

Has India Deindustrialised *Prematurely*?

A Disaggregated Analysis

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Has India deindustrialised *prematurely*, after three decades of free market reforms? Probably not. The manufacturing sector's share in gross domestic product has stagnated, and Kuznetsian structural transformation has stalled. The dispersion and rankings of the major states' manufacturing employment and output shares have broadly remained unchanged. In the top and bottom 50 districts, the share of manufacturing employment in total employment has remained constant since 1991. Yet, the district-level spatial concentration of employment by industry has increased, and the coefficient of localisation is rising. Thus, the industrial change discernible at the micro level seems too feeble to show up in the aggregate.

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Deindustrialisation, defined as a decline in the share of the manufacturing sector (industry) in domestic output (gross domestic product [GDP]) and in aggregate employment, is a stylised fact of modern economic growth. Typically, countries witness such changes at an advanced stage of industrialisation. The reasons, widely known, are that a rapid rise in industrial productivity reduces employment in the sector, and workers are absorbed in modern services; as per capita income grows, the elasticity of demand for services overtakes that for manufactured goods; and as wage rates rise in advanced economies, manufacturing shifts to labour-abundant economies and trade in manufactures rises (Rowthorn and Wells 1987; Tregenna 2011). As the share of the services sector in output and employment rose in developed economies in the latter half of the 20th century, the share of the manufacturing or industrial sector declined.

However, during the past two or three decades, many less developed countries (LDC) of Latin America and Africa deindustrialised *prematurely*, that is, before accomplishing the structural transformation of the labour force and attaining high levels of industrial and technological maturity. Unlike in the advanced economies, in the LDCs deindustrialisation meant a loss of relatively high-productive manufacturing jobs, as workers were absorbed not in similarly productive modern services but in low-productive informal sectors, or were rendered unemployed. Such outcomes are often associated with liberal, or market-oriented, economic reforms, introduced in LDCs after the debt crisis of the 1980s. These policy changes replaced the earlier regime of state-led import-substituting industrialisation (Palma 2014).

As the domestic industry in many LDCs wilted under foreign competition and freer capital flows, the Kuznetsian structural transformation—of the labour force shifting from agriculture (primary production) to manufacturing (industry)—was retarded. Such retardation denied the LDCs the potential positive externalities of industrialisation, following Nicholas Kaldor's first law of economic growth. The law is best summarised by Servaas Storm (2015):

[...] the faster the growth of manufacturing output, the faster the growth rate of real GDP. The reasons are that industry has the strongest (backward and forward) input–output linkages, while at the same time offering greater opportunities (than the other sectors) for capital accumulation, acquiring new technologies, exploiting economies of scale and scope, and generating positive knowledge spillovers to other sectors of the domestic economy.

Dani Rodrik (2015: 4) explains premature deindustrialisation:

As developing countries opened up to trade, their manufacturing sectors were hit by a double whammy. Those without a strong comparative advantage in manufacturing became net importers of manufacturing, reversing a long process of import-substitution. In addition, developing countries “imported” deindustrialisation from the advanced countries, because they became exposed to the relative price trends produced in the advanced economies. The decline in the relative price of manufacturing in the advanced countries put a squeeze on manufacturing everywhere, including the countries that may not have experienced much technological progress. This account is consistent with the strong reduction in both employment and output shares in developing countries (especially those that do not specialise in manufactures).

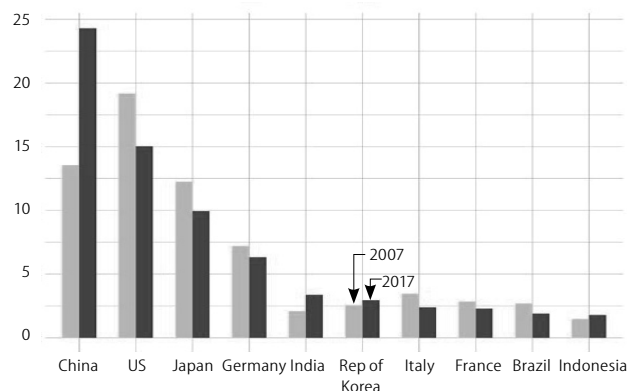
Most Asian economies escaped the spectre, however. China emerged as the world’s factory, with a surging share in global manufacturing. Japan, South Korea, and Taiwan, besides the city-states of Hong Kong and Singapore, graduated to the ranks of post-industrial societies. Where does India stand along this spectrum? In 2017, India ranked fourth globally, producing just about 2.5% of world industrial output (Figure 1); its share barely inched up between 2007 and 2017. China, starting at a roughly similar level as India’s in the early 1980s, leaptfrogged to the top of the league table by 2017—accounting for about 25% of global manufacturing value-added (UNIDO 2020)—and overtaking the United States (US).

There is a silver lining, though. India’s high-valued tradable services (information technology outsourcing) boomed after the reforms. The success is widely acknowledged to be an outcome of sustained investments in capital goods production and technical education during the era of economic planning (largely under the public sector). Since the 1990s, the services sector has emerged as the engine of India’s growth, replacing manufacturing and industry. If China became the world’s factory after joining the World Trade Organization, many (wishingly) believed, India was on track to become the global back-office and a software superpower. In other words, if China specialised in manufactures, the popular cliché was, Indian software services would run the hardware. Such was the optimism that India failed to notice (or chose to ignore) the poor industrial performance—plainly visible—after the reforms.

The financial crisis in 2008, the modest world economic growth thereafter, and rising US protectionism—as evident in the Make in America Bill passed by the Obama Administration in 2009—put paid to India’s global ambition (Nagaraj 2013). With rising industrial prowess (attained by sustained domestic debt-led investment in industry and in research and development after the financial crisis), China has surged ahead as a global economic power (Nagaraj 2020). India has barely moved up the technology ladder; in fact, its technological dependence has grown and imports have risen (Chaudhuri 2015; Mani 2018; Dhar and Rao 2020). The Make in India policy, initiated in 2015, or its earlier version, the National Manufacturing Policy 2012, was an effort to address these concerns; it sought to raise the manufacturing sector’s share in GDP to 25% and create an additional 100 million jobs in the sector by 2022.

In this context, it is relevant to ask: Has India deindustrialised prematurely? Has its development path veered away from industrialisation after embracing liberal reforms? Has India,

Figure 1: Top 10 Largest Manufacturing Producers in the World in 2017, Share of Each Country in Global Manufacturing Value-added



Source: UNIDO (2020).

consequently, moved closer to the Latin American path of deindustrialisation and dependent development (Evans 1979; Cardoso and Faletto 1979)? These questions are vital to understanding India’s long-term development trajectory.

Output and Employment Trends

Given India’s size and diversity (or heterogeneity), deindustrialisation is analysed at the national level for major states, and for most districts.

Definitions and Data Sources

The two measures of deindustrialisation used are output criteria, that is, the ratio of manufacturing (or industrial) sector’s output to domestic output (GDP); and employment criteria, that is, the ratio of manufacturing (industrial) employment to total employment. To uncover what lies beneath the aggregate trends, the relative shares and ranks of states and districts are also examined.

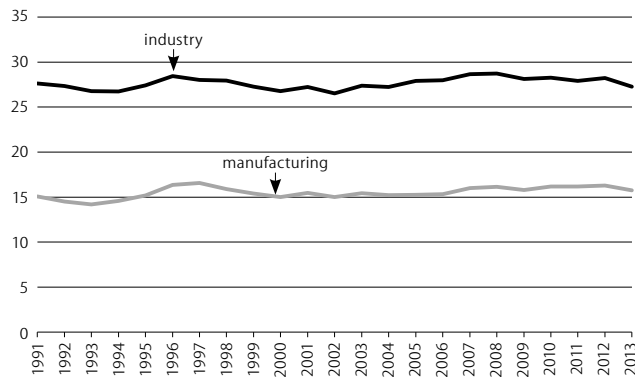
For all-India output, the GDP is used, and the data from the National Sample Survey (NSS) Employment–Unemployment Survey (EUS), and the census employment tables for 1991, 2001, and 2011 are used for employment. For NSS–EUS, the definition of the Usual Principal and Subsidiary Status of employment is used; for the census, main plus marginal workers. To ensure robustness of the results, both the NSS and census data have been used wherever possible.

The veracity of the estimates underlying the latest National Accounts Statistics and State Domestic Product series with the base year 2011–12, introduced in 2015, have been subject to critical scrutiny (Nagaraj and Srinivasan 2017); hence, they are not used.

At the state level, data sources used are the earlier series of the net state domestic product (NSDP) for output and the census data for employment. The data for 14–17 major states, accounting for 95% of India’s population, has been analysed. For spatial consistency, the “newer” states are merged with their “parent” states, such as Jharkhand with Bihar, and so on.

The district-wise analysis is restricted to employment, as the corresponding output estimates are sparse and unreliable. Admittedly, the district-wise employment figures are dated

Figure 2: Share of Manufacturing and Industry in GDP, 1991–2013



Source: National Accounts Statistics, various issues; authors' calculations.

(the 2011 data was released in late 2018), but these are the only estimates available at that level of disaggregation. The data, however, allows for long-term trend analyses, disaggregated by rural and urban; by type of employment, that is, household and non-household; and by two-digit industry groups. As the district boundaries have changed for administrative reasons, the data has been concorded to get consistent information for 362 districts accounting for more than 90% of the population; the Appendix (p 47) describes the methodology used for the district-wise analysis and lists the census economic tables.

National Trends

Figure 2 reports the trends in the ratio of GDP in manufacturing (and industry) to total GDP, at current prices, from 1990–91 to 2012–13. Over the two decades, the shares at 15% and 27% have remained roughly constant. The trends have not changed for more recent years, though the levels have increased by about two percentage points on account of the changes in the GDP estimation methodologies (not shown in the graph).

Figure 3 shows the ratio of manufacturing (industry) employment to total employment as per the results of the census and of the NSS. The ratio for manufacturing using NSS data increased by two percentage points, from 10.5% in 1993–94 to 12.6% in 2011–12. For the census, the ratio barely inched up, from 9.5% in 1991 to 10.1% in 2011.

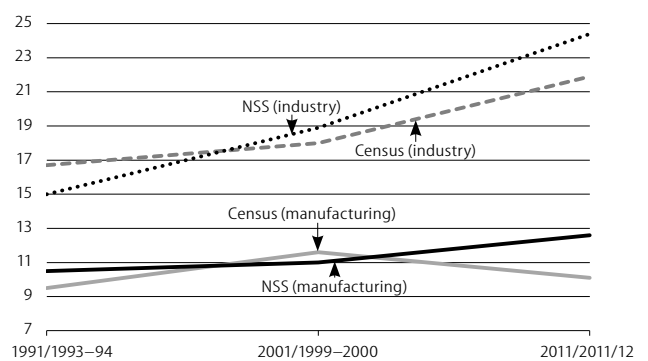
For industry (mining, manufacturing, electricity, gas and water and construction), both the series showed an upward trend; the ratio for NSS data went up from 15% to 24.4% between 1993–94 and 2011–12. For the census, the ratio increased by a lesser magnitude—from 16.7% in 1991 to 21.9% in 2011.

The difference between the two sets of observations made above is almost entirely on account of a sharp rise in construction employment.

State-level Trends

Table 1 reports the ratio of manufacturing NSDP to total NSDP of a state at constant prices for 14 major states, accounting for 95% of the sum of NSDP of all the states, for 1990–91, 2000–01, and 2010–11. Most states (Bihar, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, and Tamil Nadu) have deindustrialised, losing at least one percentage point of output

Figure 3: Share of Manufacturing and Industrial Employment in Total Employment (by Census)



Source: NSS and census tables, various issues; authors' calculations.

share in manufacturing. The ratios for Gujarat and Punjab have risen, and the remaining four states showed no change (that is, the change was of less than one percentage point).

Table 1: Ratio of Manufacturing NSDP to Total NSDP for Each State, 1991 to 2010–11

State	Share of Manufacturing NSDP in Total NSDP (Constant Prices, 2004–05, Major States, %)		
	1990–91	2000–01	2010–11
Andhra Pradesh	10.3	9.8	10.4
Bihar	18.9	13.2	10.1
Gujarat	21.6	21.5	24.8
Haryana	19.4	19.3	16.5
Karnataka	17.2	13.0	14.2
Kerala	10.2	9.6	7.1
Madhya Pradesh	13.6	12.6	11.2
Maharashtra	22.9	18.3	19.7
Odisha	6.1	6.4	4.5
Punjab	13.4	15.2	19.8
Rajasthan	11.5	13.8	11.1
Tamil Nadu	23.8	18.5	18.3
Uttar Pradesh	14.2	11.9	13.9
West Bengal	9.4	8.9	9.3

Source: Net State Domestic Product series, various issues; authors' calculations.

Table 2: Ratio of Manufacturing Employment to Total Employment, 1991–2011 (%)

State/India	Share of Manufacturing Employment in Total Employment (Main+Marginal)		
	1991	2001	2011
Andhra Pradesh	8.8	10.3	8.6
Bihar	3.9	7.5	5.5
Gujarat	13.8	14.9	15.4
Haryana	9.9	12.5	11.0
Karnataka	10.2	11.5	11.7
Kerala	14.2	15.7	13.4
Madhya Pradesh	6.5	7.3	5.7
Maharashtra	12.4	12.4	11.3
Uttar Pradesh	7.4	11.3	9.2
Odisha	6.5	8.8	8.3
Tamil Nadu	13.6	16.4	15.8
Rajasthan	6.4	8.2	7.1
Punjab	12.0	15.2	13.5
West Bengal	15.9	18.0	15.3
India	9.5	11.6	10.1

Source: Census web site; authors' calculations.

A similar exercise for the employment ratio for the same years using census data shows an opposite trend (Table 2): six states show no change, and eight states show an increase.

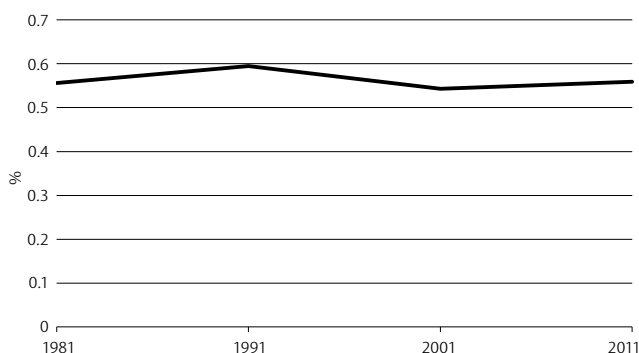
District-level Trends

From 1991 to 2011, 161 out of 362 districts (44.5%) showed a rise in the ratio of manufacturing employment to total employment by at least one percentage point; 20.7% of districts witnessed a fall in the ratio (Table 3). However, during the decade from 2001 to 2011, when annual economic growth boomed at 7%–8%,

Table 3: Distribution of Districts by Changes in Ratio of Manufacturing Employment to Total Employment, 1991–2011 (%)

Change	1991–2001	2001–2011	1991–2011
No change (<+/-1%)	87 (24.0)	116 (32.0)	126 (34.8)
Decline 1% or more	19 (5.2)	227 (62.6)	75 (20.7)
Increase 1% or more	256 (70.7)	19 (5.4)	161 (44.5)
Total number of districts (major states)	362	362	362

Source: Census economic table, various issues; authors' calculations, figures in parentheses are percentages.

Figure 4: Coefficient of Variation of Manufacturing Employment, 1981–2011

Source: Census, various years; authors' calculations.

227 out of 362 districts (62%) were deindustrialised, with the share of manufacturing employment to total employment declining by at least one percentage point.

What does one make of the foregoing conflicting evidence? It is hard to categorically infer that India has deindustrialised, though there are some instances of it. The best inference one can draw is that India has not deindustrialised. However, industrialisation has stagnated, though industrial output has grown at 6%–7% annually, and in line with the GDP growth rate (Nagaraj 2017). In other words, a structural transformation of the labour force from agriculture to manufacturing is stalled—failing to realise productivity improvement, following Kaldor's law of economic growth, with positive externalities for the entire economy.

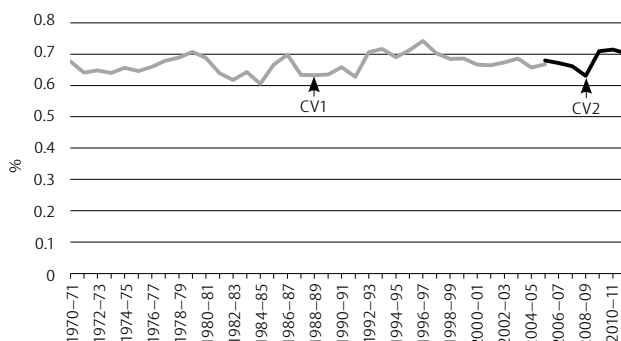
Stability in the Distributions in the Disaggregation

To understand what lies behind the foregoing evidence on stagnation, a few dimensions of the distribution of manufacturing employment and output across major states and districts are investigated. The aim is to find out if there have been discernible changes in the spatial distribution of industrial activity. Such an inquiry could also inform if by reducing state interventions, liberal economic reforms have brought about changes in the spatial allocation of manufacturing industries and thus potentially improved efficiency.

Table 4: Statewise Ranking Based on Ratio of Manufacturing Workers in a State to Total Manufacturing Workers in the Country (Main Workers), 1981–2011

Rank	1981	1991	2001	2011
1	Maharashtra	Maharashtra	Uttar Pradesh	Maharashtra
2	Uttar Pradesh	West Bengal	Maharashtra	Uttar Pradesh
3	Tamil Nadu	Uttar Pradesh	West Bengal	Tamil Nadu
4	West Bengal	Tamil Nadu	Tamil Nadu	West Bengal
5	Andhra Pradesh	Andhra Pradesh	Andhra Pradesh	Gujarat
6	Gujarat	Gujarat	Gujarat	Andhra Pradesh
7	Karnataka	Karnataka	Karnataka	Karnataka
8	Madhya Pradesh	Madhya Pradesh	Bihar	Madhya Pradesh
9	Bihar	Kerala	Madhya Pradesh	Bihar
10	Kerala	Rajasthan	Rajasthan	Rajasthan
11	Rajasthan	Bihar	Kerala	Kerala
12	Punjab	Punjab	Punjab	Punjab
13	Odisha	Odisha	Odisha	Odisha
14	Haryana	Haryana	Haryana	Haryana

Source: Census, various years; authors' calculations.

Figure 5: Interstate Disparity in NSDP Per Capita in Total Manufacturing, 1970–71 to 2011–12

Source: Nagaraj (2016).

Table 4 shows considerable stability in the ranking of states since 1981, based on the ratio of number of manufacturing workers in a state to total manufacturing workers in the country.¹ The rank correlation coefficients between the pairs of years—between 1981 and 1991, 1991 and 2011, and 2011 and 1981—are close to 0.99. The high level of correlation shows up in a stable coefficient of variation in the distribution of manufacturing employment (0.56) across the major states (Figure 4).

The stability in the employment distribution across the states noted above mirrors the stability in the output distribution. The coefficient of variation in per capita value added in manufacturing across major states has remained stable over the four decades since 1970–71 (Figure 5).

Similarly, the shares of the top (at 44%–45%) and the bottom three states (at around 2%) in manufacturing value added at constant prices (NSDP in manufacturing) remained roughly constant during this period (Nagaraj 2016) (Table 5).

Further, the employment share of the top three states in total manufacturing employment remained the same from 1981 to 2011; Maharashtra, Uttar Pradesh (UP), and Tamil Nadu (TN), accounted for 36.6% of manufacturing employment in 1981 and 2011. Similarly, the bottom three states in 1981 and 2011 remained the same—Punjab, Odisha, and Haryana—together accounting for 7%–8% of manufacturing employment.

Table 5: Shares of Top and Bottom Three States in Manufacturing NSDP to Total NSDP at Constant Prices among 17 Major States (%)

Year	Top Three States	Bottom Three States
1970–71	47.0	2.2
1980–81	49.3	1.4
1990–91	44.3	1.4
2000–01	42.7	2.0
2005–06	41.9	2.5
2011–12	45.6	2.1

Source: Nagaraj (2016).

Table 6: Shares of Top and Bottom 50 Districts in Total Manufacturing Employment, 1991–2011 (%)

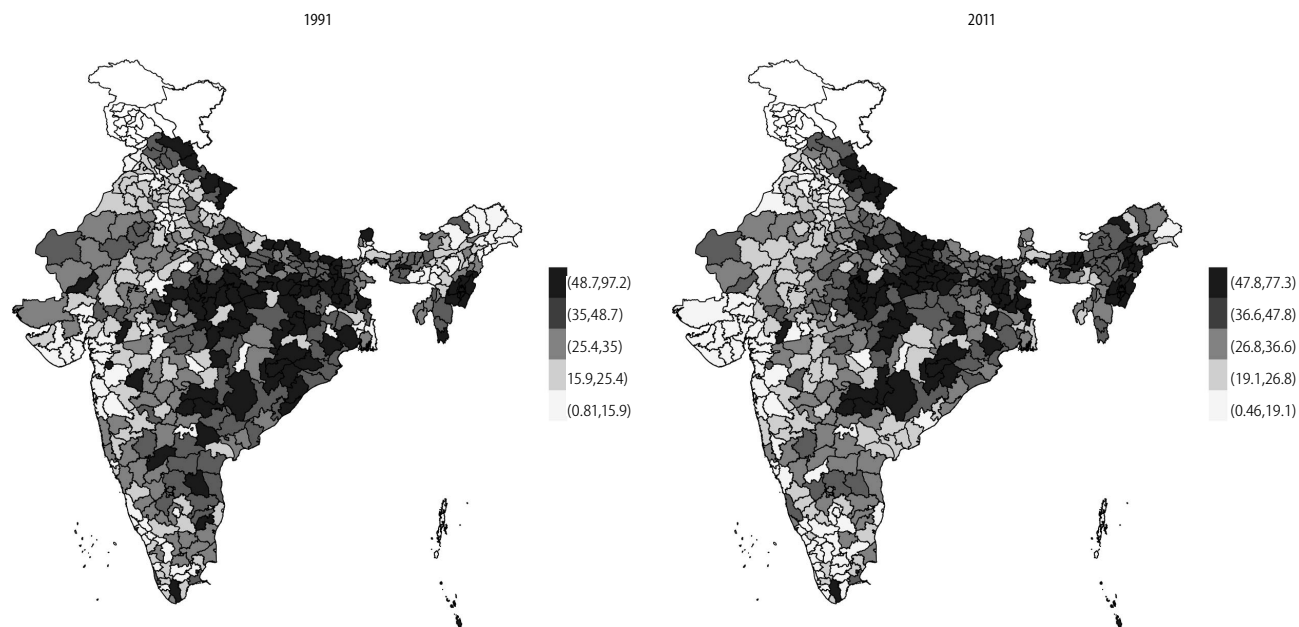
Year	Top 50 Districts	Bottom 50 Districts
1991	46.2	1.7
2001	41.4	2.2
2011	44.5	1.9

Source: Census, various years; authors' calculations.

A similar pattern holds at the district level as well (Table 6). The shares of the top 50 districts in manufacturing employment in total employment remained stable at around 44%–46%, and for the bottom 50 districts at 1.5%–2.0%. Further, 40 out of the top 50 districts have remained the same during 1991–2011. They mostly belong to Maharashtra, TN, and Gujarat.

The district by industry rankings of manufacturing employment shares have also remained stable. The rank correlation for all the 362 districts and the 13 broad industry groups

Figure 6: District-level Share of Household Manufacturing Workers (Main+Marginal)



found a consistent coefficient of 0.8–0.9, indicating that the rankings of districts hardly changed at the industry level when all the 362 districts are considered.

The foregoing evidence demonstrates a clear and consistent pattern. Manufacturing output and employment in India is highly concentrated in a few states and districts, and their dominance continues despite the post-reforms decline in the government's role. No significant spatial reallocation of industrial activity seems discernible.

Interestingly, in a comparative perspective, this stability is quite at variance with the developments in China, after it initiated market-oriented reforms in 1978. Previously dominated by state-owned enterprises, manufacturing was concentrated largely in the northern and eastern provinces. After the reforms, however, aimed at exporting labour-intensive light manufactures, the newer industries came up along the south-eastern seaboard, in cities such as Shenzhen in Guangdong province, bordering Hong Kong. Indian industry and trade reforms were predicated to follow the Chinese experience, but the outcomes have turned out to be different.

Industry-level Changes

For all-India, in 1991, consumer goods industries (or, light manufactures)—textile products and leather and footwear; food and beverages and tobacco—accounted for 58% of manufacturing employment. The share went up to 66% in 2011 (Table 7). Regionally, these industries are concentrated in five states—TN, UP, Gujarat, West Bengal, and Maharashtra. These consumer goods are labour-intensive, accounting for 67% of manufacturing employment, though their weightage in industrial production is much less at 28%.

Correspondingly, the share of metals and machinery—which includes basic metals and fabricated metal products and the electrical equipment and transport industry equipment groups—declined from 18% in 1991 to 15% in 2011. In other

words, the structure of industrial production after the liberal economic reforms moved away from capital and basic goods in favour of consumer goods.

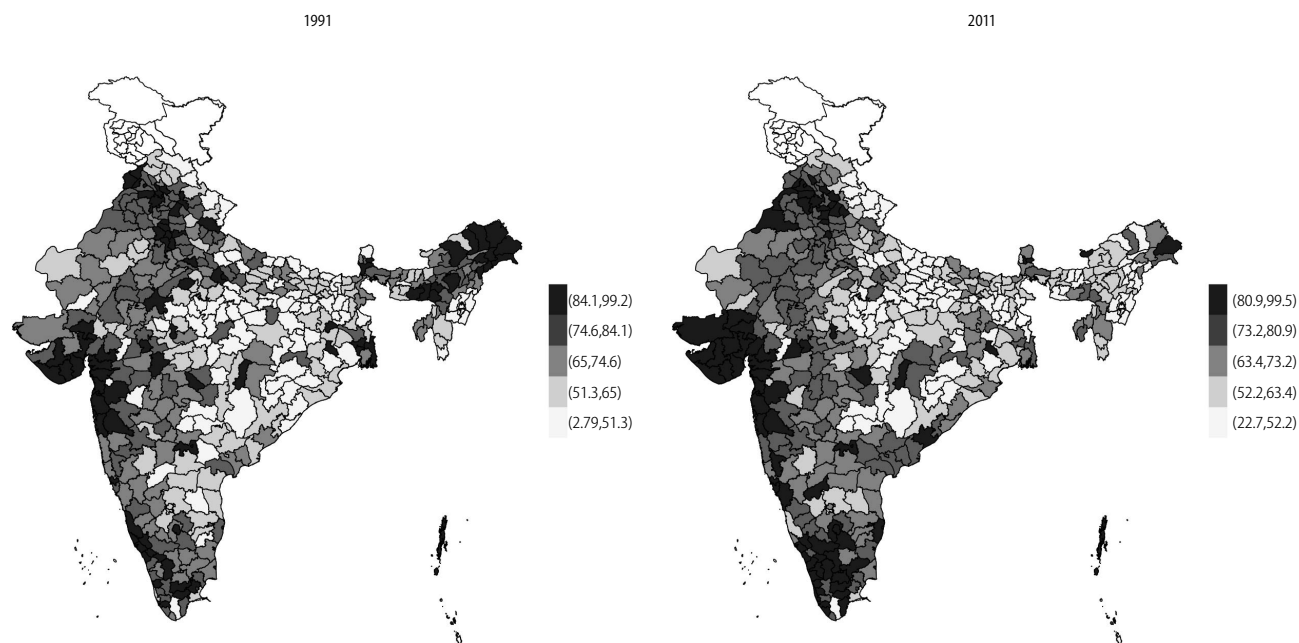
Historically, rapid industrialisation is associated with a rising share of metals and machinery manufacturing as evidence of the growing maturity of domestic industry with a higher income elasticity of demand for metals and machinery. However, India's experience seems to be at variance with the historical pattern. What could account for it? Possibly, the relative decline in domestic machinery manufacturing and growing import dependence after economic liberalisation since 1991—in line with Rodrik's argument.

Interestingly, in the 1980s, the proportion of manufacturing employment in metals and metal products in India was not even 50% of what it was in many East Asian economies. South Korea had 28% of manufacturing workers employed in this industry group, and Taiwan had 33% (Mohan 1989). The observed decline in the share of metal and machinery in India

Table 7: Industrywise Distribution of Main Workers in Manufacturing, 1991 and 2011 (%)

Industry Groups	Year	
	1991	2011
1 Food and beverages and tobacco	18.3	16.9
2 Textiles, textile products and leather and footwear	25.2	29.5
3 Wood and of wood and cork	7.6	5.9
4 Pulp, paper and paper products and printing and publishing	2.9	2.6
5 Coke, refined petroleum and nuclear fuel	0.4	0.4
6 Chemicals and chemical products	4.0	3.2
7 Rubber and plastics	1.6	1.4
8 Other non-metallic minerals	7.7	6.4
9 Basic metals and fabricated metal products	8.8	9.6
10 Machinery, n e c	4.2	1.6
11 Electrical and optical equipment	2.5	1.5
12 Transport equipment	2.4	1.8
13 Manufacturing n e c, recycling	14.3	19.2
Total	100	100

Source: Census, various years; authors' calculations.

Figure 7: District-level Share of Non-household Manufacturing Workers (Main+Marginal)

could mean one of two things. One, productivity growth in these industries is so rapid that they produce the same growth rate of output using more or less the same quantity of labour. Alternatively, the growth rates of metals-using industries—taking capital goods as the proxy—have fallen, reducing their employment share in total.

Though a strict comparison may not be appropriate, an echo of the diminished role of machinery manufacturing is evident in a steady decline in the weight of capital and intermediate goods in the Index of Industrial Production. The weight of these industry groups declined from 35.5% in 1993–94 to 25.4 % in 2011–12 (Nagaraj 2015). The decline is clearly on account of the rising imports in domestic consumption of these goods, or the increasing import dependence, as Chaudhuri (2015) identified.²

Dynamics at the Bottom

To recapitulate, the evidence reported so far demonstrates industrial stagnation since 1991 at the national, state, and district levels in terms of the output and employment shares. The shares and rankings of the states and districts have remained stable as well. Industrial production shifted away from metals and machinery towards consumer goods or light manufactures—apparently at variance with the comparative historical experience.

A closer look shows mobility or dynamism at the district level, however. Of the 236 districts showing increase/decrease in the share of manufacturing employment, 161 witnessed a rise in the manufacturing share (Table 8), and most of these districts are located in northern and eastern India. This seems surprising, since these states are not the major industrial states in the country.

Disaggregation seems to solve the mystery: the distribution of manufacturing employment by organisation of production shows that in both 1991 and 2011, household manufacturing employment was more widespread in the northern and eastern states

(Figure 6, p 44) and non-household manufacturing seemed to dominate in the southern states (Figure 7).

Since average labour productivity is higher in non-household manufacturing than in household manufacturing, the western and southern states have a higher manufacturing output share.

Mobility in the ranks of districts in employment share is discernible (ratio of manufacturing employment to total employment in each district). Bareilly in UP ranked 162 (out of 362 districts) in 1991 before it moved to the top 50 districts, to rank 43, in 2011. Between 1991 and 2011, the total manufacturing workers in Bareilly grew at 7.4% per annum on average, and Moradabad and Aligarh moved up significantly in the ranking into the top 50 districts in 2011.

In contrast, Varanasi, in UP—one of the leading handlooms and silk weaving centres—witnessed a reversal. The share of manufacturing in total workers in Varanasi declined from 23% in 1991 to 19.1% in 2011. Varanasi accounted for more than 10% of the manufacturing workers of UP in 1991; this declined to 7% in 2011. Similar is the case of Dhanbad in Bihar/Jharkhand. The share of manufacturing in total workers for

Table 8: Number of Districts with an Increase/Decrease in Manufacturing Employment Share (1991–2011; 236 Districts from Major States)

Number of Districts	Eastern and Northern States	Western and Southern States	Total
Increase (>1%)	102	59	161
Decrease (<1%)	34	41	75
Total	136	100	236

Source: Census, various years; authors' calculations.

Table 9: Districtwise Change in Coefficient of Localisation (Number of Districts)

Categories	1991–2011	1991–2001	2001–2011
Increase	211	213	142
Decrease	151	149	220
Total districts	362	362	362

Source: Census, various years; authors' calculations.

Dhanbad decreased from 13.4% in 1991 to 10.2% in 2011. Dhanbad accounted for 9.2% of the manufacturing workers in the state of Bihar in 1991; this declined to 4.8% in 2011.

What might explain the spatial shifts at the micro level? A rising

localisation of manufacturing at the district level could be a possible reason. Table 9 shows the distribution of districts by changes in the coefficient of localisation, defined as a measure of the degree of concentration in an industry, over a set of regions, whose values lie between 0 (even distribution) and 1 (extreme concentration).³ Between 1991 and 2011, 211 of 362 districts showed an increase in the coefficient, and 151 districts showed a decrease.

From this evidence, though suggestive, one could conjecture that manufacturing firms are increasingly getting spatially concentrated, perhaps to reap economies of agglomeration in response to market signals (as against state policy directives). However, such reconfigurations of industrial activities spatially seem, as yet, too meagre to show up in the aggregate evidence.

Conclusions

Deindustrialisation is defined as a decline in the ratio of the output of the manufacturing (industry) sector and employment in, respectively, domestic output and employment over a sustained period. Most advanced economies have passed through this phase as a “natural” progression to the post-industrial, or services-oriented, economy (with output and employment shares moving in tandem). During the past few decades, however, many Latin American and African economies have deindustrialised *prematurely*, or before attaining high levels of per capita income and industrial maturity. Such a distorted growth pattern is often associated with the embrace of market-oriented economic reforms, or with the acceptance of the policy package known as the Washington Consensus, after the Third World debt crisis in the early 1980s. Industrialisation was, thus, derailed, and these countries seem to have lost the opportunity of securing the economy-wide positive externalities that accrue from technical progress and productivity growth in manufacturing.

Many Asian economies have, however, avoided the trap by successfully pursuing the path of industrialisation. Where does India stand in this spectrum of development experience, or what has been its economic trajectory? Is India following the Asian path, or has it veered towards the Latin American route to deindustrialisation and dependent development after 1991, when it initiated liberal or free market economic reforms? The question warrants an answer at the national, state, and district level given India’s size and diversity, and this paper attempted to offer one. To ensure the robustness of the findings, a variety of data sets, and definitions of deindustrialisation are used, as in the literature. The main findings are summarised as follows.

The all-India ratio of manufacturing and industrial output to GDP has stagnated since 1991. The ratio of manufacturing employment to total employment increased by two percentage points by NSS data. The ratio remained constant by census data. The corresponding ratios for the industrial sector (mining, manufacturing, utilities, and construction) rose steadily, mainly on account of construction.

At the state level, the picture is mixed. Most states deindustrialised by the output measure, but not by the employment measure, and they gained industrial employment share.

Maharashtra lost manufacturing output share, but not its employment share. Gujarat truly industrialised; both output and employment shares rose. No change by either measure occurred in West Bengal.

Close to 50% of the districts gained manufacturing employment share between 1991 and 2011; about 20% deindustrialised. The proportion of districts that deindustrialised, shot up to 62% between 2001 and 2011, when India’s annual GDP growth accelerated to 7%–8%, and it counted as one of the world’s fastest-growing large economies.

Given the conflicting evidence, it is hard to infer that India has deindustrialised. The more reasonable inference would be that industrialisation has stagnated, and India’s development seems to have veered away from the Asian industrialisation path; but it has not deindustrialised prematurely—at least as yet.

The stagnation is accompanied by a relative stability of shares and ranking of states and districts in terms of both output and employment measures. Unlike in China, economic reforms in India did not result in the industrial reallocation across regions.

Between 1991 and 2011, the share of manufacturing employment increased perceptibly in consumer goods or light manufactures, and it declined in metals and machinery. This seems at variance with the experience of successfully industrialising Asian economies, where historically the share of metal and machinery manufacturing has risen. Probably, India’s record reflects the adverse outcome of liberalisation of trade and industrial policies, and its rising dependence on imports for metals and machinery.

At the district level, spatial shifts are discernible, with growing localisation of manufacturing; this calls for a deeper inquiry. The rising employment share in manufacturing in northern and eastern states is mainly in household industries, whereas non-household manufacturing seems to dominate in the southern and western states.

What does one make of the foregoing findings? Unlike the successful Asian economies, India seems to have missed out on the productivity and employment gains of structural transformation, and it is stuck in industrial stagnation, despite industrial output growth at about the same pace as its annual GDP growth. Perhaps the wide variations in industrial performance in the states and districts are to be expected in a large, heterogeneous economy.

To answer the question posed in the article’s title: India has not deindustrialised, but it has stagnated, and structural transformation has been halted for three decades now. However, at disaggregated levels, the picture is nuanced, with signs of spatial specialisation emerging, yet without disturbing the traditional pecking order, in terms of ranks and their relative shares.

India seems to be at the crossroads of the successful Asian industrialisation path and the Latin American trajectory of deindustrialisation and dependent development, and it faces the real threat of falling into the latter unless it makes concerted effort at regaining the focus on state-led industrialisation (Nagaraj 2017)—the only successful path of development in the 20th century and beyond, as the Asian experience demonstrates.

NOTES

- 1 The reason for using main workers, instead of main plus marginal workers as previously, is to get data for a longer time span—since 1981.
- 2 The widespread use of newer materials like industrial plastics and polymers may have reduced the usage of metals; however, considering India's stage of industrial maturity, the reduced employment of metals and machinery appears to suggest the retardation of output composition—at an early stage.
- 3 The formula for the coefficient of localisation used here is

$$I_{ij} = \frac{(\text{Employment}_{mj} / (\text{Employment}_m) / (\text{Employment}_j) / \text{Employment})}{(\text{Employment}_j / \text{Employment})}$$

Employment_{mj} is employment in manufacturing sector in district j , Employment_j is total employment in district j , Employment_m is total employment in manufacturing sector and Employment is total employment in India. Thus, the coefficient of localisation is computed for 1991, 2001, and 2011.

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Appendix

Data Sources and Methodological Adjustments

The census tables used for analysis are

- B-4 and B-6 for 2011, main and marginal workers, respectively,
- B-4 and B-6 for 2001, main and marginal workers, respectively, and
- B-15 for main workers and B-6 for marginal workers for 1991.

The tables used for the industry-wise analysis are

- B-19 for 2011 (main workers),
- B-19 for 2001 (main workers), and
- B-16 and B-18 for 1991 (main workers).

State-, district-, and industry-level concordance

All the states and union territories are considered in computing the all-India aggregates; for the ease of reporting, however, only the major states—which account for more than 95% of the manufacturing employment in the country—are considered (14 in total).

Between the 1991 and 2011 Censuses, states like Bihar, Uttar Pradesh, and Madhya Pradesh were divided to form new states like, respectively, Jharkhand, Uttarakhand, and Chhattisgarh; therefore, for comparison between 1991 and 2011, these states were added back with the parent states.

New districts emerged between 1991 and 2011; to make these comparable across census rounds, the districts have been concorded with reference to the 1991 Census. A district may have been divided in a "clean partition," that

is, it was divided into two or more districts, in which case it has one single parent. A district can also have more than one parent; for example, Nainital, a single district of Uttar Pradesh in 1991, was divided to form three districts in 2001—Champawat, Udham Singh Nagar, and Nainital. While the entire district of Udham Singh Nagar was carved out of the parent district (Nainital), Champawat retained 21.56% of Nainital and the rest (78.44%) was carved out of Pithoragarh. The new Nainital boundaries also included 0.12% of Garhwal, another district in Uttarakhand, and thus retains 99.88% of its original boundaries.

Therefore, for the concordance of district data backwards from 2001 to 1991, the following equations are used:

$$Y_{(\text{Nainital}-2001)} \text{ (with similar boundary as in 1991)} \\ = Y_{(\text{Udham Singh Nagar}-2001)} \\ + 0.2156 Y_{(\text{Champawat}-2001)} \\ + 0.9988 Y_{(\text{Nainital}-2001)}$$

This way we complete the district concordance—mapping backwards all the 593 districts in 2001 to 452 districts in 1991 (excluding Jammu and Kashmir—there was no census for Jammu and Kashmir in 1991).

For the 1991–2001 district concordance, the Kumar and Somanathan (2009) article, which gives the shares for concordance, are used.

For the 2011 Census, which had 640 districts, the concordance is conducted first with the 2001 Census, using the Census Administrative Maps and various District Census Handbooks. Then, it is concorded back at the 1991 level, to get 452 districts in a way similar to the one discussed above.

Finally, after the district concordance, the number of districts for the 1991, 2001, and 2011 Census rounds emerges as 452.

Further, for industry-level concordance we use the KLEMS-NIC concordance table (Das et al 2015).

EPW Index

An author-title index for *EPW* has been prepared for the years from 1968 to 2012. The PDFs of the Index have been uploaded, year-wise, on the *EPW* website. Visitors can download the Index for all the years from the site. (The Index for a few years is yet to be prepared and will be uploaded when ready.)

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