

DISCUSSION PAPER

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HISTORICAL ANALYSIS OF
INDIAN URBANIZATION

by

Edwin S. Mills

and

Charles Becker

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Urban Development Department
Operational Policy Staff
World Bank

The views presented here are those of the authors, and they should not be interpreted as reflecting those of the World Bank.

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ABSTRACT

This paper places India's 20th century urban growth in the context of the country's economic development. The paper begins with brief historical surveys of economic and urban growth during the present century. Next it is shown that urbanization has proceeded despite almost no change in the agricultural share of the labor force during the 20th century. Thus, unlike most developing countries, India's urbanization has not resulted from a shift of the labor force to manufacturing and service sectors.

Instead, Indian urbanization has resulted from increasingly large urban shares of employment in manufacturing and services. The shift has resulted from a decline in cottage manufacturing and an increase in factory manufacturing, and a shift of service workers from rural to urban areas.

A brief analysis of preliminary results of the 1981 census suggest that the share of the labor force in agriculture began to fall during the 1971-81 decade. If so, India is beginning to follow a more conventional relationship between urbanization and economic development.

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Introduction

The purpose of this chapter is to present a historical description and analysis of Indian urban development. It thus relates India's urbanization to its economic development outlined in a previous chapter.

An earlier chapter showed that a country's urbanization is closely related to its income growth and to the labor force shift from agriculture to industry and services that occurs during economic development. This chapter explores the historical details of this relationship for India.

This chapter is concerned with national and state urbanization. National and regional size distributions of urban areas are analyzed in subsequent chapters.

India is a richly documented country. Complete national censuses with careful urban-rural distinctions have been taken each decade since 1901. Private estimates of some data go back even farther. This chapter focuses on the 80 years of the 20th century for which official data, especially reliable censuses, are available. Interest is greatest and data are most plentiful and reliable for the period since independence was obtained in 1947. Only preliminary results are as yet available for the 1981 census. Since the 1981 data are not directly comparable with those from earlier censuses, the 1981 data are discussed in a separate section.

Indian Urban Growth

In this section, 20th century trends in Indian urban growth are reviewed. It has been seen in an earlier paper that growth in percent of the population that is urban always accompanies sustained economic growth. The fact that Indian economic growth has been modest but sustained should lead one to expect

a similar pattern of Indian urbanization.

The basic measures of total and urban population are presented for census years from 1901 to 1981 in Table 1.¹

Table 1

Urban and Total Population of India

<u>Year</u>	<u>Total Population</u> (millions of people)	<u>Annual Growth Rate</u> (Percent)	<u>Urban Population</u> (millions of people)	<u>Annual Growth Rate</u> (Percent)	<u>Urban as % of Total Population</u>
1901	233.0	-	25.6	-	11.0
1911	246.0	0.59	25.6	0.00	10.4
1921	244.3	-0.07	27.7	0.67	11.3
1931	270.7	1.03	33.0	1.75	12.2
1941	309.0	1.32	43.6	2.79	14.1
1951	349.8	1.24	61.6	3.46	17.6
1961	424.8	1.94	77.6	2.31	18.3
1971	528.9	2.19	107.0	3.21	20.2
1981	658.1	2.20	156.2	3.78	23.7

Source: [5], Paper 2, p. 24.

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1. The Indian census definition of urban residence has changed somewhat since independence. An annex discusses some important changes. The changes in definition do not seem to have been important enough to affect the discussion in this section.

The percent of the population that is urban has grown remarkably steadily and gradually. After a drop from 1901 to 1911, it has increased each decade. In 1981, the percent was somewhat more than twice its levels in the early censuses this century. Percent urban, like the growth rate of the urban population, shows evidence of acceleration prior to independence. From 1901 to 1931, percent urban increased an average of only 0.04 percentage points per year, whereas from 1931 to 1981 it increased an average of 0.23 percentage points per year. From 1941 to 1981, it grew 0.24 percentage points per year. During the entirely post-independence period 1951-1981, it increased 0.20 percentage points per year.

Thus, urbanization has been more rapid during recent decades than during the early decades of the century. Likewise, as has been pointed out in a previous chapter, real income per capita grew more rapidly in recent decades than earlier in the century. There is thus a rough correlation between real income growth and urbanization, as should be expected.

However, urbanization accelerated well before 1941, probably shortly after 1931, whereas income growth accelerated only later. It was stated in a previous chapter that Heston's estimates show a modest 0.30 percent per year per capita growth rate of real income from 1900 to 1945. But Heston estimates that all that growth occurred before 1930.³ Real income per capita fell from 1930 to 1940 and again from 1940 to 1945. Much of the urbanization between 1941 and 1951 may have occurred after partition in 1947, but that provides no explanation for the rapid urbanization during the 1930's. Thus,

3. See [6], p. 171.

acceleration in urbanization seems to have preceded acceleration in real income growth.

It is unclear why urbanization accelerated during the 1930's and perhaps during the 1940's prior to independence. We will return to the subject in the next section.

Industrial Composition of Output and Employment

It has been shown in the previous chapter that urbanization accompanies development because employment and other inputs shift from predominantly rural agricultural to predominantly urban industrial and service sectors. It was shown in the previous section that Indian urbanization has been correlated with economic growth. The purpose of this section is to ascertain to what extent Indian data display shifts in industrial structure that normally provide the link between economic growth and urbanization.

The basic industrial shift that accompanies urbanization is easily visible in the most traditional classification of primary, secondary and tertiary industries. A prominent study by Chenery and Syrquin [2] divides the tertiary sector into utilities and other services. Some studies employ finer classifications.

Basic Indian employment data are divided into 10 industries. The analysis in this section is carried out with a classification into five industries: agriculture, mining and quarrying, manufacturing, construction, and services. The reason for this level of aggregation is that it is the most detailed classification that permits comparable employment and national income statistics to be presented.

Agriculture and mining and quarrying are extractive industries and are predominantly rural. Manufacturing and construction are secondary or processing industries and are predominantly urban in most countries. The tertiary of service industry is a diverse set of activities, including utilities, defense, public administration and various personal and business services. This level of disaggregation is adequate to represent conventional views about the relationship between economic growth and urbanization.

Basic data on industrial composition of Indian employment are available for census years since 1901. Table 2 presents summary data.⁴ The basic

Table 2

Distribution of Indian Employment by Industry

1901-1971

(Percentages)

<u>Industry</u>	<u>1901</u>	<u>1911</u>	<u>1921</u>	<u>1931</u>	<u>1951</u>	<u>1961</u>	<u>1971</u>
Agriculture	69.4	70.4	72.1	70.6	75.1	69.5	69.7
Mining & Quarrying	3.9	4.6	4.2	4.8	2.2	2.8	2.9
Manufacturing	10.1	9.6	8.8	8.5	7.5	10.6	9.6
Construction	1.0	1.2	1.0	1.1	0.8	1.1	1.2
Services	<u>15.5</u>	<u>14.2</u>	<u>13.9</u>	<u>14.9</u>	<u>14.3</u>	<u>16.1</u>	<u>16.7</u>
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: 1901-1931, [6], p. 174; 1951-71, [4].

4. Industry data were not published in 1941 because of wartime exigencies. At the time of writing, only preliminary data on industry of employment are available from the 1981 census. These data are commented on in a later section

characteristic of the data in Table 2 is the extraordinary stability of the industrial distribution of Indian employment during 70 years. Agriculture, manufacturing and services account for at least 94 percent of total employment in every year. In 1971, none of their shares of total employment differed from the corresponding 1901 share by more than 1.2 percentage points. The table reveals almost no evidence of long term trends in industrial shares. Agriculture's share rose erratically from 1901 to 1951 and has declined erratically since 1951. Manufacturing's share declined from 1901 to 1951, and has mostly increased since then. Services' share declined from 1901 to 1921 and has increased in most census years since then.

Manufacturing, construction and services are the most urbanized industries in almost all countries. The total share of the three industries reached its minimum in 1951, and was considerably higher by 1971. These industrial employment trends explain the faster rate of urbanization since 1951 than early in the century. But they do not explain the accelerated urban growth that started in the 1930's.

It should also be mentioned that India's industrial distribution of employment is not far from those of other low income countries. For 1980, the World Bank reports the following labor force percentages in the three main industrial categories for India and for a weighted average of other low income countries.

	India	Average of Other Low Income Countries ⁵
Agriculture	69	73
Industry	13	11
Services	18	19

Source: [11], p. 145.

These data strongly suggest that whatever the explanation for Indian urbanization in the presence of extremely modest industrial labor force shifts, the same explanation holds for other low income countries.

Indian national income statistics are available only since 1950. Table 3 shows shares of Gross Domestic Product among the five industries for which Table 2 shows employment shares, for selected years from 1950 to 1977. Agriculture's GDP share has fallen substantially, and almost steadily, while shares of manufacturing and services have risen substantially and almost steadily. Mining and quarrying and construction also show increases in their small GDP shares.

For 1980, the World Bank reports the following GDP shares in the three main industrial categories for India and for an average of other low income countries. As with the industrial labor force data presented above, these data show that India's GDP shares are not far from those of the low income countries. The important difference is that India has a larger GDP share in industry and a smaller share in agriculture than the average of other low income countries.

	India	Average of Other Low Income Countries ⁶
Agriculture	37	45
Industry	26	17
Services	37	38

Source: [11], p. 114

5. A weighted average for 33 low income countries. Excludes China. This industrial classification does not correspond precisely to that in Table 2. The countries defined as low income all have 1980 per capita GNP's less than \$420.

6. A weighted average for 32 low income countries. Excludes China.

Table 3

Indian Gross Domestic Product by Industry of Origin
1950-1977
(percentages)

<u>Industry</u>	<u>1950</u>	<u>1955</u>	<u>1960</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1977</u>
Agriculture	59.0	57.3	54.0	45.6	47.1	44.8	43.0
Mining & Quarrying	0.7	0.8	0.9	1.1	1.0	1.2	1.2
Manufacturing	9.9	11.1	12.2	15.3	14.4	14.8	15.4
Construction	4.2	4.0	4.4	5.5	5.4	4.9	5.7
Services	<u>26.1</u>	<u>26.8</u>	<u>28.5</u>	<u>32.6</u>	<u>32.1</u>	<u>34.3</u>	<u>34.9</u>
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: [10], p. 102.

The data in Tables 2 and 3 have implications about trends in relative labor productivities among industries. In 1950, manufacturing had about the same shares of employment and GDP, indicating that manufacturing value added per worker was about the same as that for the economy as a whole. This appears to be in contrast with most low income countries at the time. By 1970, manufacturing's GDP share exceeded its employment share by 60 percent, indicating that labor productivity had risen much faster in manufacturing than in the economy as a whole during the two decades. Labor productivity in agriculture was below the average for the economy even in 1950, since agriculture's labor share exceeded its GDP share even then. But labor productivity rose less rapidly in agriculture than in the economy as a whole during the succeeding two decades since, by 1970, agriculture's GDP share had fallen more than its labor share. Labor productivity in services has been about twice the average for the economy as a whole during the two decades the tables have in common. The same comparisons show that labor productivity has risen more rapidly in construction and less rapidly in mining and quarrying than in the economy as a whole.

These findings are broadly consistent with those of Chenery and Syrquin [2], p. 52. They found that in very low income countries labor productivity was about 1.5 times the average in industry and services and about 70 percent of the average in the primary sector.⁷ But the substantial increase in relative labor productivity in Indian manufacturing appears to be contrary to the findings of Chenery and Syrquin for typical low income countries.

The data presented in this section are interesting. They indicate rising GDP shares, but not rising shares of all workers, in predominantly urban industries. But urbanization refers to increasing shares of workers and other

7. Chenery and Syrquin define the three sectors in much the same way as the World Bank Tables. Their analysis is for 1965.

people located in urban areas. If labor shares of predominantly urban industries did not change while urbanization proceeded, it almost must be the case that manufacturing and service industries moved from rural to urban locations. The employment and productivity trends raise the question whether urbanization can be explained by the growth of high productivity manufacturing and service industries in urban areas and the shrinkage of low productivity manufacturing and service industries in rural areas. That would explain why there was rural-to-urban migration during a period of stagnation in Industrial labor force shares but rising GDP shares of manufacturing and services.

Urban and Rural Locations of Industries

As a first step in relating changes in industrial location to urbanization, Table 4 shows the percentage of workers who are urban in each of the five industries considered in the previous section for 1951, 1961 and 1971.

Table 4

Percent of Indian Workers Who Are Urban
1951, 1961 and 1971

<u>Industry</u>	<u>1951</u>	<u>1961</u>	<u>1971</u>	<u>1981</u>
Agriculture	2.8	2.0	2.8	--
Mining & Quarrying	13.5	12.7	16.5	--
Manufacturing	44.2	38.1	52.2	--
Construction	48.0	46.8	50.5	--
Services	55.2	48.0	58.2	--
Total	14.0	14.0	17.7	19.8

Source: [4]

It is remarkable that the percent of employment that was urban decreased in each industry from 1951 to 1961, and increased in each industry from 1961 to 1971. Yet, as was shown in Table 1, the percent of the population that was urban increased during both decades and only slightly more from 1961 to 1971 than from 1951 to 1961. It is also remarkable that only in 1971 were majorities of manufacturing and construction workers located in urban areas for the first time. The Indian census definition of manufacturing includes some workers who repair and service manufactured products, and who would be classified as service workers in censuses of some countries. That helps to account for the large percentage of manufacturing workers who are rural in Indian data.

The 1951-1961 comparison in Table 4 provides little insight into the causes of urbanization during that decade. It is not known why the census data show decreases in urbanization of employment during that decade. But the 1951-1971 and the 1961-1971 comparisons show pervasive urbanization of all industries except agriculture. Taking the two-decade period as a whole, Table 4 shows about the same increase in percent of employment that is urban as Table 1 shows for the increase in the percent of the population that is urban. In terms of percentage point increases, manufacturing urbanized most rapidly of the five industries, although it was still less urbanized than services in 1971.

The census data imply that Indian urbanization from 1951 to 1971 resulted mostly from the urbanization of manufacturing and service industries, and to some extent from urbanization of mining and construction. In addition, as Table 2 shows, there was also modest growth in the employment shares of all

four nonagricultural industries. Urbanization of a particular industry, say manufacturing, does not imply that particular firms or employees physically move. Urbanization may result from decreases in employment in rural manufacturing firms and increases in employment in urban manufacturing firms. The firms that shrink and grow may be engaged in quite different activities. Likewise, the employment urbanization data analyzed here do not necessarily entail much physical migration of workers. Changes in industry of employment of a few workers may result in reclassification of a community from rural to urban. However, migration studies show that Indian urbanization has been accompanied by large amounts of physical migration.

A recent UN study [9] permits comparison of the Indian data in Table 4 with data for other countries. Table 5 presents the relevant data from the UN study. The left column refers to the percent of the total labor force in agriculture, used by the UN study as an overall index of development. The index goes from over 65, representing the lowest levels of development to below 15, representing the highest levels of development. GNP per capita would have been a better index of development, but the UN study does not present it.

The entries in Table 5 are based on 59 observations for 39 countries. The data are thus mostly cross-sectional, but include two or more observations from a few countries including India. The countries included span the entire range of worldwide development levels. India was in the "65.0 or more" category in all census years from 1901 to 1971, as Table 2 shows. The industrial classification in Table 5 is different from that in Table 4, and definitions are somewhat different, but comparisons can be made.

Table 5

Percent of Workers Who Are Urban

(39 Countries)

Percent of Total Labor Force in Agriculture	<u>Agriculture</u>	<u>Industry</u>	<u>Professional & Administrative Services</u>	<u>Clerical and Sales Services</u>	<u>Traditional Services</u>	<u>Unknown</u>
65 or more	3.8	50.0	51.2	57.0	59.0	33.7
50.0 - 64.9	5.7	53.7	59.7	64.9	60.9	51.3
35.0 - 49.9	13.2	60.1	74.0	75.3	70.8	53.4
15.0 - 34.9	14.5	67.2	77.3	78.1	74.8	59.1
14.9 or less	13.0	72.1	82.2	84.5	78.0	72.5

Source: [9]

The data in Table 4 are broadly consistent with those in the top line of Table 5. Both show only a negligible percentage of agricultural employment, both show roughly half of industrial employment (dominated by manufacturing and construction in Table 4) in urban areas and both show nearly 60 percent of services in urban areas. Thus, Indian experience during the 1951-71 period is broadly typical of that in other countries at similar stages of development. A remarkably large share of manufacturing and construction is rural and employment in services is more urban than that in industry. Furthermore, Table 5 indicates that industrial employment urbanizes less rapidly than services at the next development level, in which 50-64.9 percent of the labor force is in agriculture. If India continues to follow the worldwide pattern, industry will

urbanize only slightly during the next decade or so.

The most detailed data that can be brought to bear on the subject of this section are presented in Tables 6 and 7. These tables show urban and rural distributions of the labor force by industry for 1961 and 1971. The census categories from which the eight industries are aggregated are shown at the left of the tables.

Table 6

Urban and Rural Employment
by Industry
India 1961
(000)

	<u>Urban</u>	<u>Rural</u>	<u>Total</u>	<u>Percent</u>
I-III) Agriculture, etc.	2,651 (2.0)	128,491 (98.0)	131,143	69.5
IV) Mining & Quarrying	665 (12.7)	4,556 (87.3)	5,221	2.8
Va) Household Manf.	2,088 (17.4)	9,942 (82.6)	12,031	6.4
Vb) Non-house Manf.	5,540 (69.5)	2,435 (30.5)	7,975	4.2
VI) Construction	964 (46.8)	1,096 (53.2)	2,060	1.1
VII) Trade & Commerce	4,308 (56.8)	3,345 (43.2)	7,654	4.1
VIII) Transport, Storage & Communication	2,125 (70.4)	894 (29.6)	3,019	1.6
IX) Other Services	8,088 (41.3)	11,485 (58.7)	19,572	10.4
Total	26,430 (14.0)	162,246 (86.0)	188,676	100.0

Source: [4]. Figures in parentheses in Urban and Rural columns are percentages of workers who are urban and rural. The final column shows percentages of workers in the industries, regardless of urban or rural location.

Table 7

Urban and Rural Employment
by Industry
India 1971
(000)

	<u>Urban</u>	<u>Rural</u>	<u>Total</u>	<u>Percent</u>
I-III) Agriculture, etc.	3,552 (2.8)	122,209 (97.2)	125,761	69.7
IV) Mining & Quarrying	859 (16.5)	4,361 (83.3)	5,220	2.9
Va) Household Manf.	1,589 (25.0)	4,763 (75.0)	6,352	3.5
Vb) Non-house Manf.	7,315 (64.8)	3,965 (35.2)	11,280	6.2
VI) Construction	1,120 (50.5)	1,100 (49.5)	2,220	1.2
VII) Trade & Commerce	6,416 (63.9)	3,624 (36.1)	10,040	5.5
VIII) Transport & Storage & Communication	3,192 (72.5)	1,210 (27.5)	4,403	2.4
IX) Other Services	7,963 (50.5)	7,809 (49.5)	15,772	8.7
Total	32,007 (17.7)	148,480 (82.3)	180,487	100.0

Source: [4]. Figures in parenthesis in Urban and Rural columns are percentages of workers who are urban and rural. The final column shows percentages of workers in the industries, regardless of urban or rural location.

It is striking that, of the eight industries in the tables, only non-household manufacturing showed a decrease in percent of workers who are urban between 1961 and 1971. In all seven other industries, including all three service sectors, the urban share of employment increased. Not only are trade and commerce and transport, storage and communication more urbanized than the larger other services sector, but also the first two grew as shares of total employment between 1961 and 1971, whereas the third shrank in total employment as well as in its share of employment.

The behavior of manufacturing employment in Tables 6 and 7 shows the value of disaggregating its total into the household and factory components. Employment in household manufacturing decreased almost 50 percent between 1961 and 1971, whereas employment in factory manufacturing increased about 40 percent. Since factory is much more urbanized than household manufacturing employment, the increasing weight of factory employment implied an increasing urban share of total manufacturing employment, despite the falling urban share of factory employment.

Thus, at least between 1961 and 1971, there is no mystery about the causes of Indian urbanization. In the five-industry employment classification, all industries, and especially the predominantly urban industries, became more urban. In the eight-industry classification, only factory manufacturing employment became less urban. Since its share of total manufacturing and of total employment increased, and it is among the most urban of the eight industries, total and total manufacturing employment became more urbanized.

The data in Tables 6 and 7 also explain the steady and substantial gain in the GDP share of manufacturing that was reported in Table 3. That table

shows that manufacturing's GDP share rose from 12.2 to 14.4 percent between 1960 and 1970. That undoubtedly reflects the shift from low productivity household to high productivity factory manufacturing employment shown in Tables 6 and 7.

Increasing urbanization of predominantly urban industries is to be expected during the course of economic development. The question about the Indian data is why the urban share of factory manufacturing employment fell from 1961 to 1971. The fact that the trend in factory employment has been opposed to the trend in all other industries and that factory employment has been the specific object of government programs to disperse employment raises the question whether the trend of reduced urban concentration may have resulted from these government programs.

Specific government programs to disperse industry are discussed in a subsequent chapter. Since 1956 it has been national government policy to disperse factory production from large cities and high income states and districts to small towns, rural areas and low income states and districts. Specific programs have included location policies toward government-owned industry, licensing, concessional finance, industrial estate development⁸ and other programs. The goals of these government programs overlap with, but are not identical to, the reduced urbanization of factory employment observed in the data. To what extent are the trends caused by the government programs?

8. Industrial estates are typically located outside municipal boundaries in places referred to as "notified areas". They are counted as urban in census data.

Sekhar showed [8], p. 10, that there has been a decrease in concentration of manufacturing activity among states. In 1961, Maharashtra, West Bengal, Gujarat and Tamil Nadu accounted for two-thirds of factory manufacturing value added and 58% of factory employment. In 1976, their share was down to 55 percent of value added and 52 percent of employment. In both 1961 and 1981, these states had about 29 percent of India's population. Presumably, government industrial location policies played a role in these reductions in concentration, but it is not possible to say how much of the reduction resulted from government policy and how much from normal market forces. For example, transportation improvement would permit manufacturing plants to locate where wages are low without loss of access to markets for outputs and other inputs.

Sekhar also showed, [8], p. 83, that between 1961 and 1971 there was no change in the location of factory employment by size of urban area. In both years, factory employment was about equally concentrated in large urban areas. This does not prove that government programs had no effect on factory employment by city size, since concentration in large cities might have increased in the absence of policies to prevent it. In any case, government policies did not reduce the share of factory employment in large urban areas.

Finally, Sekhar showed [8], p. 84, that the share of backward districts⁹ in factory employment fell from the early 1960's until the early 1970's in states for which data are available. Once again, it is not known what would

9. Backward districts are defined by complex criteria by national and state governments. They are intended to be the least developed districts in the country. Backward districts include about 60 percent of the population. See [8], p. 62.

have happened in the absence of government policies to locate factory employment in backward districts, but government policies did not increase the share of backward districts in factory employment.

The conclusion from Sekhar's analysis is that government attempts to disperse industry have probably had little effect on industrial location by city size or by district, but have had more effect on location by state. None of these conclusions refers directly to the issue of urban vs. rural location. However, city size and district effects are more closely related to the urban-rural effect than is the effect on location by state. If government policy has had little or no effect on industrial location by city-size or by district, it is unlikely that policy has had much effect on urban vs. rural location.

Between 1961 and 1971, urban factory employment increased by about 1.8 million workers and rural factory employment increased by about 1.5 million workers. These are small numbers in the Indian context. They could be the result, at least in part, of government location policies or of criteria for classifying industry or urban and rural locations.

The 1981 Census

Only preliminary employment data have been published from the 1981 census at the time of writing. Two characteristics make these data noncomparable with those analyzed in previous sections. First, workers are classified only by agriculture and all other industries. Second, employment data are presented only for main workers (those who have worked a major part of the year). Comparable data are published in the 1981 census for 1961 and 1971, so these

comparisons are made in this section.¹⁰

Table 8 presents main worker data for agriculture and all other industries for 1961, 1971 and 1981. It is comparable to Table 2. The major point to be made about Table 8 is that the 1981 figure for agriculture's employment share is the smallest recorded in India's history. The data in Tables 2 and 8 suggest quite a large drop in agriculture's employment share during the 30 years for which post-independence data are available.

Table 9 shows the urban shares of main workers in agriculture and all

Table 8

Distribution of Main Workers by Industry
India 1961, 1971, 1981
(Percentage)

<u>Industry</u>	<u>1961</u>	<u>1971</u>	<u>1981</u>
Agriculture	69.5	69.8	66.7
Other	30.5	30.2	33.3
Total	100.0	100.0	100.0

Source: [5], paper 3.

other industries for the three most recent census years. Table 9 is comparable to Table 4. Table 9 shows a continuation through 1981 of the trend in Table 4 for employment to urbanize in all industries. The most

10. For 1971, main worker figures are smaller than those for total workers. But for 1961, the two are the same. In 1971, 3.2 percent of total workers were secondary workers, whereas in 1961, 11.0 percent of workers were marginal workers. Criteria for these designations were somewhat different in the two censuses.

Table 9

Percent of India Main Workers
Who Are Urban
1961, 1971, 1981

<u>Industry</u>	<u>1961</u>	<u>1971</u>	<u>1981</u>
Agriculture	2.1	2.9	3.5
Other	41.9	52.7	55.1
Total	14.2	17.9	20.7

Source: [5], Paper 3

striking characteristic of the data in Table 9 is the deceleration of employment urbanization, both for the other category and for total employment.

Between 1971 and 1981, the percent of main worker employment that was urban increased by only 2.8 percentage points, compared with 3.7 percentage points the preceding decade. By contrast, Table 1 shows that the percent of the population that was urban increased 3.5 percentage points between 1971 and 1981, compared with 1.9 percentage points the preceding decade. This resulted from a slight drop in urban work participation rate during the 1971-1981 decade.

Urbanization by State

The purpose of this section is to study the variation in and determinants of urbanization among Indian states. The previous chapter estimated regressions among a large set of developing and developed countries to relate urbanization to development indices. This section presents estimates for two of the regressions from data for Indian states.

The two regressions estimated were

$$U_{it} = a_0 + a_1 A_{it} + a_2 Y_{it} + a_3 Y_{it}^2 + a_4 t \quad (1)$$

and

$$\ln(U_{it}^{-1} - a_0) = a_0 + a_1 A_{it} + a_2 Y_{it} + a_3 Y_{it}^2 + a_4 t \quad (2)$$

where U_{it} is percent urban in state i at time t , A_{it} is percent of total employment in agriculture in state i at time t , and t refers to the year in question.

In this section, (1) and (2) are estimated from data for Indian states. The 1981 census gives U and A for all states for 1961, 1971 and 1981. For income, we used real per capita net domestic product by state, base 1960-61. NDP data are available for only 34 observations: 17 in 1961, 11 in 1971, and 6 in 1977-78. 1977-78 is the latest year for which the income data are available, so we used those income data with the 1981 U , A and t values.

The estimated regressions are

$$U_{it} = - 10.758 - 0.1055A_{it} + 1625.65Y_{it} - 13,826.64Y_{it}^2 - 0.5953t \quad R^2 = .673 \quad (3)$$

(1.1022) (3.6736) (2.4197) (0.4806)

and

$$\ln(U_{it}^{-1} - 1.9) = 4.0545 + 0.0102A_{it} - 156.25Y_{it} + 1390.57Y_{it}^2 + 0.6570t \quad (4)$$

(1.1819) (3.9131) (2.6965) (0.5882)

$R^2 = .669$

These regressions are analogous to (5) and (6) in the preceding paper. R^2 's for (3) and (4) are high, but somewhat lower than those for the cross-country regressions. Coefficients of A , Y and Y^2 have the same signs as in the cross-country regressions. The signs are those expected in advance: U increases as A decreases and as Y increases. The signs of the coefficients of Y^2 mean that the effect of Y on U becomes small at high Y values, and eventually becomes negative.

In the cross-country regressions, we were surprised to find that the A coefficient was more significant than the Y and Y^2 coefficients. With the Indian state data in (3) and (4), the opposite is true.¹¹ Y and Y^2 cannot be compared between the regressions in this section and those in the earlier paper because units in which Y is measured are different. However, effects of Y on U are not large in (3) and (4), because, for fixed A and t , U peaks at low values of Y . In (3), for example, U peaks at a Y value less than twice the average, and only about 10 percent greater than the largest Y value in the sample. That is, of course, not to be taken literally, since the turning point is outside the sample range. But it does mean that at income levels likely to be realized in coming years the effects of income changes on U in the regressions will not be large. Thus, despite its lower significance level, changes in A have more effect than changes in Y in the regressions.

11. Elimination of A or substitution for it by percent of employment in manufacturing reduced R^2 somewhat, but had little effect on other coefficients.

The other striking characteristic of (3) and (4) is the signs of coefficients of t . Both indicate that, at fixed A and Y values, U decreases as time passes. Significance levels, however, are not high. These signs of time coefficients are the opposite of those observed in the cross-country regressions, where the significance levels were greater, but nevertheless not providing strong evidence of a genuine effect.

Whether the true coefficients of time are zero or of the signs of the estimated coefficients, (3) and (4) provide no support for the view that Indian urbanization is proceeding at rates or beyond those justified by economic development.

Conclusions

Since independence, India has urbanized at a moderate pace consistent with its pace of economic development. Urbanization has resulted in part from a shift of employment from agriculture to manufacturing and services, but to a considerable extent from the urbanization of manufacturing and services. Urbanization in manufacturing has been associated with the decline of household manufacturing and the growth of factory manufacturing.

Analysis of state urbanization shows that variations in percent urban among Indian states since 1961 have been associated with variations in agriculture's employment share and with real state gross domestic product per capita. The relationship is similar to that found in the last chapter for variation in percent urban among countries.

Annex

Urban Concepts in Indian Censuses

Each country has its peculiar definitions of urban concepts. This annex comments briefly on the concepts employed in Indian censuses.

Two aspects of urban definitions need to be discussed. First is the criteria employed to ascertain whether a given place is urban. Second is the criteria employed to ascertain the extent of an urban area. The first aspect concerns the number of urban people. The second aspect concerns the number of urban areas. Each aspect will be discussed in turn.

Urban Places

At least since 1961, Indian censuses have employed a nearly consistent definition of an urban place. A place is designated urban if it meets either of two criteria: it has one of several forms of urban local government, or it has certain urban characteristics. A set of characteristics sufficient to justify urban designation is a minimum population of 5,000, at least 75 percent of employed males engaged outside agriculture, and a population density of at least 1,000 per square mile.¹ In addition, a few places not possessing all these characteristics, but thought to be predominantly urban, are so designated.

No definition of an urban place is entirely satisfactory or precise. Especially with small places, ambiguity inevitably arises. Nevertheless, the

1. Definitions are presented at the front of census volumes.

Indian definition appears to be as precise and satisfactory as that employed in almost any country. In addition, it should be mentioned that the definitional problem is more difficult in India than in almost any country. In 1981, India had more than 2000 urban places with fewer than 20,000 people each. In such a situation, many places must be near the margin between urban and rural, whatever reasonable definition is employed.

In India, urban places with fewer than 100,000 people are typically referred to as towns. Places with 100,000 or more people are typically referred to as cities or as class one cities. Beginning in 1961, the criteria for designation as a town were tightened somewhat, to those listed at the beginning of this section. Earlier criteria, apparently applied rather consistently to census data from 1901 to 1951, had been somewhat looser. Between 1951 and 1961, 803 towns were declassified.² However, a town can be declassified either because of a change in definition or because, on fixed definition, its population and/or urban workers decline. Apparently, it was definition changes that caused most of the 1961 declassifications, but no precise information appears to be available. In any case, the 1961 census showed 3.9 million fewer people living in towns with fewer than 10,000 people each than the 1951 census showed, a decade in which the total urban population increased by 15.9 million.³

2. See [1], Ch. 2.

3. See [4], 1961, Statement 14, p. 38.

The new definition appears to have been applied consistently in the 1961, 1971 and 1981 censuses, but there is some lack of comparability with the 1951 census concerning numbers and population of small towns.

Between the 1961 and 1971 censuses, the definition of "worker" was tightened. Starting in 1971, a certain number of hours in gainful employment was required to be counted as a worker, whereas in earlier censuses one merely needed to have a gainful occupation. Presumably as a result of the definitional change, the 1971 census reported 28.2 million fewer female workers than did the 1961 census, whereas the number of male workers increased by 20.0 million.⁴ The definitional changes may have affected the numbers and populations of small towns.

The Extent of an Urban Area

Most censuses define urban concepts that extend beyond urban places defined by boundaries of local government jurisdictions. As urban places grow, the urban population may spill over local government boundaries into what was formerly rural area. Or, two or more towns may grow together, so that, generically, they are one urban place. "Metropolitan area" is the most common name applied to such places.

The 1961 Indian census introduced the notion of a town group. The 1971 and 1981 censuses have employed the term "urban agglomeration". An urban agglomeration consists of one or more towns or cities and the adjoining urban outgrowths. In the 1981 census, most large urban places are urban agglomerations. But some small urban places are also urban agglomerations.

4. See [4], 1971, Table 1.4, pp. 6, 7.

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