

# Chapter 12

## Urbanisation and Economic Interdependency: An Econometric Analysis of Inter-State Change and Continuity in India, 1981–2011



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**Abstract** This study examines the interdependency between economic and urban growth in the 35 states and union territories (UTs) of India during 1981–2011, using the framework of economic liberalisation of 1991. To examine the inter-state relationships in terms of sectoral composition and changing trends, seven variables representing the processes of urbanisation and urban growth rates along various dimensions of economic growth, including state level income and their sectoral contributions, are analysed for the entire study area for census years 1981–2011. Factor analysis, KMO test and Bartlett’s test of sphericity evaluate the significant factors affecting urban and economic change in the states and UTs of India. We find wide regional disparities in growth and development, both spatially and temporally, with previously underdeveloped states and newly carved states growing at rates far better than anticipated. The emerging manufacturing-induced services have created the knowledge and skills to produce and process a wide range of industrial and consumer products, which have continued to drive the Indian economy. Simultaneously, the large-scale migration towards megacities and second-tier cities have created a *new spatial* order, with strategic face-lifting of specific parts and expanded informal settlements in others, marking an interesting dualism in Indian urban system in response to liberalisation.

**Keywords** Economic liberalisation · Factor analysis · India · KMO test · Migration · New spatial order

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## Introduction

In India, while the seeds of economic investment and infrastructure growth had already begun at its independence in 1947, the pace and competitive niche was still missing due to its protective policies. Modern India started emerging with the liberalisation of trade in 1990s and India's acceptance of the free market economy. The post-1990s era experienced rapid urban growth and expansion, creating its own set of economic opportunities, alongside unique types of urban poverty and regional inequalities (Dupont 2011; Goldman 2011; Mitra 2006; Nijman 2006; Obeng-Odom 2012; Sharma and Abhay 2022). In the initial years of liberalisation, the country faced very high inflation and a balance of payment crisis, which forced India's new (minority) government to introduce a comprehensive, orthodox, policy reform package—with currency devaluation, licence permit system and sharp reduction in tariff rates as its centrepiece. These long-awaited economic reforms were widely welcomed by critics of India's development strategy. These reforms meant getting rid of an internationally discredited statist development paradigm. Soon, India marked tremendous improvement in its total and sectoral gross domestic production (GDP). As of 2017, the Ministry of Statistics and Program Implementation suggests that the largest contributors to India's total GDP include services (61.7%), industry (23%) and agriculture (HTTP1 2021). Growth in productivity in India's service sector had remained a major contributor to the accelerated economic growth that occurred during the post-1980s (Goldar and Mitra 2008). They estimated that about 40% of increase in the growth rate of aggregate GDP in post-1980s was from increase in total productivity in the service sector. However, they also argued that while there was a major shift in the composition of GDP towards services contributing towards overall growth, it is the secondary sector which is, and will be, the lead sector in the long term. Thus, the *causality* happens from the secondary sector to other components of the tertiary sector. This relationship, however, can also be cyclic in that higher levels of urbanisation contribute towards higher GDP and vice versa such that the process of *urbanisation* starts getting recognised as a *causal factor* for growth and development rather than being *dependent* on industrialisation.

Economic growth occurs from both formal and informal economic sectors that are generally concentrated in cities and large metropolises (Dupont 2011; Goldar and Mitra 2008; Frick and Rodriguez-pose 2018; Sekkat 2017). It facilitates urbanisation that furthers the evolution of socio-economic structures, especially in developing countries (Naik and Rahman 2007). Capital investment is a prime necessity to trigger economic growth in developing economies wherein substantive investment, given the right conditions, can attract investment in infrastructure that would help promote manufacturing and other basic and non-basic activities, eventually attracting capitalists to partner-in for further cyclic investments till a level of maturity is achieved (Chandrashekhara 2013). This is the ultimate pathway towards attaining a stable industrialised/post-industrialised *economic-being*, which would eventually feed into the cyclic economic continuum (Coe et al. 2012; Narayana 2011).

The process of urbanisation and economic growth includes several urban components and economic indicators which are dynamic in nature—defined by space, spatiality, regionality, demography, human resources and skills, policy, politics, society and culture (Frick and Rodriguez-Pose 2018; Narayana 2011; Sekkat 2017; Yeung 2009). Urbanisation occurs as countries shift from rural-agricultural activity into a diverse set of urban industrial and tertiary activities (Davis and Henderson 2003; Dupont 2011; Kratke 2014; Obeng-Odom 2012). Collectively, then, these urban and economic components largely guide the patterns of growth and development in any region, and India is no exception to this. Thus, there is a need for greater attention to the revival, renewal and overhaul of the industrial sector such that sustained economic growth can be pursued in a country of 1.407 billion (HTTP2 2022). This study unravels these changing nature of relationships between urbanisation and urban economy across the 35 states and union territories (UTs) of India during 1981–2011, using the 1991 liberalisation as a comparative framework. In doing so, we also examine the changing nature of inter-dependencies among various components of urbanisation and economy as used by the Census of India to measure total growth and economic development. We are unable to expand this research to 2021 as the latest census results are unavailable due to COVID-19-induced delays.

## Literature Review

### *Economic Liberalisation as a Framework*

Since the adoption of liberal policies in India in 1991, there has been rapid growth in Foreign Direct Investment (FDI)—with considerable rise in the inflow of capital and exports, while also increasing the imports (Kratke 2014; Siddiqui 2017). These investments occurred along multiple dimensions such as the service sector, poverty eradication programs and other speculative activities (ibid.). In 1991, India experienced a balance of payment crisis—the same year when the Soviet Union had collapsed, and oil prices had risen due to Iraqi invasion of Kuwait. These crises created a situation wherein India had to enter into an emergency loan agreement with the International Monetary Fund (IMF)—marking a shift in Indian policy towards foreign capital (Kratke 2014; Nayyar 2017). Economic liberalisation was the eventual outcome that came with its own sets of terms and conditions—privatisation of public firms, enhanced role for market forces, relaxation of the licence-permit raj, openness towards foreign investment and financial deregulation (Joshi and Little 1994). These policies gradually opened doors to an emerging new economy, boosting India's manufacturing and service sectors, while also enhancing its overall face value by providing Indian commodities and human skills a global platform (Dupont 2011; Kratke 2014; Narayana 2011). In 2015–16, the Indian economy grew at 7% annually, better than the previous two years. By way of comparison, the GDP growth rate in developed countries during the same period was about 2%, compared to 4.4% in other

developing countries (Patnaik 2015). Thus, India's growth rate was truly impressive at a global scale.

In his book *The Nature of Economic Growth*, Thirlwall (2002) analysed the trend in growth for select countries over longer periods of time, assuming that the manufacturing sector was an important engine of economic growth. He found that in many countries, there existed close association between their per capita income and level of industrialisation; at the same time there also existed strong relationship between the growth of GDP and growth of manufacturing which facilitated further expansion of the sector, with the most favourable growth characteristics. Thirlwall, while not in full agreement with neo-classical economists, suggested that demand-induced growth was the most critical pathway for economic growth of developing countries, as large demand in a commodity could eventually maximise the profits from fuller exploitation of the division of labour and economies of scale. In his unpacking of the mutually dependent complex relationships between TNCs and urban/regional development, Yeung (2009) critiqued the influential theories of urban and regional growth and provided relational views of TNCs in global production networks. He suggested that urban and regional development were inherently and increasingly a 'globalising' phenomenon. Artelasris (2021)'s analysis of Greece's economy in the post-1981 era of globalisation, economic integration and EU's increasing influence found that EU's policies had indeed helped advance their economy, with significant improvement in their income; and while there were brief phases of intra-regional inequality, the growth phases would return soon thereafter and would last much longer.

In many ways, India's situation mirrored Turkey's economic growth after the entry of IMF (Yeldan 2006). With the introduction of Structural Adjustment Program (SAP) in Turkey, financial investments were elevated over industry, with a promise of real economic upliftment. However, due to the fragile Turkish financial and fiscal systems, the IMF's programs instead put Turkey's economy at increased vulnerability (ibid.), which ended up by eventually having the foreign investors grab away the Turkish arbiters, drifting away with short-term capital flow which has also been characterised as 'Casino-Capitalism' (Siddiqui 2018). In India, the SAP came-in as a surprise, putting many economists and policy makers dumbfounded with the unforeseen and unpredictable ways in which IMF's loans had impacted various segments of the population, unduly benefiting the thin slice at the top whereas the low-to-middle class felt left behind. Similar findings were also noted in Obeng-Odom (2012)'s analysis of Ghana). Neoliberal economy does not work in vacuum, as illustrated in the production of splintered spaces of acute deprivation and affluence in developing economies (Nijman 2006; Shaban 2022; Obeng-Odom 2012). Much of the growth experienced by India during the post-liberalisation period was not experienced uniformly across the entire country due to uneven investments and distribution, divided along the rural-versus-urban. Regarding this, D'Monte (2002)'s analysis suggested that Mumbai, the financial capital of India, had suffered significant losses in manufacturing since the 1970s, particularly in the textile industries despite some gains in the service sectors, and yet, Mumbai was not a typical western-style post-industrial city since it retained a significantly large-scale manufacturing and

human-intensive preindustrial characteristics, with low-income population and large-scale poverty (Nijman 2006). These changes facilitated fast urbanisation, drawing people from rural/smaller towns towards India's largest urban centres, while also creating urban villages with dilapidated housing and lower quality of life (Sharma and Abhay 2022)—exacerbating inequality and poverty (Dupont 2011; Nijman 2006; Obeng-Odom 2012).

Since primary activities like mining and agriculture are more spatially fixed than manufacturing, liberalisation-induced urban agglomerations and urbanisation economies can create deep spatial inequalities, exacerbating significant wage differentials (Shaban 2022). The economic liberalisation in the global south has facilitated free movement of labour and spatial fixing of agglomeration industries in advantageous locations (ibid.). Such policies by government planning and intervening institutions produce and exacerbate inequalities wherein favourable decision for some leads to relative deprivation of others (ibid.). This causes the rural–urban divide that adds to the uncontrolled migration of labour and slummisation of cities (Mitra and Murayama 2009; Shaban 2022; Sharma and Abhay 2022). Dupont (2011)'s examination of the consequences of economic liberalisation on Delhi's residents who did not perfectly fit into Delhi's vision of 'global city' found that although the restructuring was successful in creating a 'new' Indian middle class, this process also created polarisation and exclusion processes—*politics of forgetting*—towards marginalised groups. This extraordinary drive for global competitiveness had enormous negative consequences, and especially the poor slum dwellers as many informal settlements in Delhi and elsewhere had to be cleaned off, which subsequently exacerbated other types of urban and regional inequalities like homelessness, crime and poverty (Dupont 2011; Obeng-Odom 2012). These findings on Delhi (and Ghana) mirror Nijman (2006)'s take on Mumbai wherein liberalisation further marginalised the poor while also creating a new mysterious middle class, and new mafia side by side—socio-spatial manifestations of the neoliberal political economy.

In other parts of the global south, Obeng-Odom (2012)'s analysis of neoliberalism and urban economy in Ghana found that while the policies enabled strong entry of private sectors, eventually contributing towards growth in urban economy, jobs and capital accumulation, it simultaneously also exacerbated urban inequalities, given the nature of neoliberalism; thus, he contested the neoliberalism-induced changes and its impacts on people's quality of lives. Goldman (2011) critically highlighted how the rural communities in and around Bangalore were forcibly dispossessed of their lands in Karnataka government's self-proclaimed aspirations towards creating Asia's 'Silicon Valley'. Thus, the new art of 'speculative government' and the ways in which anxieties and dispossessions were experienced differentially across class, space/place and community, ended up redefining state relations as well as power of urban citizenship and rules of access. Likewise, other scholars found varied levels of differential treatments and inequalities experienced, especially by the low-income groups (see Chakraborty et al. 2022; Dupont 2011; Kratke 2014; Mitra 2006; Scott and Storper 2014; Sharma and Abhay 2022). Numerous scholars have indeed opined that socio-economic and spatial polarisation is an inherent characteristic of economic

liberalisation in most developing countries (Dupont 2011; Goldman 2011; Kratke 2014; Nijman 2006; Obeng-Odom 2012; Yeldan 2006).

In pursuit of likening liberalisation and urban economic growth, scholars have used various theoretical frameworks to explain cities as spaces of dynamic agglomeration and polarisation on one hand, and the nexus of colonialism and location politics, land use and human interactions on the other hand, especially when one examines the *processes* by which spaces of uneven opportunities get created (Chakraborty et al. 2022; Goldman 2011; Nijman 2006; Scott and Storper 2014). Others have emphasised on different aspects of urbanisation (Goldman 2011; Naik and Rehman 2007; Nijman 2006), including historical perspectives of economic growth and urban growth (Short 1996), patterns of urban growth (Mohan and Dasgupta 2005) and dimensions of economic growth (WDI 2011). Almost everyone agreed that urbanisation and the consequential urban growth is inevitable and universal. Finally, while we agree that liberalisation, despite its economic benefit, did create inequalities of various types. However, we also acknowledge that creating an equitable society requires strategic planning and implementation in a developing economy of 1.407 billion people. Given the focus of this research paper, we limit ourselves to examining the interdependency between the economic growth and urban growth that occurred in India during 1981–2011.

### ***Economic Restructuring, Urbanisation and Economic Growth***

Technological change and innovation are essential to structural change, and in the context of developing economies, manufacturing can significantly accelerate their economy and overall growth and wellbeing of people, especially as higher growth in manufacturing positively increases labour productivity and expands the manufacturing sector, generating competitive economies including forward and backward linkages—all of which would eventually create competitive niche towards a circular and interdependent economy (Coe et al. 2012). Thus, when overall growth accelerates, manufacturing typically leads the way, growing faster than other sectors (Goldman 2011; Narayana 2011; Xu et al. 2021). For low-income countries, however, the contribution of manufacturing towards its total GDP stays low. When manufacturing increases its output share in response to changes in the domestic demand and in comparative advantage, faster sectoral growth noticeably raises the aggregate growth rates of output and labour productivity (Thirlwall 2002). This triggers growth in other basic and non-basic economic sectors, such as the IT-based quaternary and quinary activities (Narayan 2011). In India, with the lifting of restrictions on the imports of technology, the foreign firms found it attractive to set up collaborative enterprises, assuming a pathway for mutual growth and prosperity (Chandrashekar 2013; Dupont 2011; Narayan 2011). It was expected to boost its domestic production along with foreign capital investments, sharing of innovative technology and management skills that would improve quality of life for all (Narayan 2011).

While economic restructuring can lead to a profound and phenomenal impact on economic growth, the types of economic growth can have consequential changes across the nation, given the diversity of uneven growth and development within and among Indian states/UTs. Fast urbanisation, especially in the developing countries, contributes to fast growth and expansion of giant urban agglomerates wherein a majority of people depend on urban jobs and urban services (Dupont 2011; Kratke 2014), accentuating further economic growth and social change, and eventually a more informed society (Naik and Rahman 2007). Indian urban scenario is transforming rapidly due to inherent biases towards urban-centric economy, and these have contributed to exponential levels of rural–urban and small-town-to-large-city mass scale migration (Mitra and Murayama 2009; Sekkat 2017; Sharma and Abhay 2022). Thus, while there is serial abandonment of rural areas and smaller towns crushed with high poverty and lack of opportunities, there also exists growth and opportunities in mid-to-large cities that somehow curtails poverty (Kratke 2014; Sekkat 2017).

There is a reciprocal relationship between urban development and economic development since economic growth and/or decline are intimately associated with urban expansion and/or contraction. A wide gamut of literature suggests that urbanisation is a *pre-requisite* for achieving rapid economic development; others concur urbanisation as the *engine* of economic growth and *agents* of change (Jacobs 1984; Kratke 2014; Mohan and Dasgupta 2005). Regarding the direct and indirect effects of economic liberalisation on urban and economic growth, numerous scholars have indicated significant growth in a country's economy, peoples' prosperity, rising new middle class and emergence of megacities and new global cities (Cieřlik and Rokicki 2017; Dupont 2011; Goldman 2011; Kratke 2014; Narayana 2011; Xu et al. 2021). In evaluating the effectiveness of EU's funds on the spatial wage structure in Poland, Cieřlik and Rokicki (2017) found statistically significant and positive relationship between the EU funds and individual wages at regional level, which improved the regional market potential as well as individual worker's and industry characteristics. In their detailed analysis of the effects of globalisation and governance on the economic growth of numerous Asian countries, Xu et al. (2021) found that globalisation not only improved overall economic growth, but it also helped these countries by introducing sound regulatory control and political stability; these steps eventually helped promote corruption-free and transparent economic policies across these nations, which cumulatively contributed towards sustainable development. Likewise, the speculative urbanism and strong drive towards the promotion of a new *global city* phenomena facilitated positive relationship between globalisation-induced IT firms and urban growth, sprawl and prosperity in Bangalore (Goldman 2011; Narayana 2011). However, Behera and Karthiyani (2021)'s evaluation of the effects of globalisation and economic shifts in India during 1976–2012 found that while economic globalisation reduced income inequality, social and political globalisation increased income inequality in the country. Their most interesting finding was that growth and investments in agriculture-related value addition industries actually helped reduce regional income inequalities; the authors, thus, concluded by drawing attention of

the central government towards investing in agro-based industries that can indeed narrow the rural–urban divide by creating livelihoods for rural population (*ibid.*).

### ***Measurement Indicators for Economic Growth and Urbanisation***

A wide range of factors and indicators are critical towards understanding the complex relationships between urbanisation and economy. Economic growth reflecting the process of urbanisation and urban growth includes indicators such as city size, urban growth rates and components of economic growth. Davis (1955) suggests the need to consider various sectors of economy that have changed and transitioned over time due to technological innovations—from primary to tertiary and quaternary; others emphasise on the shifting work force due to the process of urbanisation. Kaldor (1996), however, argues that it is impossible to understand the growth and development process without taking a sectoral approach, largely focused on the growth of manufacturing output, service sector and the growth of GDP. New industrial investments and expansion of the service industry in new locations have been a major factor affecting growth and sprawl of existing urban areas in India, and hence, it is important to include these when examining the reciprocal relationships between urbanisation and economic growth (Narayana 2011; Sivaramakrishnan and Singh 2003). Also, despite the growth in major economic sectors, India still retains its agrarian characteristics, and even though urban areas display a concentration of large number of urban and economic indicators, its rural counterparts lack developmental traits, creating huge disparity in development indicators across the rural–urban divide. As such, numerous scholars have treated rural–urban imbalance in development as an explanation for the unprecedented growth of urban centres.

Finally, given the nexus between urban growth and economic growth, it is important to understand the basic definitions, scales and components of urbanisation and economic growth in the context of India. The definition of town assumes that urbanisation is the consequence of industrialisation and hence, urban areas must have an overwhelming share of those engaged in non-agricultural activities (Bhagat 2002). Based on this definition, India's cities have continued to grow, and the world's largest democracy with a Census 2011 population of 1.24 billion (1.407 billion on 9/19/2022, HTTP2 2022) has attained a slow but steady economic growth, with its GDP growing at an average annual rate of 8.4% (CSO 2011). Thus, this research will (i) analyse the changing nature of relationships between urbanisation (urban components) and economy (economic indicators); (ii) identify and discuss the most significant and dominant factors for growth and development in India; and (3) examine the patterns of subregional development across the states/UTs in India.



## Research Design

### *Study Area and Scale of Analysis*

India with its 27 states and 8 UTs (Census 2011 definition) occupies a strategic position in the South Asian subcontinent (Fig. 12.1). We chose India for this study due to its economic and demographic significance at the global scale, and its enormous human resource potentials from 1.407 billion population (HTTP2 2022), with a fast-growing, educationally savvy middle-class consumerist genre—an integral part of India's booming urban economy.

As the world's largest democracy, India is also one of the fastest urbanising economies in the world, with its urban population having increased by five times during six decades (1951–2011)—from 62 million (17.3%, Census 1951) to 377 million (31.2%, Census 2011) (Fig. 12.2). As of June 19, 2022, World Bank estimated India's urbanisation at a record high of 483 million, accounting towards 35.01% of its total population (HTTP3 2022). At such a rapid growth, it is predicted that within a generation, India will be transformed from a rural/agrarian society to an urban economy (Sud 2009). At the same time, even though India's economic growth has been driven by the service sector, accounting towards 61.7% of its total GDP in 2017 (HTTP1 2021), a significant part of this service sector is dominated by informal economy wherein informal labour and informalisation of economic activities even within the formal sectors have taken over in the era of economic liberalisation (Nijman 2006). This paper will examine some of these changes in manufacturing versus services during the transitioning decades of 1981–2011, using the 1991 liberalisation as a comparative framework, using states/UTs as the scale of analysis.

### *Data Source and Methods*

We use economic data from the Census of India for 1981, 1991, 2001 and 2011, tabled under the Primary Census Abstract, Central Statistical Organisation (for data on Net State Domestic Product). The Census of India, inception in 1872, is the richest and the most accurate source of data for a variety of urban components. After extracting the required data for every state/UT for all the four decades, we collect the data for the estimates of state income from the National Accounts Statistics (NAS)—a division of Central Statistical Organisation.

Net State Domestic Product (NSDP) is calculated based on the System of National Accounts (SNA) of the United Nations and World Bank with different base years. State income (Net State Domestic Product/NSDP) reflects the status of economic growth at the state level and is defined as the income generated by the production of goods and services within the geographical boundaries of a state. This is derived by netting the gross state/district domestic product estimates (GSDP/GDDP) by the consumption of fixed capital (CFC)—the most important single economic indicator that can measure the growth and pattern of economic development of a state. The

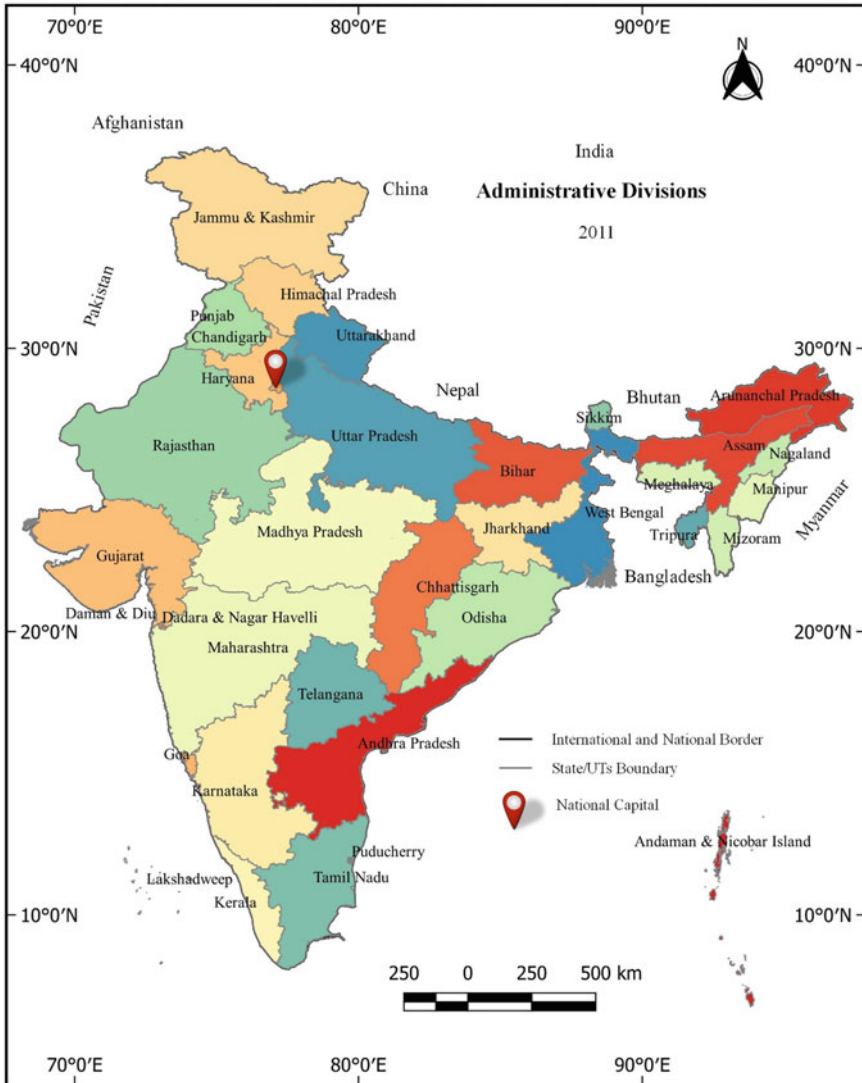
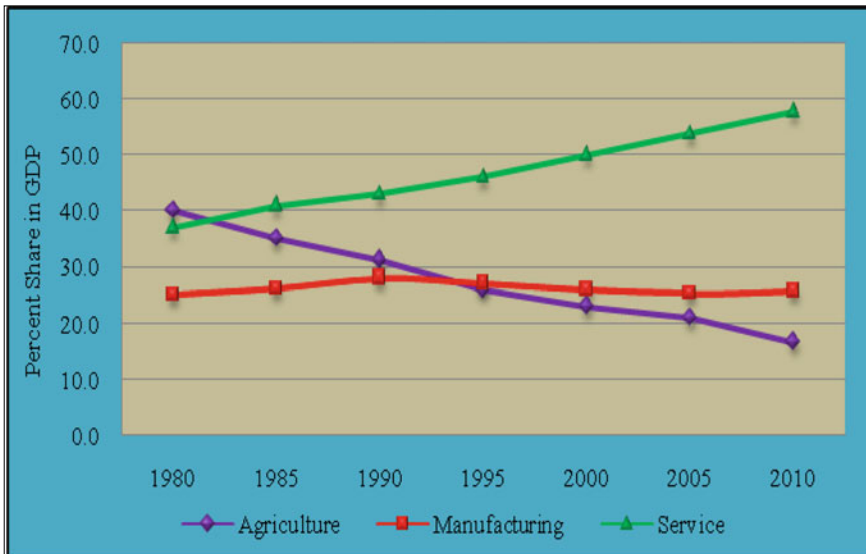
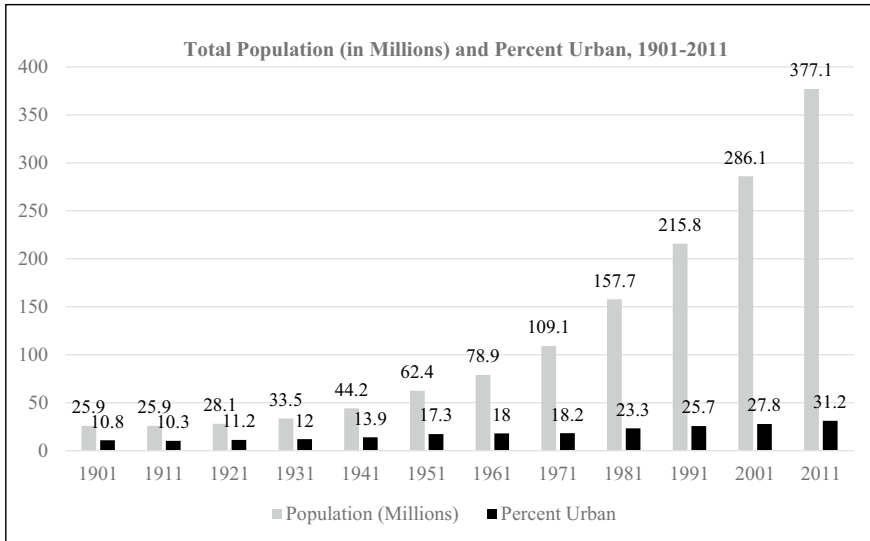


Fig. 12.1 Study area

estimate of state's income is prepared at a base year price termed as 'at constant price'. which over the years gives the measure of real growth. In this study, we use 1980–1981 and 1993–1994 as the base years (for the states and UTs where data is missing for 1980–1981 series). Data is also available for other new series at constant price of 1993–1994, 1999–2000 and 2004–2005 base years, which have been readjusted to the base year of 1980–1981 (CSO 1988, 1989a), using the price inflation statistics.



**Fig. 12.2** Total population growth and percent urbanisation in India, 1901–2011 (top) and sectoral share of GDP in India, 1981–2011 (bottom). *Source* Census of India, 1901 to 2011 (top) and World Bank Central Database, May 2011 and CSO, August 2011 (bottom)

***Principal Component Analysis (PCA) and Visual Insights into Growth and Development***

We use seven urban and economic indicators to measure the levels of growth and development across the 35 states/UTs in India. These include percent urban population (X1), average annual urban growth rate (X2), average annual per capita NSDP

(X3), average annual NSDP growth rate (X4), average annual per capita NSDP growth rate (X5), percent share of manufacturing (X6) and service sector in Net State Domestic Product (X7). The PCA culls out the most significant factors that help explain the patterns of growth and development in India. We employ the Kaiser–Meyer–Olkin (KMO) test and Bartlett’s test of Sphericity for testing the adequacy and significance of the results (Glen 2016; Kaiser and Rice 1974). The value of KMO test varies between 0-to-1, with a higher value indicating the suitability of factor analysis for the dataset, and the fact that the results are not merely a chance factor and vice versa. The equation for the **Kaiser–Meyer–Olkin (KMO)<sub>j</sub> test** is:

$$\text{KMO} = \frac{\sum_{j \neq k} \sum r_{jk}^2}{\sum_{j \neq k} \sum r_{jk}^2 + \sum_{j \neq k} \sum p_{jk}^2} \quad (12.1)$$

where  $r_{ij}$  is the simple correlation coefficient between variables  $j$  and  $k$ , and  $p_{jk}$  is the partial correlation coefficient between variables  $j$  and  $k$ , and  $\Sigma$  is the summation.

In Bartlett’s test, the significance level  $< 0.05$  supports the validity of factor analysis as a useful tool for the data being analysed (Hair et al. 2010). The formulae for Bartlett’s test is:

$$X^2 = -((n - 1) - (2p - 5)/6) \log(\det(R)) \quad (12.2)$$

where  $n$  = number of observations,  $p$  = number of variables, and  $R$  is the correlation matrix of the variables.

After creating the factor scores, we examine the extractions and the factor loadings to gain insights into the sectoral shifts over the decades. Choropleth maps of important scores help understand their spatial patterns and potential reasons for such distribution over the years. Later, we also compute composite scores for each principal components for all 35 states/UTs and categorised them into three groups based on their level of growth and development for the census years 1981 and 2011. This helped gain insights into the pre- and post-liberalisation impacts across the states/UTs, using the 1991-liberalisation as a comparative framework.

## Results and Discussion

### *Spatial Patterns of Inter-State Urbanisation and Urban Growth Rates*

Urbanisation has grown exponentially from 17.3% (1951) to 31.2% (2011), with significantly uneven spatial distribution across the states and UTs. The National Capital Territory of Delhi (NCT-Delhi) and the UT-Chandigarh with 97.50% and

97.25% urban population are the most urbanised in India (Sharma and Abhay 2022); in contrast, Bihar (11.30% urban) is the least (Census 2011). In terms of regional distribution of urban population, Tamil Nadu (48.45%), Maharashtra (45.23%), Gujarat (42.58%) and Karnataka (38.57%) are the most urbanised and the most developed states in the country (Census 2011). Together with Punjab and West Bengal, these six states account for half of India's total urban population. Economic liberalisation has greatly affected the nature and pattern of urban growth rates in the country, with some regions experiencing rapid economic growth while others lagging far behind, imparting a unique character to Indian urban system. The average annual urban growth rate is significantly different from the levels of urbanisation across Indian states/UTs, with the most developed Indian states with large urban population marking moderate-to-low growth in urban population due to their saturation; in contrast, the underdeveloped and developing states with pre-dominance of rural characteristics registered far greater average annual rates of urban growth. These include Bihar, Sikkim, Arunachal Pradesh, Nagaland, Haryana and Goa.

### *The State of Indian Economy and Growth Sectors*

Table 12.1a shows the changing structure of Indian economy in the broad sectors for select time points. Regarding value-added share, service sector emerges as a leading contributor since the 1990s (India KLEMS database). In this regard, even Behera and Karthiayani (2021) and Narayana (2011)'s analysis found that agro-based value-added sectors and manufacturing-induced service sectors, both of which classified as service economy, had grown tremendously since the liberalisation, and these were critically needed to reduce regional inequalities (Behera and Karthiayani 2021).

The integration of India into the global economy also contributed to urban propulsion, and while not everyone was employed in well-paid good quality jobs, they had some opportunities in informal economy that provided food for their families (Mitra 2006; Sharma 2017). The urban-centric economic focus cyclically propelled urbanisation, reducing their dependency on primary sectors of economy. Our analysis found that the combined contribution of industry and service sectors towards total GDP was significantly higher than that of agriculture. Also noted in CSO (2011) and World Bank (2011), in 1950–1951, the share of urban economic sectors towards India's GDP was only 29%, which increased to 47% in 1980–1981, and 61% in 2010–2011, and is likely to reach 75% by 2021 (Census data still awaited). The sectoral shares of GDP at the national level since 1980s to 2010 suggest that the service sector superseded the other two, with a value reaching 50.0% by 2000–2001, and as high as 57.7% by 2010–2011.

**Table 12.1** Total variance explained (a) and rotated component matrix (b) for urban components and economic indicators in India, 1980–81

Indicators	A-Initial eigen values				B-Components		
	Eigen $\geq$ 1; Extraction	Total	Variance (%)	Cumulative (%)	1	2	3
Percent Urban population	0.919	2.515	35.931	35.931	<b>0.938</b>	0.023	-0.197
Average annual Urban growth rate (1980–1985)	0.660	1.957	27.955	63.885	0.020	0.190	<b>0.790</b>
Average annual per capita net state Domestic product (NSDP)	0.800	1.059	15.124	79.009	<b>0.894</b>	-0.006	0.009
Average annual NSDP growth rate (1980–1985)	0.953	0.898	12.834	91.843	0.074	<b>0.972</b>	0.049
Average annual per capita NSDP Growth Rate (1980–1985)	0.924	0.376	5.368	97.211	-0.048	<b>0.956</b>	0.088
Percent share of manufacturing sector in NSDP	0.745	0.131	1.873	99.084	<b>0.512</b>	-0.067	0.448
Percent share of service sector in NSDP	0.529	0.064	0.0916	100.000	<b>0.735</b>	0.234	-0.461
Variance (%)					35.574	27.924	15.512
Cumulative (%)					35.574	63.498	79.009

Note Extraction method: Principal component analysis

### ***Performance and Pattern of Per Capita Net State Domestic Product in India***

Net State Domestic Product (NSDP) is the most important indicator representing a state's economic growth. In terms of average annual per capita NSDP, there exists significant inter-state variations, with exceptionally high average annual per capita NSDP in Chandigarh (Rs. 99,487 lakhs), Delhi (Rs. 95,943 lakhs) and Goa (Rs. 98,807 lakhs) compared to other states/UTs (DES 2011). For readers familiarity, 1 lakh INR (Indian National Rupee) = INR 100,000 (1USD ~ INR78/00, on 6/14/2022; all the figures reported here were calculated at constant price of 2004–05). Goa, the smallest states endowed with mesmerising scenic landscape and natural beaches, attracts the bulk of tourist dollars from around the world, contributing significantly towards its revenue. With the special circumstances of these top three, Haryana (Rs. 59,188 lakhs) and Maharashtra (Rs. 62,729 lakhs) are the richest states. The

proximity of Haryana to NCT-Delhi and Greater Mumbai (the most populated and India's financial capital) in Maharashtra play crucial economic roles as well. In contrast, Madhya Pradesh, Uttar Pradesh and Bihar, accounting towards 31.1% of India's total population, are the poorest, with their per capita income far below the national average of Rs. 35,917 lakhs.

### ***Major Factors of Urban Economic Growth***

The KMO test yielded a result of 0.586, validating the usefulness of factor analysis in this research. Using a cut-off eigen value  $\geq 1$ , the factor analysis for 1980–81 showed communalities and weights for all seven variables (Table 12.1a). Extraction results show that except  $X_7$ , the factor loadings of all other variables are  $\geq 0.6$ . Using the cut-off level of  $\pm 0.6$  to evaluate the factor loadings, we find that the highest variances are extracted for  $X_4$ ,  $X_5$  and  $X_1$ , with values of  $r = 0.953$ ,  $r = 0.924$  and  $r = 0.919$ , respectively. The three components (I, II and III) cumulatively explain 79.009 of total variance; Table 12.1b shows the values of the actual factor loadings for the three components.

The *first factor* exhibits dimensions pertaining to the size of economy and the economic sectors including manufacturing and service. It yields higher factor loadings for variables percent urban population ( $r = 0.938$ ), per capita NSDP ( $r = 0.894$ ), manufacturing ( $r = 0.735$ ) and service sector share to NSDP ( $r = 0.512$ ). About 36% of the total variation is attributed to the variables captured by component 1—which we name as ***manufacturing-induced economic urbanisation***. The second component essentially represents economic growth and is highly correlated ( $r = 0.972$ ) with NSDP growth rate and average annual per capita NSDP growth rate ( $r = 0.952$ )—we name it ***economy-induced urbanisation***. The third factor yields higher factor loadings ( $r = 0.790$ ) with average annual urban growth rate. When we look at the loadings of each of these components, using  $\pm 0.44$  as the cut-off level, even the component III represents an interesting characteristic of urban economy of the 1980s, which was far more propelled by manufacturing (+0.444) rather than the service sector (−0.461)—marking an interesting era in Indian's urban economic growth and transition period when the service sector had not yet caught up, and manufacturing was still the de facto attraction—a suction force that pulled the bulk of migrants, accentuating rapid urbanisation—we call it ***migration-induced urbanisation***.

### ***New Economic Reforms and Indian Economy***

The next two consecutive quinquennial years, i.e. 1985–85 and 1990–91, yield similar results as the preceding one with minor variations in second and third factor. Hence, the composite scores are not mapped. However, significant changes

**Table 12.2** Eigen values, variances and rotated component matrix of urban and economic indicators in India (1995–96)

Factor loadings of variables	1995–96		
	1	2	3
Eigen values	2.859	1.891	1.126
Variance (%)	40.843	27.015	16.091
Percent Urban population	0.381	0.830	0.033
Average annual Urban growth rate (1995–2000)	−0.561	0.461	0.029
Average annual per capita net state domestic product (NSDP)	−0.102	0.903	0.278
Average annual NSDP growth rate (1995–2000)	0.905	0.239	−0.097
Average annual per capita NSDP growth rate (1995–2000)	0.956	0.130	−0.001
Percent share of manufacturing sector in NSDP	0.025	0.232	0.938
Percent share of service sector in NSDP	0.380	0.626	−0.569

were observed during post-reform period, marking significant departure from earlier decades. During 1995–96, the extracted three factors explained 83.95% of the total variations (Table 12.2). In fact, three noticeable changes emerged when compared with results of pre-reform period. Manufacturing sector share to NSDP extracted maximum value among all variables. Factor 1 shows high interrelation with the dimensions of economy and economic growth. It is to be noted that economic growth represented by GDP growth rate and per capita GDP growth rate formed part of the second component in 1980, whereas factor 2 represents a combination of urban attributes, size of economy and service sector.

The beginning of the 1990s was marked by the conceptualisation, formulation and implementation of the ‘New Economic Reforms’—the neoliberal economic revolution in India, wherein the IMF had already entered the scene with SAP and the concomitant enforcement of terms and conditions. Economic sectors got tremendous boost, and India became the ultimate choice of multi-national and foreign direct investors, especially those motivated by the IT and increased demands of low-end maquiladora industries and outsourcing giants (Dupont 2011; Narayana 2011). In this regard, we found several supporting scholarships that have discussed the transformations in the 1990s. The economic liberalisation accelerated rural to urban migration, often forcing rural folks into dispossessing their lands in the process of transitioning Indian cities as the ‘global cities’ of twenty-first century (Goldman 2011; Shaban 2022). This also occurred primarily based on the assumption that there would be massive inflow of capital, both from within and outside the country, resulting in rapid development of infrastructure and industrial growth (Kratke 2014). This was likely to give impetus to the process of urbanisation in the country since much of the industrial growth and consequential growth in employment would be within or around the existing urban centres (Kundu 1997). Very true to the expectation, the nation recorded a significant growth in urbanites, which thenceforth became part of second factor in 1995–96.



### *Emergence of Economic Sectors in the New Millennium (2010–11)*

Year 2000–01 and 2005–06 yielded similar results in line with earlier observations and are not discussed here. However, for 2010–11, only two principal components were extracted (unlike three in all other cases), accounting for much of the information captured by seven variables, cumulatively explaining 74% of total variance (Table 12.3a). The KMO test score (0.629) reaffirmed the validity of factor analysis.

The first component is the most highly correlated with percent urban population, percent share of service sector in NSDP, and average annual NSDP growth rate, with higher factor loadings of  $r = 0.875$ ,  $r = 0.853$  and  $r = 0.770$ , respectively. In fact, annual average urban growth rate presents an exceptional case of high interrelationship with factor 2 ( $r = 0.798$ ). It is important to recognise that the share of service sector to NSDP witnessed a sharp boom with significant value addition to the

**Table 12.3** Total variance explained (A) and rotated component matrix (B) for urban components and economic indicators in India, 2010–11

Indicators	A-Initial eigen values				B-Components	
	Eigen $\geq 1$ ; Extraction	Total	Variance (%)	Cumulative (%)	1	2
Percent Urban population	0.927	2.733	39.039	39.039	<b>0.875</b>	-0.020
Average annual Urban growth rate (1980–1985)	0.657	1.468	20.971	60.010	0.202	0.798
Average annual per capita net state Domestic product (NSDP)	0.807	0.901	12.872	72.882	0.631	0.203
Average annual NSDP growth rate (1980–1985)	0.689	0.748	10.690	83.572	<b>0.770</b>	-0.310
Average annual per capita NSDP Growth Rate (1980–1985)	0.686	0.640	9.140	92.712	0.220	-0.799
Percent share of manufacturing sector in NSDP	0.270	0.360	5.145	97.856	0.363	0.771
Percent share of service sector in NSDP	0.765	0.150	2.144	100.000	<b>0.853</b>	0.259
Variance (%)					44.623	29.387
Cumulative (%)					44.623	74.01

Note Extraction method: Principal component analysis

economy. Consequently, service sector showed high interrelationship with first and second sector for 2000–01, 2005–05 and 2010–11, respectively. In this connection, it is worthwhile to be reminded that majority of Indian states had a significantly higher share of service sector contribution to NSDP. States and UTs like NCT-Delhi, Chandigarh, Mizoram, Kerala, Maharashtra, Tamil Nadu and Puducherry are noteworthy with more than 50% of their contribution towards NSDP coming from the service sector (Census of India 2011). This was also the time when significant growth in the service sector was occurring across the urban areas throughout the country, and simultaneously large, mid- or small towns, all experienced significant growth in urban population that provided the needed labour in the service sectors of various types.

### *The Composite Scores and Levels of Development*

Based on the scores of factor analysis (FA), composite scores were computed for each principal components for all states/UTs. These are the weighted sum of the standardised scores for the given set of indicators. These scores are useful in studying the nature and pattern of states/UTs in the study area pertaining to various scores obtained with respect to growth and development of the nation. A value of 1 and above indicates better performance of the factor and are termed as highly developed. Based on these results, the states/UTs are categorised into three mutually exclusive groups—high, moderate and less developed region—reflecting their levels of growth and development for the census years 1980–81 and 2010–11, respectively (Table 12.4).

The obtained composite scores are mapped to visually analyse their spatial dimensions. In 1980–81, NCT-Delhi and Puducherry performed better with an index of  $\geq 1$  for the first factor. However, for second and third factors, three states from the north-east—Arunachal Pradesh, Sikkim and Nagaland yielded high positive scores. An overall analysis of these three factors reveals that the states that were both industrially and economically developed had a low positive score. On the other hand, the underdeveloped and relatively poorer states of Bihar, Odisha, Uttar Pradesh, Madhya Pradesh and other north-eastern states recorded a low negative score. The spatial distribution of states based on the scores obtained is shown in Fig. 12.3a–c. In a span of a decade and a half, there were noted interchange of variables' characteristics for the first and second components. Goa and Maharashtra had obtained high scores in 1995. As part of the third factor, showing high interrelation with manufacturing sector share to NSDP, the states/UTs of Tamil Nadu, Gujarat and Puducherry benefitted the most. The developing states of Himachal Pradesh and West Bengal too witnessed a lift in their industrial sector, yielding a high score  $\geq 1$ . Bihar, Rajasthan, Madhya Pradesh and Arunachal Pradesh closely followed them.

In 2011, factor 1 represented a combination of majority of the variables; 3 out of 7 variables showed high interrelation with first factor. NCT-Delhi, Puducherry, Goa and Maharashtra performed better when all the variables were taken together with a

**Table 12.4** Level of growth and development in India (1980–81 and 2010–11)

Factor scores	$\geq 1.00$	$> 0.00$ and $< 1.00$	$\leq 0.00$
Level	Highly developed	Moderately developed	Less developed
Components (1981)-I	Delhi (NCT), Puducherry	Goa, Maharashtra, Tamil Nadu, Punjab, Gujarat, Nagaland, West Bengal, Andaman and Nicobar and Haryana	Arunachal Pradesh, Manipur, Karnataka, Sikkim, Kerala, Andhra Pradesh, Meghalaya, Rajasthan, Assam, Uttar Pradesh, Himachal Pradesh, Madhya Pradesh, Odisha, Bihar and Tripura
II	Arunachal Pradesh, Sikkim, Nagaland	Haryana, Assam, Punjab, Bihar, Tamil Nadu, Andhra Pradesh, Delhi (NCT) and Manipur	Rajasthan, Gujarat, Odisha, Uttar Pradesh, Maharashtra, Karnataka, West Bengal, Andaman and Nicobar, Meghalaya, Madhya Pradesh, Himachal Pradesh, Puducherry, Tripura, Kerala and Goa
III	Arunachal Pradesh, Puducherry	Kerala, Tripura, Goa, Andaman and Nicobar, Madhya Pradesh, Maharashtra, West Bengal, Rajasthan, Himachal Pradesh, Haryana and Gujarat	Odisha, Uttar Pradesh, Karnataka, Andhra Pradesh, Bihar, Punjab, Tamil Nadu, Nagaland, Meghalaya, Assam, Manipur, Delhi (NCT) and Sikkim
Components (2011)-I	Delhi, Puducherry, Goa, Maharashtra	Sikkim, Tamil Nadu, Gujarat, Haryana, Tripura, Andaman and Nicobar, Arunachal Pradesh and Karnataka	Kerala, Andhra Pradesh, Meghalaya, Punjab, West Bengal, Jammu and Kashmir, Himachal Pradesh, Odisha, Uttar Pradesh, Madhya Pradesh, Bihar, Assam and Rajasthan
II	Bihar, Maharashtra, Arunachal Pradesh	Puducherry, Tamil Nadu, Odisha, Madhya Pradesh, Delhi (NCT), Andaman and Nicobar, Gujarat, Rajasthan, Haryana, Andhra Pradesh and Punjab	Karnataka, Jammu and Kashmir, Uttar Pradesh, Himachal Pradesh, Assam, Kerala, Goa, Meghalaya, West Bengal, Sikkim and Tripura

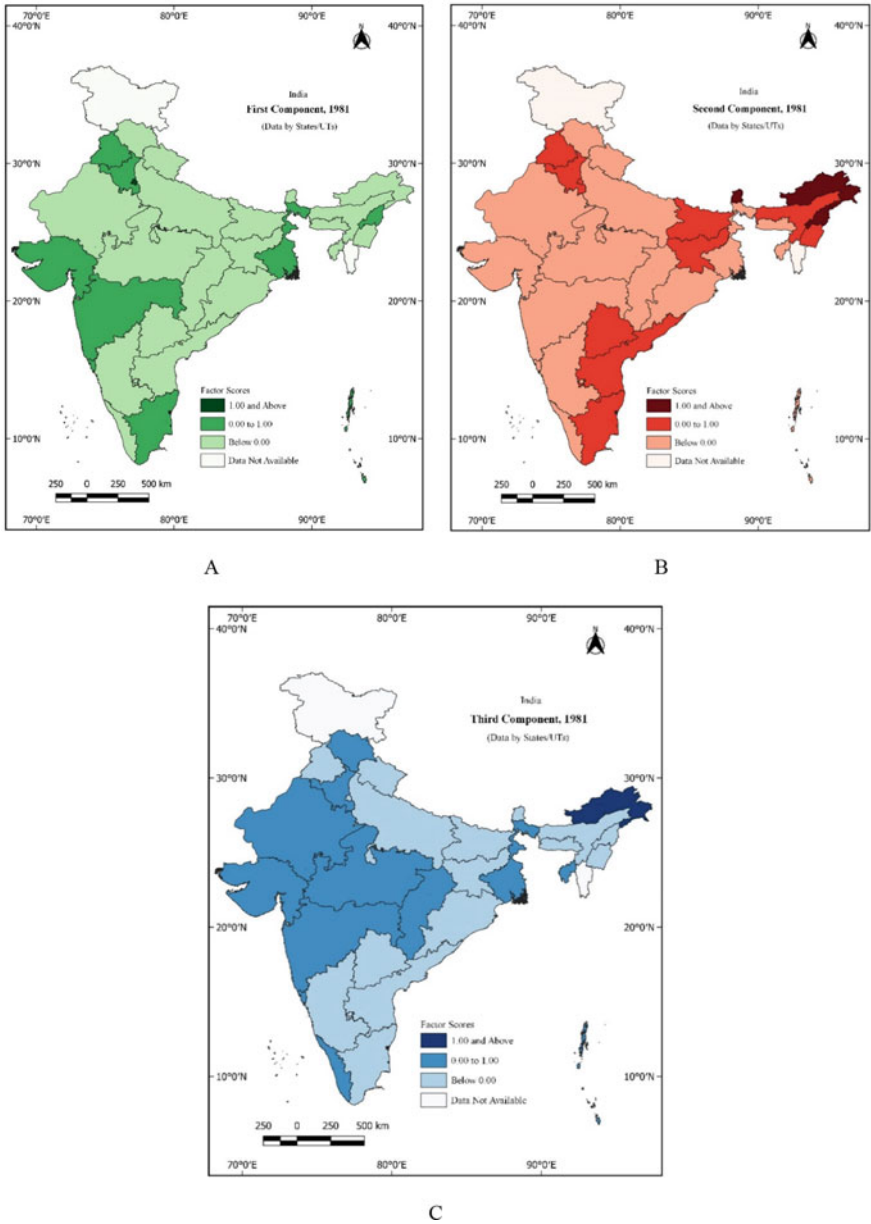
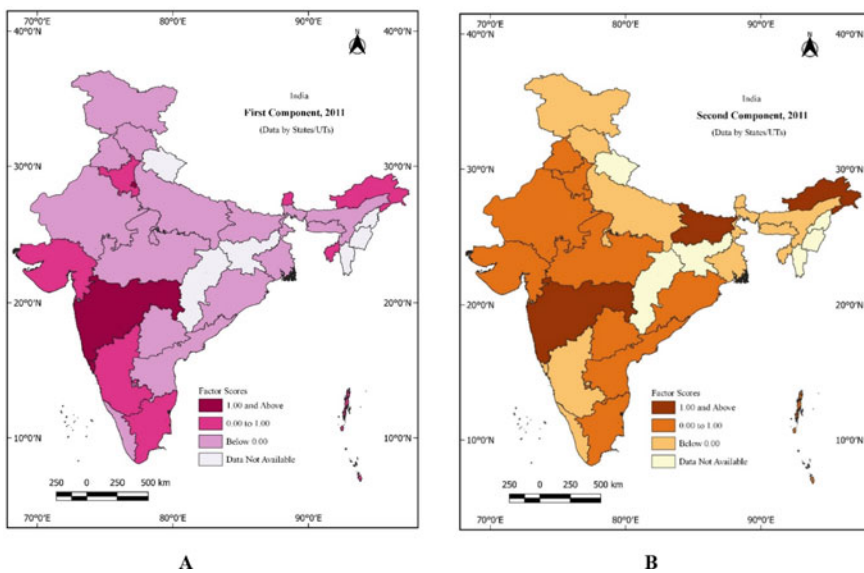


Fig. 12.3 Spatial distribution of factor scores for principal components in India, 1980–81

factor score  $\geq 1$ . This indicates better utilisation of the variables pertaining to each component. Percent urban population along with size of economy and economic sectors yielded high factor scores mostly for developed states/UTs as illustrated in Fig. 12.4a. Among others, per capita NSDP showed higher factor loading ( $r = 0.875$ ). It is in this context that Panagariya (2010) had indicated that India clocked a steady annual average growth of 8.5% for six years, beginning 2003–2004 and ending in 2008–2009, characterised with phenomenal growth experienced by the poorest states in recent years. Rajasthan and Odisha grew at 9.4% each, and Bihar at 8.4%. Likewise, the three newest states—Uttarakhand, Chhattisgarh and Jharkhand, which were carved out of poorer mother states of Madhya Pradesh, Uttar Pradesh and Bihar respectively, also grew at rates exceeding 9%. In fact, these three newly developed states performed much better than their mother states since their inception on the yardstick of per capita NSDP. By 1999–2000, Uttarakhand had a per capita income that was 1.4 times that of Uttar Pradesh, which had doubled by 2006–2007, and grew by 2.6 times that of the mother state by 2010–2011. The per capita income growth rate of Chhattisgarh was nine-tenths that of Madhya Pradesh and had steadily bridged the gap to achieve an impressive 30% lead over the latter by 2007–2008. Though Jharkhand began with a per capita income twice that of Bihar, it lost its ground compared to its inception.

The second factor represents urban attributes including annual average urban growth rate and percent share of manufacturing in NSDP. Figure 12.4b shows the scores for factor 2. Bihar, Maharashtra and Odisha are the three states that recorded high factor scores ( $\geq 1.00$ ). Based on the discussion of principal components and the



**Fig. 12.4** Spatial distribution of factor scores for principal components in India, 2010–11

factor scores, it is obvious that among the combination of seven urban components and economic indicators, only two prominent variables maintained consistent and strong interrelationship with factor 1. These include *percent urban population* and *average annual per capita*, representing urban attributes and size of economy. In addition, sectoral composition to NSDP also received added impetus during and post-1990s. At disaggregate level, based on the scores obtained from factor analysis, Gujarat emerged as one of the most promising states, exhibiting phenomenal growth in terms of average annual per capita NSDP, average annual urban growth rates and the growth-enhancing manufacturing sector.

## Conclusions

This paper examined the role of urban processes and urbanisation in the economic growth in India during 1981–2011, using the 1991 economic liberalisation as a framework. We explored the changing nature of relationships between urbanisation and the transitioning economic sectors that were the socio-economic and spatial manifestations of the liberalisation. Without doubt, India experienced rapid economic growth and development in every state and UT, albeit at varying levels. While the developed states/UTs including NCT-Delhi, Maharashtra, Gujarat, Goa, Puducherry and Tamil Nadu achieved significant growth, the developing states benefitted the most in terms of pace and growth rates regarding their urban components and economic indicators. Bihar, Arunachal Pradesh, Madhya Pradesh and Odisha were the classic examples of these phenomena. Interestingly, the newly carved out states like Uttarakhand and Chhattisgarh performed far better than their mother states, with the exception of Jharkhand where progress slowed down later on. We also found an interesting dualism in Indian urban system wherein the states with larger shares of industrial and service sectors attracted job seekers from rural areas and smaller towns, given the demand-induced labour needs in response to liberalisation's expansive industrial base and infrastructure.

Starting with 1980s, India witnessed accelerated economic growth, partly due to commendable growth in productivity in the service sector, which significantly contributed towards the aggregate value-added growth during 1981–2011, and eventual increase in urban population. This period represented diversification of economic structure that led to openness of external trade and investment and an ability to withstand external and internal shocks. Moreover, liberalisation of domestic economy and the increasing integration of India with the global economy helped the nation maintain the tempo of growth and development. Among principal factors, percent urban population and average annual per capita NSDP emerged as the two dominant variables maintaining a significant and strong positive correlation with high factor loadings. For most of the years, the trio were part of Factor 1. However, variables pertaining to manufacturing and service sectors' share to NSDP received additional thrust during the post reform era. The revitalisation of industries along with the growth of service sector led to significant growth in economy. Hence, along with

urban attributes and size of the economy, the economic sector dimension including service sector's share to NSDP became representative of First Factor in 2001 and thereafter. The development of services such as banking, transport and communication, real-estate and IT is now regarded as one of the preconditions of economic growth, especially in context of developing economy like India. A significantly rising part of the value-added by manufacturers now consists of services, catering largely to tertiary and quaternary sectors. India today has the knowledge and 1.407 billion educated human resource, with a capacity to produce and process a wide variety of industrial and consumer products, along with providing quality services that can continue to drive the Indian economy.

Regarding the regional and global scale impacts of liberalisation in India, without doubt, the economic growth and prosperity were felt by the larger urban communities, giving rise to the *new middle class*, especially in the megacities of India in pursuit of making them the new *global cities* (Dupont 2011; Goldman 2011; Nijman 2006). This accelerated large-scale migration towards the megacities and second-tier cities, creating a *new spatial* order within and among the cities of India that involved strategic *face-lifting* of specific parts, as also the formation of informal settlements and urban villages in other parts of these new *global cities* (Dupont 2011; Mitra 2006; Mitra and Murayama 2009; Sharma 2017; Sharma and Abhay 2022). Narayana (2011)'s admirable illustrations of Bangalore's dramatic transitioning into the 'Silicon Valley' of Asia and the global south, is a testimony of the multi-faceted ways in which the economic liberalisation did its job. It propelled numerous service sectors by opening doors to international investors as well as domestic-international partnerships by creating a competitive playground for all. These produced cumulative cycles of basic and non-basic activities, putting India on a global map as a major competitor. These changes offered the much-needed face-lifting to numerous mid- and small-sized cities that became hot spots for a variety of human resource training destinations (IMF 2017; Mehta et al. 2012) that served well as the outsourcing centres and the newly skilled labour pool for the restructured industries. These processes continued to fuel rural-urban migration. The fruits of these changes, despite benefitting the newly emerging middle class, served well to provide at least food to the otherwise hungry and destitute poorer segments.

Also, while the socio-economic and spatial polarisation also increased in the country, the dreams of achieving the new middle-class status and aspirations of living a better quality of life, nevertheless, were already sown. As indicated by Behera and Karthiayani (2021), while the urban economy helped improve the status of urban dwellers, it also created large-scale regional inequalities. However, it was agro-based value-added industries that helped narrow down the economic inequalities. Our analysis and published scholarships provide pathways for a comprehensive development planning for all. This include attracting investments domestically and internationally, both such that balanced growth and development can be achieved for all. India has now become a choice location for IT and allied industries. However, with an abundance of educated, savvy and young human resource, India should push itself beyond the maquiladora status promoted largely by the first world countries (IMF 2017; Mehta et al. 2012). There exists enormous potential in India's talented

and vast human resource, and the only way to bring real prosperity and holistic growth for all is by implementing equitably balanced investments in urban and rural economies alike.

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