26 National Income

1. MACROECONOMICS : IMPORTANCE AND LIMITATIONS

Macroeconomics has been variously described. According to R.G.D. Allen, "The term 'macro economics' applies to the study of relations between broad economic aggregates." In Culbertson's view, "Macro- economic theory is the theory of income, employment, prices and money. Professor K.E. Boulding calls macroeconomics "that part of economics which studies the overall averages and aggregates of the system." These definitions do not adequately describe the nature and scope of macroeconomics. As Edward Shapiro puts it, "Macroeconomics attempts to answer the truly "big" questions of economic life–full employment or unemployment, capacity or undercapacity of production, a satisfactory or unsatisfactory rate of growth, inflation or price-level stability." In short, macroeconomics gives bird's eyeview of the economic system as a whole. It examines the forest, not the trees. It is concerned with the basic problem of the determination of the flow of income. The basic theoretical structure is the model of the circular flow of income in the economy.

Importance of Macroeconomics

Prof. J.K. Mehta feels that so long as men live in society, the economist cannot afford to neglect the study of macro-economy. The theoretical and the practical importance of macroeconomics would be clear from the following arguments :

1. ***Functioning of an Economy.*** Macroeconomic analysis is of paramount importance in getting us an idea of the functioning of an economic system. It is very essential for a proper and accurate knowledge of the behaviour pattern of the aggregative variables, as the description of a large and complex economic system is impossible in terms of numerous individual items.

2. ***Formulation of Economic Policies.*** Macroeconomics is of great help in the formulation of economic policies. The days of 'laissez faire' are over and government intervention in economic matters is an accomplished fact. Governments deal not with individuals but with

groups and masses of individuals, thereby establishing the importance of macroeconomic studies. For example, during depression, when machines lie idle and men roam from pillar to post in search of employment, macroeconomics helps us to analyse the causes leading to depression and unemployment and in the adoption of suitable policies to cope with such a situation.

3. *Understanding Microeconomics.* The study of macroeconomics is essential for the proper understanding of microeconomics. No micro- economic law could be framed without a prior study of the aggregates; for example, the theory of individual firm could not have been formulated with reference to the behaviour pattern of one single firm, howsoever representative it might have been, the theory was possible only after the behaviour pattern of several firms had been examined and analysed. For example, the forest, though an aggregation of trees, does not exhibit the behaviour and characteristics of individual trees. Micro- economics has been, and, to some extent, remains a jungle of special assumptions, special cases, unsatisfactory measurements and abstract theorising.

4. *Understanding and Controlling Economic Fluctuations.* Economic fluctuations are a characteristic feature of the capitalist form of society. The th eory of economic fluctuations can be understood and built up only with the hel p of macroeconomics, for here we have to take into consideration aggregate consumption, aggregate saving and investment in the economy. Thus, we are led to analyse the causes of fluctuations in income, output and employment, an d make attempts to control them or at least to reduce their severity.

5. *Inflation and Deflation.* Macroeconomic approach is of utmost importance to analyse and understand the effects of inflation and deflation. Different sections of society are affected differently as a result of changes in the value of money. Macroeconomic analysis enables us to take certain steps to counteract the adverse influences of inflation and deflation.

6. *Study of National Income.* It is the study of macroeconomics which has brought forward the immense importance of the study of national income and social accounts. In microeconomy such a study was relegated to the background. It is the study of national income which enables us to know that three-fourth of the world is living in abject poverty. Without a study of national income, as a result of the development in macroeconomics; it was not possible to formulate correct economic policies.

7. *Study of Economic Development.* As a result of advanced study in macroeconomics, it has become possible to give more attention to the problem of development of underdeveloped countries. Study of macroeconomics has revealed not only the glaring inequalities of wealth within an economy but has also shown the vast differences in the standards of living of the people in various countries necessitating the adoption of important steps to promote their economic welfare.

Limitations

Excessive Generalisation. Despite the immense importance of macroeconomics, there is the danger of excessive generalisation from individual experience to the system as a whole. If an individual withdraws his deposits from the bank, there is no harm in it, but if all the people rushed to withdraw deposits, the bank would perhaps collapse.

Excessive Thinking in terms of Aggregates. Again, macroeconomics suffers from excessive thinking in terms of aggregates, as it may not be always possible to get the homogeneous constituents. Prof. Boulding has pointed out that 2 apples + 3 apples = 5 apples is a meaningful aggregate; 2 apples + 3 oranges = 5 fruits may be described as a fairly meaningful aggregate, but 2 apples + 3 sky-scrapers constitute a meaningless aggregate; it is the las t aggregate which brings forth the fallacy of excessive macro thinking.

Heterogeneous Elements. It may, however, be remembered that macroeconomics deals with such aggregates as consumption, saving, investment and income, all composed of heterogeneous quantities. Money is the only measuring rod. But the value of money itself keeps on changing, rendering economic aggregates immeasurable and incomparable in real terms. As such, the sum or average of heterogeneous individual quantities lose their significance for accurate economic policy.

Differences within Aggregates. Under this approach one is likely to overlook the differences within aggregates. For example, during the first decade of planning in India (from 1951-1961), the national income increased by 42%; this, however, doesn't mean that the income of all the constituents– the wage earners or salaried persons–increased by as much as that of entrepreneurs or businessmen. Hence, it takes no account of differences within aggregates.

But these limitations may be taken more in the nature of practical difficulties in formulating meaningful aggregates rather than factors invalidating the immense importance of macroeconomic analysis. With the commencement of Keynes's *General Theory*and his basic equation $Y = C+I$, interest in the study of macroeconomics has deepened. Significant 'breakthroughs' in the computation of national income accounts (the study of which forms the very basis of macroeconomics) prove it beyond doubt that the limitations of macroeconomic studies are not insurmountable.

Social Accounting

The presentation of the national income and expenditure accounts in a form showing the transactions during a given period between the different sectors of the economy is called social accounting. The tabulations are set out in the form of a matrix showing the source of inputs of each sector or part of sector and the distribution of their outputs. The production sector, for instance, shows for an industry how much of its inputs were bought from other home industries, how much it imported and how much it spent on wages, salaries and dividends. At the same time, it shows how much of its output it sold to other industries, how much it exported and how much was consumed by private individuals or the government sector. These transactions of the producers' sector are counterbalanced by corresponding transactions of the other sectors. For example, the personal sector shows the value and source of incomes earned from the producers' sector and others, and the way these incomes are spent on the outputs of the various industries or on imports or are saved.

Much work on the development and analysis of these macro economic statistics for economic prediction was undertaken at Cambridge University, U.K. under the direction of Professor J.R. Stone. Later on, Professor W. Loentief has developed the Input-Output Analysis which shows the technical interdependence among the various sectors of an economy. Another branch of social accounting is the Flow-of-Funds Analysis which deals with the financial markets in the economy.

2. CONCEPTS OF NATIONAL INCOME BEFORE KEYNES

The idea of 'national income' has attracted the attention of economic thinkers and policy makers since the inception of Economics. But Keynes showed its importance. We study the views of prominent economists who developed the ideas before Keynes.

Marshall's views on National Income. Marshall defined national income in his *Principles of Economics* in the following words :

"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.... and net income due on account of foreign investments must be added in. This is true net national income or revenue of the country, or the national dividend."[1]

Marshall's concept of national income or national dividend is theoretically sound, simple and quite comprehensive. A review of his definition of national income makes clear the deep insight which Marshall possessed. However, Marshall's concept of national dividend suffers from the following practical difficulties :

1. *Difficulty in conducting a detailed census of production.* It is really very difficult to make a statistically correct estimate of the production of all the commodities and services turned out in a country during a specific year. It involves arrangements for a detailed and most comprehensive census of production in the economy covering all production units. Not to speak of less developed countries where the imperfections in the structure and organisation of the economies do not permit such a large scale data collection, the conduct of census of production even in advanced countries is not an easy task.

2. *Difficulty in Aggregation.* The aggregation of the outputs of goods and services is also not easy. The different commodities and services constitute heterogeneous statistical units (wheat in tonnes, cloth in metres, cotton in bales, petroleum in gallons and electricity in kilowatts). In this heterogeneity of the units of measurement of outputs the aggregation may be considered much difficult. However, this difficulty is surmountable. If all the physical weights are converted into monetary units, the aggregation no longer poses any problem.

3. *Difficulty in monetary evaluation of goods and services.* There are a number of commodities which are produced but whose output is not evaluated before consumption. A farmer, for instance, retains a part of the tot al produce for self-consumption. This portion of the produce is not evaluated by the normal market operations. Thus even if a higher level of output has been achieved, the amount of marketed produce may remain the same and there fore the estimate of national output cannot be regarded as accurate.

4. *Double counting.* The major difficulty in adopting Marshall's definition was the possibility of double counting of the products. Since industries are related to other industries and since a product has to pass through a number of successive stages of production, there is likelihood of double counting in the aggregate output of the community. The repeated inclusion of the same products at different stages of production is called double counting.

Pigou's views on National Income

Pigou defined the national income or dividend as "that part of the objective income of the community including, of course, income derived from abroad which can be measured in money"[2].

The Pigovian definition of national income was considered as quite practicable, elastic and convenient. It does not give any rigid concept of national income. According to it, all the goods and services which are transacted in a specific year in exchange of money may be included in the

1. Marshall Alfered, *Principles of Economics* (1949), p. 434.
2. Pigou, *Economics of Welfare*, p. 31.

national dividend of the country. Pigou's emphasis upon monetary exchange was thus a definite advance over the Marshallian concept of national income. In fact, this definition attempted to remove the difficulties of measuring national dividend which were inherent in Marshall's definition.

Pigou's definition, however, suffered from the flaw that the distinction between the goods exchanged for money and those not exchanged for money was artificial. After all, the goods exchanged for money do not differ in kind in any fundamental way from those which are not marketed. If a housewife cooks the meals for her own family, her services do not form a part of the national dividend. But if the same meals are being prepared to be served in a hotel or restaurant, the services do become a part of it. Similarly, when a housewife cooks the meals for her own family member, these services are not a part of national dividend but if she also prepares the meals for a paying guest, a part of the services rendered definitely becomes a part of national dividend. If the housewives in a locality decide to purchase the meals from one another, the services of all such housewives would form a part of the national dividend. The same thing can be said about the well-known illustration given by Pigou about the maid servant marrying her master and continuing the same services. Since her services will no longer be paid, they become excluded from the national dividend of the country.

Secondly, Pigou's definition of national income is of very limited significance in the poor countries where a very large proportion of goods and services might be exchanged through barter.

Fisher's Views on National Income

Fisher made a very significant departure from the line followed by Marshall and Pigou. He adopted the level of satisfaction as the basis for measurement of national income in place of the stock of goods and services produced during a year. In his words, "... the national dividend or income consists solely of services as received by ultimate consumers, whether from their material or from their human environments. Thus, a piano or an overcoat made for me this year is not a part of this year's income but an addition to capital. Only the services rendered to use during this year by these things are income." This definition gave a new perspective to the concept of national income as it measured the welfare of the community rather than its economic performance in respect of the production of goods and services. But adoption of this approach makes objective measurement of national income much more difficult. The measurement of income through goods and services is much more specific and meaningful than that through the flow of subjective satisfaction. The difficulties might be aggravated by the durable goods for which the measurement of the spread of satisfaction over time cannot be easily determined.

Keynes's Concept of National Income

While explaining the concept of national income, Keynes made a departure from the earlier thinking on the concept. Throught the idea of circular flow of income, he held that national income in another name of national expenditure. He adopted an approach which helped in the aggregative analysis of income and employment. Keynes had suggested three approaches to national income in his book known as The *General Theory*.

1. Aggregate expenditure (on consumption and investment goods) Approach.
2. Factor incomes approach.
3. Sale proceeds *minus* cost approach.

1. *The Aggregate Expenditure Approach.* Keynes had explained the aggregate expenditure approach through the following algebraic relation

$$(A - A_1) + (G' - B' - G) = Y$$

Here A stands for aggregate sale proceeds received by all the entrepreneurs in the community and A_1 is the amount of aggregate purchases made by the entrepreneurs from other entrepreneurs. These pur chases are in the form of raw materials, tools, equipments and other intermediate products. If A_1 is deducted from A what remains is the purchases made by the consumers from the entrepreneurs or consumer's outlay.

$G' - B'$ is the net value of the capital goods carried over from the previous production period before any expenses are incurred on the maintenance and improvement while G is the actual value of capital equipments at the end of the current production period. Thus $G' - B' - G$ is the capital consumption during the current production period. In order to maintain the country's capital intact, it is essential to offset this capital consumption by an equivalent amount of investment. If G is just equal to $(G' - B')$, it shows that investment in the current period was only enough to offset capital consumption. If $G < (G' - B')$, it implies that net investment in current production period falls short of the amount necessary for the maintenance of plant and equipment. In case G exceeds $(G' - B')$, there is some positive investment exceeding the amount required for depreciation etc.

Thus $(A - A_1)$ shows consumers' outlay and $(G' - B' - G)$ represents net investment outlay. So the components of income can be written as

$$(A - A_1) + (G' - B' - G) = Y$$

or $$\text{Consumption} + \text{Investment} = \text{National Income}$$

2. *The Factor Income Approach.* Keynes' second approach to national income is in terms of the incomes received by all the factors of production. He has expressed the national income aggregate as the sum of the receipts of factors of production like land, labour and capital plus the earnings or profits accruing to the entrepreneurs *i.e.*

$$Y = F + E_p$$

where F denotes payments received by land, labour and capital and E_p shows the entrepreneurial profits.

3. *The Sale-proceeds minus Cost Approach.* Keynes's third approach to national income is based on aggregate sales *minus* cost. The view implies that national income of a community lies somewhere between the gross national product and the net national product. National income falls short of *GNP* but exceeds *NNP*. Keynes does not deduct the whole of depreciation and replacement cost, but only a part of it which he terms 'user's cost.'

User's cost constitutes the difference between the depreciation in the value of capital assets when these are used and the depreciation which would occur if these were allowed to remain idle plus the amount spent on their maintenance. We illustrate the concept of user cost through a numerical example. Let us suppose that a plant worth Rs. 1 lakh suffers a depreciation to the extent of Rs. 20,000 during the process of production in a year. Had the plant not been put to operation, even then the depreciation would have occurred due to disuse and rusting etc. We suppose that the plant depreciates by Rs. 4,000 and during the year Rs. 1,000 are spent on the upkeep of the plant. The user's cost in this case amounts to Rs. 20,000 – (4,000 + 1,000) = Rs. 15,000.

If the user's cost thus calculated for all the individual business units is aggregated, it will determine the aggregate users' cost. Keynes observed that the income of the community can be calculated by deducting user's cost from the aggregate sale proceeds. Income is denoted as

$$Y = A - U$$

This concept of income is a significant correlate of the level of employment. However, its importance is greatly limited when the community is to make a decision about how much should be spent on consumption. For estimation of net national income, it is necessary to deduct the supplementary costs also from $A - U$. Thus net national income is

$$Y = A - U - V$$

$$Y = A - (U + V).$$

In the process of production, the entrepreneurs face two types of losses e.g. (*i*) involuntary and unexpected losses and (*ii*) involuntary and not unexpected losses. The former losses are of the nature of windfall losses which occur on account of uncertain and uncontrollable factors. The latter are of the type of destruction due to fire or sinking of cargo ship etc. Such losses are more or less anticipated by the entrepreneurs. The expenses incurred for such losses are debited to the business account. The costs incurred to off-set the involuntary but not unexpected losses are, according to Keynes, the supplementary costs (V) which must be included in user's cost so as to have an estimate of the total cost. By deducting user's costs plus supplementary costs from the aggregate sales, the net national income of the community can be estimated.

Keyner's General Theory revolutionised the field of national income analysis. Gradually, after 1936, a system of national income accounting has been evolved which we discuss now.

3. CONCEPTS OF NATIONAL INCOME AND THEIR INTERRELATIONSHIP

Macroeconomics works with aggregates. The central variable in it is 'income' which is very often called National Income. This concept is as much debated as it is popular. According to Prof. Samuelson, "It is the loose name we give for the money measure of overall annual flow of goods and services in an economy. National income is the sum total of all labour and property income earned in producing the national output." The National Income Committee appointed in India in 1948 expressed the concept in the simplest possible terms. "A national income estimate measures the volume of commodities and services turned out during a given period counted without duplication." That national income is a money measure of the *final goods* and services produced in a country is also stressed by Simon Kuznets : "It is the net output of commodities and services flowing during the year from the country's productive system in the hands of the ultimate consumers or into the net addition to the country's capital goods."

In national income accounting, different concepts of aggregate income are suitable for different purposes. Therefore, many different concepts of the net annual output are estimated. We explain them as under:

Gross National Product (GNP)

It is the total value of all final goods and services produced in the economy in one year. In the words of W.C. Peterson, "Gross National Product may be defined as the current market value of all goods and services produced by the economy during an income period." While calculating national income in the form of GNP. We face the problem of double counting. We may count the wheat on well as the bread prepared from that wheat.

There are two ways of avoiding double counting in estimating the *GNP*. One is to count only final goods and services leaving out all intermediate goods. Final goods and services are those which directly satisfy the consumption needs while intermediate goods are meant to be used up in the productive process itself. The second method of avoiding double counting is to calculate the 'value added' in each productive sector of the economy. The value added in a productive process during a period is found by subtracting the value of the inputs from the total value of the product leaving the process. The sum total of the value added by all the processes would give us the value of *GNP*. The *GNP* calculated in this way excludes the value of imports because their cost is automatically deducted from the value of output of the industries using them. To get the net national product, depreciation would have to be deducted from the sum of 'values added.

The 'value added' method and the 'final products' method give the same results. While the former takes into consideration the flow of output past each process the 'final products' method counts the quantity of commodities which are delivered at the end of a given period, with suitable adjustments for the goods still in transit at the beginning and the end of the period. The 'value added' method is in line with normal business accounting procedures because every firm records the value of its output and the value of materials used. The 'final products' method is beset with a number of difficulties in that it requires a division of actual output in consumer's goods and producer's goods. GNP at market. Prices is a ready measure of national production capacity for use in an emergency.

Net National Product (NNP)

When we subtract depreciation charges for renewals, repairs and obsolescence from the *GNP* we obtain the Net National Product at market prices. Thus :

$$GNP \text{ at } MP - \text{Depreciation} = NNP \text{ at market prices}$$

Depreciation means the loss of value suffered by nation's stock of fixed capital (building, machinery, equipment etc.) through wear and tear. The problem of valuing the depreciation of the capital stock is one of the most troublesome in the field of national income accounting. The convention has been to accept business records as a measure of depreciation without attempting to rework the estimates in terms of current replacement cost. Thus net national product means the market value of all final goods and services after providing for depreciation. The great merit of the concept of *NNP* is that it clarifies the net increase in total production over and above current consumption and current replacement investment. *It signifies the long run improvement in physical productivity of capital.* The concept of *NN -P* has the great advantage of telling us the net increase in total product. It stresses the long-term significance of maintaining the productive capacity of the economy. As such it is extremely useful in the study of economic growth.

Net National Income at Factor Cost

For judging the incomes received by the people of a country, we need the estimate of NNP at factor cost. It is the sum-total of all income payments made to the factors of production. The sum total of goods and services in a year is produced by the cooperation of the factors of production and as such their money value is also distributed among the factors of production. Hence, national income may also be regarded as the total or incomes received by the factors o f production or by persons supplying the services or resources used in production. These payments take the form of wages, rent, interest and profits. Thus the chief constituents of national income at factor cost are as follows :

(1) All wages, salaries and supplementary incomes earned by employees against productive services rendered, plus (2) *Interest* paid to private individuals plus (3) Net *rents* of all individuals; including imputed payments like the rents of self-occupied houses plus (4) Net *Profits* of all kinds of business, including the income of individual business like farmers, partnerships, professional men like lawyers, net earnings of joint stock companies comprising dividend payments, undistributed profits and corporate taxes.

Minus (5) *Transfer Payments. i.e.*, those income payments for which no productive service is made in return. In other words, these represent no payments for production of goods and services, but transfer of income through state or a similar public body from one set of individuals to another like interest paid on national debt, social security payments (*e.g.*, unemployment benefit and old age pensions) etc. These Transfer Payments must be deducted from the total national income as determined by adding the total payment made to the factors of production.

The Relation between NNP at Market Price and National Income at Factor Cost

In national in accounting, the study of this relation is important. Three terms used here must be well understood.

Indirect Taxes. The phrase 'at factor cost' is to be contrasted with the phrase *at Market prices*. Goods produced are sold at market prices which include the indirect taxes imposed by the Government. Indirect taxes are levied on commodities, such as excise duty on beer and cloth etc. Thus the market value of the national product *exceeds* the income paid to the factors of production by the amount of indirect taxes. Hence, net national income at factor cost shows the income actually received by the factors of production. Let us presume that the actual cost of producing a certain output is Rs. 100 which is given to different factors of production as wages, rents, interest and profits. The Government imposes taxes worth Rs. 25 on this output so that it is sold in the market for Rs. 125. This is the market price of output, while income payments made to factors of production amount to Rs. 100 only. Thus, from the money value of *NNP* at market price or *NNI* we deduct the amount of indirect taxes to arrive at the net national income at factor cost.

$\therefore$ *NNP* at *MP* – Indirect Taxes = Net National Income at Factor Cost.

Subsidy[1]**.** On the other hand, a subsidy causes the market price to be less than the factor cost. Subsidy is an aid in money. Suppose handloom cloth is subsidized at the rate of 10 paise per yard and sells at 90 paise per yard. Thus, while the consumer pays 90 paise per yard the factors of production will receive Re. 1 per yard. The money value of cloth at factor cost would be equal to its market price *plus* the subsidies paid on it.

NNI at Factor Cost = *NNI* at *MP plus* Subsidies *minus* Indirect Taxes.

1. Subsidy is a kind of financial help given by the government.

Government Surplus. Sometimes Governments render productive services and earn profits. These profits or surplus earned by the Government must be deducted before we can find out Net national Income at Factor Cost because these profits do not go to factors of production in the form of incomes but are deposited in the government treasury and, therefore, must be deducted Having understood these terms we now state the relation as under :

NNI at Factor Cost = NNI at MP plus Subsidies minus Indirect Taxes and Government earned profits.

In addition to the concept of net national income it is useful to have some idea of certain other income concepts which are required for some particular purposes. Important amongst these are the following :

Personal Income

Ultimately, the welfare of the people of a country depends upon their personal incomes. People pay income taxes out of it. *Personal Income* is the total of incomes received by all persons from all sources; it consists of wages and salaries, interest rent and dividends received by individuals including the corporate bodies (like clubs and churches treated as collective persons). It also includes mixed incomes of self-employed persons such as farmers, shopkeepers and barristers, and all transfers received from public authorities by persons, such as pensions, unemployment benefit, family allowances, etc. Personal income is thus equal to national income *minus* the undistributed profits of companies and public enterprises *plus* transfer payments received by persons. The difference between 'national income' and personal income is that transfer payments while excluded from 'national income' are included in personal income. The steps involved in calculating personal income may be shown as follows :

National Income

less Corporate profits
less Employer contributions for social insurance
plus Govt. Transfer payments
plus Business Transfer payments
plus Net interest paid by government
plus Interest paid by consumers
plus Dividends
less Employee contributions for social insurance
Equals PERSONAL INCOME

Disposable Income

Personal income as defined above is not the income over which persons have complete command to spend, to save or to give away in any manner they like. Income tax, national insurance contributions are obligatory payments which must be deducted to obtain what may be called Personal Disposable Income. Even in this income are included contributions like pension, fixed commitments like the hire-purchase instalments which further go to reduce the personal disposable income.

Disposable personal income is thus obtained by deducting personal taxes from the Personal Income. These personal taxes are in the form of income tax, wealth tax, expenditure tax and profession tax. Disposable Income consists of personal outlays and personal saving.

Disposable Income = Personal Income – Personal Taxes

= Personal consumption + Personal saving.

The concept of Disposable Income is especially useful in estimating the likely demand for goods and services for personal use by individuals. In times of national emergency and scarcity, the concept is helpful in forecasting the gap between available supplies and likely demands.

THE TWO WAYS OF LOOKING AT GNP

There are two different ways of looking at *GNP*. One is to look at *GNP* as the sum of all the expenditures involved in taking that total output of the market. This is called the *output or expenditures approach*. The other is to look at it in terms of the income derived or created from the production of the *GNP*. This is called the *earnings or allocation approach* to the determination of *GNP*. A closer analysis of these two approaches will reveal that they amount to this.

GNP can be determined either by adding up all that is spent on a particular year's total output, or by summing up all the incomes derived from the production of that year's output. Putting this in the form of a simple equation we can say that

Expenditure on a particular year's output = The money income derived from the production of that year's output

As a matter of fact, this is more than an equation. It is an identity. Expenditures and incomes are actually two aspects of the same transaction. What is spent on a product is income to those who have contributed their human and property resources in getting that product produced and placed in the market.

For the economy as a whole we can expand the above identity to read as in the following table. The summary statement simply tells us that all final goods produced in the Indian economy are purchased either by the three domestic sectors - households, government and businesses - or by foreign nations. It also shows us that the total receipts which businessess acquire from the sale of total output are allocated among the various resources suppliers as wage, rent, interest and profit income.

Table 26.1. The Income and Output Approaches to GNP

Output or expenditure approach	Incomes Approach
Consumption expenditure by households.	Wages
plus	*plus*
Investment expenditures by business	Rents
plus	*plus*
Government purchases of goods and services	= GNP = Profits
plus	*plus*
Expenditures by foreigners	Non-income charges or allocations

4. THE CIRCULAR FLOW AND NATIONAL INCOME

MEASUREMENT

The value of an economy's total output can be measured in three ways. These three methods give the same value of the economy's total output. The following figure shows the flow of income and expenditure in a simple model of the economy. It helps us in understanding the identity of aggreagate income, expenditure and output. The three streams flow sode by side. Let us see how.

The two main economic agents in the flow diagram are households and firms. The households can be thought of as the owners of factors of production, the services of which they sell to firms in exchange for income variously called wages, salaries, interest, rent and profit. In the simplified model of the economy shown in the diagram, all profits are assumed to be distributed to households and not retained by the firms. The firms use the factors of production to produce the various types of goods and services which they then sell to houscholds, the government, foreigners and other firms.

Secondly, the diagram given on page 692 shows that the part of household income which is not spent on consumption is either saved, spent on imports or is taken in taxes by the government. The government itself uses its tax revenue to finance government spending, including transfer payments such as pensions, subsidies and grants.

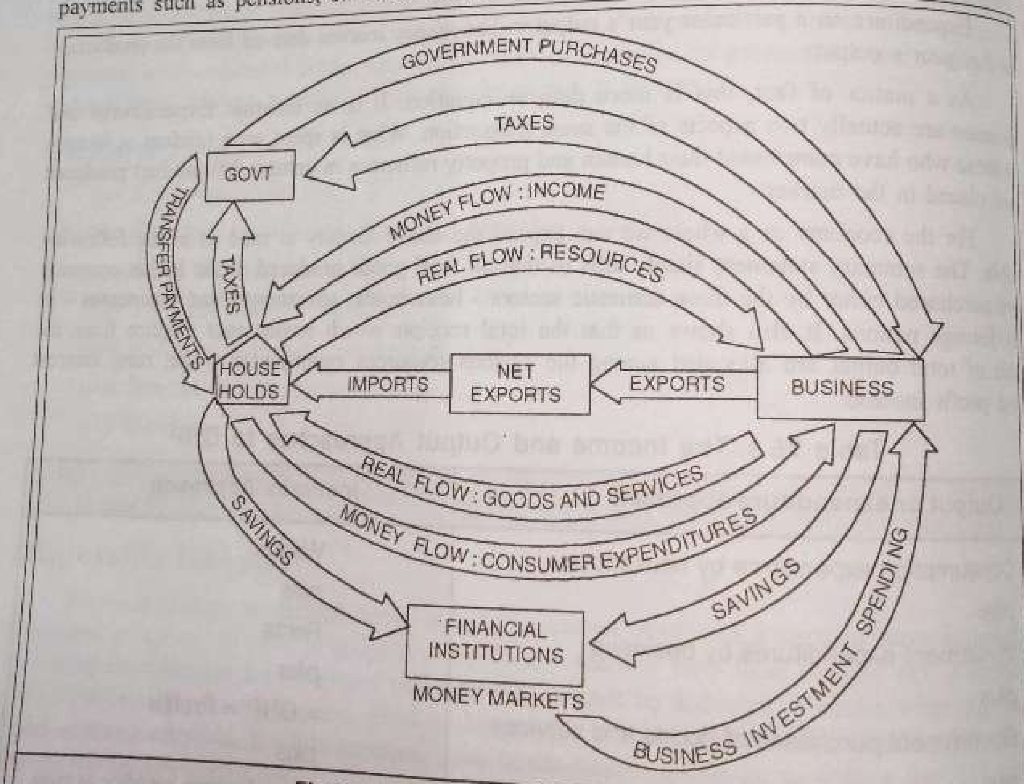

Fig. 26.1 The Circular Flow in the economy.

Thirdly, the diagram shows that income and expenditure flows are money flows, output of goods and services in a real flow. Output is the result of the flow of resources from households to businesses.

The idea behind this diagram is to show to the student that we can measure annual output or annual income. The two must be equal.

5. MEASUREMENT OF NATIONAL INCOME

There are three methods of measuring national income because national income can be looked at from three view-points : as total output, total product or total expenditure. All these three are flows in the economy per period of time. They are three names for the same thing which is the aggregate output. As Cairncross has written, "The national income can be looked at in any one of the three ways : as the national income measured by adding up everybody's income; as the national product measured by adding up everybody's output..., as the national outlay measured by adding up the value of all the things that people buy and adding in their saving."

Since the volume of flows in a particular period of time must equal, we can closely define a fundamental accounting identity which applies to a hypothetical economy in a particular period. It is

Income = Product = Expenditure on product or, more formally,

National Income = Net National Product

= Expenditure on net national product. and also,

National Income + Depreciation = Gross National national product = Expenditure on gross product.

It is clear from this fundamental identity that the measure of national income must give us the same result whichever the way we adopt. We explain below the three methods of measuring national income. The three methods measure the same flow. When production takes place, factors of production are paid. There is an income flow and an output flow. Output is purchased by people through expenditures which give rise to income. Thus income, output and expenditure are the three facets of the same coin.

The Product Method

Also known as the Inventory method or Commodity service method, it consists in finding out the market value of all final goods and services produced in a country during a given period. We add up the net production of all the 'industries' in the economy. For this we either adopt the value-added approach or the final goods approach. We find out the value added in different sectors : agriculture, mining, manufacturing, transportation, trade, finance, government, professional and other services. The total of these would give us net domestic product at factor cost classified by industrial origin. By adding net income from abroad to this total we get net national income at factor cost.

The Income Method

This method consists in adding together all the incomes accruing to the factors of production by way of payments in the form of wages, rents, interest and profits. The method gives us national income according to distributive shares.

The most important income share is that of labour. Labour is variously paid in the form of wages, salaries, supplements, compensations and in kind also. All these payments when aggregated give us the share of wages. The second share is that of capital rentals. To arrive at this we have to find out the net interest, rent, dividends, undistributed profits of corpora -tions, profits earned by state enterprises and cooperatives. Then the third share is the income of self-employed persons which may consist of wages, rent, interest or prof it. When all the three shares are added we get net national income. Adding depreciation to it we get Gross National Income.

Gross National Expenditure Method

This method involves the addition of personal consumption expenditures, gross private domestic investment, state purchase of goods and services and net foreign investment. The aggregate gives GNP at market prices. Deducting depreciation from it gives NNP at market prices. Further deduction of indirect taxes gives us net national income at factor cost.

The three methods given above need different types of statistics. Product method requires a census of manufactures and agricultural output. Income method can use personal taxes data and the financial statements of different enterprises. Expenditure method requires extensive family-budget data. In developed economies such data are easily collected. Some countries, therefore use all the three methods and obtain national income estimates consistent with one another. But in less developed countries there are deficiencies in data made available to the government. So a mixed method is used.

6. CALCULATION OF NATIONAL INCOME– DIFFICULTIES

Although all methods are used almost in all countries to calculate national income, yet the calculation is a complex affair and is beset with conceptual and statistical difficulties. Kuznets mentions the following difficulties :

1. Difficulty of defining the nation. The definition of 'nation' is used in the studies of national income. Na -tional income doesn't only include income produced within the country but also income earned in other countries by way of shipping charges, interest, insurance, and banking, minus any payments made to foreign countries. Therefore, the definition of nation goes beyond the political boundaries.

2. Non-marketed services. Which kinds of goods and services should be included in national income ? Commodities and services having money value are included in the national income but there are goods and services which may have no corresponding flow of money payments. Services performed for love, kindness and mercy and not for money have an economic value but have no money value. The difficulty is whether these services should be included in national income and how to measure their money value. For example, a paid maid servant's services are included in the national income but later when she marries the master, she is not paid any more, though she continues to perform the services. There is, thus, a reduction in the national income.

3. Inapplicability of any one method. Another difficulty is regarding *the method to be used* in the estimation of national income. It is, however, preferred to use the three methods simultaneously depending upon the availability of statistics.

4. Which stage to choose. Regarding the *stage of economic activity* at which national income be calculated, it is agreed that any stage–production, consumption and distribution–may be adopted depending upon the function the national income estimate is expected to discharge. If the aim is to show the economic progress and power of the economy, then the production stage would be more suitable; if the aim is to measure the welfare of individuals, then consumption stage would be more useful.

5. Paucity of statistics. Another important difficulty is the *non-availability of statistical material*. This difficulty is not peculiar to under developed countries, but even in advanced countries reliable and sufficient statistics are lacking. According to the National Income Committee of India, the available statistics, specially for agriculture and small-scale industries, are extremely unreliable and incomplete.

6. How to avoid double counting. Another difficulty is of *double counting* usually associated with the inventory method. Double counting implies the possibility of a commodity like raw material or labour being included in national income more than once e.g., a farmer sells maize worth rupees two hundred to a mill-owner, the mill-owner further sells the maize flour to a wholesale dealer, who further sells it to a retailer and who in turn sells it to consumer; if we calculate it at every stage, its money value will come to eight hundred rupees but actually the increase in national income has been to the extent of two hundred rupees only. The best way to avoid this difficulty is to calculate only the value of all goods and services that enter into final consumption.

7. Identification of transfer payments. Another difficulty in the calculation of national income is that of *transfer payments* associated with the income method of national income calculation. A person receives income of say Rs. 1,000 per year; part of it may have been received as interest payment on government loans. This part is in the nature of transfer payments and may be taken either as the income of the individual or of the government. If it figures under both the categories, aggregate national income will be unduly inflated. Therefore, the transfer of money from one person or group to another person or group should be avoided. The best way to solve this difficulty is to consider only the disposable income of individuals or groups *i.e.* personal incomes minus all transfer payments.

8. Self-consumed production. Another difficulty mostly peculiar to backward countries is that a substantial part of the *output is not exchanged for money* in the market, it being either consumed directly by producers or bartered for other goods a nd services in the unorganised sector. The existence of a vast unorganised and non-monetised sector makes calculation of national income very difficult.

9. Multiple occupations. As a result of little specialisation of functions a precise calculation of income by industrial origin or by distributive shares is rendered almost impossible. The production in agricultural, and industrial, as a matter of fact in all sectors is highly scattered and unorganised rendering the calculation of national income very difficult.

10. Incorrect statistics. Other difficulties pertain to the social backwardness of the people; they are *superstitious*. People do not disclose their incomes easily and correctly; they are *illiterate* and do not keep proper accounts or if at all they keep any accounts, these are highly unreliable. All these difficulties exist in India and the calculation of national income has been rendered difficult in the past. Efforts are, however, being made to solve these difficulties so as to find out correct estimates of national income and *per capita* income in India.

In view of thse difficulties in national income estimation, the limited Nations has evolved a methodology of preparing national income accounts.

7. SPECIAL DIFFICULTIES OF NATIONAL INCOME CALCULATION IN UNDERDEVELOPED ECONOMIES

These conceptual and statistical difficulties of national income calculation present themselves in a more formidable manner in under- developed economies like India. The National Income Committee (appointed in 1949) pointed out the following difficulties in measuring the national income of India. It was primarily on account of these difficulties that the National Income Committee, while computing the national income, did not adopt any single method; rather 'Product method' and 'Income method' were adopted simultaneously. Major conceptual and statistical difficulties were as follows :

1. Self-consumed, bartered production. A good portion of the produce is not brought to the market to be exchanged with the measuring rod of money. It is either consumed directly by the producers or is exchanged for other goods and services. Only rough estimates are made about this part of the produce. This difficulty is mostly in rural areas in agricultural sector of the economy. Much reliance, therefore, cannot be placed on the national income figures thus obtained.

2. No systematic accounts. Large number of producers do not keep any accounts of their produce because most of them are illiterate. They mostly produce for self-consumption, not for the market. Thus, the national income estimates are based merely on oral inquiries from these producers and are not dependable as such.

3. Multiple occupations. It is very difficult to estimate the national income of India by industrial origin because there is little specialisation of functions; occupational classification is not scientific. People have been found engaged in a number of economic activities simultaneously.

4. Unreliable, fabricated data. Besides, there are statistical difficulties in computing national income of India. Reliable statistics are not available; if these are available, these are not dependable.

5. The underground economy. Many transactions are missed in the calculation of Gross National Product, even though in principle they should be counted. Most illegal transactions are missed unless they are "laundered" into legitimate business. Income that is earned but not reported as income for tax purposes is usually missed, although some adjustments are made in the GDP calculations to take misreported income into account. The part of the economy that should be counted in gross domestic product (GDP) but is not is sometimes called the underground economy.

Tax evasion is usually thought to be the major incentive for people to participate in the underground economy. Studies estimate the size of the U.S. underground economy ranging from 5 percent to 30 percent of GDP. This is probably much smaller than the size of the underground economy in most European countries. Estimates of Italy's underground economy range from 10 percent to 35 percent of Italian national income. In India the underground economy estimates range from 30 percent to 40 percent of her GNP. At the lower end of the scale, estimates for Switzerland range from 3 percent to 5 percent.

Why should we care about the underground economy? To the extent that gross national income reflects only a part of economic activity instead of a complete measure of what the economy produces, it is misleading. Unemployment rates, for example, may be lower than officially measured if people work in the underground economy without reporting this fact to the government. Secondly, if the size of the underground economy varies between countries–as it does – we can be misled when we compare GNP between countries. For example, India's GNP would be much higher if we considered its underground sector as part of the economy.

In underdeveloped countries many facts and figures essential for the income method are either lacking, or cover only a small proportion of the population. Same applies to statistical compilations (like censuses of production), available in advanced economies. Recourse has to be made, therefore, to 'mixed method', *i.e.*, the combination of inventory method and income method.

8. IMPORTANCE OF NATIONAL INCOME STUDIES

National income is generally believed to be the most important single index of the overall economic situation of a country and as such commands a great deal of public interest. An individual as well as the government have to maintain the accounts of their incomes and expenditures in one form or another. They must have a clear idea of the sources of income and the heads of expenditure. It is the foremost duty of a welfare government to know the changes in national income and per capita real income in order to have proper assessment of the economic progress in the economy. Since the publication of Keynes' 'General Theory of Employment, Interest and Money' in 1936, there has been a changeover from micro-analysis to macro economic considerations like the aggregate national income, national consumption, national saving and investment. There is a shift from the constituent parts of an economy to the economy as a whole. The development of modern macroeconomic analysis was primarily due to the concept of national income or national dividend. As such, national income analysis has assumed great importance after the publication of Keynes' General Theory. Before its publication, the study of national income remained confined to a few academic scholars. The study of national income is basic to the study of Keynesian theory of employment as the total performance of an economy is judged by an increase in income and employment. The growing importance of national income studies in recent years is due to the following reasons :

1. Economic Policy. National income figures are an important tool of macroeconomic analysis and policy. National income estimates are the most comprehensive measures of aggregate economic activity in an economy. It is through such estimates that we know the aggregate yield of the economy and can lay down future economic policy for development.

2. Economic Planning. National income statistics are the most important tools for long-term and short-term economic planning. A country cannot possibly frame a plan without having a prior knowledge of the trends in national income. The Planning Commission in India also kept in view the national income estimates before formulating the five-year plans.

3. Economy's Structure. National income statistics enable us to have clear idea about the structure of the economy. It enables us to know the relative importance of the various sectors of the economy and their contribution towards national income. From these studies we learn how income is produced, how it is distributed, how much is spent, saved or taxed.

4. Inflationary and Deflationary Gaps. National income and national product figures enable us to have an idea of the inflationary and deflationary gaps. For accurate and timely anti-inflationary and deflationary policies, we need regular estimates of national income.

5. Budgetary Policies. Modern governments try to prepare their budgets within the framework of national income data and try to formulate anticyclical policies according to the facts revealed by the national income estimates. Even the taxation and borrowing policies are so framed as to avoid fluctuations in national income.

6. National Expenditure. National Income studies show how national expenditure is divided between consumption expenditure and investment expenditure. It enables us to provide for reasonable depreciation to maintain the capital stock of a community. Too liberal allowance of depreciation may prove harmful as it may unnecessarily lead to a reduction in consumption.

7. Distribution of grants-in-aid. National income estimates help a fair distribution of grants-in-aid by the federal governments to the state governments and other constituent units.

8. Standard of Living Comparison. National income studies help us to compare the standards of living of people in different countries and of people living in the same country at different times.

9. International sphere. National income studies are important even in the international sphere as these estimates not only help us to fix the burden of international payments equitably amongst different nations but also enable us to determine the subscriptions and quotas of different countries to international organisations like the U.N.O., I.M.F., I.B.R.D. et c.

10. Defence and Development. National income estimates help us to divide the national product between defence and development purposes. From such figures we can easily know how much can be spared for war by the civilian population.

11. Public Sector. National income figures enable us to know the relative roles of public and private sectors in the economy. If most of the activities are performed by the state, we can easily conclude that public sector is playing a dominant role.

9. DERIVATION OF REAL NATIONAL INCOME

Real national income is a measure of the goods and services at the disposal of a country for consumption and investment. Changes in real national income register the real change in the country's production. Since national income is commonly measured in money terms, real national income can be obtained from money national income in two ways :

1. By estimating national product at some fixed prices. For example, in India, under the revised series of national income accounting, we estimate national income at the prices of 1970-71.

2. By using a GNP deflator. In this method, the national income estimates at current prices are obtained. These are called nominal *GNP* estimates. Then we select a base year whose price index number we know already. We compare the base year price index with the current year price index and obtain the *GNP* deflator as follows :

$$GNP \text{ deflator} = \frac{\text{Current year price index}}{\text{Base year price index}}$$

Suppose the current year price index is 220 while the base year price index was 200, then the *GNP* deflator is 220/200= 22/20= 11/10= 1.1.

In order to obtain the real national income we divide the nominal *GNP* figure with the GNP *deflator.*