Figure 5.2 shows how the circular flow of income and expenditure is altered by the inclusion of saving and investment. Expenditure has now two alternative paths from household and product markets: (i) directly via consumption expenditure, and (ii) indirectly via investment expenditure.

In Figure 5.2 there is a capital or credit market in between saving and investment-flows from households to business firms. The capital market refers to a number of financial institutions such as commercial banks, savings banks, loan institutions, the stock and bond markets, etc. The capital market co-ordinates the saving and investment activities of the households and the business firms. The households supply saving to the capital market and the firms, in turn, obtain investment funds from the capital market.

FIG. 5.2

The Circular Flow in a Three-Sector Closed Economy

So far we have been working on the circular flow of a two-sector model of an economy. To this we add the government sector so as to make it a three-sector closed model of circular flow of income and expenditure. For this, we add taxation and government purchases

(or expenditure) in our presentation. Taxation is a leakage from the circular flow and government purchases are injections into the circular flow.

First, take the circular flow between the household sector and the government sector. Taxes in the form of personal income tax and commodity taxes paid by the household sector are outflows or leakages from the circular flow. But the government purchases the services of the households, makes transfer payments in the form of old age pensions, unemployment relief, sickness benefit, etc., and also spends on them to provide certain social services like education, health, housing, water, parks and other facilities. All such expenditures by the government are injections into the circular flow.

Next take the circular flow between the business sector and the government sector. All types of taxes paid by the business sector to the government are leakages from the circular flow. On the other hand, the government purchases all its requirements of goods of all types from the business sector, gives subsidies and makes transfer payments to firms in order to encourage their production. These government expenditures are injections into the circular flow.

Now we take the household, business and government sectors together to show their inflows and outflows in the circular flow. As already noted, taxation is a leakage from the circular flow. It tends to reduce consumption and saving of the household sector. Reduced consumption, in turn, reduces the sales and incomes of the firms. On the other hand, taxes on business firms tend to reduce their investment and production. The government offsets these leakages by making purchases from the business sector and buying sei .ces of the household sector equal to the amount of taxes. Thus total sales again equal production of firms. In this way, the circular flows of income and expenditure remain in equilibrium.

Figure 5.3 shows that taxes flow out of the household and business sectors and go to the government. Now the government makes investment and for this purchases goods from firms and also factors of production from households. Thus government purchases of goods and services are an injection in the circular flow of income, and taxes are leakages.

If government purchases exceed net taxes then the government will incur a deficit equal to the difference butween the two, i.e., government expenditure and taxes. The government finances its deficit by borrowing from the capital market which receives funds from households in the form of saving. On the other hand, if net taxes exceed government purchases the government will have a budget surplus. In

this case, the government reduces the public debt and supplies funds to the capital market which are received by firms.
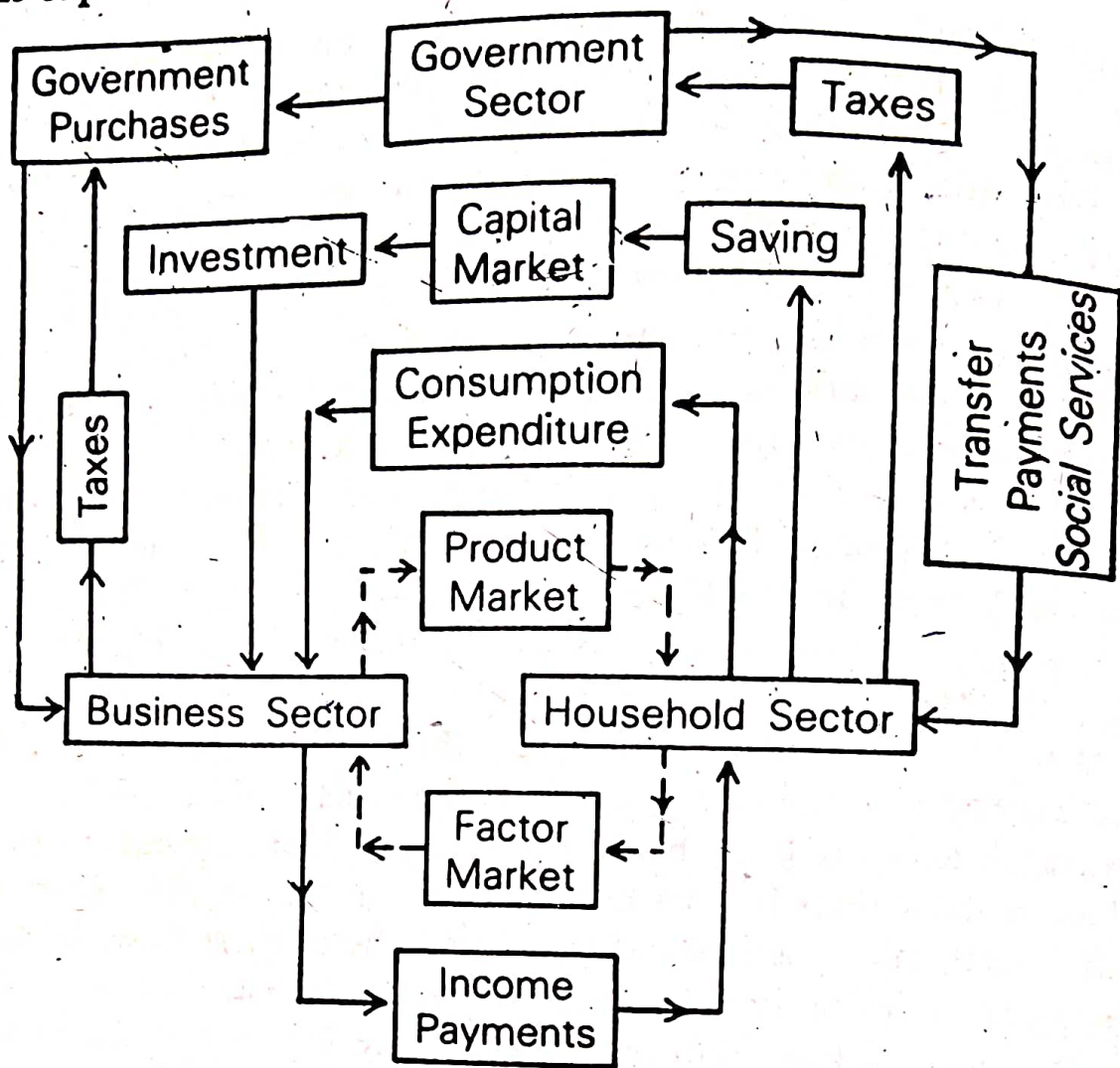

FIG. 5.3

Adding Foreign Sector: The Circular Flow in a Four-Sector Open Economy

So far the circular flow of income and expenditure has been shown in the case of a closed economy. But the actual economy is an open one where foreign trade plays an important role. Exports are an injection or inflows into the economy. They create incomes for the domestic firms. When foreigners buy goods and services produced by domestic firms, they are exports in the circular flow of income. On the other hand, imports are leakages from the circular flow. They are expenditures incurred by the household sector to purchase goods from foreign countries. These exports and imports in the circular flow are shown in Figure 5.4.

Take the inflows and outflows of the household, business and government sectors in relation to the foreign sector. The household sector buys goods imported from abroad and makes payment for them which is a leakage from the circular flow. The households may receive transfer payments from the foreign sector for the services

rendered by them in foreign countries.

Exports & Transfer Payments   Imports

Imports

Foreign Sector

Transfer Payments

Government Purchases

Government Sector

Taxes

Investment

Capital Market

Saving

Taxes

Consumption Expenditure

Transfer Payments Social Services

Product Market

Business Sector

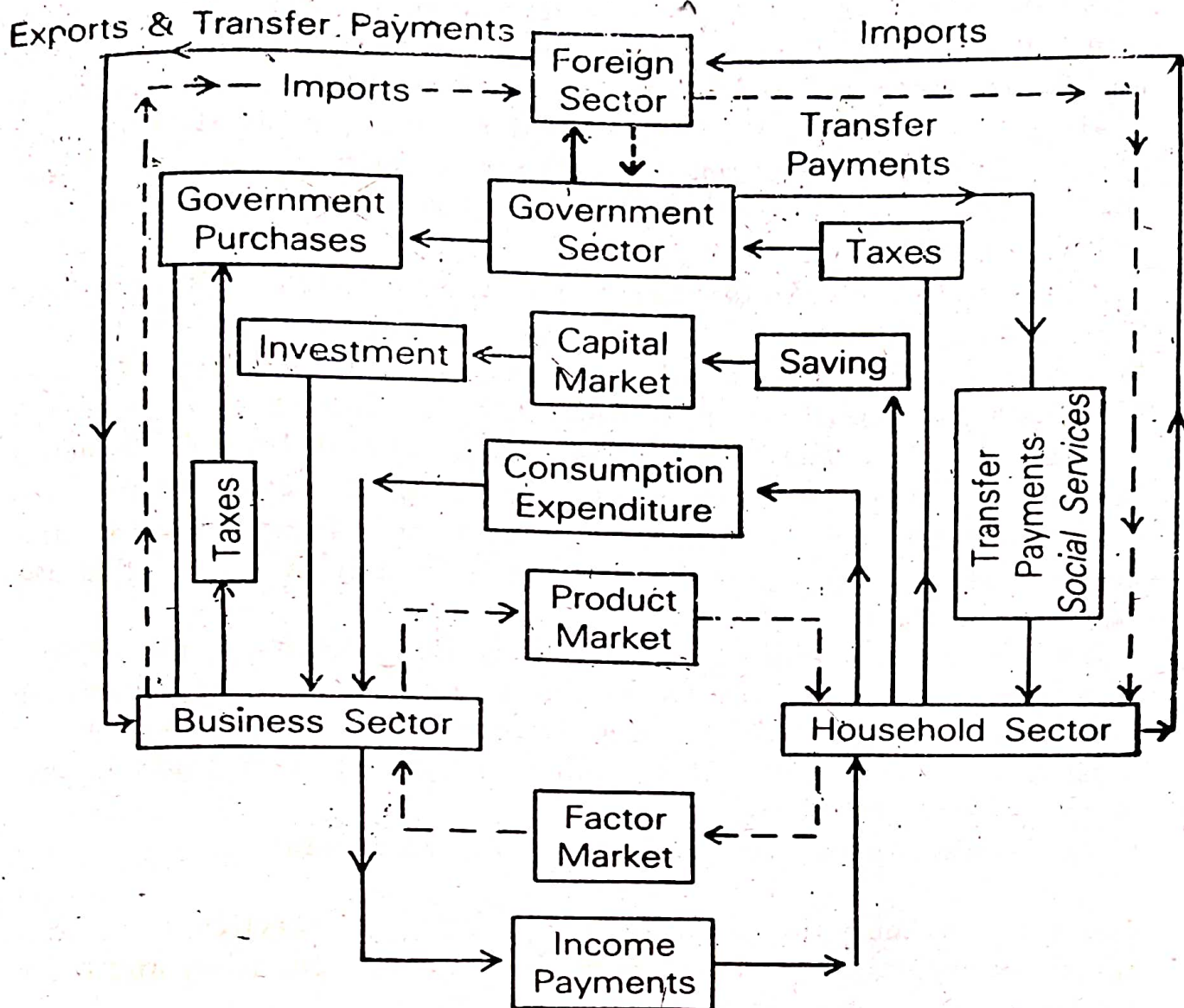Household Sector

Factor Market

Income Payments

FIG. 5.4

On the other hand, the business sector exports goods to foreign countries and its receipts are an injection in the circular flow. Similarly, there are many services rendered by business firms to foreign countries such as shipping, insurance, banking, etc. for which they receive payments from abroad. They also receive royalties, interests, dividends, profits, etc. for investments made in foreign countries. On the other hand, the business sector makes payments to the foreign sector for imports of capital goods, machinery, raw materials, consumer goods, and services from abroad. These are the leakages from the circular flow.

Like the business sector, modern governments also export and import goods and services, and lend to and borrow from foreign countries. For all exports of goods, the government receives payments

from abroad. Similarly, the government receives payments from foreigners when they visit the country as tourists and for receiving education, etc. and also when the government provides shipping, insurance and banking services to foreigners through the state-owned agencies. It also receives royalties, interest, dividends etc. for investments made abroad. These are injections into the circular flow. On other hand, the leakages are payments made for the purchase of goods and services to foreigners.

Figure 5.4 shows the circular flow of the four-sector open economy with saving, taxes and imports shown as leakages from the circular flow on the right hand side of the figure, and investment, government purchases and exports as injections into the circular flow on the left side of the figure. Further, imports, exports and transfer payments have been shown to arise from the three domestic sectors—the household, the business and the government. These outflows and inflows pass through the foreign sector which is also called the "Balance of Payments Sector."

: If exports exceed imports, the economy has a surplus in the balance of payments. And if imports exceed exports, it has a deficit in the balance of payments. But in the long run, exports of an economy must balance its imports. This is achieved by the foreign trade policies adopted by the economy.

The whole analysis can be shown in simple equations:

$$Y = C + I + G \qquad \cdots (1)$$

where Y represents the production of goods and services, C for consumption expenditure, I investment level in the economy and G for government expenditure respectively.

Now we introduce taxation in the model to equate the government expenditure.

Therefore,

$$Y = C + S + T \qquad \cdots (2)$$

where S is saving T is taxation.

By equating (1) and (2), we get

$$C + I + G = C + S + T$$
$$I + G = S + T$$

With the introduction of the foreign sector, we divide investment into domestic investment (I_d) and foreign investment (I_f) and get

$$I_d + I_f + G = S + T$$

But

$$I_f = X - M$$

where X is exports and M is imports

$$\therefore \quad I_d + (X - M) + G = S + T$$
$$I_d + (X - M) = S + (T - G)$$

The equation shows the equilibrium condition in the circular flow

of income and expenditure.

IMPORTANCE OF THE CIRCULAR FLOW

The concept of the circular flow gives a clear-cut picture of the economy. We can know whether the economy is working efficiently or whether there is any disturbance in its smooth functioning.

It is with the help of circular flow that the problems of disequilibrium and the restoration of equilibrium can be studied.

The role of leakages enables us to study their effects on the national economy. For example, imports are a leakage out of the circular flow of income because they are payments made to a foreign country, To stop this leakage, government should adopt appropriate measures. so as to increase exports and decrease imports.

Similarly, saving is a leakage out of the spending stream. This depresses the circular flow of income. On the other hand, consumption expenditures are inflows. If leakages exceed inflows, total spending is smaller than output. As a result, income and employment tend to decline over a period of time. On the other hand, if inflows exceed leakages, the spending stream is enlarged in the circular flow. This causes income and employment to rise in the next period.

The study of circular flow also highlights the importance of monetary policy to bring about the equality of saving and investment in the economy. Figure 5.2 shows that the equality between saving and investment comes about through the credit or capital market. The credit market itself is controlled by the government through monetary policy. When saving exceeds investment or investment exceeds saving, money and credit policies help to stimulate or retard investment spending. This is how a fall or rise in prices is also controlled.

Similarly, the circular flow of income and expenditure points toward the importance of fiscal policy. For national income to be in equilibrium desired saving plus taxes $(S+T)$ must equal desired investment plus government spending $(I+G)$. $S+T$ represent leakages from the spending stream which must be offset by injections of $I+G$ into the income stream. If $S+T$ exceed $I+G$ government should adopt such fiscal measures as reduction in taxes and spending more itself. On the contrary, if $I+G$ exceed $S+T$ the government should adjust its revenue and expenditure by encouraging saving and tax revenue. Thus the circular flow of income and expenditure tells us about the importance of compensatory fiscal policy.

National Income: Concept and Measurement

1. INTRODUCTION

National income is an uncertain term which is used interchangeably with national dividend, national output and national expenditure. On this basis, national income has been defined in a number of ways. In common parlance, national income means the total value of goods and services produced annually in a country. In other words, the total amount of income accruing to a country from economic activities in a year's time, is known as national income. It includes payments made to all resources in the form of wages, interest, rent and profits.

2. DEFINITIONS OF NATIONAL INCOME

The definitions of national income can be grouped into two classes. One, the traditional definitions advanced by Marshall, Pigou and Fisher; and two, modern definitions.

The Marshallian Definition. According to Marshall: "The labour and capital of a country acting on its natural resources produce annually a certain net aggregate of commodities, material and immaterial including services of all kinds . . . . This is the true net annual income or revenue of the country or national dividend."[1] In this definition, the word 'net' refers to deductions from the gross national income in respect of depreciation and wearing out of machines. And to this must be added income from abroad.

3. CONCEPTS OF NATIONAL INCOME

There are a number of concepts pertaining to national income. For instance, Gross National Product, Net National Product, Net National Income at Factor Cost, Net Domestic Product at Factor Cost, Personal Income, Disposable Income, and Real Income. One by one, these concepts are discussed below.

(A) Gross National Product (GNP)

GNP is the total measure of the flow of goods and services at market value resulting from current production during a year in a country, including net income from abroad. GNP includes four types of final goods and services: (1) consumers' goods and services to satisfy the immediate wants of the people; (2) gross private domestic investment in capital goods consisting of fixed capital formation, residential construction and inventories of finished and unfinished goods; (3) goods and services produced by the government; and (4) net exports of goods and services, *i.e.*, the difference between value of exports and imports of goods and services, known as net income from abroad.

In this concept of GNP there are certain factors that have to be taken into consideration. *First*, GNP is the measure of money, in which all kinds of goods and services produced in a country during

one year are measured in terms of money at current prices and then added together. But in this manner, due to an increase or decrease in the prices, the GNP shows a rise or decline, which may not be real. To guard against erring on this account, a particular year (say for instance 1960) when prices be normal, is taken as base year and the GNP is adjusted in accordance with the index number for that year. This will be known as GNP at 1960 prices or at constant prices.

Second, in estimating GNP of the economy, the market price of only the final products should be taken into account. Many of the products pass through a number of stages before they are ultimately purchased by consumers. If those products were counted at every stage, they would be included many a time in the national product and consequently the GNP would increase too much. To avoid double counting, therefore, only the final products, and not the intermediary goods should be taken into account.

Third, goods and services rendered free of charge are not included in GNP, because it is not possible to have a correct estimate of their market prices. For example, the bringing up of a child by the mother, imparting instructions to his son by a teacher, recitals to his friends by a musician, sculpturing as a hobby by a sculptor, etc.

Fourth, the transactions which do not arise from the produce of current year or which do not contribute in any way to production, are not included in GNP. The sale and purchase of old goods, and of shares, bonds and assets of existing companies are not included in GNP, because these do not make any addition to the national product, and the goods are simply transferred. Likewise, the payments received under social security, e.g., unemployment insurance allowance, old age pension, and interest on public loans are also not included in GNP, because the recipients do not provide any service in lieu of them. But the depreciation of machines, plants and other capital goods is not deducted from GNP.

Fifth, the profits earned or losses incurred on account of changes in capital assets as a result of fluctuations in market prices, are not included in the GNP if they are not responsible for current production or economic activity. For example, if the price of a house or a piece of land increases due to inflation, the profit earned by selling it will not be a part of GNP, but if, during the current year, a portion of a house is constructed anew, the increase in the value of the house (after subtracting the cost of the newly constructed portion) will be included in the GNP. Similarly, variations in the value of assets, that can be ascertained beforehand and are insured against

flood or fire, are not included in the GNP.

Last, the income earned through illegal activities is not included in the GNP. Although the goods sold in the black-market are priced and fulfil the needs of the people, but as they are not useful from the social point of view, the income received from their sale and purchase is always excluded from the GNP. But there are two main reasons for this. *One*, it is not known whether these things were produced during the current year or the preceding years. *Two*, many of these goods are foreign made and smuggled and hence not included in the GNP.

Three Approaches to GNP

After having studied the fundamental constituents of GNP, it is essential to know how is it estimated. Three approaches are employed for this purpose. *One*, the income method to GNP; *two*, the expenditure method to GNP; and *three*, value added method to GNP. Since the gross income equals the gross expenditure, GNP estimated by all these methods would be the same with appropriate adjustments.

(1) Income Approaches to GNP

The income approach to GNP consists of the remuneration paid in terms of money to the factors of production annually in a country. Thus GNP is the sum total of the following items:

(i) *Wages and salaries.* Under this head fall all forms of wages and salaries earned through productive activities by workers and entrepreneurs. It includes all sums received or deposited during a year by way of all types of contributions like overtime, commission, provident fund, insurance etc.

(ii) *Rents.* Total rent includes the rents of land, shop, house, factory, etc. and the estimated rents of all such assets as are used by the owners themselves.

(iii) *Interest.* Under interest comes the income by way of interest received by the individual of a country from different sources. To this is added the estimated interest on that private capital which is invested and not borrowed by the businessman in his personal business. But the interest received on governmental loans has to be excluded, because it is a mere transfer of national income.

(iv) *Dividends.* Dividends earned by the shareholders from companies are included in the GNP.

(v) *Undistributed corporate profits.* Profits which are not distributed by companies and are retained by them are included in the GNP.

(*vi*) *Mixed incomes.* These include profits of unincorporated businesses, self-employed persons and partnerships. They form part of GNP.

(*vii*) *Direct taxes.* Taxes levied on individuals, corporations and other businesses are included in the GNP.

(*viii*) *Indirect taxes.* The government levies a number of indirect taxes, like excise duties and sales tax. These taxes are included in the prices of commodities. But revenue from these goes to the government treasury and not to the factors of production. Therefore, the income due to such taxes is added to the national income.

(*ix*) *Depreciation.* Every corporation makes allowance for expenditure on wearing out and depreciation of machines, plants and other capital equipment. Since this sum also is not a part of the income received by the factors of production, it is, therefore, also included in GNP.

(*x*) *Net income earned from abroad.* This is the difference between the value of exports of goods and services and the value of imports of goods and services. If this difference is positive, then it is added to GNP and if it is negative it is deducted from GNP.

Thus GNP according to Income Method=Wages and Salaries+Rents+Interest+Dividends+Undistributed Corporate Profits+Mixed Incomes+Direct Taxes+Indirect Taxes+Depreciation+Net Income from abroad.

(2) *Expenditure Approach to GNP*

From the expenditure viewpoint, GNP is the sum total of expenditure incurred on goods and services during one year in a country. It includes the following items:

(*i*) *Private consumption expenditure.* It includes all types of expenditure on personal consumption by the individuals of a country. It comprises expenses on durable goods like watch, bicycle, radio etc., expenditure on single-used consumers' goods like milk, bread, ghee, clothes etc., as also the expenditure incurred on services of all kinds like fees for school, doctor, lawyer and transport. All these are taken as final goods.

(*ii*) *Gross domestic private investment.* Under this comes the expenditure incurred by private enterprise on new investment and on replacement of old capital. It includes expenditure on house-construction, factory-buildings, all types of machinery, plants and capital equipment. In particular, the increase or decrease in the inventory is added to or subtracted from it. The inventory includes produced but unsold manufactured and semi-manufactured goods during the year and the

stocks of raw material, which have to be accounted for in GNP. It does nct take into account the financial exchange of shares and stocks, because their sale and purchase is not real investment. But depreciation is added.

(iii) *Net foreign investment.* It means the difference between exports and imports or export surplus. Every country exports to or imports from certain foreign countries. The imported goods are not produced within the country and hence cannot be included in national income, but the exported goods are manufactured within the country. Therefore, the difference of value between exports (X) and imports (M), whether positive or negative, is included in the GNP.

(iv) *Government expenditure on goods and services.* The expenditure incurred by the government on goods and services is a part of GNP. Central, State or Local governments spend a lot on their employees, police and army. To run the offices the governments have also to spend on contingencies which include paper, pen, pencil and various types of stationery, cloth, furniture, cars etc. It also includes the expenditure on government enterprises. But expenditure on transfer payments is not added, because these payments are not in exchange for goods and services produced during the current year.

Thus GNP according to Expenditure Method=Private Consumption Expenditure (C)+Gross Domestic Private Investment (I)+Net Foreign Investment $(X-M)$+Government Expenditure on Goods and Services $(G)=C+I+(X-M)+G$.

As already pointed out above, GNP estimated by either the income or the expenditure method would work out to be the same, if all the items are correctly calculated.

(3) *Value Added Approach to GNP*

Another method of measuring GNP is by value added. In calculating GNP the money value of final goods and services produced at current prices during a year is taken into account. This is one of the ways to avoid double counting. But it is difficult to distinguish properly between a final product and an intermediate product. For instance, raw materials, semi-finished products, fuels and services, etc. are sold as inputs by one industry to the other. They may be final goods for one industry and intermediate for others. So, to avoid duplication, the value of *intermediate products* used in manufacturing final products must be subtracted from the value of total output of each industry in the economy. Thus the difference between the value of material outputs and inputs at each stage of production is called the value added. If all such differences are added up for all industries

(B) GNP at Market Prices

When we multiply the total output produced in one year by their market prices prevalent during that year in a country, we get the Gross National Product at market prices. Thus GNP at market prices means the gross value of final goods and services produced annually in a country *plus* net income from abroad. It includes the gross value of output of all items from (1) to (4) mentioned under GNP.

(C) GNP at Factor Cost

GNP at factor cost is the sum of the money value of the income produced by and accruing to the various factors of production in one year in a country. It includes all items mentioned above under Income Approach to GNP *less* indirect taxes. GNP at market prices always includes indirect taxes levied by the government on goods which raise their prices. But GNP at factor cost is the income which the factors of production receive in return for their services alone. It is the cost of production. Thus GNP at market prices is always higher than GNP at factor cost. Therefore, in order to arrive at GNP at factor cost, we deduct indirect taxes from GNP at market prices. Again, it often happens that the cost of production of a commodity to the producer is higher than the price of a similar commodity in the market. In order to protect such producers, the government helps them by granting monetary help in the form of a *subsidy* equal to the difference between the market price and the cost of production of the commodity. As a result, the price of the commodity to the producer is reduced and equals the market price of similar commodity. For example, if the market price of rice is Rs 3 per kg but it costs the producers in certain areas Rs 3.50. The government gives a subsidy of 50 paise per kg to them in order to meet their cost of production. Thus in order to arrive at GNP at factor cost, subsidies are added to GNP at market prices.

GNP at Factor Cost=GNP at Market Prices – Indirect Taxes+ Subsidies.

D) Net National Product (NNP)

GNP includes the value of total output of consumption goods and investment goods. But the process of production uses up a certain amount of fixed capital. Some fixed equipment wears out, its other components are damaged or destroyed, and still others are rendered

obsolete through technological changes. All this process is termed *depreciation or capital consumption allowance*. In order to arrive at NNP, we deduct depreciation from GNP. The word 'net' refers to the exclusion of that part of total output which represents depreciation. So NNP=GNP−Depreciation.

(E) NNP at Market Prices

Net National Product at market prices is the *net* value of final goods and services evaluated at market prices in the course of one year in a country. If we deduct depreciation from GNP at market prices, we get NNP at market prices. So NNP at Market Prices= GNP at Market Prices−Depreciation.

(F) NNP at Factor Cost

Net National Product at factor cost is the *net* output evaluated at factor prices. It includes income earned by factors of production through participation in the production process such as wages and salaries, rents, profits, etc. It is also called *National Income*. This measure differs from NNP at market prices in that indirect taxes are deducted and subsidies are added to NNP at market prices in order to arrive at NNP at factor cost.[4]

Thus NNP at Factor Cost=NNP at Market Prices−Indirect taxes +Subsidies.

=GNP at Market Prices−Depreciation−Indirect taxes+Subsidies.

=National Income.

Normally, NNP at market prices is higher than NNP at factor cost because indirect taxes exceed government subsidies. However, NNP at market prices can be less than NNP at factor cost when government subsidies exceed indirect taxes.

(G) Domestic Income or Product

Income generated (or earned) by the factors of production within the country from its own resources is called domestic income or domestic product. Domestic income includes: (*i*) wages and salaries, (*ii*) rents, including imputed house rents, (*iii*) interest, (*iv*) dividends, (*v*) undistributed corporate profits, including surpluses of public sector undertakings, (*vi*) mixed incomes consisting of profits of

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[4]In the relation between NNP at Market Prices and at Factor Cost, these items should be explained in detail as given under GNP at Factor Cost.

unincorporated firms, self-employed persons, partnerships, etc., and (vii) direct taxes.

Since domestic income does not include income earned from abroad, it can also be shown as: Domestic Income=National Income —Net Income earned from abroad. Thus the difference between domestic income and national income is the net income earned from abroad. If we add net income from abroad to domestic income, we get national income, i.e. National Income=Domestic Income+Net Income earned from abroad. But the net national income earned from abroad may be positive or negative. If exports exceed imports, net income earned from abroad is positive. In this case national income is greater than domestic income. On the other hand, when imports exceed exports, net income earned from abroad is negative and domestic income is greater than national income.[5]

(H) Private Income

Private income is income obtained by private individuals from any source, productive or otherwise, and the retained income of corporations. It can be arrived at from NNP at Factor Cost by making certain additions and deductions. The additions include transfer payments such as pensions, unemployment allowances, sickness and other social security benefits, gifts and remittances from abroad, windfall gains from lotteries or from horse racing, and interest on public debt. The deductions include income from government departments as well as surpluses from public undertakings, and employees' contribution to social security schemes like provident funds, life insurance, etc. Thus Private Income=National Income (or NNP at Factor Cost)+Transfer Payments+Interest on Public Debt—Social Security—Profits and Surpluses of Public Undertakings.

(I) Personal Income

Personal income is the total income received by the individuals of a country from all sources before direct taxes in one year. Personal income is never equal to the national income, because the former includes the transfer payments whereas they are not included in national income. Personal income is derived from national income by deducting undistributed corporate profits, profit taxes, and employees' contributions to social security schemes. These three components

are excluded from national income because they do reach individuals. But business and government transfer payments, and transfer payments from abroad in the form of gifts and remittances, windfall gains, and interest on public debt which are a source of income for individuals are added to national income. Thus Personal Income = National Income — Undistributed Corporate Profits — Profit Taxes — Social Security Contributions + Transfer Payments + Interest on Public Debt.

Personal income differs from *private income* in that it is less than the latter because it excludes undistributed corporate profits. Thus Personal Income = Private Income — Undistributed Corporate Profits — Profit Taxes.

(J) Disposable Income

Disposable income or personal disposable income means the actual income which can be spent on consumption by individuals and families. The whole of the personal income cannot be spent on consumption, because it is the income that accrues before direct taxes have actually been paid. Therefore, in order to obtain the disposable income, direct taxes are deducted from personal income. Thus Disposable Income = Personal Income — Direct Taxes.

But the whole of the disposable income is not spent on consumption and a part of it is saved. Therefore, the disposable income is divided into consumption expenditure and savings. Thus Disposable Income = Consumption Expenditure + Savings.

If disposable income is to be deduced from national income, we deduct indirect taxes *plus* subsidies, direct taxes on persons and on business, social security payments, undistributed corporate profits or business savings from it and add transfer payments and net income from abroad to it. Thus Disposable Income = National Income — Business Savings — Indirect Taxes *plus* Subsidies — Direct Taxes on Persons — Direct Taxes on Business — Social Security Payments + Transfer Payments + Net Income from Abroad.

(K) Real Income

Real income is national income expressed in terms of a general level of prices of a particular year taken as base. National income is the value of goods and services produced as expressed in terms of money at current prices. But it does not indicate the real state of the economy. It is possible that the net national product of goods and services this year might have been less than that of last year, but owing to an increase in prices, the NNP might be higher this year.

On the contrary, it is also possible that NNP might have increased but the price level might have fallen, as a result of which national income would appear to be less than that of the last year. In both the situations, the national income does not depict the real state of the country. To rectify such as a mistake, the concept of real income has been propounded.

In order to find out the real income of a country, a particular year is taken as base year when the general price level is neither too high nor too low and the price level for that year is assumed to be 100. Now the general level of the prices of the given year for which the national income (real) is to be determined is assessed in accordance with the prices of the base year. For this purpose the following formula is employed

$$\text{Real NNP} = \frac{\text{NNP for the}}{\text{Current Year}} \times \frac{\text{Base Year Index } (=100)}{\text{Current Year Index}}.$$

Suppose 1960 is the base year and the national income for 1966 is Rs 20000 crores and the index number for this year is 250. Hence,

$$\text{Real National Income for } 1966 = 20000 \times \frac{100}{250} = \text{Rs } 8000 \text{ crores.}$$

This is also known as NI at constant prices.

(L) Per Capita Income

The average income of the people of a country in a particular year is called Per Capita Income for that year. This concept also refers to the measurement of income at current prices and at constant prices. For instance, in order to find out the per capita income for 1981, at current prices, the national income of a country is divided by the population of the country in that year.

$$\text{Per Capita Income for } 1981 = \frac{\text{National income for 1981}}{\text{Population in 1981}}.$$

Similarly, for the purpose of arriving at the Real Per Capita Income also, this very formula is employed.

$$\text{Real Per Capita Income for } 1981 = \frac{\text{Real national income for 1981}}{\text{Population in 1981}}$$

This concept enables us to know the average income and the standard of living of the people. But it is not very reliable, because in every country due to unequal distribution of national income a major portion of it goes to the richer sections of the society and thus income received by the common man is lower than the per capita income.

4. METHODS OF MEASURING NATIONAL INCOME

There are four methods of measuring national income. Which method is to be employed depends on the availability of data in a country and the purpose in hand.

(1) *Product Method.* According to this method, the total value of final goods and services produced in a country during a year is calculated at market prices. To find out the GNP, the data of all productive activities, such as agricultural products, wood received from forests, mineral received from mines, commodities produced by industries, the contributions to production made by transport, communications, insurance companies, lawyers, doctors, teachers etc. are collected and assessed at market prices. Only the final goods and services are included and the intermediary goods and services are left out.[6]

(2) *Income Method.* According to this method, the net income payments received by all citizens of a country in a particular year are added up, *i.e.*, net incomes that accrue to all factors of production by way of net rents, net wages, net interest and net profits are all added together but incomes received in the form of transfer payments are not included in it. The data pertaining to income are obtained from different sources, for instance, from income tax department in respect of high income groups and in case of workers from their wages bills.[7]

(3) *Expenditure Method.* According to this method, the total expenditure incurred by the society in a particular year is added together and includes personal consumption expenditure, net domestic investment, government expenditure on goods and services, and net foreign investment. This concept is based on the assumption that national income equals national expenditure.[8]

(4) *Value Added Method.* Another method of measuring national income is the value added by industries. The difference between the value of material outputs and inputs at each stage of production is the value added. If all such differences are added up for all industries in the economy, we arrive at the gross domestic product.[9]

5. DIFFICULTIES IN THE MEASUREMENT OF NATIONAL INCOME

To calculate the national income of a country is a complicated problem and is beset with the following difficulties:

(1) First there is the difficulty of defining 'nation' in national income. Every nation has its political boundaries, but in the national income is also included the income earned by the nationals of a country in a foreign country beyond the territorial boundaries of that country.

(2) National income is always measured in money, but there are a number of goods and services which are difficult to be assessed in terms of money, e.g., painting as a hobby by an individual, the bringing up of children by the mother. Similarly, when the owner of a firm gets married to his lady secretary, her services, though a part of national income, are not included in it. By excluding all such services from it, the national income will work out to be less than what it actually is.

(3) The greatest difficulty in calculating the national income is of double counting, which arises from the failure to distinguish properly between a final and an intermediate product. There always exists the fear of a good or a service being included more than once. If it so happens, the national income would work out to be many times the actual. Flour used by a bakery is an intermediate product and that by a household the final product. To solve this difficulty, only the final goods and services are taken into account, and that is not so easy a task.

(4) Income earned through illegal activities such as gambling, or illicit extraction of wine, etc. is not included in national income. Such goods and services do have value and meet the needs of the consumers. But by leaving them out, the national income works out to less than the actual.

(5) Then there arises the difficulty of including transfer payments in the national income. Individuals get pension, unemployment allowance and interest on public loans, but whether these should be included in national income is a difficult problem. On the one hand, these earnings are a part of individual income and on the other, they are government expenditure. To avoid this difficulty, these are deducted from national income.

(6) Capital gains or losses which accrue to property owners by increases or decreases in the market value of their capital assets or changes in demand are excluded from the GNP because such changes do not result from current economic activities. It is only when capital gains or losses are the result of the current flow or non-flow of productive activities that they are included in the GNP. "Those changes in the value of goods that result from ungovernable or unpredictable causes are treated as accidental shifts that are outside current activity

proper. Those changes in value that can be anticipated and insured against, such as fire and flood, are also excluded because the adjustment for such shifts in value has already been charged against the operation of previous years through insurance premiums."

(7) All *inventory changes* whether negative or positive are included in the GNP. The procedure is to take positive or negative changes in physical units of inventories and multiply them by current prices. Then this figure is added to total current production of the firm. But the problem is that firms record inventories at their original costs rather than at replacement costs. When prices rise there are gains in the book value of inventories. Contrariwise, there are losses when prices fall. So the book value of inventories overstates or understates the actual inventories. Thus for correct imputation of GNP, inventory evaluation is required. A negative valuation adjustment is made for gains and a positive valuation adjustment is made for losses. But inventory valuation is a very difficult and cumbersome procedure.

(8) When we deduct capital *depreciation* from GNP, the resulting measure is NNP. Depreciation is a charge on profits which lowers national income. But the problem of estimating the current depreciated value of a piece of capital whose expected life is fifty years is very difficult. The usual practice on the part of firms is to base their depreciation provisions on the original cost of their assets. When prices of capital goods are changing, the annual depreciation provision will then measure the cost of using fixed assets for some fifty years (*i.e.*, the time when the assets were bought) rather than the current cost of using them. Unlike inventories, a depreciation valuation adjustment is full of statistical difficulties, such as the age-composition of the whole capital stock, and changes in prices of capital goods every year since the assets were bought.

(9) Another difficulty in calculating national income is that of price-changes which fail to keep stable the measuring rod of money for national income. When the price level in the country rises, the national income also shows an increase even though the production might have fallen. On the contrary, with a fall in price level, the national income shows a decline even though the production might have gone up. Thus due to price-changes the national income cannot be adequately measured. To solve this difficulty, the statisticians have introduced the concept of real national income, according to which the prices of the year in question are assessed in terms of prices of the base year. But this does not solve the problem of calculating the national income, because the index numbers which measure the price-changes are just rough estimates. Thus the national income data

are misleading and unreliable.

(10) Moreover, the calculation of national income in terms of money is under-estimation of real national income. It does not include the leisure foregone in the process of production of a commodity. The incomes earned by two individuals may be equal, but if one of them works for longer hours than the other, would it be correct to some extent to say that the real income of the former has been understated. Thus national income does not take into consideration the actual cost of production of a commodity.

(11) In calculating national income, a good number of public services are also taken which cannot be estimated correctly. How should the police and military services be estimated? In the days of war, the forces are active, but during peace they rest in cantonments. Similarly, to estimate the contribution made to national income by profits earned on irrigation and power-projects in terms of money is also a difficult problem.

6. IMPORTANCE OF NATIONAL INCOME ANALYSIS

National income data are of great importance for the economy of a country. These days the national income data are regarded as accounts of the economy, which are known as *social accounts*. These refer to net national income and net national expenditure, which ultimately equal each other. Social accounts tell us how the aggregates of a nation's income, output and product result from the income of different individuals, products of industries and transactions of international trade. Their main constituents are inter-related and each particular accounts can be used to verify the correctness of any other account. Based very much on social accounts, the national income data have following importance.

National income data form the basis of national policies such as employment policy, because these figures enable us to know the direction in which the industrial output, investment and savings etc. change, and proper measures can be adopted to bring the economy to the right path.

In the present age of planning, the national data are of great importance. For economic planning it is essential that the data pertaining to a country's gross income, output, saving, consumption from different sources should be available. Without these, planning is not possible. Similarly the economists propound short-run as well as long-run economic models or long-run investment models in which the national income data are very widely used.

The national income data are also made use of by the research scholars of economics. They make use of the various data of the country's input, output, income, saving, consumption, investment, employment etc., which are obtained from social accounts.

National income data are significant for a country's per capita income which reflects the economic welfare of the country. The higher the per capita income, the higher the economic welfare and vice versa.

National income statistics enable us to know about the distribution of income in the country. From the data pertaining to wages, rent, interest and profits we learn of the disparities in the incomes of different sections of the society. Similarly, the regional distribution of income is revealed. It is only on the basis of these that the government can adopt measures to remove the inequalities in income distribution and to restore regional equilibrium. With a view to removing these personal and regional disequilibria, the decisions to levy more taxes and increase public expenditure also rest on national income statistics.