

THE GROWTH OF THE INDIAN ECONOMY: 1860-1960

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This paper is concerned with an examination of growth trends of the Indian economy between 1860 and 1960. This examination commences with the numerous studies bearing on the more recent part of this period, from about 1900 to 1960. These studies are shown to vary greatly in coverage and comprehensiveness, and their differences and individual shortcomings are assessed. Nevertheless, these studies conclude, without exception, that the Indian economy remained virtually stationary in this period, especially in terms of negligible growth in *per capita* real income. In contrast to periods since 1900, the study of economic growth during the earlier period has suffered academic neglect. There are only two major studies which make an attempt to examine economic trends in this period. Both these studies are found wanting with respect to concepts and procedures. The period from 1860 to 1913 presents serious problems in any study since there is a paucity of statistics which are at all reliable and useful. The most promising approach for overcoming this deficiency is to develop better sectoral statistics rather than to rely on aggregative data even when available. In order to gain a better understanding of the growth trends of the Indian economy over this period, the author constructed indices of major economic activities. These indices demonstrate that relatively high rate of economic growth prevailed in India before 1890. Subsequent developments in the Indian economy seem to consist of minor changes in the magnitudes of economic variables rather than fundamental structural changes. Thus, the Indian economy is shown to have enjoyed relatively high rates of growth only in the initial three decades of the hundred-year period, 1860-1960.

Factory industry did not exist in India before 1850;¹ the economy was predominantly agricultural. Between 1850 and 1860, two factory industries, cotton and jute, were established.² For the entire half century which followed, these two industries remained the major components of the industrial sector of the Indian economy. In 1960 India had one of the lowest *per capita* incomes in the world: at the rate of exchange prevailing in 1960, the *per capita* product at 1958-1959 prices was approximately 60 dollars.³ The question arises whether India achieved this unenviable position at a long-term low or zero rate of growth or whether in some periods between 1860 and 1960 the rate of growth of the economy was high and in other periods it was low (or negative). It is shown in the following section of this paper that the Indian economy was growing at a low rate in the inter- and post-war periods: this is seen from the results of the numerous studies which examine these periods. In a subsequent section of this paper it is further shown that unlike the inter- and postwar periods, although the pre-1913 period has been the subject of a few studies, it is not possible to say what the rate of growth of the Indian economy in this period was. This paper provides some new evidence about the trends in the Indian economy between 1860 and 1913.

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¹Daniel Houston Buchanan, *The Development of Capitalistic Enterprise in India* (New York: The Macmillan Company, 1934), pp. 127-141.

²*Ibid.*, pp. 127-141.

³United Nations, *Economic Survey of Asia and the Far East, 1961* (Bangkok, 1962), p. 81. On the same page it is noted that "In real terms, *per capita* product, 1960-1961 only Rs 322 at 1958-1959 prices, remained among the lowest in the ECAFE region."

TRENDS IN THE INDIAN ECONOMY: 1900–1960

Four studies which consider the trends in the Indian economy between 1900 and 1960 are described and analyzed below.⁴ The studies are by H. C. Arora and K. R. R. Iyengar,⁵ K. Mukerji,⁶ Surendra J. Patel,⁷ and V. K. R. V. Rao.⁸ The main reason for examining all four studies, rather than any one of them, lies in the fact that even with their weaknesses the uniformity of their conclusions serves to emphasize the trends in the Indian economy in the inter- and post-war periods. This is particularly so because the four studies under consideration were prepared independently of one another, and therefore are a good check on each other's conclusions.

Arora and Iyengar. Using two different methods of computation, Arora and Iyengar provide two estimates of national and *per capita* incomes for the period 1901–1956. These estimates are shown below in Table 1. Arora and Iyengar's calculations show that while there was some growth in national and *per capita* incomes until the First World War, the Indian economy experienced virtually no change thereafter.

Arora and Iyengar used V. K. R. V. Rao's estimate of national income for 1931–1932 as their starting point.⁹ The first method for the calculation of national and *per capita* incomes is described as follows:¹⁰

Here the series formed by the average of the indices of agricultural production and business activity has been used as the indicator. Indices of agricultural production have been taken from *The Agricultural Crops of India, 1893–1946: A Statistical Study of Output and Trends* by George Blyn. From 1947 onwards the Eastern Economist indices have been used. The indices of business activity used are given in the Appendix. Using this indicator and starting from 1931–1932 the series of national income was constructed. However, the figure for 1948–1949 thus arrived at was 5.7 per cent lower than the official estimate. The series was adjusted for this difference in proportion to the annual changes in the indicator, so as to match the figure for 1948–1949 with the official estimate. The same indicator of averages of indices of agricultural production and business activity has been used to project the series back from 1931–1932 to 1901–1902.

⁴The studies are discussed in alphabetical order by author. Except as may be indicated by the analysis, no preference is given to any of the studies discussed in this section.

⁵H. C. Arora and K. R. R. Iyengar, "Long Term Growth of National Income in India, 1901–1956," *Papers on National Income and Allied Topics*, Vol. I (Indian Conference on Research in National Income), ed. V. K. R. V. Rao, S. R. Sen, M. V. Divatia, and Uma Datta (Bombay: Asia Publishing House, 1960).

⁶K. Mukerji, "A Note on the Long Term Growth of National Income in India—1900–1901 to 1952–1953," *Papers on National Income and Allied Topics*, Vol. II (Indian Conference on Research in National Income), ed. V. K. R. V. Rao, A. K. Ghosh, M. V. Divatia, and Uma Datta (Bombay: Asia Publishing House, 1962).

⁷Surendra J. Patel, "Long-Term Changes in Output and Income in India: 1896–1960," *Indian Economic Journal*, Vol. V, No. 3 (January, 1958), 233–246.

⁸V. K. R. V. Rao, "Changes in India's National Income—A Static Economy in Progress," *Papers on National Income and Allied Topics*, Vol. II, *op. cit.*

⁹Arora and Iyengar, p. 209.

¹⁰*Ibid.*, p. 210.

The procedure for calculating national and *per capita* incomes by the second method was a little more sophisticated. Arora and Iyengar describe the second method of calculating national and *per capita* incomes as follows:¹¹

This alternative method used is a little more appropriate than the former. By comparison of the indices of business activity and the series of national income for the period 1948–1949 to 1955–1956 it was found that the increase shown by national income is 0.56 times the increase in business activity. Though the period considered is very short and the relationship may not be very correct, an attempt has been made to use the annual changes arrived at by this method to calculate the second series. The figure for the year 1948–1949 thus arrived was 4.0 per cent lower than the official estimate. Again distributing this difference proportionately as before over the period 1931–1932 to 1948–1949, the series as presented was obtained. For the period prior to 1931–1932 also, the same indicator was used.

TABLE 1
QUINQUENNIAL AVERAGES OF NATIONAL INCOME ESTIMATES
AT 1948–1949 PRICES

Period	Population (in mil- lions)	First Method		Second Method	
		National Income (mil. rupees)	<i>Per</i> <i>capita</i> Income (rupees)	National Income (mil. rupees)	<i>Per</i> <i>capita</i> Income (rupees)
1901–1902—1905–1906	242	43,840	181	39,780	165
1906–1907—1910–1911	249	49,650	200	46,680	188
1911–1912—1915–1916	252	58,700	233	55,670	221
1916–1917—1920–1921	251	62,460	248	61,410	244
1921–1922—1925–1926	258	(69,660)	(270)	(69,530)	(270)
1926–1927—1930–1931	272	(73,780)	(271)	(74,840)	(275)
1931–1932—1935–1936	288	75,460	262	75,410	261
1936–1937—1940–1941	308	(89,000)	(289)	(88,050)	(286)
1941–1942—1945–1946	329	(92,990)	(283)	(91,310)	(278)
1946–1947—1950–1951	350	88,470	252	87,710	250
1951–1952—1955–1956	373	98,700	264	98,700	264

Note: The authors point out that figures in parentheses are not very reliable: "In periods of expansion, the rise in the business activity index is so large that, in spite of adjustments, its use may lead to a considerable overestimation of national income," Arora and Iyengar, p. 211.

Source: Arora and Iyengar, p. 210.

The accuracy and validity of the estimates constructed by Arora and Iyengar is open to serious doubts. The objections relate to four aspects of their estimates. First, the use of only two highly aggregated indices underscores a serious weakness in the estimates. The index of agricultural production was prepared very diligently and with great care by George Blyn.¹² But the same kind of confidence cannot be placed in the index of business activity, mainly because the component parts of the index of business activity do not possess the same homogeneity as the items in

¹¹*Ibid.*, pp. 210–211.

¹²George Blyn, *Agricultural Trends in India, 1891–1947: Output, Availability, and Productivity* (Philadelphia: University of Pennsylvania Press, 1966). The study used by Arora and Iyengar was an earlier version of this book.

the index of agricultural production. Moreover, there is no indication of the relative significance of industries and services in the index of business activity. The unreliability of the index is clear from the data in Table 1 for the years 1921–1922/1925–1926 to 1941–1942/1945–1946; the figures were put in parentheses by the authors to indicate the doubtful nature of the estimates for those years.¹³ Second, a simple average of the agricultural production and business activity indices was used. Such averaging fails to account for the difference in the relative contribution of various sectors to the economy. Third, and perhaps most important, Arora and Iyengar's estimates suffer from a serious weakness in their complete reliance on Rao's estimate of national income for 1931–1932. It should be remembered that 1931–1932 was far from a normal year. Any projection of Rao's estimate, with whatever combination of indices, is likely to contain serious distortions. Fourth, and finally, Rao's estimate was for British India, while the figures after 1947 are for the Indian Union, which exclude the present territories of Pakistan and Bengal. The territorial changes will add further distortions in the national and *per capita* incomes, particularly in the agricultural component since the most fertile agricultural parts of western Punjab and Burma were no longer parts of India after 1947.

Mukerji. Mukerji prepared an estimate of the national income of India for the period 1900–1901 to 1952–1953. He found that at 1948–1949 prices, *per capita* income in India increased from Rs 220 in 1900–1901 to Rs 274 in 1952–1953. *Per capita* income fluctuated somewhat between 1921–1922 and 1952–1953, but there were no serious deviations from the figure of Rs 272, the *per capita* income which prevailed in 1921–1922. Details of Mukerji's estimate are given, at five-year intervals, in Table 2 below.

Mukerji's estimate related to the geographical boundaries of the Indian Union, that is, to the geographical composition of India after the partition of 1947. His procedure in estimating the national income of India was to project backward and forward the National Income Committee data for 1948–1949.¹⁴ He divided the Indian economy into six sectors and prepared an indicator for each of these sectors. He then applied the indicators to the national income estimate for 1948–1949 to get his figures for the period 1900–1901 to 1952–1953.

The six component sectors of the economy with which Mukerji prepared his estimate were: (1) Agriculture, which consisted of agricultural crops, animal husbandry including commercial hunting, forestry, and fishing; (2) Small Enterprises and other commerce and transport activity; (3) Industrial Production, which was composed of factory production, financial intermediaries, professional and liberal arts, domestic services, and housing; (4) Railways, Post and Telegraphs; (5) Government Services and other government-controlled enterprises; and (6) Mining.

Some of the criticisms which applied to the estimates of Arora and Iyengar are also applicable to the estimate of Mukerji. First, the appropriateness of

¹³Arora and Iyengar, p. 211.

¹⁴In 1949, the Government of India set up a National Income Committee whose task was to prepare detailed estimates of national income and its components for 1949. The Committee published estimates of national income of India for 1948–1949 and for a few subsequent years. See the discussion on this in V. K. R. V. Rao, *et al.*, *Papers on National Income and Allied Topics*, Vol. I, *op. cit.*, pp. vii–viii.

TABLE 2
NATIONAL INCOME OF INDIAN UNION AND ITS MAJOR COMPONENTS
AT 1948-1949 PRICES
(millions of rupees)

Year	Agriculture	Small enterprise, etc.	Mining	Railway, Post and Telegraph	Large-scale Industries, Tertiary Service, Housing	Government Services	Total	Per capita (rupees)
1900-1901	39,760	5,700	100	720	2,860	1,950	51,090	220
1905-1906	39,270	8,060	180	1,040	3,920	2,540	55,010	229
1910-1911	44,330	10,570	230	1,400	3,650	2,230	62,410	253
1915-1916	46,710	11,720	270	1,220	4,940	1,750	68,610	267
1920-1921	38,070	17,910	290	1,260	5,170	1,990	64,690	259
1925-1926	42,880	16,260	320	1,660	6,910	2,590	70,620	269
1930-1931	45,980	16,100	380	2,370	8,140	9,870	76,840	278
1935-1936	43,670	17,330	360	2,840	11,870	4,090	80,160	272
1940-1941	45,340	18,690	510	2,240	15,920	3,760	86,460	275
1945-1946	41,320	22,770	430	2,700	17,030	4,710	88,960	264
1950-1951	44,050	24,970	640	2,080	16,830	3,350	91,920	256
1952-1953	47,680	26,650	700	2,340	19,840	3,910	101,120	274

Source: This table has been taken from Mukerji, pp. 22-23.

projecting estimates of national income over long periods is to be questioned, particularly when the basis of projection is a single-year estimate of national income, as is the case with Mukerji (and was the case in the estimates of Arora and Iyengar). The hope in the estimates based on the projection of a single-year estimate is, of course, that the indicators used to make projections backward and forward are sufficiently sensitive and nonoffsetting to guard against serious errors of estimation. But this hope remains only a conjecture. Second, the estimates are projected on the basis of the present geographical boundaries of India while the earlier period is marked by the unity of geographical composition, that is, the earlier territory of India includes the present boundaries of Pakistan as well as those of Burma. This can lead to serious errors of estimation. Third, the secular behavior of some of the indicators used would be of interest. This is particularly true of the indicator used to estimate the industrial component of the national income. The indicator which Mukerji used to estimate industrial production contains many activities other than factory production. All of the activities contained in Mukerji's indicator may not move in the same direction. This can lead to errors of imputation in the analysis of national income.

Patel. Patel wanted to answer two questions: (1) Did real *per capita* income increase or not during the first half of the twentieth century? and (2) At what rates did *per capita* income change over these decades? Reference to existing studies left Patel completely dissatisfied;¹⁵ he complains that the estimates of *per capita* income in the studies he examined "remain singularly uninformative in

¹⁵It appears that Patel either did not have access to or was not aware of the works of Arora and Iyengar, Mukerji, and Rao. See, Patel, *Indian Economic Journal*, Vol. V, No. 3, *Passim*.

discerning the long-term trends in economic growth in India.”¹⁶ The existing estimates of national and *per capita* income contained a number of serious drawbacks. First, there were differences of the definition of national income: for example, while some estimators included services in their estimates, others did not.¹⁷ Second, “the estimates were in current prices and were, therefore, incomparable without adjustments for price changes.”¹⁸ Most of the existing estimates had one other very serious limitation. “Since most of them were limited to a year, they could not be used even after making price adjustment for the purposes of determining long-term trends because of the very considerable influence of natural factors in showing a very high or low agricultural output for the year chosen.”¹⁹

Patel employed few primary sources; his research was based on secondary sources. His approach was to take the existing estimates of national income and its components and try to remove some of the obvious deficiencies in these estimates. He took the common features of the various available estimates of national

TABLE 3
LONG-TERM CHANGES IN NET OUTPUT IN INDIA: 1896–1955*
(Annual averages in 1952–1953 prices)

	1896–1905	1906–1915	1916–1925	1926–1935	1936–1945	1946–1955
	Billions of rupees					
Foodgrains	28.1	28.8	28.6	27.3	27.2	27.5
Commercial crops	6.7	8.0	9.1	11.1	11.9	13.7
Factory industries	1.3	2.0	2.6	3.5	5.6	6.5
Mining	0.2	0.3	0.4	0.5	0.7	0.8
Total	36.3	39.1	40.8	42.4	45.4	48.5
<i>Per capita</i> output (rupees)	158	159	164	155	144	136
	Decennial Rates of Percentage Growth					
Foodgrains	—	3	—1	—5	—	1
Commercial crops	—	20	14	22	7	15
Industry and mining	—	53	30	33	58	11
Total net output	—	7	5	4	7	7
<i>Per capita</i> output	—	1	3	—6	—7	—5
Population	—	7	1	10	13	15

*Patel's figures for 1960 have been left out because they were simply Second Five Year Plan expectations, rather than observed facts.

Source: Patel, *Indian Economic Journal*, Vol. V, No. 3, p. 242.

income and by making appropriate adjustments he was able to construct one serial estimate for the entire period, 1896–1960.²⁰

The relevant parts of Patel's exercise are presented in Table 3 above. The figures show that foodgrains output declined after the decade of 1906–1915. The rate of growth of commercial crop production fluctuated over the period. Industry and mining had the highest decennial growth rates; the rate of growth is shown to

¹⁶*Ibid.*, p. 235.

¹⁷*Ibid.*, pp. 234–235.

¹⁸*Ibid.*, p. 235.

¹⁹*Ibid.*, p. 235.

²⁰*Ibid.*, p. 238.

below in the inter and post-war years. The rate of growth of total output was very low throughout the period. Since the rate of population growth was higher than the rate of growth of total net output after the decade of 1916–1925, the rate of growth of *per capita* output was negative.

Rao. V. K. R. V. Rao made the first comprehensive study of the national income of British India for the single year 1931–1932.²¹ The National Income Committee prepared an estimate of the national income of India for the year 1950–1951.²² Rao felt that it would be instructive to compare the two national income estimates, his own and that of the National Income Committee, and calculate the rate of change over the twenty-year period which separates the two estimates. He felt that the problem of the comparability of the two estimates was of a minor nature.²³ “Despite the differences in coverage, prices and extent of accuracy, it is possible to get some idea of the changes which have taken place in the country’s national income during the last two decades by comparing the two estimates.”²⁴ At 1931–1932 prices, *per capita* income in 1931–1932 amounted to Rs 62, while in 1950–1951 (and at 1931–1932 prices) *per capita* came to Rs 64.2, an increase of only 3.5 per cent over a period of twenty years.²⁵ Table 4 below shows the sectoral distribution (in percentage terms) of national income in the two years, 1931–1932 and 1950–1951.

TABLE 4
NATIONAL INCOME—PERCENTAGE CONTRIBUTION BY MAIN SECTORS

Category	Percentage contributed		Difference in percentage between 1950–1951 and 1931–1932
	1931–1932	1950–1951	
Agriculture, pasture, hunting and fishing	56.4	53.9	–2.5
Industry	17.8	16.1	–1.7
Services, including trade, transport, government, professions and domestic service	25.8	30.0	+4.2

Source: Rao, *et al.*, *Papers on National Income and Allied Topics*, Vol. II. p. 9.

The percentage contribution of both agriculture and industry to national income declined between 1931–1932 and 1950–1951. The percentage share of services in national income rose. This is in complete contrast to the experience of most of the presently advanced countries where the share of industry in national income rises to much higher level before there is a rise in the proportion contributed by services.²⁶ The experience of India is as if India had skipped the inter-

²¹V. K. R. V. Rao, *The National Income of British India, 1931–1932* (London: Macmillan and Co., Ltd., 1940).

²²India, National Income Committee, *Final Report of the National Income Committee* (Delhi, 1954).

²³Rao, *et al.*, *Papers on National Income and Allied Topics*, Vol. II, 7.

²⁴*Ibid.*

²⁵*Ibid.*

²⁶For a discussion of hypotheses, see Colin Clark, *Conditions of Economic Progress* (London: The Macmillan Company, 1957); Walther Hoffman, *The Growth of Industrial Economies* (Manchester, England: Manchester University Press, 1958).

mediate stage of economic transformation whereby the proportion of industry in national income rises and the decline comes much later, that is, in the final stage of transformation.

Rao's exercise suffers from the same defects as the estimates of Arora and Iyengar and Mukerji. First, it compares prepartition India with postpartition India. (The percentage contribution is supposed to take account of this problem, that is, geography is deemed of more importance if absolute figures were being compared.) Most important is the fact that in Rao's comparisons one year (1931-1932) is a non-normal year, while the second year (1950-1951) is a more normal one. This may explain to some extent the decline in percentage contribution of industry and the rise of services (agriculture can be assumed to decline secularly in its percentage contribution to national income). For in periods of recession or depression industry is likely to decline most. Since its absolute contribution may decline in one year very steeply, and comparison of such a figure with any subsequent normal-year figure is of doubtful value. This point is

TABLE 5
INDEX OF INDUSTRIAL ACTIVITY
(1935 = 100)

Year ended March 31	Index of Industrial Activity Corrected for Deflated Cheques Clearance
1921-1922	64
1922-1923	65
1923-1924	72
1924-1925	80
1925-1926	79
1926-1927	80
1927-1928	85
1928-1929	87
1929-1930	90
1930-1931	85
1931-1932	80
1932-1933	81
1933-1934	93
1934-1935	94
1935-1936	101
1936-1937	107
1937-1938	110
1938-1939	109
1939-1940	122
1940-1941	125
1941-1942	133
1942-1943	128
1943-1944	134
1944-1945	155
1945-1946	138
1946-1947	122
1947-1948	125
1948-1949	133
1949-1950	141
1950-1951	149
1951-1952	154
1952-1953	166

Source: Mukerji, p. 88.

illustrated through an examination of the index of industrial activity. Table 5 above shows fluctuations in industrial activity in India between 1921 and 1952. It is clear from this table that industrial activity in 1931–1932 was not at a normal level. The level of industrial activity in 1931–1932 is the same as it was in 1924–1925. It is also clear that industrial activity in 1950–1951 was at a more normal level.

Summary and Conclusion. What the various studies indicate, in spite of differences in their definitions, coverage, accuracy, and methods of calculation, is that the Indian economy progressed very slowly, if at all, in the inter- and post-war years. All four studies reach this conclusion. This uniformity of conclusions emphasizes the static nature of the Indian economy after the First World War.

THE INDIAN ECONOMY: 1860–1913

The study of long-term trends in the Indian economy in this period presents serious problems. There are few studies available which deal with the subject satisfactorily. The lack of good studies for the period is an indication of the deficiency of statistical materials which are available for purposes of research. Although a number of single-year estimates of national and *per capita* income are available, the problem of ascertaining the trends in the economy is not made any easier.²⁷ Among the available studies there are two which deserve some discussion.²⁸

Atkinson. Fred J. Atkinson calculated the national and *per capita* income of British India for two years, 1875 and 1895. He found that *per capita* income in India rose from Rs 30.5 in 1875 to Rs 39.5 in 1895, an increase of 29.5 per cent over a period of twenty years. This amounts to an average annual rate of growth of 1.48 per cent in *per capita* income. Details of Atkinson's estimate are summarized in Table 6 below.

Atkinson's estimates are in current prices. In constant prices (1873 = 100), the change in *per capita* income between 1875 and 1895 amounts to 3.5 per cent, or an average annual change of 0.18 per cent.²⁹

In contrast to many charges of deteriorating *per capita* income in India,³⁰ Atkinson showed that *per capita* income increased, at least in the period he covered, 1875–1895. Although Atkinson's estimates of national and *per capita* income are open to serious doubts, as is discussed below, yet the important point he made,

²⁷Description and criticism of the various early studies of India's national and *per capita* income can be found in a number of places: Surendra J. Patel, "Long-Term Changes in Output and Income in India: 1896–1960," *Indian Economic Journal*, Vol. V, No. 3 (January, 1958); Daniel Thorner, "Long-Term Trends in Output in India," *Economic Growth: Brazil, India, Japan*, ed. Simon Kuznets, Wilbert E. Moore, and Joseph J. Spengler (Durham, N. C.: Duke University Press, 1955).

²⁸Fred J. Atkinson, "A Statistical Review of the Income and Wealth of British India," *Journal of the Royal Statistical Society*, Vol. LXV, Part II (March, 1902).

M. Mukherjee, "A Preliminary Study of the Growth of National Income in India, 1857–1957," *Asian Studies in Income and Wealth*, International Association for Research in Income and Wealth (Bombay: Asia Publishing House, 1965).

²⁹The problem of price index is an acute one. The weighted index number of 100 articles has been used here. With 1873 = 100, the index for 1875 was 96 and for 1895 the index was 120. See, India, Department of Commercial Intelligence and Statistics, *Index Numbers of Indian Prices, 1861–1931*, 3d issue, No. 2489 (Delhi: Manager of Publications, 1933), p. 1.

³⁰See the discussion in Patel, *Indian Economic Journal*, Vol. V, No. 3, 234.

TABLE 6
GROWTH OF NATIONAL AND PER CAPITA INCOME IN INDIA
(In rupees, Current Prices)

Source of Income	1875	1895
Income from agriculture	3,129,106,420	5,014,697,470
Income of non-agricultural population of small means (commerce, industry, transport, etc.)	1,871,816,281	2,620,927,871
Income of non-agricultural population of ample means (commerce and professions)	740,400,000	1,130,000,000
Total Income	5,741,322,701	8,765,625,341
Population	188,000,000	222,000,000
<i>Per Capita</i> Income	30.5	39.5

Source: Atkinson, *Journal of the Royal Society*, Vol. LXV, Part II, p. 238.

that there was an improvement in the economic life of India rather than a deterioration, remains to be verified by more convincing data than he used.

The methods employed by Atkinson in his calculations of income-by-source are highly questionable.³¹ While the data for 1895 were taken from published sources, the information for 1875 was mainly guesswork.³² "The estimates of yield for 1875 are, of course, purely conjectural, but are based on the surrounding facts, and the tendency has been to rather over than under estimate them as compared with 1895."³³ Atkinson calculated agricultural income by multiplying the acreage under cultivation by estimated or observed yield per acre of various crops which comprised the agricultural output of the country. He made no allowance for seed, wastage, and depreciation.³⁴ Therefore, his estimates of agricultural income would be greatly exaggerated,³⁵ and this point was made by various discussants of his paper.³⁶

Atkinson's estimate of nonagricultural income presents equally serious problems. His procedure in estimating the nonagricultural income was to divide the population of the country into various sectors and apply some average wage to each sector. These calculations are really guesswork. It is difficult to see how Atkinson could divide the population in terms of its deriving livelihood from specific occupations since there was no complete census of India until 1881.³⁷ He assumed that every adult male of 15 years of age and above was continuously employed and earned an estimated average wage throughout the year. He made some adjustments for employment of women and children and the underemploy-

³¹Atkinson, *op. cit.*, pp. 272-283; Thorner, *op. cit.*, pp. 108-110.

³²Atkinson, pp. 213-219.

³³*Ibid.*, p. 215.

³⁴*Ibid.*, pp. 210-219, 260-264.

³⁵*Ibid.*, pp. 215-217.

³⁶*Ibid.*, pp. 272-283.

³⁷Atkinson derived his estimate of population for 1875 by using the census data for 1871. But census of 1871 was incomplete. In estimating the occupational distribution of population in 1895, Atkinson used the figures of the 1891 Census. The census data for 1891 are fairly accurate and comprehensive. In this connection see, Kingsley Davis, *The Population of India and Pakistan* (Princeton, N.J.: Princeton University Press, 1951), pp. 25-27.

ment of males.³⁸ The result of the whole exercise becomes a series of guesses without sufficient statistical support for the various assumptions made.

Mukherjee. In his discussion of the various estimates of national income prepared in the nineteenth century, Patel points out that the use of these estimates to ascertain long-term trends in the Indian economy is likely to create serious difficulties and produce distortions. The problems result from the fact that there is little agreement on concepts of national income, that the estimates were in current prices, and most of the estimates were limited to a single year (thereby preventing calculation of rate of growth of national income from any one source).³⁹ Thorner is of the same opinion in his discussion of the national income estimates of India which were prepared in the nineteenth century.⁴⁰

In spite of these reservations about the quality and accuracy of these estimates of national income, Mukherjee calculates the long-term trends in the national income of India by utilizing these estimates. He makes some adjustments for differences in definitions of various economic activities, prices, and coverage. For the period under consideration, the results of Mukherjee's exercise are presented in Table 7 below. He finds that there was steady growth in *per capita* income until about 1885, stagnation between 1885 and 1905, and some growth in *per capita* income to 1910.

Summary and Conclusions. Both Atkinson and Mukherjee show increases in *per capita* income for a part of the period under investigation in this paper. But both studies present their conclusions on the basis of statistical evidence which is of doubtful validity. In spite of these studies it is not possible to say with certainty just what was the long-term trend in *per capita* income, or for that matter in the economy, in the period 1860–1913. Moreover, the highly aggregated nature of the studies prevents an examination of the sectoral composition of the estimates, and thereby hides the sources of growth and the causes of growth as well as the reasons for the failure of growth to become sustained.

TABLE 7
AVERAGE PER CAPITA NATIONAL INCOME OF INDIA
AT 1948–1949 PRICES FOR OVERLAPPING
NINE YEAR PERIODS

Period	Centering	<i>Per capita</i> Income in 1948–1949 Rs
1857–1863	1860 (7 yr)	169
1861–1869	1865	169
1866–1874	1870	172
1871–1879	1875	177
1876–1884	1880	197
1881–1889	1885	216
1886–1894	1890	204
1891–1899	1895	201
1896–1904	1900	199
1901–1909	1905	203
1906–1914	1910	220

Source: Excerpted from Mukherjee, *Asian Studies in Income and Wealth*, p. 103.

³⁸Atkinson, *op. cit.*, pp. 230–231.

³⁹Patel, *op. cit.*, pp. 233–235.

⁴⁰Thorner, *op. cit.*, *passim*.

AN ALTERNATIVE APPROACH TO THE STUDY OF ECONOMIC TRENDS IN
INDIA: 1860–1913

It is not possible to construct estimates of the national income of India for the period 1860–1913. The reason is that available statistics do not lend themselves to such a task: there is very little information available for either output or employment for the economy as a whole or for some or all sectors of the economy. Under these circumstances, it is futile, if not completely inappropriate, to attempt construction of national income estimates. Kuznets admonishes would-be estimators to be wary of making elaborate social accounts for economies and/or periods for which data are not available in sufficient quality and quantity to do the job of constructing national income accounts properly.⁴¹

Moreover, the aggregative nature of national income estimates is not very appropriate for the analysis in an economy in which modern processes of production are being introduced. By modern processes of production is meant the use of mechanical power in the production processes instead of primarily human labor.

The deficiency of the data and their processing, however, is not the whole story. Even if complete and reliable data were available, it would still be very questionable whether national income figures can be expected to reveal the inception of new processes of growth. By and large, it was true in Europe that the more backward a country on the eve of its great spurt of economic development, the higher was the percentage of the population gainfully employed in agriculture and the stronger was the concentration of growth upon a relatively very small area outside of agriculture. Under these conditions, a good deal of time must elapse before even a very rapid growth in the small area can affect national income as a whole and become distinguishable as a separate factor from the violent crop fluctuations which tend to dominate national income in countries where agriculture is backward and extensive in nature. Therefore, to concentrate on national income data very often may lead to errors in timing of periods of growth which in turn may lead to errors of causal imputation and general interpretation.⁴²

⁴¹“The attempts, all too frequent in recent years, to fit the scanty data of many underdeveloped countries into strait jackets of elaborate social accounts proliferated in the developed countries, have proved useful in that they indicated how little we know—if that is the lesson which the compilers and users draw. But would it not be more fruitful, in the longer run, to admit that only some of the aspects of economic life in underdeveloped countries, or in the earlier phases of developed ones, are measurable; and to attempt to measure them in such a way as to secure a reasonable portrayal of basic levels and trends? To illustrate, if we find that in earlier phases even in the U.S.A. and in many countries today, only income embodied in commodities can be at all approximated, let us measure this part as inclusively as we can and not manufacture out of whole straw estimates of income arising in services. If for many countries all we can get over a long period are some data on total population, imports and exports, and agricultural production, let us by dint of comparative analysis use these few but important items of quantitative information in such a way as to get at least some notion of the rate of long-term movement of real product, total and *per capita*. For purposes of analysis and discussion even of current problems, a picture of long-term trends thus secured is worth a thousandfold more than an elaborate set of social accounts or of input-output tables for single year or two.” Simon Kuznets, et al., *Economic Growth: Brazil, India, Japan*, p. 10.

⁴²A. Gerschenkron, “Early Phases of Industrialization in Russia and their Relationship to the Historical Study of Economic Growth,” *The Experience of Economic Growth, Case Studies in Economic History*, ed. Barry E. Supple (New York: Random House, 1963), pp. 437–438.

This paper confines itself to the study of the growth process in India. This means the study of sectors or economic activities in which the inception of the growth process took place. This of course implies the study of economic activities in which the application of modern production techniques became increasingly important. In India, as in most other countries where agriculture was predominant and traditional, the activities in which modern production techniques were applied were the manufacturing activities, and to a lesser extent the transport services.

Manufacturing employment and manufacturing output are two different aspects of the production activity of an economic unit: they yield essentially the same information, namely, the size and the rate of growth of production activity.⁴³ The information on output can be used to supplement the information on employment, and *vice versa*. Moreover, information from output can be used as a check on information from employment data. This cross-checking becomes necessary when reference is being made to events in the distant past, and consequently data are meager, and at times of doubtful validity.

For the major part of the period under consideration in this section, two major and two minor industries existed in India.⁴⁴ The major industries were cotton and jute, and the minor industries were paper and wool. These were the industries which employed modern production techniques. Other industries, or rather economic activities, did exist, but by and large they were in the handi-

⁴³The relationship of manufacturing employment and manufacturing output was studied quite thoroughly by Solomon Fabricant. He found that in the United States, between 1899 and 1937, there was a fairly close movement in the trends of manufacturing employment and manufacturing output. If the period is divided into two halves, then the first half showed even closer parallel movements in the trends of manufacturing employment and output. In the latter half of the period of study, there was some divergence from this parallel movement because of changes in productivity patterns among the factors of production. See, Solomon Fabricant, *The Relation Between Factory Employment and Output since 1899* (New York: National Bureau of Economic Research, 1941), Occasional Paper No. 4.

⁴⁴Unless otherwise specified, the geographical composition of the country "India" refers to the territorial boundaries of British India. Although there was considerable reorganization in the political composition of the country, there was little change of economic significance between 1860 and 1913.

In 1860, the territory of India consisted of: area under the administration of Governor-General of India in Council, mainly in Central India, plus Bengal, Northwest Provinces, Punjab, Madras, and Bombay. These territories enclosed an area of 933,722 square miles. See Great Britain, Parliamentary Papers, Vol. LVII (*Accounts and Papers*, Vol. XXIX), 1862, "Statistical Tables Relating to the Colonial and Other Possessions of the United Kingdom, part VII, 1860," p. 1.

In 1911 (the Census year), the territory of India consisted of: Ajmer-Merwara, Andamans and Nicobars, Assam, Baluchistan, Bengal, Bihar and Orissa, Bombay Presidency, Burma, Central Provinces and Berar, Coorg, Madras, North-West Frontier Province, Punjab, and the United Provinces of Agra and Oudh. This territory amounted to 1,093,074 square miles. See Great Britain, Parliamentary Papers, Vol. LXXVII (*Accounts and Papers*, Vol. XL), Ed. 8157, 1916, "Statistical Abstract Relating to British India from 1904-1905 to 1913-1914," p. 1.

Except for Burma, the new names in 1911 represent essentially administrative reorganization of areas formerly under control of the Governor-General of India. The annexation of Upper Burma in 1886 represents almost entirely the change in the territory of India between 1860 and 1913; Upper Burma had an area of 87,390 square miles.

The change in the territorial size of India did not represent any significant change in its economic condition. Upper Burma was low-rainfall area (and rains occasionally failed to come); consequently the area was a persistent rice deficit area. See John F. Cady, *A History of Modern Burma* (Ithaca, New York: Cornell University Press, 1958), pp. 126, 157.

The geographical composition of India thus is that of British India, including the present territories of Pakistan and Upper Burma.

crafts sector. This is clear from all the available official publications as well as from the non-official studies of Indian economic history.⁴⁵

The rates of growth of manufacturing employment and manufacturing output are presented below in Table 8. This table shows trends in the Indian economy between 1880 and 1913 only. The reason is simply that very little information is available for the period 1860–1880. But this is not considered a very serious shortcoming because even if statistics of manufacturing employment and output were available, they would indicate a very high rate of growth. This follows from the fact that since no manufacturing industries existed before 1850, and with a very low base year figure (for 1860), any calculation of the rate of growth between 1860 and 1880 will necessarily show a very high rate of growth.

The figures in Table 8 show that until about 1890 a relatively high rate of growth prevailed both in manufacturing employment and manufacturing output. Thereafter a slow-down is observed in the rates of growth in both of these indices.

TABLE 8
AVERAGE ANNUAL PER CENT RATES OF GROWTH OF MANUFACTURING EMPLOYMENT
AND OUTPUT

Period (year ended March 31)	Manufacturing Employment	Manufacturing Output
1880–1881 to 1885–1886	9.3	13.0
1885–1886 to 1890–1891	8.2	16.7
1890–1891 to 1895–1896	5.9	5.8
1895–1896 to 1900–1901	4.1	
1900–1901 to 1905–1906	7.6	6.0*
1905–1906 to 1910–1911	4.0	1.5
1910–1911 to 1913–1914	2.3	4.5

*Average annual percent rate of growth here has been calculated at a ten-year interval because economic conditions were severely affected by plague and famine conditions which prevailed in India between 1898 and 1901. Production activity was particularly affected: a calculation of the rate of growth of manufacturing production between 1895–1896 and 1900–1901 yields a negative growth rate.

Source: Methods used in constructing employment and production indices are detailed in Krishan G. Saini, "Some Measures of the Economic Growth of India: 1860–1913," unpublished doctoral dissertation, Columbia University, New York, 1968, chapters III and IV.

⁴⁵Official publications which give information about the size of the manufacturing industry are Statistical Abstracts and the reports of the Government on the economic condition of the country. Both of these publications were issued annually and can be found in the Parliamentary Papers of Great Britain, under the subheading of Accounts and Papers. Since Parliamentary Papers and Accounts and Papers have separate consecutive numbers, no specific volume numbers are listed here.

Among the non-official studies, a reference to any one of the following will support the contention that other than cotton, jute, paper, and wool, few manufacturing industries existed in India in the period under study: Vera Anstey, *The Economic Development of India* (London: Longmans, Green and Co., 1929); Daniel Houston Buchanan, *The Development of Capitalistic Enterprise in India* (New York: The Macmillan Company, 1934); Romesh Dutt, *The Economic History of India* (London: Routledge & Kegan Paul Ltd., 1904), Vol. II; D. R. Gadgil, *The Industrial Evolution of India in Recent Times* (4th ed.; London: Oxford University Press, 1944); H. R. Soni, *The Indian Industry and Its Problems* (London: Longmans, Green & Co., Ltd., 1932).

Moreover, the rates of growth fluctuated fairly violently after 1890. The causes of this decline in the rate of growth of Indian industries are difficult to isolate. The most plausible explanation is that these industries had become mature by 1890 and were bound to experience slowdown thereafter. But the development effort need not have faltered had other industries risen to take the role of leaders in industrial growth. Since the industries which were established in the earlier stages of Indian development were either consumer goods industries (cotton, paper, and wool) or simple manufacturing, more accurately processing industries (jute), subsequent development would have required the rise of more complex manufacturing and/or producer goods industries. In short, even within the manufacturing sector, long-term high rates of growth require that the composition of the sector undergo continuous change.⁴⁶ The reasons behind the failure of new industries to rise when the old industries experienced slow-down have been discussed in detail elsewhere.⁴⁷

The data are also quite meager for the measurement of trends in the agricultural sector. Nevertheless, there is reason to believe that trends in the agricultural sector approximated the trends in the manufacturing industries.

The data on agricultural production are not available for the entire period under study in this paper. The production figures are available only from 1891 on. The rates of growth of all-crop and foodgrain production between 1891 and 1913 are presented in Table 9 below.

TABLE 9
TRENDS IN AGRICULTURAL PRODUCTION

Period (year ended June 30)	Average Annual Percent Rate of Growth of All- crop Production	Average Annual Percent Rate of Growth of Food- Grain Production
1891-1892 to 1895-1896	5.3	5.0
1895-1896 to 1900-1901	0.9	0.8
1900-1901 to 1905-1906	-0.8	-1.2
1905-1906 to 1910-1911	5.1	5.8
1910-1911 to 1913-1914	-4.6	-5.5

Source: Calculated from George Blyn, *Agricultural Trends in India, 1891-1947: Output, Availability, and Productivity* (Philadelphia: University of Pennsylvania Press, 1966), p. 349.

For the period before 1890 an alternative method was employed for the purpose of examining trends in the agricultural sector of the Indian economy. This alternative method uses exports of agricultural products as a proxy for agricultural production. Thus, data on exports of agricultural commodities are used to observe the approximate direction and rate of growth of the agricultural sector. Because of the complexities of classification between traded and non-traded products, the trends in agricultural production as they are indicated by the

⁴⁶The changing nature of industries in the course of economic development is discussed in considerable detail in the pioneering study by Walther Hoffman, *The Growth of Industrial Economies* (Manchester, England: Manchester University Press, 1958).

⁴⁷Krishan G. Saini, "Some Measures of the Economic Growth of India: 1860-1913," unpublished doctoral dissertation, Columbia University, New York, 1968, Chapter V.

behavior of exports are only approximations. However, it may be mentioned in passing that since there was an increase in population, though small, in this period, it is more likely that estimates of trends in the agricultural sector suffer from underestimation rather than overestimation. Since wheat and rice were the main agricultural exports, Table 10 shows the rate of growth of exports in these commodities.

TABLE 10
GROWTH OF WHEAT AND RICE EXPORTS

Period (year ended March 31)	Average Annual Percent Rate of Growth of Wheat Exports	Average Annual Percent Rate of Growth of Rice Exports
1867-1868 to 1875-1876	92.5	8.3
1875-1876 to 1880-1881	39.3	6.7
1880-1881 to 1885-1886	36.6	1.5
1885-1886 to 1890-1891	-6.4	4.8

Source: Krishan G. Saini, "Some Measures of the Economic Growth of India: 1860-1913," unpublished doctoral dissertation, Columbia University, New York, 1968, p. 111.

What do the trends in the agricultural sector imply? A case can be made for the hypothesis that the productivity of the agricultural sector rose rapidly after 1860, and that the growth in productivity reached a ceiling in the late 1880s.⁴⁸ The support for this hypothesis comes from the fact that a large amount of investment had been made in that agricultural sector after 1860. This investment in agriculture was almost entirely composed of the construction of irrigation works. The gains from this investment would accrue to the agricultural sector, and this is indicated by the rapid rise in the exports of wheat and rice. Wheat and rice are the major examples which can be observed; the gain in agricultural productivity must have been spread over other commodities. The ceiling to these productivity gains would be reached unless investment takes place on a continuous basis. Thus, a ceiling to productivity gains in agriculture was reached in India because other than irrigation works little capital investment or technological progress took place in this sector.⁴⁹ Furthermore, irrigation works would show greater impact on wheat production than on rice production because wheat production depended on the frequency of rainfall before the construction of irrigation works. The wheat-producing areas were located in Punjab and the Gangetic Plains. Rice production has traditionally been confined to areas which experience much greater rainfall, such as the areas in Bengal and Burma.

CONCLUSION

When the period of one hundred years of Indian economic history between 1860 and 1960 is examined, it is found that India enjoyed economic prosperity

⁴⁸This hypothesis was suggested by Professor Benjamin Higgins in the course of a discussion of this study at the University of Texas, Austin, on April 24, 1967.

⁴⁹India, Department of Statistics, *Statistics of British India*, Vol. I, 10th issue (Calcutta: Office of the Superintendent of Government Printing, 1921), *passim*.

only between 1860 and 1890. Since about 1890 the Indian economy has remained virtually stationary.

The failure of producer goods industries to rise in India between 1860 and 1913 may have been due to a number of reasons, but one of the most important factors was the absence of any encouragement from the government. In fact, because of pressures from the English producers, there was a policy of positive discouragement in the development of industries which were likely to compete with the English producers.⁵⁰

The conspicuous aloofness of the government in the economic development of the country becomes very clear when the experience of India is compared with the experiences of Italy, Japan, and Russia.⁵¹ Unlike the Government of India, the governments of Italy, Japan, and Russia played a very active role in the development of the industrial sectors of their respective economies. The role of the government in the economic development of the individual countries took various forms: tariff protection, subsidies, defence expenditures, purchases of stores by the government from domestic producers, provision of credit, etc.

Inter- and postwar experience of the various countries suggests that the foundations of growth which were laid in the pre-World War I period were the fundamental cause of the different performance shown in the different countries. While in the period 1860–1913, and particularly in the period 1860–1890, the performance of the Indian economy compares quite favourably with that of Italy, Japan, and Russia,⁵² the Indian economy remained stagnant both in the inter- and post-World War II periods. Compared to India, the economies of Italy, Japan, and Russia made very rapid progress in the inter- and post-World War II periods. This is clear from the examination of the *per capita* income standings of these countries today: India is near the bottom of the list with one of the lowest *per capita* incomes in the world while Italy, Japan, and Russia stand relatively very high in the *per capita* income standings.

⁵⁰Vera Anstey, *The Economic Development of India* (London: Longmans, Green and Co., 1929), pp. 210–211; Peter Harnetty, “The Imperialism of Free Trade: Lancashire and the Indian Cotton Duties, 1859–1862,” *Economic History Review*, Second Series, Vol. XVIII, No. 2 (August, 1965), 333–349; Frederick Lehmann, “Great Britain and the Supply of Railway Locomotives of India: A Case Study of ‘Economic Imperialism’,” *Indian Economic and Social History Review*, Vol. II, No. 4 (October, 1965), 297–306.

⁵¹Krishan G. Saini, “Some Measures of the Economic Growth of India: 1860–1913,” unpublished doctoral dissertation, Columbia University, New York, 1968, Chapter VI.

⁵²*Ibid.*, p. 196.