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NATIONAL INCOME IN INDIA: CONCEPTS, MEASUREMENT AND TRENDS

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ABSTRACT

In independent India, national income is estimated both at current prices as well as constant prices since 1950-51 by Central Statistical Organization (CSO). In this paper an attempt is made to present the different concepts of national income in a very simple way and national income estimates are presented in both tabular and graphical form. The analysis of the tables and graphs shows that national income in India is rising at both current as well as constant prices. However, at current prices, net national income has increased by over 706 times from 1950-51 to 2010-11 whereas at 2004-05 prices it has increased by over 17 times only during the same time period. Thus, for the overall growth rates of the economy, it is suggested, that national income at current prices is not a true indicator whereas national income at constant prices can present a real picture of the growth of an economy.

KEYWORDS

constant prices, current prices, development, estimates, product.

1. INTRODUCTION

Among macro-economic indicators, national income aggregate is the most important and foremost required indicator to know about the overall size of any economy and it is most useful to compare different economies with each other. For example, in the year 2014, United States was on the first position with current Gross Domestic Product (GDP) of United States Dollar (USD) 17,419 billion, China was on the second position with current GDP of USD 10,360 billion, Japan was on the third position with current GDP of USD 4,601 billion, Germany was on the fourth position with current GDP of USD 3,853 billion, United Kingdom was on the fifth position with current GDP of USD 2,942 billion, France was on the sixth position with current GDP of USD 2,829 billion, Brazil was on the seventh position with current GDP of USD 2,346 billion, Italy was on the eighth position with current GDP of USD 2,144 billion, India was on the ninth position with current GDP of USD 2,067 billion, and Russian Federation was on the tenth position with current GDP of USD 1,861 billion (World Bank, 2015). According to the National Income Committee, 1949, a national income estimate measures the volume of commodities and services turned out during a given period counted without duplication. The main objective of the paper is to discuss the different concepts, measurement and trends of national income in India. The paper is divided into five sections. Following introduction, second section explains the different concepts of national income. Third section discusses the various methods used for the measurement of national income. The trends of national income in India are analysed by time series method in section four and the final section concludes.

2. DIFFERENT CONCEPTS OF NATIONAL INCOME

Basically, there are eight concepts of national income as discussed below:

(i) *Gross Domestic Product at Market Price (GDP_{MP}):* GDP_{MP} is the value of final goods and services produced in the domestic territory of a country during a financial year. GDP_{MP} is calculated by multiplying the total output with the market price, i.e.

$$GDP_{MP} = PQ$$

Where, P is the Price index of goods and services produced, and Q is the total final goods and services produced.

(ii) *Net Domestic Product at Market Price (NDP_{MP}):* NDP_{MP} is calculated by subtracting depreciation from GDP_{MP}, i.e.

$$NDP_{MP} = GDP_{MP} - \text{Depreciation}$$

Thus, it can be concluded that, Gross – Net = Depreciation.

(iii) *Gross National Product at Market Price (GNP_{MP}):* GNP_{MP} is calculated from GDP_{MP} by adding the income earned from exports and by subtracting income spent on imports. Thus, GNP_{MP} is the sum total of gross domestic product at market price and net factor income earned from abroad (NFYA), i.e.

$$GNP_{MP} = GDP_{MP} + NFYA$$

Thus, it can be concluded that, National – Domestic = NFYA.

(iv) *Net National Product at Market Price (NNP_{MP}):* On the basis of above three concepts, NNP_{MP} can be calculated either from NDP_{MP} or from GNP_{MP}. For example,

$$NNP_{MP} = NDP_{MP} + NFYA$$

$$\text{or, } NNP_{MP} = GNP_{MP} - \text{Depreciation}$$

(v) *Gross Domestic Product at Factor Cost (GDP_{FC}):* GDP_{FC} is calculated from GDP_{MP} by subtracting the indirect taxes and adding the subsidies. Thus, GDP_{FC} is the difference of gross domestic product at market price and net indirect taxes (NIT), i.e.

$$GDP_{FC} = GDP_{MP} - NIT$$

(vi) *Net Domestic Product at Factor Cost (NDP_{FC}):* NDP_{FC} can be calculated either from net domestic product at market price or from gross domestic product at factor cost as below,

$$NDP_{FC} = NDP_{MP} - NIT$$

$$\text{or, } NDP_{FC} = GDP_{FC} - \text{Depreciation}$$

(vii) *Gross National Product at Factor Cost (GNP_{FC}):* GNP_{FC} can be calculated either from gross national product at market price or from gross domestic product at factor cost as below,

$$GNP_{FC} = GNP_{MP} - NIT$$

$$\text{or, } GNP_{FC} = GDP_{FC} + NFYA$$

(viii) *Net National Product at (NNP_{FC}):* NNP_{FC} can be calculated either from NNP_{MP} or from NDP_{FC} or from GNP_{FC} as below,

$$NNP_{FC} = NNP_{MP} - NIT$$

$$\text{or, } NNP_{FC} = NDP_{FC} + NFYA$$

$$\text{or, } NNP_{FC} = GNP_{FC} - \text{Depreciation}$$

Conceptually, real NNP at factor costs is the most accurate measure of national income, but in India real GDP at factor costs is mostly used because of some practical problems in measurement of depreciation and net factor income from abroad. Thus, economic growth in India generally refers to increase in real GDP at factor costs (Chand, 2015).

3. MEASUREMENT OF NATIONAL INCOME IN INDIA

Soon after independence, the Government of India appointed the National Income Committee in August 1949, so as to compile authoritative estimates of national income. The final report of the National Income Committee appeared in 1954 (Datt and Mahajan, 2014). Since the formation of this committee, national income in India is measured every year (financial year) at both current as well as constant prices. For constant price estimates, base year is subsequently revised and the new estimates are spliced accordingly by this committee. So far, eight base years are used in India for the measurement of national income as shown in Table 1.

TABLE 1: DIFFERENT BASE YEARS IN INDIA FOR THE MEASUREMENT OF NATIONAL INCOME

Sr. No.	Series	Base Year	Year of Adoption of New Base Year
1.	Conventional Series	1948-49	1952-53
2.	First Revised Series	1960-61	1967-68
3.	Second Revised Series	1970-71	1978-79
4.	Third Revised Series	1980-81	1988-89
5.	Fourth Revised Series	1993-94	1999-00
6.	Fifth Revised Series	1999-00	2004-05
7.	Sixth Revised Series	2004-05	2009-10
8.	New Series	2011-12	2014-15

Sources: Datt and Mahajan, 2014; Government of India, 2015.

Some of the major aggregates about national income at both current as well as constant prices are gross national income at market prices, net national income at market prices, per capita net national income at market prices and, gross value added at factor cost by industry of origin. For the estimates of gross value added at factor cost by industry of origin, the economy is divided into five parts grouped into three sectors, primary, secondary and tertiary, as shown in Table 2.

TABLE 2: THREE SECTORS IN INDIAN ECONOMY TO MEASURE GROSS VALUE ADDED AT FACTOR COST BY INDUSTRY OF ORIGIN

Sector	Part	Industry of Origin
Primary Sector	Part 1	Agriculture, Forestry & Fishing, Mining and Quarrying
	Part 2	Manufacturing, Construction, Electricity, Gas and Water Supply
Tertiary Sector	Part 3	Trade, Hotels, Transport & Communication
	Part 4	Financing, Insurance, Real Estate, and Business Services
	Part 5	Community, Social & Personal Services

Source: Government of India, 2015.

For the measurement of national income, the share of agriculture is measured by using net output method. The agricultural output is measured by multiplying the area, in hectares, on which a particular crop is produced by the per hectare productivity for that crop. From the gross value of output so obtained, deductions for the cost of seed, manures and fertilizers, market charges, repairs and depreciation are made so as to derive net value of the product from agriculture. For animal husbandry, forestry, fishery, mining and factory establishments, estimates of production are multiplied with market price so as to obtain the gross value of the output. From the gross value of output deductions are made for cost of materials used in the process of production and depreciation charges etc. to obtain net value added of each sector. In order to obtain the contribution of small enterprises an estimate for the total number of workers employed in different occupations classified under small enterprises is prepared. On the basis of sample surveys, the average earnings per head are obtained. By multiplying the total number of persons employed with the average earnings per head, the contribution of small enterprises is estimated. To provide for factor payments other than wages and salaries, an addition of 20 per cent to the money earnings is made. The same procedure is used for commerce and transport and for professions, liberal arts and domestic services. For banking and insurance, wages, salaries, directors' fees and dividends (distributed and undistributed) are all added from the balance sheets of concerned firms. For public sector, wages, salaries, pensions, other benefits, dividends or surplus etc. and the contribution of government construction are added up. The contribution of house property to national income is worked by estimating the imputed net rental of all houses, rural and urban (Datt and Mahajan, 2014). All these methods used for the measuring national income are presented in Table 3.

TABLE 3: METHODS FOR MEASURING NATIONAL INCOME IN INDIA

Sector	Method
Agriculture	Net Output Method
Animal Husbandry, Forestry, Fishery, Mining and Factory Establishments	Net Output Method
Contribution of Small Enterprises	Net Income Method
Commerce, Transport, Professions, Liberal Arts and Domestic Services	Net Income Method
Banking and Insurance	Net Income Method
Public Sector	Net Income Method
House Property	Net Income Method

Source: Compiled from Datt and Mahajan (2014).

4. TRENDS OF NATIONAL INCOME IN INDIA

As shown in Table 4 and Figure 1, gross national income and net national income both are increasing since 1950-51. In 1950-51, gross national income at current prices was Rs. 10,360 crore and, it increased to Rs. 1,24,98,662 crore in 2014-15. It indicates growth of over 1206 times. But this is not the real indicator of growth of national income because the gross national income also includes depreciation. Thus, net national income is comparatively better indicator of growth of national income. In Table 4, it is found that in 1950-51, net national income at current prices was Rs. 9,829 crore and, it increased to Rs. 1,12,17,019 crore in 2014-15. It indicates a growth of over 1141 times in net national income at current prices. Thus, it is clear that by subtracting depreciation from gross national income the growth in national income falls from 1206 times to 1141 times during the period from 1950-51 to 2014-15. Even the increase in net national income at current prices cannot depict the true picture of growth of national income because the income aggregates calculated at current prices include the rise in prices also. Thus, this is not the real increase in income but monetary. To calculate the real increase in income, the best approach is to measure national income at constant prices or at base prices. As shown in Table 4, national income estimates are available in India at 2004-05 prices from 1950-51 to 2010-11 and at 2011-12 prices from 2011-12 to 2014-15. It is found in Table 4, that net national income at 2004-05 prices was Rs. 2,69,724 crore in 1950-51 and it increased to Rs. 46,57,438 crore in 2010-11. It shows a real increase of over 17 times in national income in India. During the last four years, 2011-12 to 2014-15, the net national income at 2011-12 prices increased from Rs. 78,46,531 crore (in 2011-12) to Rs. 94,00,266 crore (in 2014-15). It shows an increase of more than 1.19 times in net national income at 2011-12 prices in India from 2011-12 to 2014-15. Figure 1 shows that in the first three decades, 1950-51 to 1980-81, the increase in both net national income at current prices as well as at constant prices is modest; from 1980-81 to 2011-12, net national income increased at increasing rate and then its rate of increase shows a constant pace.

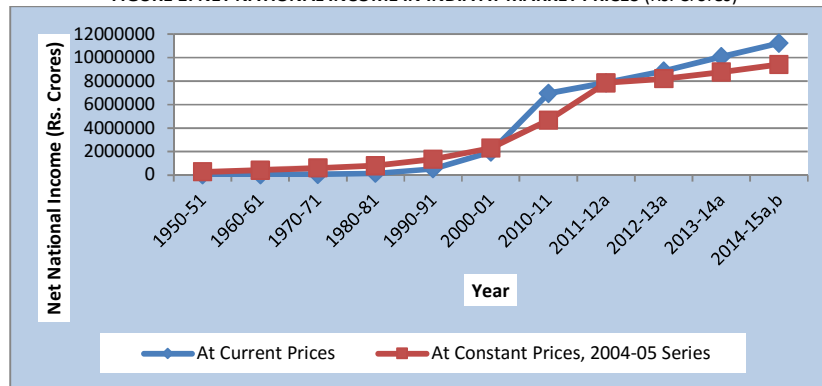
TABLE 4: GROSS NATIONAL INCOME AND NET NATIONAL INCOME IN INDIA AT MARKET PRICES (Rs. Crores)

Year	At Current Prices		At Constant Prices (2004-05 Series)	
	Gross National Income	Net National Income	Gross National Income	Net National Income
1950-51	10,360	9,829	2,92,996	2,69,724
1960-61	17,870	17,062	4,34,497	4,11,519
1970-71	47,354	44,550	6,40,275	5,96,470
1980-81	1,49,987	1,38,565	8,66,338	7,95,193
1990-91	5,78,667	5,26,017	14,70,766	13,42,031
2000-01	21,54,680	19,47,788	25,35,911	22,91,795
2010-11	77,02,308	69,42,089	52,27,739	46,57,438
2011-12 ^a	87,55,188	78,46,531	87,55,188	78,46,531
2012-13 ^a	98,71,777	88,41,733	91,72,925	81,93,427
2013-14 ^a	1,12,05,169	1,00,56,523	98,00,813	87,51,834
2014-15 ^{a,b}	1,24,98,662	1,12,17,019	1,05,27,936	94,00,266

Source: Government of India, 2015.

- a. 2011-12 Series.
- b. Advance Estimates.

FIGURE 1: NET NATIONAL INCOME IN INDIA AT MARKET PRICES (Rs. Crores)



Source: Government of India, 2015.

- a. 2011-12 Series.
- b. Advance Estimates.

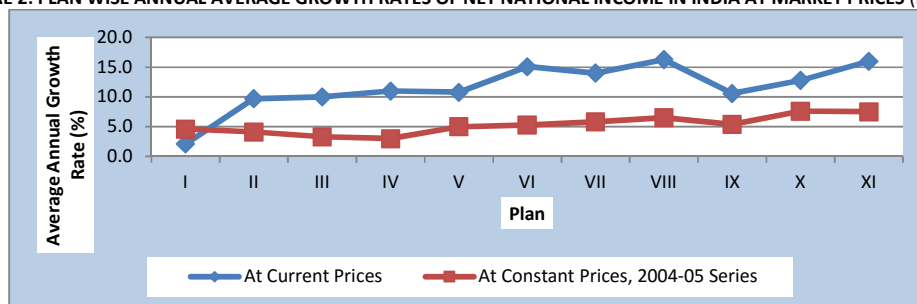
Table 5 shows plan wise annual average growth rates of gross national income and net national income in India at market prices at both current prices as well as constant prices. It is found in Table 5 that annual average growth rate of net national income at 2004-05 prices remained less than 5 per cent till fifth plan and became more than 5 per cent after fifth plan, and during fifth plan it remained at 5 per cent. As shown in Figure 2, during first plan to fourth plan annual average growth rate of net national income at 2004-05 prices falls from 4.6 per cent to 3.0 per cent and after that up to eighth plan it rises consistently and became 6.5 per cent. In the ninth plan, it falls to 5.4 per cent but in the tenth and eleventh plan more than seven per cent growth rate is achieved in Indian net national income.

TABLE 5: PLAN WISE ANNUAL AVERAGE GROWTH RATES OF GROSS NATIONAL INCOME AND NET NATIONAL INCOME IN INDIA AT MARKET PRICES (Per cent)

Plan (Year)	At Current Prices		At Constant Prices (2004-05 Series)	
	Gross National Income	Net National Income	Gross National Income	Net National Income
First Plan (1951-56)	2.0	2.1	4.0	4.6
Second Plan (1956-61)	9.6	9.7	4.1	4.1
Third Plan (1961-66)	10.0	10.0	3.4	3.3
Fourth Plan (1969-74)	11.2	11.0	3.2	3.0
Fifth Plan (1974-79)	11.0	10.8	5.1	5.0
Sixth Plan (1980-85)	15.2	15.1	5.4	5.3
Seventh Plan (1985-90)	14.2	14.0	5.8	5.8
Eighth Plan (1992-97)	16.2	16.3	6.5	6.5
Ninth Plan (1997-2002)	10.7	10.6	5.6	5.4
Tenth Plan (2002-07)	12.8	12.8	7.6	7.6
Eleventh Plan (2007-12)	16.0	16.0	7.8	7.5

Source: Government of India, 2015.

FIGURE 2: PLAN WISE ANNUAL AVERAGE GROWTH RATES OF NET NATIONAL INCOME IN INDIA AT MARKET PRICES (Per cent)



Source: Government of India, 2015.

Table 6 shows that the contribution of agriculture, forestry & fishing, mining and quarrying in national income of India at factor cost at 2004-05 prices is gradually reducing whereas the contribution of other sectors is gradually increasing. This change shows that Indian economy is growing as per the theory of economic development which states that as the economy develops, the proportionate contribution of primary sector tends to decrease while that of the secondary and tertiary sectors tend to increase. As shown in Table 6 and Figure 3, the contribution of agriculture, forestry & fishing, mining and quarrying has reduced from 55.0 per cent to 19.1 per cent from 1950-51 to 2014-15. On the other hand, the contribution of manufacturing, construction, electricity, gas and water supply increased from 14.7 per cent to 28.4 per cent; in case of trade, hotels, transport & communication from 11.3 per cent to 18.9 per cent; in case of financing, insurance, real estate and business services from 8.5 per cent to 20.9 per cent and; in case of community, social & personal services from 10.4 per cent to 12.8 per cent during the period of 1950-51 to 2014-15.

TABLE 6: SHARE OF DIFFERENT SECTORS IN NATIONAL INCOME OF INDIA AT FACTOR COST, AT CONSTANT PRICES, 2004-05 SERIES (Per cent)

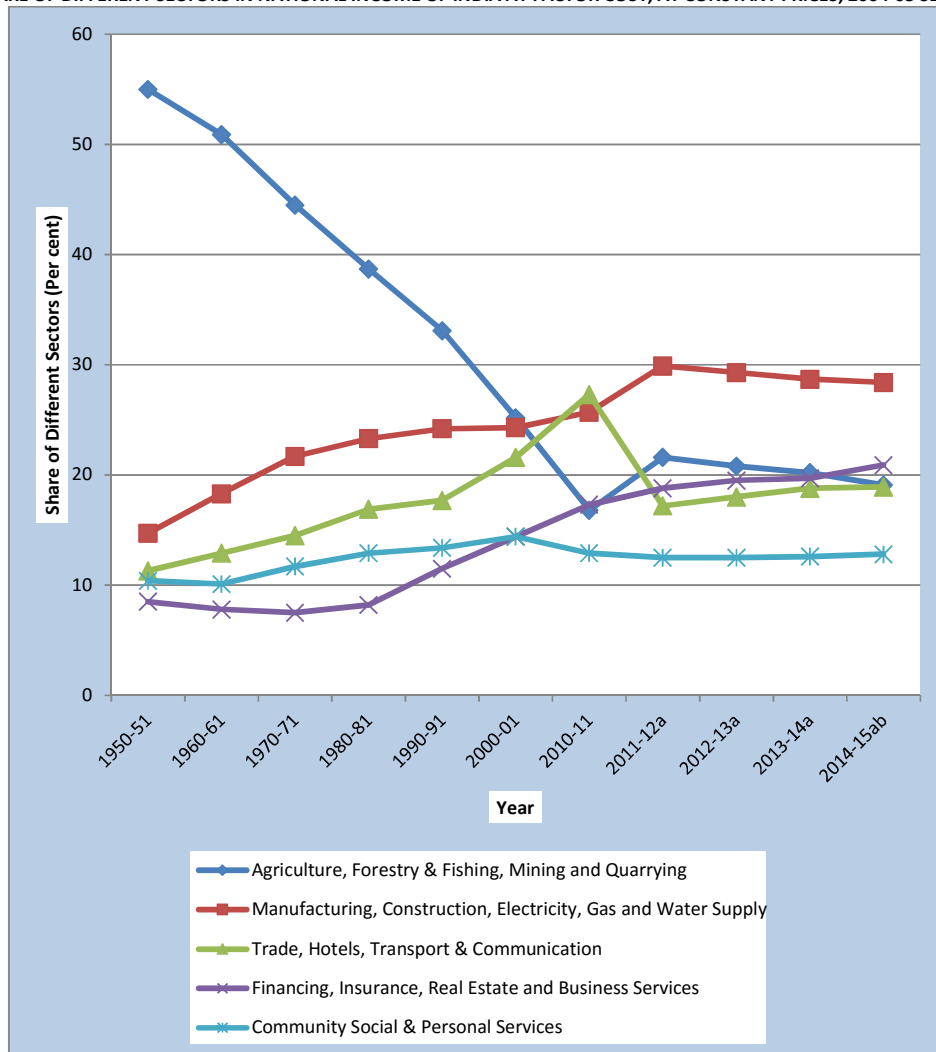
Year	Agriculture, Forestry & Fishing, Mining and Quarrying	Manufacturing, Construction, Electricity, Gas and Water Supply	Trade, Hotels, Transport & Communication	Financing, Insurance, Real Estate and Business Services	Community, Social & Personal Services
1950-51	55.0	14.7	11.3	8.5	10.4
1960-61	50.9	18.3	12.9	7.8	10.1
1970-71	44.5	21.7	14.5	7.5	11.7
1980-81	38.7	23.3	16.9	8.2	12.9
1990-91	33.1	24.2	17.7	11.5	13.4
2000-01	25.2	24.3	21.6	14.4	14.4
2010-11	16.8	25.7	27.3	17.3	12.9
2011-12 ^a	21.6	29.9	17.2	18.8	12.5
2012-13 ^a	20.8	29.3	18.0	19.5	12.5
2013-14 ^a	20.2	28.7	18.8	19.7	12.6
2014-15 ^{a,b}	19.1	28.4	18.9	20.9	12.8

Source: Calculated from Economic Survey, 2014-15 (Government of India, 2015).

a. 2011-12 Series.

b. Advance Estimates.

FIGURE 3: SHARE OF DIFFERENT SECTORS IN NATIONAL INCOME OF INDIA AT FACTOR COST, AT CONSTANT PRICES, 2004-05 SERIES (PER CENT)



Source: Calculated from Economic Survey, 2014-15 (Government of India, 2015).

a. 2011-12 Series.

b. Advance Estimates.

5. CONCLUSION

There are eight concepts related to national income aggregates – gross domestic product at market price, net domestic product at market price, gross national product at market price, net national product at market price and same four are at factor cost. However, the real increase in national income estimated through net national income at constant prices depicts a true picture of the state of an economy. In India, a mix of net output method and net income method is used for the measurement of national income. It is found in the analysis that during fifth plan Indian economy experienced a 5 per cent annual average growth rate in its net national income at 2004-05 prices and thereafter never achieved less than 5 per cent growth. This is a very healthy development because the Indian economy crossed the barrier of the Hindu rate of growth. It is also found that Indian economy performed better during the last two decades as compared to the earlier decades. Because of the planned efforts of Indian economists and policy makers, the percentage share of secondary and tertiary sectors increased and that of agriculture and allied has decreased. It indicates a positive development in our development path. However, to find the real growth in any economy the basic and foremost condition is the satisfaction of its stakeholders which can be estimated with the help of real per capita income and on the basis of the distribution of real per capita income.

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