

Chapter 2

National Income

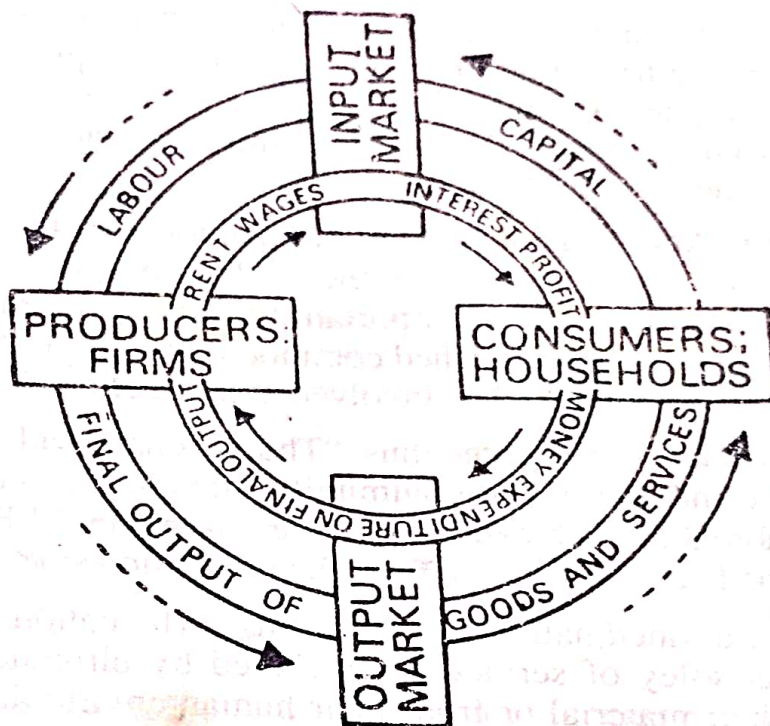
Macro Economics is concerned with the utilization of the country's resources for development and growth of the nation. Whenever we study a consumer as an economic unit, we want to know essentially his income, as this forms a vital data which enables us to determine the well-being of the consumer. His income determines the purchasing power and his standard of living. A change in his income indicates change in his life; whether he is able to get more goods and services or not. In the same way, we take the economy as a single entity consisting of a number of consumers who are mostly income earners. By adding the income of all of them, we get a figure that measures the income of the nation as a whole. This figure called National Income is as important a statistic for a nation as personal income is for an individual. National Income gives information about the nation's productive capacity and economic strength. National Income study will reveal the extent of utilization of a country's resources and the extent of unemployment. Before getting into the discussion of National Income in detail, we should understand some of the concepts and terms in this context.

Wealth and Income

Wealth consists of the material economic possessions including many diverse things as buildings, automobiles, business inventories of all kinds including proven reserves of unexploited natural resources of the country. In short, they are *physical stock* of goods. Wealth can increase in value as well as in physical quantity. This is called appreciation and is the result of price changes. Capital gains and losses originate from such appreciation and depreciation. Income on the other hand is a flow for a specified period. There is a close relationship between wealth and income. When the oil is underground, it is wealth. When it is refined and sold, it creates income. Land is wealth and if we produce wheat, it is income. Wealth accumulates through income. "Wealth accumulates physically

injected into the flow, increasing its volume. If firms borrow money from banks and financial institutions to pay off factor services, it is an extra volume in the circular flow. The government may also resort to injecting more money into the flow.

FIGURE 2.1
Circular Flow



The equilibrium of the economy depends on this injection of money and withdrawals. If more is withdrawn than injected, the flow will get diminished. Only if the two are equal, the circuit will remain stable. In macro economics, we consider all savings as withdrawals from circular flow and all investments as injections into the flow. Unless both are made equal, *i.e.*, inflow and outflow, the level of national income will not remain at the same level. We will study more about savings and investment later on.)

Definition and Concepts of National Income

Although we have studied about National Income in a general way at the beginning of this chapter, we have to look into the definitions given by different economists. National Income has been defined by various writers from different angles, as the concept can be viewed in three ways.

Firstly, national income can be thought of as total income per year of the inhabitants of the country in return for some services rendered by them in production. To put it technically, national income is the sum of incomes earned during the period from supplying of factor units for the use of production.

Secondly, it is taken as total production per year of goods and services in the country measured in money. To put it precisely, national income is the value of output of the period which is available for direct utilization by individual consumers.

Thirdly, it is taken as total consumption of the country per year plus (or minus) investment. It is equal to the total consumption and savings of all persons and institutions during a given period.

Marshall defined national income thus: "The labour and capital resources 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 the national dividend."²

According to Marshall's definition, we add together the net outputs of all productive activities and arrive at the total net output of the nation. In the definition, the word 'net' is important to signify and make provision for using up of raw and half-finished commodities and for the wearing out and depreciation of plant which is involved in production.

Pigou defined national income thus: "The national dividend is that part of the objective income of the community including of course income derived from abroad, which can be measured in money."³ Both Marshall and Pigou defined national income from the production side.

Irving Fisher defined national income thus: "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 me during this year by these things are income."⁴ Fisher's approach to the concept of national income is from the consumption side. According to Fisher, the national income of a country is determined not by its annual production, but by its annual *consumptions*. Let us suppose, the value of a piano manufactured in 1975 is Rs. 1,000. According to Marshallian approach, the entire Rs. 1,000 would be included in the national income of that year. Imagine the life of a piano is 20 years, then the money value of consumption of a piano in 1975 would be Rs.50. So, with the production of a piano the national income for 1975 would increase only by Rs. 50 and not by Rs. 1,000. Though Fisher's approach is better, scientific and reasonable, in practical life, it will be very difficult to calculate the money value of the consumption of goods and services.

Simon Kuznets defined national income as "the net output of commodities and services flowing during the year from the country's

2 Marshall, *Principles of Economics*, 8th ed. p. 434.

3 Pigou, *Economics of Welfare*, p. 31.

4 Fisher, *The Nature of Capital and Income*, p. 104.

productive system into the hands of ultimate consumers or into net additions to the country's stock of capital goods."⁵

National Income Committee of India 1951 defined this concept in a simpler manner. "A national income estimate measures the volume of commodities and services turned out during a given period counted without duplication."

United Nation's Department of Economic Affairs gives an elaborate definition of national income. "Gross National Product at market prices is the market value of the product before deduction of provisions for the consumption of fixed capital attributable to the factors of production supplied by the normal residents of the given country. It is identically equal to the sum of consumption expenditure and gross domestic capital formation, private and public and the surplus of the nation on current account. Thus surplus is identically equal to the net exports of goods and services plus the net factor incomes received from abroad."⁶

J.R. Hicks defined national income "as a collection of goods and services reduced to a common basis by being measured in terms of money."⁷

An analysis of various definitions shows that national income refers to the income of a country; its measurement refers to a specified period of time, say a year; it includes all types of goods and services which have an exchange value, counting each one of them only once.

While evaluating the national income of a country, no commodity or service should be counted twice. For example, if steel has been evaluated in industrial production, it should not be included while calculating the value of steel products, viz., machines and motor cars. The error of double counting first as a raw material and then under finished product should be avoided. Generally two statistical methods are used to avoid double-counting or multiple counting in the calculation of national income. (a) Final Product Method; and (b) Value added Method.

According to the first method, we add up the value of final products only. According to the second method, we go on adding the values created at each stage in the manufacture of a commodity. Then all such values created are added up together to arrive at the national income of the country. Whether we adopt the first method or the second method, the result will be the same.

The various definitions given above bring out the features of national income and their components. Whatever approach we make in the calculation of national income, we will get the same result.

5 Simon Kuznets, *Economic change*.

6 United Nations, *A system of National Accounts and Supporting Tables*.

7 Hicks, *The Social Framework*, Part IV.

NATIONAL INCOME ACCOUNTS

A system of social accounting does for the economy as a whole what private accounting does for the individual business enterprise. The various types of national income accounts help us to measure the level of production in the economy at some point of time and explain the immediate causes of that level of performance. Further, by comparing the national income accounts over a period, it is possible to pin-point the long term trends at work in the national economy. Finally, the information obtained from the national income accounts provides a reliable basis for designing government policies.

Under social accounting, we have to study five 'totals' or concepts which have become integral parts of the national income analysis. We shall study about these aggregates and their inter-relationship.

The basic quantities or aggregates in social accounting are:

- | | |
|-------------------------------------|--------|
| (i) Gross National Product | G.N.P. |
| (ii) Net National product | N.N.P. |
| (iii) National Income | N.I. |
| (iv) Personal Income | P.I. |
| (v) Disposable personal income..... | D.P.I. |

(1) Gross National Product (GNP)

This is the basic measure of a nation's output stated in terms of money, representing the total value of a nation's annual output. It is evaluated in terms of market prices. It includes all the economic productions in the economy 'from apples and automobiles to zinc and zippers.' GNP is defined as the *money value of the national production for any given period*. Here we take into account the money value of the final goods and services produced in the economy to avoid double counting. Intermediate products are excluded from the GNP. Secondly, we take into account the money value of only currently produced goods and services, as GNP is a measure of the economy's productivity during the year. Thus, if certain goods and services are produced in 1973, but are not sold till 1974, they would be part of the GNP for 1973 and are not to be counted as part of the GNP for 1974. Thirdly, the word 'Gross' has significance in the term GNP. This means in computing the GNP, we do not deduct the depreciation or replacement of the fixed assets. It is well known that in the process of production, there is wear and tear of fixed assets. This depreciation is a loss to the economy and it will not be deducted from the GNP produced in the economy.

GNP is the most frequently used national income concept. It is a better index than any other concept. It is also a simpler concept as it takes no account of depreciation and replacement problems. Computation of

$$GNP = C + I + G + E - M$$

GNP for several years and comparing them will tell us whether there has been a long run growth or decline in the economy. But care should be taken in comparing the GNPs of different years as price changes would delude us. We have to reduce the GNPs of different years to the base year and find out the extent of real growth in GNP. This is a very useful concept over a short period when changes in capital are not so important.

We may calculate the GNP at market price or factor cost. GNP at market price means that we use prices prevailing in the market for the sake of valuation. Since indirect taxes would enhance prices and subsidies would reduce prices, market prices would be different from the factor cost or the original cost to that extent. Therefore, if we deduct indirect taxes and add subsidies to GNP at market price, we arrive at GNP at factor cost. However, GNP is usually expressed only in terms of market prices.

Another term used in the context is *Gross Domestic Product (GDP)*. While GNP refers to the value of the aggregate product accruing to all people living permanently in a country, GDP refers to the value of the aggregate product generated from the territory of the country. For instance, a part of the aggregate product of a country may accrue to people abroad who have invested in the industrial enterprises of the country. These people abroad are entitled to receive profits, interest and dividends from these enterprises. Similarly many residents of the country may receive similar factor income from abroad. On balance, if the country pays out more factor income than she receives from abroad, the net factor income payments abroad are deducted from the Gross Domestic Product to arrive at the Gross National Product. The factor income payments abroad are very important to an open economy because of existence of numerous foreign enterprises.

(2) Net National Product (NNP)

Net National Product refers to the net production of goods and services in a country during the year. It is GNP minus the value of capital consumed or depreciation during the year. $NNP = GNP \text{ minus Depreciation}$. NNP is also called National Income at market prices. NNP is a better and a highly useful concept in the study of growth economics, as it takes into consideration of net increase in the total production of the country. But this concept has the complex problem of fixing appropriate rates of depreciation for plants, equipment, building, etc., in the economy.

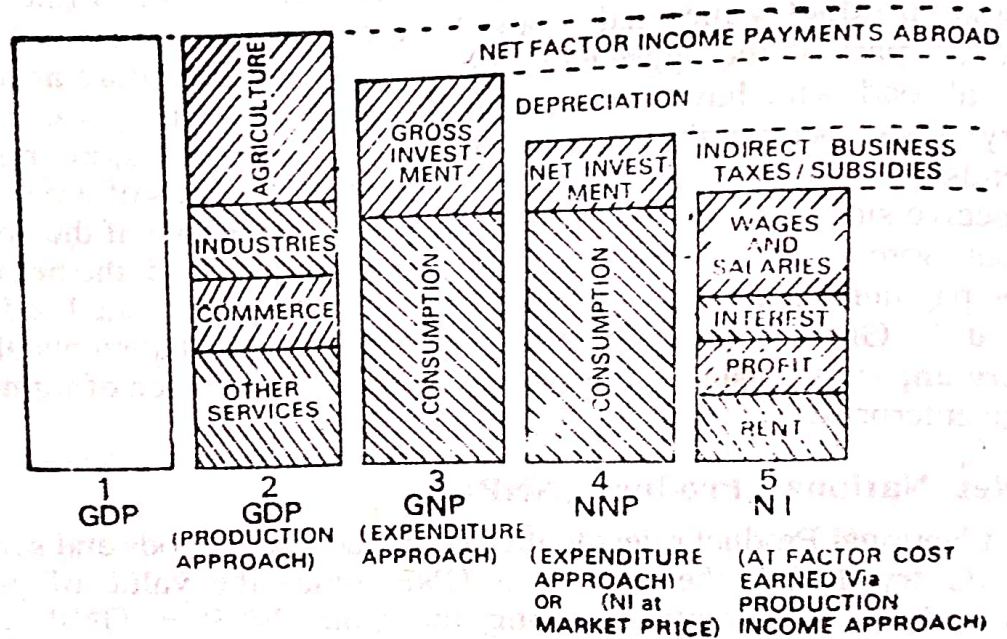
(3) National Income (NI)

National Income at market prices (NNP) stated above consists of indirect business taxes and subsidies. So, in order to arrive at National Income at factor cost, we deduct indirect taxes and add subsidies. This is the total of all income payments received by the factors of production, viz., land, labour, capital and organization. Whenever we say national income, we mean only national income at factor cost.

We have seen that GNP is arrived at by computing the end products without depreciation and NNP is arrived at by subtracting depreciation. But the whole of NNP is not available for distribution among the four factors of production. The firms have to pay indirect taxes (on their goods and services) to the government. This sum does not go to the factors of production. Hence these business indirect taxes have to be deducted from the NNP to find out the National Income. If factors are paid higher rewards due to government subsidies, these have to be added to the NNP. The concept of National Income throws light on the distribution side, and as such, it is closely related with the concept of economic justice.

The figure 2.2 illustrates the relationship between the aggregates we have discussed so far.

FIGURE 2.2
Relation between GDP, GNP & NI



Block No.1 in the figure (2.2) indicates GDP. Block No. 2 indicates the elements that give rise to GDP. Agricultural sector, Industries, Commerce and other services are the components which help in production. Block No. 3 indicates GNP which is arrived at after deducting net factor income payments abroad from GDP. Block No. 4 indicates NNP or national income at market price. This is arrived at by deducting depreciation from GNP. Block No. 5 indicates national income at factor cost, simply called national income which is arrived at by making adjustment for business indirect taxes and subsidies as indicated already.

(4) Personal Income (PI)

This is the actual income received by the individuals and households in the country from all sources. It denotes aggregate money payments received by the people by way of wages, interest, profits and rents. It is

the spendable income at current prices available to individuals. This aggregate amount will be different from the national income at factor cost. National income at factor cost is what is earned and personal income is what is received. The undistributed corporate profits may not be available for the individuals. Corporate income taxes and payment towards social security measures will not be available for individuals. Hence, these amounts have to be deducted from what is earned. Conversely there are certain income which are not currently earned but paid to individuals. Payments as old age pensions or widow pensions, payments for unemployment or any other welfare measures accrue to individuals. These are called *transfer payments* by government. These amounts are paid out of the funds from the exchequer. These incomes have to be added. Thus Personal Income is arrived at as follows:

$$\text{Personal Income} = \text{National Income} \textit{ minus} \text{ Corporate income taxes} \textit{ minus} \text{ Undistributed corporate profits} \textit{ minus} \text{ social security contributions} \textit{ plus} \text{ Transfer payments.}$$

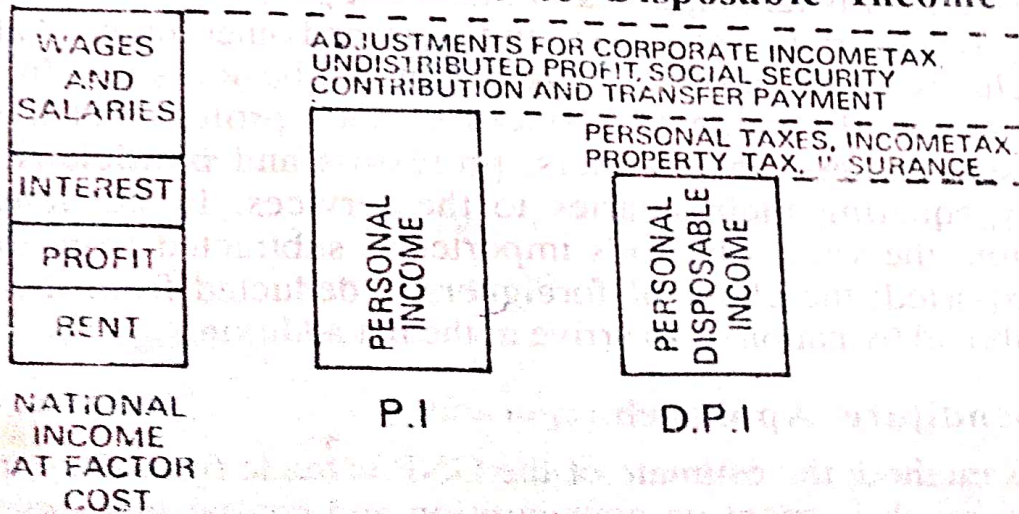
(5) Disposable Personal Income

This is simply the after-tax of personal income. The whole of PI is not available for consumption as personal direct taxes have to be paid. What is left after payment of personal direct taxes is called Disposable Personal Income. $\text{DPI} = \text{PI} \textit{ minus}$ personal taxes, property taxes and insurance payment. This is the amount available for individuals and households for consumption. It is not that the entire DPI is spent on consumption. A part of it may be saved. Thus Disposable Income = Consumption *plus* saving. This concept is useful in finding money burden of personal direct taxation.

The Figure (2.3) illustrates how the National Income illustrated in the previous figure is further boiled down.

FIGURE 2.3

From National Income to Disposable Income



(Study the figure 2.3 along with figure 2.2 to get the full picture of the various Income Aggregates)

Per Capita Income

Another important concept in National Income Analysis is the *Per Capita Income*. While the national income tells about the production of goods and services in the country, per capita income tells about what is available to individuals in the country. When the national income is divided by the population of the country, we get the per capita income of the country, in a given year. Figures pertaining to national income and per capita income over a period of time, particularly during the planning period serve as useful indices of economic development. But it should be noted that an increase in *national income does not guarantee increase in the standard of living of all the people*, unless the national dividend is properly distributed among all sections of the people. Per capita income denotes what is available per head and not what is distributed.

COMPUTATION OF NATIONAL INCOME

There are three ways of approaching the concept of GNP and as such we have three methods of computing National Income. They are (i) Production Approach; (ii) Expenditure Approach; and (iii) Earning or Income Approach.

(1) Production Approach

In this method, we have to make use of production or output statistics to estimate the GNP by industrial origin. The total products produced in the economy are calculated for the year and the value of this flow is equated to the market price avoiding double counting. The economy is classified conveniently into different sectors, viz., agriculture, industry, direct services and foreign transactions. In each sector we make an inventory of goods produced and find out the *end product* making an addition to the value of goods. The data comes mainly from the census of production supplemented by various surveys, company reports, market reports, trade statistics and other information. The census of production shows the value-added of each industry or economic activity. The value-added of a firm is its output less whatever it purchases from other firms, such as raw materials, accessories and parts, and other inputs. Value-added thus includes wages, profits, interest, rent and business tax. In the direct service sector, the value of services of such professions like doctor, dramatists, soldiers, shoe-shiners, professors and politicians, etc., are taken by equating their salaries to the services. In the international transaction, the value of goods imported is subtracted from that of the goods exported; the claim of foreigners is deducted from the balances created abroad by nationals to arrive at the net addition.

(2) Expenditure Approach

In this method, the estimate of the GNP is made from the expenditure side. How much is spent on consumption and capital investment? How much of each expenditure is incurred by the private and the public sector?

One man's Income is another man's expenditure. In practice, the production approach and expenditure approach are complementary to each other. The GNP at market prices is equal to the gross national expenditure which includes the following:

- (a) Expenditure by consumers on goods and services.
- (b) Expenditure by private manufacturers on capital or investment goods; and
- (c) Expenditure by government on consumption as well as capital goods.

To this we should add:

- (d) Moneys received from export of goods and services and incomes received on foreign investments.

(3) Earning or Income Approach

This method refers to the gross national income (which is equivalent to gross national product) obtained by adding together wages and salaries, interests, profits and rents of persons and institutions including government. Incomes are earned either from property or through work. To arrive at the totality of income of a nation, the following procedure will be adopted :

- (a) First, about net rents including the rental value of owner occupied houses. This information is processed in the income-tax department;
- (b) Next about wages, salaries and all such earnings of persons employed. This is a straight and simple issue, pensions, however, are excluded;
- (c) Earnings by way of interest come next;
- (d) The incomes of joint stock companies;
- (e) The incomes of unregistered business units; and
- (f) Finally, incomes from overseas investments.

In theory, the net national product should be conceptually equal to the net national income. The equations connected with these are as follows:

On the earning side:

$$\begin{aligned} \text{Net National Product} &= \text{Wages} + \text{Profits} + \text{Interest} + \text{Rent} \\ &= \text{National Income} \end{aligned}$$

On the spending side:

$$\begin{aligned} \text{National Income} &= \text{Consumption} + \text{Savings} \\ &= \text{Consumption} + \text{Net Investment} \\ &= \text{Net National Product.} \end{aligned}$$

It also explains the concept of the circular flow of income and expenditure explained already. Income is received by factors of production during the process of production. Income received is then spent on consumption and investment. The latter refers to the demand for the national output of goods and services, which are sold in the economy. Therefore national income must be equal to the net national product.

If we take into account exports and imports of goods and services and of factor income payments and receipts to and from abroad, we have to relate the balance of payments to the social accounting system.

$$\begin{aligned} \text{Gross National Product} &= \text{Gross National Income} \\ &= \text{Consumption} + \text{Investment} + \\ &\quad (\text{Exports minus Imports}) \\ &\quad \text{minus Net factor income payments} \\ &\quad \text{abroad.} \\ &= \text{Consumption} + \text{Investments} + \text{Net} \\ &\quad \text{Balance of Payments.} \end{aligned}$$

In backward countries, it would not be possible to use any one method exclusively to calculate national income. All the methods may have to be used. The National Income Committee appointed by the government of India with Prof. P.C. Mahalanobis as chairman made use of different methods in different sectors while calculating national income of India. Normally the primary sector of India would lend itself to produce census method. It is also easy to apply product method in industries. In the case of trade, transport, administration and profession, income method would be quite suitable.

DIFFICULTIES IN THE MEASUREMENT OF NATIONAL INCOME

The measurement of national income is beset with difficulties. In the underdeveloped countries, these difficulties are more prominent, making the computation of national income an extremely difficult task and the figures may not be much dependable.

What are the practical difficulties in the measurement of National Income?

(A) Conceptual Difficulties

(i) There has been difference of opinion regarding the term 'nation' in the concept of national income. It has to be defined exactly; whether it is the geographical entity of the country or the nationals including those residing abroad. Since national income constitutes a quantitative measure of economic activity rather than verbal description, the problem of including services has become a controversial one. Since everything has to be equated to the money value, services produced in the economy for

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love of humanity, affection, gratis, and philanthropy could not be taken into consideration in calculating national income.

(ii) Besides, in a backward country like India, there is an overlapping of occupation in rural sectors which makes it difficult to know the income by origin. A worker during the peak season works in a farm, drives a country cart during off season and even takes up unskilled work in the neighbouring town. Similarly, the village money-lender combines his profession with the cultivating of his farm.

(iii) Further, in the rural sector of backward economies, the cultivators, artisans and cottage industry workers do not have a fair idea of the expenses of their occupation. Hence the net value of their products cannot be estimated precisely.

(iv) Where there is a big chunk of non-monetized sector and barter dealings are prevalent, the problem of imputing the value to the commodities dealt outside the monetized sector creates a problem leading to much of guesswork and approximation.

(B) Statistical Difficulties

Due to ignorance and illiteracy of the people in rural sector of backward economies, the data may not be available and even if it is available, it will be unreliable. The figures furnished by the Village officials and Block officials are far from reliable as they are not trained for the purpose; nor do they keep correct and current data.

In the agricultural activities there is a good deal of guesswork in data relating to cropwise production and in figures relating to animals and forest products. In the factory establishments, data relating to output, cost, etc., are available, only in big units. The small units do not maintain these figures correctly. The hundreds and millions of small industrial units do not supply figures, nor do they have correct figures. The banking sector will be another formidable problem in the unorganized section. The village money-lenders and indigenous bankers maintain absolute secrecy of their transactions and they do not furnish correct information.

Above all, in a big country like India with wide disparities and regional differences, the gaps cannot be got over by using a uniform formula. The data of one region cannot be applied to another region with minor modifications. Every region would be a separate entity requiring specialized approach suited only to that region.

Though abundant data are available for government activities, the diversity and copiousness of exceptions make it almost irreducible to economic categories.

The error of double counting is another obstacle to be avoided in the calculation of national income.

Finally, the machinery for collecting statistical data may not be efficient. The investigators may be ill-equipped and quite unsuitable to the task. Lack of qualified statistical investigators, preparation of *ad hoc* figures, making sample surveys, etc., may mar the statistical veracity in backward economies.

FACTORS DETERMINING NATIONAL INCOME

There are a number of influences which determine the size of the national income in a country. It is on account of these influences that one country may have a larger national income than the other. The three main influences are :

- (i) Quality and quantity of factors of production.
- (ii) The state of technical know-how; and
- (iii) Political stability

(1) Quality and Quantity of Factors of Production

The quality and quantity of land, the climate, the rainfall, etc., determine the quantity and quality of agricultural production. This determines the size of the national income. The quantity of labour has a double influence since labour is both a factor of production as well as the consumer of what is produced. The quality of labour depends upon intelligence, education and training which in turn decides the volume of industrial production. Capital may comprise simple and primitive tools or the most modern equipment. This will have a decisive influence on output. Likewise, the quantity and quality of entrepreneurial ability is also an important element to reckon with in the determination of the size of the national income of the country.

(2) The State of Technical Know-How

A country with a poor technical knowledge cannot have a large-size national income, as it will be incapable of exploiting its resources efficiently. The extent of technical know-how and technology of production determine the capital formation in the country, apart from other factors. A country with abundant resources will be dormant without any development, if the resources are not scientifically exploited. Natural resources combined with advanced technology will go a long way in increasing the size of national income or economic development.

(3) Political Stability

This is an essential pre-requisite for maintaining production at the highest level. The economic development of several countries, particularly in South American Republics and African countries has been hindered by political instability.

The key to increase the national income rests with important factors like natural resources, capital formation, technical knowhow, political

stability and above all the national character of the people. In backward countries, all these factors will be deplorably lacking and the size of the national income will be small.

USES OF NATIONAL INCOME STATISTICS

(a) National income statistics are valuable instruments of economic analysis and a guide to economic policies to be pursued. It is more helpful in the context of planning and development of the country. It helps in formulating realistic plans.

(b) National income statistics give an idea of the structure of the economy. It helps to make inter-temporal comparisons and to study the rate of growth of the economy. The growth in national income is an index of the growth of total productive capacity of an economy.

(c) National income estimates help us to study inter-sectoral growth. Such inter-sectoral comparisons are useful in a developing economy. The share of agriculture, manufacturing industry, transport and communications and other services can be studied with the help of national income series to find out structural defects and weaknesses in the economy.

(d) National income estimates enable us to study inter-class income distribution. Per capita income or per capita consumption are general indicators of economic welfare. But they are unable to reveal distribution of income in society. For this purpose, national income estimates on distribution of income by size are prepared. The estimates reveal the proportion of income in various income ranges and provide a basis for the study of income distribution.

(e) National income estimates enable us to make international comparisons and the standard of living of the people.

(f) National income figures show the capacity of each country to bear some common burden of international institutions like the UNO.

In short, national income figures help governments in planning, policy-making, preparation of budgets and forecasting the level of economic activity.