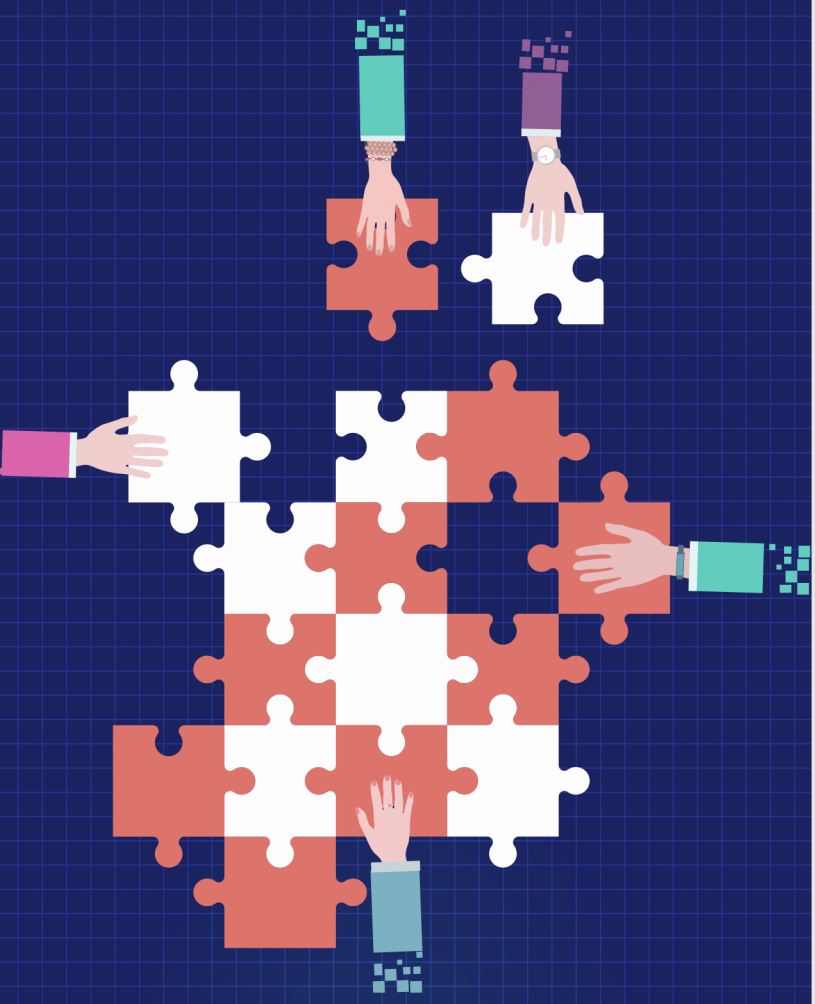

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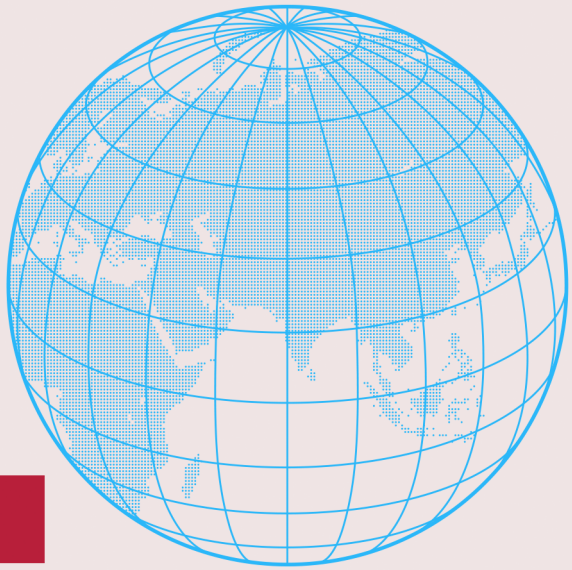
Decoding State Growth

Stronger Attributes, Specialised Cities

Shishir Gupta
Rishita Sachdeva



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6, Dr Jose P. Rizal Marg, Chanakyapuri,
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Designed by Mukesh Rawat

Decoding State Growth: Stronger Attributes, Specialised Cities

Shishir Gupta
Senior Fellow
Centre for Social and Economic Progress
New Delhi, India

Rishita Sachdeva
Associate Fellow
Centre for Social and Economic Progress
New Delhi, India

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List of Abbreviations

ADB	Asian Development Bank
AISHE	All India Survey on Higher Education
AP	Andhra Pradesh
ASI	Annual Survey of Industries
ASIC	Annual Survey of India's City System
BPO	Business Process Outsourcing
CAGR	Compound Annual Growth Rate
Discoms	Distribution Companies
FY	Financial Year
GDP	Gross Domestic Product
GoI	Government of India
GVA	Gross Value Added
HDI	Human Development Index
HP	Himachal Pradesh
ICT	Information and Communications Technology
IMR	Infant Mortality Rate
IT	Information Technology
J&K	Jammu and Kashmir
KEC	Key Economic Centres
KLEMS	Capital, Labour, Energy, Materials, and Services
LPCD	Litres Per Capita Per Day
MP	Madhya Pradesh
MSME	Micro, Small and Medium Enterprises
NCRB	National Crime Records Bureau
NFHS	National Family Health Survey
NDP	Net Domestic Product
NSG	Non-Suburban Group
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
PMGSY	Pradhan Mantri Gram Sadak Yojana
PRD	Pearl River Delta
PTI	Price-to-Income Ratio
R&D	Research and Development
RBI	Reserve Bank of India
RCA	Revealed Comparative Advantage
SWM	Solid Waste Management
T&D	Transmission and Distribution Losses
UA	Urban Agglomeration
ULB	Urban Local Body
UP	Uttar Pradesh
VAT	Value Added Tax
WHO	World Health Organization

Executive Summary

India in April 2025 is a transformed country, with businesses free to establish and expand, having almost unencumbered access to foreign investments, and operating in a largely competitive export/import environment compared to the early 1990s. This transformation is the result of economic reforms initiated in 1991 by the Government of India (GoI) and carried forward over time. Consequently, the real per capita Gross Domestic Product (GDP) has almost quadrupled from US$561 in 1994 to nearly US$1,944 by 2020. Prime Minister Modi has now set out an ambitious plan for the future—India becoming a developed country by 2047, when it celebrates 100 years of independence. In income terms, this translates into real per capita GDP growth of around 7.3 per cent from 2024 to 2047, significantly higher than the 4.9 per cent per capita growth achieved between 1994 and 2020.

The growth target is not only more aspirational but also set against a backdrop of a fragmented and increasingly complex global environment, coupled with the fact that the next phase of reforms required to meet the target will have to be led by India's myriad states. The next generation of reforms will require a continuous build-out of human and physical infrastructure while adhering to fiscal discipline. Additionally, governments need to initiate the process of reforming factor markets such as land and labour earnestly. The finance minister, in her Financial Year (FY) 2025 Union Budget speech, emphasised, "The government will establish a comprehensive Economic Policy Framework to guide the nation's development, focusing on increasing productivity and market efficiency. The framework will address all factors of production, including land, labour, capital, and entrepreneurship, with technology playing a critical role in improving total factor productivity and reducing inequality. (Ministry of Finance, Government of India, 2024). The majority of these factors of production fall under the responsibilities of the State governments in India. This notion was emphasised by Prime Minister Modi when he "urged State governments to establish clear policies to attract investors" in his Independence Day speech of 2024. He emphasised that State governments play a key role and that reforms cannot be implemented solely by the Central government since implementation is done at a State level (Modi, 2024).

States of India rival mid-to-large-sized nations, especially in terms of GDP and population and wield considerable autonomy under the Constitution. This autonomy has played a key role in their diverse evolution over time, resulting in heterogeneity in crucial socio-economic attributes such as per capita GDP, the share of manufacturing, educational attainment, and life expectancy. For example, India's manufacturing share of GDP has remained between 15 and 17 per cent over the last couple of decades (MoSPI, 2024), whereas some states, such as Uttarakhand, Gujarat, and Himachal Pradesh (HP), already have more than 30 per cent of their GDP derived from manufacturing. This is higher than any major country globally, including China. Furthermore, the wealthier states, such as Gujarat and Haryana, have a per capita income of approximately US$4,000 as of 2023 and are on the verge of entering the upper middle-income band. In contrast, states like Bihar and Uttar Pradesh (UP), with a per capita income of around US$1,000, are at the lower end of the middle-income category. In addition to higher per capita income, these wealthier states have also generally managed to grow their per capita GDP by more than 5.5 per cent annually over the last couple of decades, almost 1.5- 2 times that of slower-growing states.

States are categorised as "Fast," "Average," and "Slow," based on their per capita growth between 1994 and 2020. Eight States are classified as fast-growing, and six each as average- and slow-growing States. Achieving developed country status by 2047 necessitates slower-growing states learning from faster-growing ones, and the latter from global peers, such as provinces in China. Two fundamental axes define state growth: (a) state-level growth attributes or determinants, including physical infrastructure—road density, transmission and distribution losses (T&D), Pradhan Mantri Gram Sadak Yojana (PMGSY) habitat coverage, and land affordability; social infrastructure—gross enrolment ratio in tertiary education and stunting ratio; and the quality of governance—violent crime rate, fiscal deficit to GDP ratio, and flexibility in labour markets; and (b) performance of key economic centres (KECs)—districts comprising million-plus urban agglomerations (UAs) and capital cities, plus districts that have increased their share in state GDP by more than five per cent.

Strong growth attributes enhance the business environment and productivity, thereby driving investment and growth. A state is said to perform better on a growth-inducing attribute if its long-term average score is at or above state average levels. The correlation between the state per capita GDP growth rate (1994–2020) and the count of attributes on which a state performs better during this period is 0.69. While

the relationship is robust, careful observation reveals some gaps. For instance, although both Gujarat and Tamil Nadu score similarly regarding these growth attributes, their long-term growth performance differs significantly. Gujarat's real per capita GDP grew at 6.7 per cent per annum compared to 5.9 per cent for Tamil Nadu. Conversely, while both Maharashtra and Punjab have attributes similar to fast-growing states, their economic growth was insufficient to be classified as fast-growing. A significant explanation for this gap is the role of KECs in state growth. The fundamental difference between Gujarat and Tamil Nadu is the performance of their KECs, with the former growing at 10 per cent per annum compared to 7.7 per cent for the latter. Similarly, although Maharashtra and Punjab have attributes akin to fast-growing states, they did not grow fast enough because their KECs did not outperform sufficiently. The correlation between per capita state growth and KEC growth is 0.58. KECs are hubs of economic activity and typically grow faster than their respective states. One key reason for their outperformance is their specialisation in particular sectors (defined as a disproportionate share of any sector(s) in a KEC's GDP, relative to the national share). This specialisation leads to an agglomeration effect, which boosts their growth and creates a virtuous cycle. The fastest-growing states, such as Gujarat, Uttarakhand, and Karnataka, have KECs that are growing significantly faster than the rest of the states. Across the 18 states for which we have district-level data, there are 58 KECs comprising 77 districts (in some cases, a UA comprises multiple districts). The GDP share of KECs in India's GDP was about 29 per cent in 2000, which increased to 34 per cent by 2020, reflecting their faster growth trajectory compared to the overall state growth.

ES Table 1: Performance of States on the Two Fundamental Growth Axes

Category	States	Real Per Capita GDP CAGR, 1994–2020 *(Per cent)*	Growth Attributes in which a State is Higher than the State-Average *(Count)*	Real KEC GDP Growth Rate, CAGR, 2000–2020 *(Per cent) (Weighted Average)*
Fast	Gujarat	6.7	6	9.9
	Uttarakhand	6.5	5	12.6
	Combined AP	6.2	7	9.1
	Tamil Nadu	5.9	6	7.7
	Himachal Pradesh (HP)	5.8	7	9.4
	Karnataka	5.8	6	10.3
	Kerala	5.7	5	6.3
	Haryana	5.6	4	9.9
Average	Maharashtra	5.3	7	7.3
	West Bengal	5.0	4	5.6
	Odisha	4.9	5	10.7
	Rajasthan	4.8	3	7.7
	Bihar	4.5	2	7.2
	Madhya Pradesh (MP)	4.5	4	5.8
Slow	Punjab	4.1	6	5.4
	Chhattisgarh	3.9	5	8.2
	Jharkhand	3.7	2	7.3
	Uttar Pradesh (UP)	3.6	2	7.5
	Assam	3.5	4	No data
	Jammu & Kashmir	3.2	1	No data

Low to high performance

Source: Based on authors' estimates using MoSPI and district statistics database. Growth attributes calculation and sources are mentioned in table 4.

Note: The maximum growth-inducing attribute count possible is nine.

A few key messages emerge from the analysis of state growth along two fundamental axes.

There are no shortcuts to fast growth in the long term. Strong growth attributes and the performance of KECs are both critical for accelerated state growth. States that grow fast tend to be strong in both aspects, whereas slow-growing states are generally weak in these areas. We find no evidence of fast-growing states being strong only on a few growth attributes or "islands of growth" (KECs) transforming a state into the fast-growing category in an environment of weak attributes. Strong attributes help develop and deepen growth-enhancing KECs; the two usually complement each other. The group of states that meet both criteria—Gujarat, Andhra Pradesh (AP) (including Telangana), Uttarakhand, Karnataka, and HP—perform the best, with an average per capita GDP growth of around 6 per cent between 1994 and 2020. Conversely, states that are weak on both axes have typically grown significantly slower. When a state improves its performance of a growth attribute from below average to average or above average, its long-term per capita real GDP growth increases by 0.3 per cent, ceteris paribus. Additionally, for a 10 per cent increase in KEC GDP growth rate, the long-term per capita annual GDP CAGR increases by 0.2 per cent (based on ordinary least squares regression, the regression provides a directional estimate of the potential magnitude of growth if a state enhances its attributes and/or KECs).

States have a pivotal role in improving both growth axes, as most of the growth attributes and KECs fall squarely within the remit of state governments.

- Of the nine identified growth attributes, six are in the State List—crime, fiscal deficit, healthcare, Transmission and Distribution (T&D) losses, labour reforms, and land policies—and hence, states have complete control over them. The responsibility, thus, lies with state governments to improve these growth determinants. For example, stunting is 22 per cent in Kerala and 46 per cent in Madhya Pradesh (MP), and while the former spends 8 per cent of its budget on healthcare, the latter spends close to 6 per cent (National Health System Resource Centre, 2020). The same applies to housing affordability; Gujarat is more than twice as affordable as Maharashtra, as reflected in the land pooling practice of acquiring land in Gujarat (Mahadevia, Pai, & Mahendra, 2018), which has kept prices in check compared to Maharashtra, which has some of the costliest real estate in the world.
- KECs are large urban centres generally governed by Urban Local Bodies (ULBs). A better-managed urban centre enhances the productivity of its businesses, thereby fostering growth. Since ULBs are accountable to State governments, the latter assume primacy again. There has not been sufficient devolution of finances and functions from State governments to local governments as enshrined in the 73rd and 74th Constitutional Amendments, and this remains a significant reform agenda. Municipal revenue as a percentage of GDP has remained constant at 1 per cent since 2007–2008, much lower than other developing nations such as Brazil and South Africa, whose ratios stood at 7.4 per cent and 6 per cent, respectively (Ahluwalia et al., 2019). Furthermore, the average tenure of a municipal commissioner is 10 months, leaving them with no incentive or ability to make a meaningful difference to their functioning (Annual Survey of India's City System (ASIC), 2017).

Specialisation is key for faster KEC growth and occurs for three primary reasons: the concentration of factors of production, incentive-driven investment, and natural endowments. One key reason KECs grow faster than their respective states is sector specialisation, which yields economies of agglomeration. The top 20 fastest-growing KECs account for 50 per cent of all instances of specialisation. Specialisation occurs when businesses within a particular sector find it optimal to invest in a specific location (KEC), transforming it into a significant hub for that economic activity. Bangalore emerged as a computer services hub due to Karnataka's inherent strength in having a pool of trained labour. The auto hub in Uttarakhand and the pharmaceutical industry in HP developed as a result of the Special Package Scheme announced by the Central government in 2003, which aimed to industrialise these states by offering significant tax benefits to industries establishing operations there. KECs specialising in mining are, by definition, driven by natural endowments. It is noteworthy that natural endowments and Central government incentive packages fall outside the jurisdiction of State governments. In other words, **specialisation in a KEC occurs, more often than not, organically because of the above-mentioned reasons, rather than being orchestrated.** This is because all parts of the ecosystem must align in a way that companies find it optimal to agglomerate in a particular KEC, around a set of anchor industries. Achieving this through planning and design is extremely challenging, especially in a federal and democratic country like India, where there

is constant competition among State governments to attract more private investment and free movement of people. State governments should focus on strong determinants and well-managed urban centres to help develop and deepen specialisation in their KECs.

There is a strong association between capital-intensive specialisation and growth, while there is a weaker association with labour-intensive specialisation. KECs specialising in capital-intensive manufacturing have typically experienced the fastest growth. In contrast, KECs with specialisation in labour-intensive manufacturing do not exhibit the same pace of economic growth. The most recognisable KECs specialising in labour-intensive industries, such as Ludhiana (textile) in Punjab, Coimbatore (textile) in Tamil Nadu, and Agra (leather) in UP, do not achieve double-digit growth. Conversely, capital-intensive centres such as Udham Singh Nagar and Haridwar (automobile) in Uttarakhand, Solan (chemicals and machinery) in HP, and Jamnagar (petroleum) in Gujarat all experienced double-digit growth between 2000 and 2020. These observations from KEC-level specialisation and growth are consistent with the well-known narrative that labour-intensive industries have not performed well in India over the past few decades, as India is losing its comparative advantage in these products. The Revealed Comparative Advantage (RCA) of the textile industry declined from 4.62 to 2.79 between 2000 and 2018 (Ahmed, 2022). This is reflected in the textile industry's share decreasing from 2.2 per cent to 1.9 per cent between 2000 and 2020, compared to an increase in the transport equipment industry's share from 1.3 per cent to 1.7 per cent in India's Gross Value Added (GVA) (Capital, Labour, Energy, Materials, and Services [KLEMS], 2020) during the same period. The lacklustre performance of labour-intensive manufacturing poses a constraint for States specialising in it to grow faster. This remains a big policy puzzle that needs resolution at the highest level.

KECs are relatively well distributed; pursuing a more distributed model may imply slower growth. Governments in India have consistently aimed to maximise growth while addressing regional inequity. The current government also seeks to achieve "balanced regional development across all districts" (Government of India, 2022). Since KECs are present in all states, compared to some other countries like China where its growth hubs are concentrated in the east, India is relatively better off. If we pursue the strategy of a significantly more distributed model, it may imply slower growth since it runs the risk of diluting the agglomeration benefits by spreading resources thin. Therefore, State governments should focus on continuously improving growth attributes and nurturing specialisation where it exists or begins to develop, rather than force-fitting niche products or services in a geographically disaggregated manner in the hope that these niches become the growth axis for those districts, leading to faster and more balanced growth. The government should prioritise improving existing Centres and nurturing them rather than creating new greenfield cities, as they can take a long time to yield results. For example, Gurgaon took 20 years to become the central business district of North India, despite having favourable conditions such as proximity to the airport, adjacency to Delhi, and availability of land. Resources such as capital and labour should migrate to areas that are, and emerge as, growth engines, driving faster growth. This fundamental trade-off needs to be internalised by everyone, from policymakers to the general public, to ensure informed decision-making.

States must determine their growth strategy based on their position on these two fundamental axes. Focusing only on state attributes may miss the binding constraint regarding KECs, while singularly focusing on KECs is not desirable since we find little evidence of isolated pockets of growth working strongly enough in an environment of weak fundamentals. There is, thus, no one-size-fits-all strategy that will work for all states, given the heterogeneity in terms of growth attributes and the performance of KECs. State growth strategies should be a function of performance on growth attributes and KEC growth. In an ideal world, each state should focus on improving its attributes and KECs' growth. However, since in reality there is a resource constraint, it is helpful to know which priority is likely to yield better outcomes. For example, if a state is lacking in both axes, it should first focus on improving growth attributes; it is the non-KEC parts that are dragging growth for such states. Improving them will enhance growth in general and also help KECs perform better. Alternatively, if a state is strong on both axes, it should focus on unlocking the growth potential of its KECs by making them globally competitive while continuing to improve its attributes. Such states have demonstrated that they can excel in both dimensions, and they should continue their good work. Even our best-performing KECs pale in comparison to their Chinese counterparts, whose growth centres like Shanghai and Beijing grew more than 10 per cent annually for four decades, compared to our best-performing KECs growing between 7 and 10 per cent for nearly 20 years. Consequently, Shanghai and Beijing today have a GDP exceeding US$500 billion compared to our biggest KEC, Mumbai, at around US$150 billion.

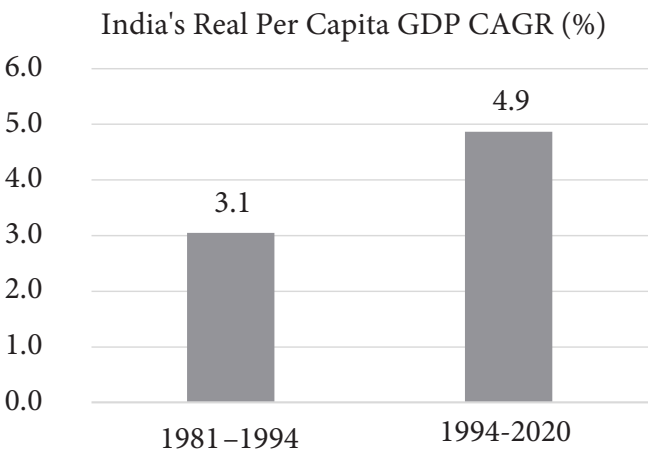
1. States Have a Pivotal Role in India's Next Generation Reforms

India's economic growth accelerated significantly following the 1991 reforms led by the Government of India (GoI). These reforms opened up opportunities for all states, resulting in faster growth post-1991 compared to the 1980s. Reforming factor markets such as land, labour, and capital, alongside improving human capital in areas like health and education, forms the core of the next-generation reforms aimed at further accelerating growth. As the majority of these reforms fall within the States' domain, they need to take a leadership position in the future reform agenda as India aims to become a developed nation by 2047.

1.1 GoI's Policies Have Determined India's Economic Growth Thus Far

At the beginning of the 1990s, India initiated a process of structural economic reforms. These contributed significantly to an increase in India's annual per capita Gross Domestic Product (GDP) growth, from 3.1 per cent during 1981–1994 to 4.9 per cent between 1994 and 2020. Noteworthy is that among the cohort of large countries,[1] this growth rate between 1994 and 2020 was the fourth highest. Consequently, per capita GDP almost quadrupled from US$561 to US$1,944[2] during this period (1994–2020).

Figure 1: India's Economic Reforms, Starting in 1991, Have Led to Faster Growth for the Country



Source: MoSPI.

The four milestone reforms that initiated the reform process in the 1990s were de-licensing, opening up the economy to the world, de-reservation, and devaluation. De-licensing involved removing the necessity for businesses to obtain a licence from the government to enter an industry and eliminating the requirement for prior government approval for capacity expansion. Licensing requirements were gradually removed for 93 per cent of industries by 1998, and after 2005, only five industries were subject to compulsory licensing. Opening the economy for global trade and investment entailed the elimination of import restrictions and a significant reduction in applied tariffs from an average of 60 per cent in 1990 to almost 10 per cent by 2019. Additionally, more than 30 industries were opened in 1991 for automatic approval of foreign equity of up to 51 per cent, with the list of such industries gradually increasing over the years. De-reservation was introduced in 1997; it opened up products for large/formal firms that were previously reserved only for small-scale enterprises. By 2007, more than 1,000 products were de-reserved (India Briefing, 2011; Martin, Nataraj, & Harrison, 2017). Alongside these three policy reforms, the rupee was devalued by 22 per cent between 1989 and 1992 to make Indian exports more competitive (Gupta & Sachdeva, 2022).

1.2 States' Growth Mimics India's Growth, Albeit not Perfectly

The economic reforms of the 1990s, championed by the GoI, opened up the economy to increased private participation and heightened competition. As these were national reforms, they applied uniformly across all states, creating enhanced opportunities that led to faster growth for each state during 1994–2020 compared to the 1980s.[3] However, since states are heterogeneous with varying starting points, policies, and endowments, some states benefited more than others. An analysis of per capita annual GDP growth between 1994 and 2020 reveals three distinct state growth archetypes: fast-growing, average-growing, and slow-growing. Fast-growing states recorded an annual per capita GDP growth of more than 5.4 per cent, while states with annual per capita growth of less than 4 per cent are classified as slow-growing;

[1] Large countries are defined as those with a population of more than 50 million (in 2020). There are 29 countries out of 195 (based on the UN list) that have a population exceeding 50 million.
[2] Calculated at 2015 US$ constant prices. Source: World Bank.
[3] At least the one being analysed in this paper.

those in between are classified as average-growing.[4] Eight states fall into the fast-growing category, with six each in the average and slow-growing categories.

a. The co-movement of State GDP growth[5] with India's GDP growth trajectory is evident. As Figure 1 shows, India's per capita GDP growth increased from 3.1 per cent to 4.9 per cent between 1981–1994 and 1994–2020, respectively. This uplifted the growth of every State, as shown in Table 1. This co-movement persists even when the periods are divided into shorter intervals (Appendix C). The synchronised shift in growth trajectories, coupled with the reform agenda led by the GoI, indicates that State growth performance has been largely influenced by national policy interventions. This predominant role of GoI policies on State growth so far suggests that State growth cannot be analysed in isolation from the national trend.

b. While all states' GDP growth co-moved, the movement is not symmetric—i.e., not all states accelerated or decelerated proportionately to India's growth. A quick look at Table 1 indicates that eight states experienced changes in their relative growth performance during the pre- and post-reform periods. Four states—Himachal Pradesh (HP), Haryana, Kerala, and Odisha—experienced a significant improvement in their relative growth performance. For example, HP was growing on par with India between 1981 and 1994 and accelerated to perform faster than India between 1994 and 2020, while Odisha moved from being a slow performer to an average performer during the same period. On the other hand, the relative performance of three states—Rajasthan, Punjab, and Maharashtra—worsened in the post-reform period. Lastly, there is a considerable narrowing of the gap between the fastest- and the slowest-growing states during the pre- and post-reform periods. Maharashtra was the fastest-growing in the 1980s at 4.2 per cent per capita per annum, while Jammu and Kashmir (J&K) was the slowest-growing at 0.8 per cent, implying the former was growing at five times the latter. Post-1994, Gujarat was the fastest at 6.7 per cent per capita per annum, while J&K remained the slowest, but at 3.2 per cent, implying that the fastest-growing state was now growing only about twice that of the slowest.

Narrowing the growth gap, however, has not translated into income convergence. Although slower-growing states in the 1980s have narrowed the gap vis-à-vis faster-growing ones in the post-reform period in terms of GDP growth, it is still not sufficient to result in income convergence. When we examine the correlation of the initial per capita GDP in 1981 with per capita GDP growth rates between 1981 and 1994, we find a correlation of 0.36. The correlation remains the same when we consider the initial per capita GDP in 1994 with per capita GDP growth rates between 1994 and 2020 (Appendix A). Consequently, the relatively richer states of Gujarat, Haryana, Punjab, and Maharashtra continue to remain relatively well-off in 2023. Meanwhile, Bihar, Uttar Pradesh (UP), Assam, and Odisha continue to remain relatively poor. The per capita income[6] of the three richest states was between 1.5–2 times that of the relatively weaker states in 1981. This had increased to approximately 2.5 times by 2023.

[4] These growth thresholds were decided by taking a 0.5 per cent deviation on both sides from the average growth of all States.
[5] We will focus on 20 major States in India for the paper, which account for 94 per cent of GDP and 93 per cent of population.
[6] Simple average per capita GDP. These are the richest States, as of 1980.

Table 1: Growth of all States Increased Post-1994, but not Symmetrically

State Categories Based on Their Growth in 1994–2020	States	Real Per-Capita GDP CAGR (Per cent)		Nominal Per-Capita NDP for 2023 (INR)
		1981–1994	1994–2020	
Fast	Gujarat	3.4	6.7	2,72,000
	Uttarakhand	No data	6.5	2,31,000
	Combined Andhra Pradesh (AP)	3.7	6.2	2,20,000
	Tamil Nadu	3.7	5.9	2,66,000
	Himachal Pradesh (HP)	2.6	5.8	2,19,000
	Karnataka	3.6	5.8	3,04,000
	Kerala	2.8	5.7	2,53,000
	Haryana	3.0	5.6	2,97,000
Average	Maharashtra	4.2	5.3	2,52,000
	West Bengal	2.4	5.0	1,39,000
	Odisha	1.6	4.9	1,44,000
	Rajasthan	3.0	4.8	1,51,000
	Bihar	1.1	4.5	53,000
	Madhya Pradesh (MP)	2.3	4.5	1,32,000
Slow	Punjab	3.2	4.1	1,82,000
	Chhattisgarh	No data	3.9	1,37,000
	Jharkhand	No data	3.7	96,000
	Uttar Pradesh (UP)	2.0	3.6	84,000
	Assam	1.7	3.5	1,19,000
	Jammu and Kashmir	0.8	3.2	1,30,000

Increasing order of per-capita GDP CAGR

Source: MoSPI.

Note: For three states—Uttarakhand, Jharkhand, and Chhattisgarh—data were not available prior to 1994, as they were created in the early 2000s. Telangana and AP are treated as one state, referred to as Combined Andhra Pradesh (AP). The per-capita Net Domestic Product (NDP) of Combined AP is the simple average of the per-capita NDP of Telangana and AP. The per-capita NDP of India in 2023 at nominal prices was INR 1,72,173. States' per-capita GDP values are rounded off to the nearest thousand. Colour-coding is column-wise.

1.3 Accelerating India's Growth Requires States to Actively Participate in Next-Generation Reforms

India aims to become a developed country by 2047, marking 100 years of its independence. This goal necessitates an annual growth rate of 7.3 per cent in real per capita GDP from 2024 to 2047. This is significantly higher than the 4.9 per cent annual per capita growth achieved between 1994 and 2020. Unlike in the past, States need to be active partners in this future growth journey. This is because the next generation of reforms must focus on factor markets such as land, labour, and capital, coupled with human capital like education and health, where States have a crucial role. This notion was emphasised by Prime Minister Modi when he "urged State governments to establish clear policies to attract investors" in his Independence Day speech of 2024. He stressed that State governments play a key role and that reforms cannot be implemented solely by the Central government since implementation occurs at the State level (Modi, 2024). The Finance Minister, in her Financial Year (FY) 2025 Union Budget speech, stated: "The government will establish a comprehensive Economic Policy Framework to guide the nation's development, focusing on increasing productivity and market efficiency. The framework will address all factors of production, including land, labour, capital, and entrepreneurship, with technology playing a critical role in improving total factor productivity and reducing inequality" (Ministry of Finance, Government of India, 2024).

Given the heterogeneity among States, a one-size-fits-all strategy to accelerate growth is not feasible. For example, States with the largest economies, such as Maharashtra, Gujarat, Tamil Nadu, and Karnataka, with GDPs ranging between US$200 billion and US$400 billion, fall between the 75th and 85th percentiles in terms of cross-country GDP ranking and are comparable to the economies of Bangladesh and Malaysia. Conversely, smaller States like HP are equivalent to Nepal and fall around the 50th percentile mark in the global ranking. The wealthier States like Gujarat and Haryana have an average per capita income of around US$4,000 as of 2023[7] and are about to enter the upper middle-income band, whereas States like Bihar and UP, with a per capita income of approximately US$1,000, are at the bottom of the lower middle-income category. Likewise, while India as a whole is not a major manufacturing hub—the manufacturing share of GDP hovered between 15 and 17 per cent over the last couple of decades (MoSPI, 2024), and there has been a constant endeavour to increase this share to 25 per cent of GDP (Ministry of Commerce & Industry, 2011)—a few States, like Uttarakhand, Gujarat, and HP, already have more than 30 per cent of their GDP emanating from manufacturing. This is higher than any major country across the globe, including China.[8] Finally, on social indicators, even the best-performing States are at the 55th to 70th percentile globally. For instance, Kerala and HP have the highest life expectancy in India, comparable to Brazil and Vietnam at the 53rd to 68th percentile. Tamil Nadu has the highest gross enrolment in tertiary education, which is at the 50th percentile, comparable to Thailand and Malaysia (Appendix B).

Accelerating economic growth led by the States necessitates understanding what drives long-term State growth in India. Since our aim is for the States to achieve faster growth in the long term, we analyse their performance between 1994 and 2020 and attempt to draw inferences about the requirements for faster long-term growth in the future. There may be a divergence between short-term (a few years) and long-term (15–20 years) growth for States, as seen in Appendix C. However, the former could result from negative or positive shocks, such as a construction boom, fiscal profligacy, or a few drought years, that do not represent a sustainable trend, and hence fall outside the ambit of this research paper.

The paper is structured as follows: Section 2 provides a succinct review of the literature on the topic and highlights the lack of a holistic approach to explaining States' growth. Section 3 addresses the fundamental question: what drives State growth? It is divided into two parts. Part 1 explores the attributes of State growth in India, such as human and physical capital and quality of governance, and examines where different States stand on each. Part 2 examines the role of key economic centres (KECs) in driving State growth. Finally, Section 4 outlines high-level growth strategies for a select set of States based on their position on these two dimensions.

[7] We take ratio of States' nominal per-capita NDP to India's, as provided by RBI. To arrive at States' per-capita in US$, this ratio is then multiplied by India's GNI per capita, following the Atlas method (current US$) as provided by the World Bank.

[8] China's share of manufacturing in GDP was 26 per cent in 2023, as per the World Development Indicators.

2. Literature Review

Several research studies have attempted to explain the reasons for the economic growth of Indian states, employing both qualitative and quantitative methodologies. Qualitative research typically takes the form of case studies, which assess specific policies implemented and their consequent impact on growth, as evidenced in the work of Panagariya et al. (2014). Quantitative studies can be broadly categorised into two approaches: Broad and Targeted. Studies within the Broad category explore and investigate key variables that explain overall state growth. Conversely, papers employing the Targeted approach examine whether specific factors or variables significantly affect states' growth.

In both the Broad and Targeted approaches, variables influencing the growth of Indian states can be grouped into the following categories: physical and social infrastructure, quality of institutions and governance, and structural change. For instance, in examining the relationship between social infrastructure and economic growth, Ahluwalia (2001) identifies a positive correlation between literacy rates and economic growth. Similarly, Saksena and Deb (2016) associate a high Human Development Index (HDI) with stronger economic growth. Chakraborty and Chakraborty (2018) demonstrate a negative association between GDP per capita growth and the Infant Mortality Rate (IMR). Regarding physical infrastructure, Ahluwalia (2001) establishes a significant relationship between infrastructure variables, such as the percentage of villages electrified, energy consumption, and tele-density, and economic growth.

To understand the impact of the quality of governance, Veermani and Goldar (2005) argue that a market-friendly investment climate aids in achieving higher levels of manufacturing productivity, showing that investment climate indicators (such as the number of days required to obtain a telephone connection and access to finance) significantly impact total factor productivity. Hasan et al. (2007) find that states with greater labour regulation flexibility are better positioned to benefit from pro-market policies, as they may respond more effectively to increased labour demand and, consequently, to economic growth. Chakraborty and Chakraborty (2018) suggest that fiscal policy variables and financial parameters are important sources of growth in Indian states.

Finally, Bhide et al. (2005) suggest that increased contributions from agriculture and industry, rather than services, in the initial stages enhance the likelihood of growth spill over effects. Cashin and Sahay (1995) find that labour immigration was negatively associated with per capita income growth in states. Table 2 lists all the relevant papers we reviewed, categorised by their archetype, along with the factors each identified as significant drivers of state growth. Based on the frequency with which each variable appears as significant, physical capital is the most significant (18 instances), followed by human capital (13 instances), with quality of governance (10 instances) as a close third.[9]

[9] Physical capital is defined as the sum of physical infrastructure, private investment, and public expenditure.

Table 2: Summary of Literature

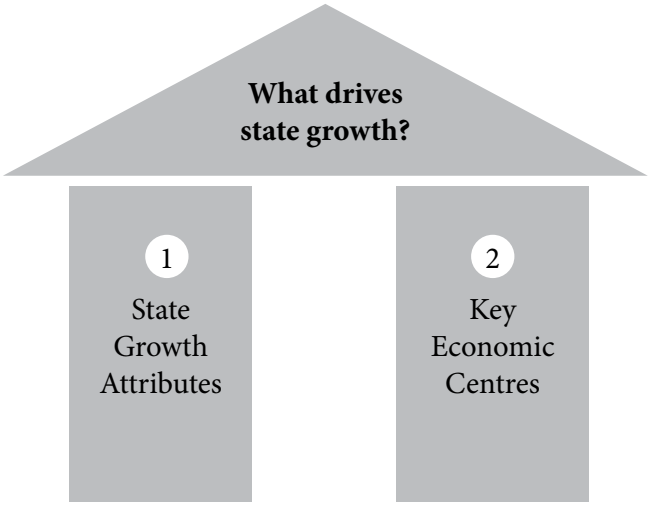
Types of Studies	Authors	Time Period of the Studies	Human Capital	Physical Capital			Quality of Governance	Structural Transformation		
				Physical Infrastructure	Private Investment and Credit Disbursement	Public Expenditure	Maintenance of Law and Order, Property Laws, Crime Rate, etc.	Rural to Urban Migration	Demographic Dividend	Structure of the Economy
Targeted Approach	(Akram & Rath, 2021)	1990–2018					✓			
	(Ravallion & Datt, 2002)	1960–1994								✓
	(Saksena & Deb, 2016)	1990–2010	✓							
	(Cashin & Sahay, 1996)	1961–1991						✓		
	(Ghosh, 2006)	1981–2001	✓							
	(Kumar & Subramanian, 2012)	1981-2009							✓	
	Ghosh, Ghoshray, & Malki (2012)	1968–2008								✓
	(Vaibhav & Ramaswamy, 2022)	NA					✓			
	(Raj, Gupta, & Shrawan, 2023)	1990-2019	✓							
Broad Approach	(Rao, Shand, & Kalirajan, 1999)	1965–1995		✓	✓	✓				
	(Kamila & Mehra, 2021)	1993–2016	✓		✓					
	(Baddeley, Mcnay, & Cassen, 2006)	1970–1997	✓	✓	✓		✓			✓
	(Panda & Sahay, 2020)	2005-2017	✓	✓	✓					
	(Ahluwalia, 2001)	1986–1998	✓	✓	✓		✓			
	(Nagaraj, Varoudakis, & Véganzonès, 1998)	1970–1994	✓	✓	✓					
	(Bhide, Chadha, & Kalirajan, 2005)	1971–1998	✓	✓			✓			
	(Hasan, Lamba, & Gupta, 2013)	1987–2009			✓		✓			✓
	(Das, Ghate, & Robertson, 2013)	2001 & 2008	✓	✓						
	(Fernandes & Sharma, 2012)	1985–2007	✓	✓			✓			
	(Sachs, Bajpai, & Ramiah, 2002)	1980–1998	✓					✓		
	(Mallick, 2012)	1999–2005	✓				✓			
	(Chakraborty & Chakraborty, 2018)	1990–2014	✓			✓				
	(Kalirajan, Bhide, & Singh, 2009)	1993–2000	✓	✓		✓				✓
	(Debroy & Bhandari, 2013)	2013				✓	✓			
	No. of Times the Variable Comes Significant		14	8	6	4	10	2	1	5

Note: Tick mark represents the category of variable found significant in the respective study.

3. Accelerating States' Growth Requires a Two-Pronged Approach

Identifying the main characteristics of fast-growing states enables them to recognise what they have done well and to continue implementing these with renewed vigour. Additionally, other states can learn from these examples to enhance their performance. As indicated in the literature review in the previous section, state growth performances are predominantly analysed as a function of state-level drivers, including physical attributes (such as roads, railways, and electricity grids), social attributes (such as health and education), and the quality of governance. However, the literature often neglects an important perspective: key economic centres (KECs) as engines of growth, which are districts comprising million-plus urban agglomerations (UAs) and capital cities, plus districts that have increased their share in state GDP by more than five per cent. We propose a holistic growth framework that combines state-level attributes and the role of the KECs.

Figure 2: Two Key Axes that Drive States' Growth in India



Source: Authors' analysis.

3.1 Growth Attributes

Consistent with economic theory, we focus on three types of state growth attributes: human capital, physical capital, and the quality of governance. We make an important refinement from the usual literature by considering only outcome-oriented variables rather than expenditure. For instance, instead of focusing on expenditure on tertiary education, we consider the gross enrolment ratio in tertiary education. Similarly, rather than infrastructure expenditure, we consider road density across states. Growth is impacted only if there are improved outcomes. Since there are issues of expenditure efficiency,[10] higher spending may or may not result in better outcomes and vice versa. Hence, our focus is on outcome variables only. Of the nine identified growth attributes, six are on the State List—violent crime, fiscal deficit, stunting, T&D losses, labour reforms, and land policies—and thus, states have complete control over them. States also have a significant say on others, such as education, which is on the Concurrent List of the Constitution. Therefore, the responsibility lies with State governments to improve these growth attributes. For example, stunting is 22 per cent in Kerala and 46 per cent in MP. While the former spends 8 per cent of its budget on healthcare, the latter spends close to 6 per cent (National Health System Resource Centre, 2020). The same applies to housing affordability; Gujarat is more than twice as affordable as Maharashtra, which is reflected in the land pooling practice of acquiring land in Gujarat (Mahadevia, Pai, & Mahendra, 2018), keeping prices in check compared to Maharashtra, which has some of the costliest real estate in the world. The growth attributes we focus on are given in Table 3, along with the rationale for choosing them.

[10] Gupta and Sachdeva (2020) highlight the importance of spending efficiently for urban services.

Table 3: Growth Attributes for India's States

Category	Variable	Definition and Source	Rationale
Human Capital	Gross enrolment ratio in tertiary education	Percentage of youth enrolled in higher education institutions in the age group of 18–23 years Source: All India Survey on Higher Education (AISHE) reports by Ministry of Education Time period: Annual average between 2002 and 2020	It provides a good view of the availability of educated youth across different States. Unlike elementary education, which is mandatory in India and shows little variation between States, tertiary education exhibits significant disparities. For instance, while national enrolment ratios for primary, upper primary, and elementary education range between 95 per cent and 100 per cent, the rate for higher education stands at 25 per cent.
	Percentage of children under the age of three who are stunted.	Children are defined as stunted if their height-for-age is more than two standard deviations below the World Health Organization (WHO) Child Growth Standards median. Source: Various issues of the National Family Health Survey (NFHS)[11] Time period: Average of NFHS 1999, 2006, and 2016.	Stunting—a marker of malnutrition—negatively impacts a child's developmental outcomes and potential future productivity.
Physical Capital	Road density per capita	The total length of roads includes national highways, state highways, district roads, rural roads, project roads, and urban roads. The total length of roads in a State is divided by the total State population to calculate road density. Source: Ministry of Road Transport and Highways Time period: Annual average between 1995 and 2019	The higher the road density, the easier it is for people and produce to move from one place to another, reducing transportation costs, and thus driving growth.
	Pradhan Mantri Grameen Sadak Yojana (PMGSY)	Percentage of selected habitats where connectivity is established Source: Ministry of Rural Development Time period: 2020	Close to 70 per cent of India lived in its 640,000 villages (Census, 2011). This was a flagship scheme launched by GoI in 2000 to provide connectivity to unconnected habitations as part of a poverty reduction strategy.
	Transmission & Distribution Losses (T&D Losses)	The amount of energy lost when electricity is transmitted and distributed from the source of generation to consumers. Source: Reserve Bank of India (RBI) Time period: Annual average between 2002 and 2020	The T&D losses affect the financial viability of the Discoms (distribution companies). Cumulative losses of Discoms in India exceed INR 10 lakh crore (Devaguptapu & Tongia, 2023) . This impacts their ability to purchase and supply quality power.
	House Prices	We assume that house prices also reflect prices for commercial and industrial land. Source: HDFC database, CSEP Working Paper Time period: Annual average between 1995 and 2020	Analysing state-wise house prices relative to the national average offers insights into land affordability. Affordable land is a critical factor for businesses in location selection, making states with lower land costs more attractive for investment.

[11] Across the NFHS issues, the assessment age limit of stunted children has varied between three years and five years.

Category	Variable	Definition and Source	Rationale
Quality of Governance	Fiscal deficit to GDP ratio	State fiscal deficit to State GDP Source: RBI Time period: Annual average between 1994–2020	States with lower fiscal deficits are often seen as better governed. This is because higher deficits are frequently linked to excessive spending on unproductive activities and subsidies—only 17 per cent of their budgets are allocated for capital expenditure on essential assets such as schools, hospitals, and infrastructure (PRS Legislative Research, 2024).
	Violent crime rate	Number of violent crimes per lakh population. Source: National Crime Records Bureau (NCRB) Time period: Annual average between 1995 and 2020	States with low violent crime rates, such as Gujarat and Punjab, are considered to have better law and order situations. We consider violent crimes, rather than total crimes, to minimise reporting differences across states.
	Labour flexibility score	States with lower transaction costs and simplified compliance procedures related to labour laws have a higher score. Source: Organisation for Economic Co-operation and Development (OECD), *Economic Survey of India*. Time period: Average of 2007 and 2014 results.	Businesses generally prefer labour markets with greater flexibility, as this allows for increased operational efficiency and adaptability.

These Growth Attributes Co-move with State Growth

Several key messages emerge from our analysis of growth attributes and State growth, as shown in Table 4. Firstly, growth attributes and State economic growth are closely linked. States with strong attributes tend to perform better in terms of economic growth, while those with weaker attributes generally exhibit tepid growth performance. This suggests that there are no shortcuts to fast growth; it must be achieved by enhancing State growth attributes. Secondly, faster growth is associated with comprehensive strength across attributes. Although some States are relatively stronger in physical infrastructure and others in social infrastructure, fast-growing States typically demonstrate strength across most areas—social, physical, and governance. Thirdly, all States have areas that require improvement to further drive their growth, although the extent of these needs varies.

Table 4: Strong Relationship Between Growth Attributes and State Growth

Category of States	States	Per-capita GDP CAGR, 1994-2020 (%)	Growth Attributes in which a State is Higher than the State-Average (Count)	Physical Infrastructure				Social Infrastructure		Quality of Governance		
				T&D losses	House price ratio	PMGSY coverage (%)	Availability of roads per-capita, (kms)	GER in tertiary education	Percentage of stunted children under 3 years of age	Violent crime rate (%)	Labour flexibility score	Fiscal deficit to GDP ratio
				Average between 2002-20	*Average between 1995-2020*	*2020*	*Average between 1995-2019*	*Average between 2002-20*	*Average of 1999, 2006, 2016*	*Average between 1995-2020*	*Average of 2007 and 2014*	*Average between 1994-2020*
Fast	Gujarat	6.7	6	22.6	67	90	2.6	15.7	44.6	15.3	26.5	3.0
	Uttarakhand	6.5	5	30.0	82	57	3.0	26.6	39.0	19.6	19.5	3.5
	Combined AP	6.2	7	20.1	92	68	2.9	24.1	35.6	16.0	27.5	3.3
	Tamil Nadu	5.9	6	16.1	140	99	2.2	31.7	29.1	17.8	20.5	2.7
	Himachal Pradesh	5.8	7	20.4	75	65	5.6	24.6	35.4	20.3	22.5	6.1
	Karnataka	5.8	6	18.5	143	70	4.7	21.1	38.8	25.6	21.5	2.8
	Kerala	5.7	5	18.8	113	93	5.0	21.1	22.0	3.0	17.5	3.9
	Haryana	5.6	4	31.7	145	100	2.3	20.9	43.2	27.8	23.5	3.0
Average	Maharashtra	5.3	7	25.4	160	64	5.3	22.4	40.2	23.7	22	2.6
	West Bengal	5.0	4	23.3	107	91	3.3	13.1	39.5	2.3	14.25	4.5
	Odisha	4.9	5	41.2	84	89	4.3	14.8	41.0	26.4	21.5	3.5
	Rajasthan	4.8	3	32.5	77	97	3.1	14.8	44.9	28.0	23.5	4.3
	Bihar	4.5	2	42.7	91	84	1.4	10.2	52.4	30.9	15.5	4.5
	Madhya Pradesh	4.5	4	35.1	70	89	3.2	15.8	46.0	25.7	22.5	3.4
Slow	Punjab	4.1	6	22.0	80	73	3.1	19.5	33.9	14.0	23	4.4
	Chhattisgarh	3.9	5	27.9	86	84	2.8	12.5	45.3	23.9	13.25	2.1
	Jharkhand	3.7	2	19.8	76	79	1.7	11.9	47.6	28.6	17.5	4.1
	Uttar Pradesh	3.6	2	29.7	106	79	2.7	16.4	52.9	19.4	27.5	4.1
	Assam	3.5	4	33.6	96	83	7.0	12.2	44.4	44.0	18.5	2.7
	Jammu & Kashmir	3.2	1	51.1	109	76	3.0	18.0	33.7	34.7	No data	5.1

Low to high performance →

Source: RBI Handbook of Statistics on Indian States, anonymised housing loan data from HDFC Bank, NCRB database, Ministry of Education, OECD and Economic Survey labour scores, PMGSY portal, and National Family Health Survey database.

Let us elaborate on the three inferences here.

- **Growth-inducing attributes and economic growth are closely linked.** This is evident from the heat map in Table 4, which is green at the top, indicating strong economic growth and attributes, and turns red in the second half, indicating the weakening of both. The correlation between state per capita GDP growth rate and the count of attributes on which a state performs better[12] is 0.69. On average, fast-growing states perform well on six growth attributes (out of nine). Conversely, slow-growing states perform well on just three attributes. Thus, there is no free lunch; sustained faster growth must be earned by improving growth attributes.

- **Fast-growing states are strong in most attributes, and vice versa.** There is considerable debate about how some states are growing rapidly by focusing on a few key attributes while neglecting others. Our analysis indicates that, while different states may have varying relative strengths and development areas in terms of growth attributes and, consequently, different growth models between manufacturing and services, fast-growing states usually have strong growth attributes across the board. The opposite is true for slower-growing ones. For example, Karnataka is one of the best-performing states in terms of growth and is strong in six out of nine attributes. It performs well on social infrastructure indicators, such as high enrolment in tertiary education and a lower stunting rate. Furthermore, it provides good physical infrastructure, specifically in terms of high-quality power. Additionally, it has a lower fiscal deficit, indicating good governance and average labour flexibility regulations. Similarly, Tamil Nadu performs well on six of the nine attributes. Conversely, states at the lower end of the growth spectrum generally have weak growth attributes. For example, UP performs better than the all-state average on only two growth attributes.

- **All States have scope for improvement in various areas.** There are areas for improvement in all States that can enhance their growth performance. For example, while Karnataka is strong in six out of nine growth attributes, there are still a couple of areas where it needs to improve, such as crime and land price affordability. UP, on the other hand, needs to work on seven out of the nine growth attributes: fiscal deficit, stunting rate, tertiary education, T&D losses, road availability, Pradhan Mantri Gram Sadak Yojana (PMGSY) coverage, and affordable housing.

- **Significant improvement in growth attributes can occur within five to ten years.** States have successfully managed to achieve significant improvement in their attributes within this timeframe. Tamil Nadu's gross enrolment ratio in the tertiary sector between 2004 and 2012 saw the highest increase of 28 per cent, rising from 12 per cent to 40 per cent. This was achieved by increasing the supply of tertiary education institutions and the number of available seats. In 2004, there were 1,114 universities and affiliated colleges in the state, which more than doubled to 2,410 by 2012. While autonomous colleges[13] increased across India, Tamil Nadu was at the forefront of this expansion; by 2012, Tamil Nadu had the highest number of autonomous colleges, with 145, up from 76 in 2006 (University Grants Commission, 2006; University Grants Commission, 2012). Secondly, the state initiated its open university programme in 2004, aimed at the rural population, to provide cost-effective, socially relevant, and locally specific employment-oriented tertiary education. The university established 34 study and counselling centres, including all district headquarters, and 360 information centres at taluk levels across Tamil Nadu. Likewise, HP experienced a significant increase in per capita road availability, from 4.1 km to 7.5 km, between 2004 and 2012. This increase resulted from improvements in the operational efficiencies of the state's road department. The relevant entities received technical assistance, which helped them achieve ISO certification in quality and environmental management. Additionally, a rolling annual training plan was introduced and implemented, featuring 57 distinct events between 2008 and 2017. These events covered

[12] A State is said to perform well on growth-inducing attributes if its performance is average or above the average of all States. For each growth-inducing attribute, we use its long-term average as indicated in Table 4.

[13] Under autonomy, the colleges are empowered to have their own syllabus, are authorised to conduct examinations themselves, and to evaluate the students. This has allowed the colleges to be lenient in providing admission to students.

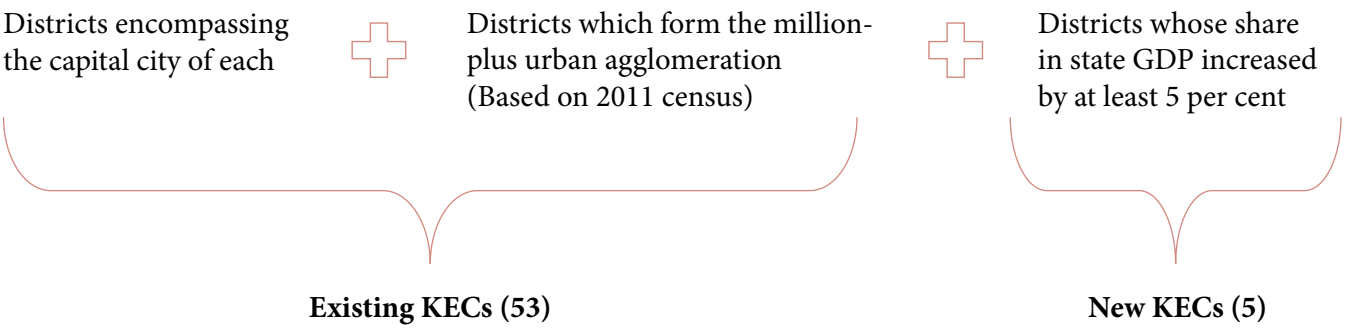
topics such as construction supervision, contract management (for design, construction, and maintenance), procurement, environmental and social aspects, road safety, performance-based contracting, public-private partnerships, and Information Technology (IT) (The World Bank, 2017). Thus, if states decide to improve their performance in terms of growth attributes, they can achieve significant progress within five to ten years.

While the relationship between attributes and growth is evident and consistent with popular literature and economic theory, careful observation reveals some gaps. For example, while both Gujarat and Tamil Nadu score similarly in terms of growth attributes, their long-term growth performance differs significantly. Conversely, while both Maharashtra and Punjab have attributes similar to fast-growing states, their economic growth was "average" and "slow," respectively. We argue that a significant explanation for this gap is the role of KECs in state growth. We now turn to this second pillar of state growth.

3.2 Key Economic Centres as Growth Hubs

India had 7,935 towns and cities according to the 2011 Census. This raises a fundamental question: which among these has a meaningful impact on State growth? The district is the most granular level at which State GDP is collected, and we work with this level of granularity to determine which growth centres matter. We consider districts comprising the million-plus cities or UAs, plus the capital city of each of our States (based on the 2011 Census), as their economically large districts. To this core list, we add a couple of districts whose share in the respective State GDP increased by more than five per cent between 2000 and 2020. We call this combined cohort of districts the KECs. Across the 18 States for which we have district-level data, we identify 58 KECs comprising 77 districts. The share of KECs in India's GDP increased from 29 per cent to 34 per cent between 2000 and 2020,[14] reflecting their faster growth trajectory compared to the overall national growth. For example, in Uttarakhand, there are three KECs. The first is Dehradun, which is the capital city. The second and third are Udham Singh Nagar and Haridwar, two districts that grew significantly faster than the State, leading to their share in the State GDP increasing by 11.7 per cent and 19.3 per cent, respectively. Similarly, Tamil Nadu has four KECs. The first is Chennai, which is the capital city. There are three more KECs in Tamil Nadu—Coimbatore, Madurai district, and Tiruchirappalli district—all because they satisfy the million-plus population criterion. Some of the biggest KECs in India are Mumbai at 5 per cent, Kolkata at 2.4 per cent, and Chennai and Hyderabad at 2.1 per cent each of India's GDP as of 2020 (Table 5).

Figure 3: The KEC Definition



Source: Authors' analysis.

[14] For Gujarat's districts, the shares represent the districts' manufacturing GDP share of India's GDP. The 2004 values are assumed for the year 2000 for Gujarat.

Table 5: KECs Make up for 34 per cent of India's GDP in 2020

States	KEC	Why is it a KEC	Districts Part of KEC	Share of KEC in India's GDP 2020 (%)	Share of KEC in Respective State GDP 2020 (%)
Gujarat	Surat	million-plus UA	Surat, Tapi	0.5	5.3
	Jamnagar	GDP share increase	Jamnagar, Devbhumi Dwarka	0.5	5.8
	Amdavad	million-plus UA	Amdavad, Gandhinagar (capital city), Botad	0.5	6.0
	Rajkot	million-plus UA	Rajkot	0.1	1.1
Uttarakhand	Dehradun	capital city	Dehradun	0.1	13.9
	Udham Singh Nagar	GDP share increase	Udham Singh Nagar	0.3	25.4
	Haridwar	GDP share increase	Haridwar	0.5	43.1
Combined AP	Hyderabad	million-plus UA	Hyderabad (capital city), Rangareddy, Medak	2.1	27.0
	Krishna	million-plus UA	Krishna	0.6	7.2
	Visakhapatnam	million-plus UA	Visakhapatnam	0.5	6.1
Tamil Nadu	Chennai	million-plus UA	Chennai (capital city), Kancheepuram, Thiruvallur	2.1	27.0
	Coimbatore	million-plus UA	Coimbatore, Erode, Tiruppur	1.1	14.1
	Madurai	million-plus UA	Madurai	0.3	3.6
	Tiruchirappalli	million-plus UA	Tiruchirappalli	0.4	4.8
HP	Shimla	capital city	Shimla	0.1	12.5
	Solan	GDP share increase	Solan	0.2	29.8
Karnataka	Bangalore	million-plus UA	Bangalore Urban (capital city)	2.2	37.7
Kerala	Thiruvananthapuram	million-plus UA	Thiruvananthapuram (capital city)	0.3	10.8
	Thrissur	million-plus UA	Thrissur	0.3	9.9
	Malappuram	million-plus UA	Malappuram	0.3	10.0
	Kollam	million-plus UA	Kollam	0.3	9.5
	Kannur	million-plus UA	Kannur	0.2	7.1
	Kozhikode	million-plus UA	Kozhikode	0.3	8.6
	Ernakulam	million-plus UA	Ernakulam	0.4	12.1
Haryana	Gurgaon	million-plus UA	Gurgaon, Mewat	0.8	21.0
	Faridabad	million-plus UA	Faridabad, Palwal	0.5	13.6
Maharashtra	Mumbai	million-plus UA	Mumbai (capital city), Thane	4.9	34.4
	Pune	million-plus UA	Pune	1.7	11.8
	Nagpur	million-plus UA	Nagpur	0.7	5.0
	Nashik	million-plus UA	Nashik	0.7	5.0
	Aurangabad	million-plus UA	Aurangabad	0.4	2.7

States	KEC	Why is it a KEC	Districts Part of KEC	Share of KEC in India's GDP 2020 (%)	Share of KEC in Respective State GDP 2020 (%)
West Bengal	Bardhaman	million-plus UA	Burdwan	0.5	10.7
	Kolkata	million-plus UA	Kolkata (capital city), Howrah, Hoogly, Nadia, North 24 Parganas, South 24 Parganas	2.4	47.7
Odisha	Khordha	Capital city of Bhubaneshwar is part of this district	Khordha	0.2	9.3
Rajasthan	Kota	million-plus UA	Kota	0.1	3.1
	Barmer	GDP share increase	Barmer	0.3	8.2
	Jaipur	capital city	Jaipur	0.5	12.9
	Jodhpur	million-plus UA	Jodhpur	0.2	5.2
Bihar	Patna	million-plus UA	Patna (capital city)	0.7	23.5
MP	Indore	million-plus UA	Indore	0.2	6.8
	Bhopal	capital city	Bhopal	0.2	5.1
	Jabalpur	million-plus UA	Jabalpur	0.2	4.8
	Gwalior	million-plus UA	Gwalior	0.1	3.3
Punjab	Ludhiana	million-plus UA	Ludhiana	0.5	15.5
	Amritsar	million-plus UA	Amritsar, Tarn Taran	0.3	10.9
Chhattisgarh	Raipur	million-plus UA	Raipur (capital city)	0.3	20.9
	Durg	million-plus UA	Durg	0.3	19.6
Jharkhand	Purbi Singhbhum	million-plus UA	Purbi Singhbhum	0.2	11.6
	Dhanbad	million-plus UA	Dhanbad	0.3	18.6
	Ranchi	million-plus UA	Ranchi (capital city)	0.2	13.1
UP	Agra	million-plus UA	Agra	0.3	3.7
	Prayagraj	million-plus UA	Prayagraj	0.3	3.7
	Gautam Buddha Nagar	GDP share increase	Gautam Buddha Nagar	0.7	9.3
	Kanpur: Urban	million-plus UA	Kanpur: Urban	0.2	3.3
	Lucknow	million-plus UA	Lucknow (capital city)	0.3	3.8
	Varanasi	million-plus UA	Varanasi	0.1	1.9
	Meerut	million-plus UA	Meerut	0.2	3.4
	Ghaziabad	million-plus UA	Ghaziabad	0.2	2.8

Source: District statistical handbooks of various states.

*Note: We only consider million-plus population UAs as defined by the 2011 Census. *District GDP data is not available for Gujarat. Given the state's importance in India's growth performance, we used district-level ASI data to estimate manufacturing GDP for Gujarat's districts. The shares are, hence, the share of estimated manufacturing GVA at a district level to the total GDP of Gujarat and all India. Vadodara is not included due to data issues despite it being a million plus UA. In some cases, districts were separated in recent years. For example, two districts were separated from Coimbatore in the late 2000s, but we consider all three of them together. Hence, Coimbatore refers to the following districts combined: Coimbatore, Erode, and Tiruppur. A similar approach is applied to Gurgaon, Faridabad, Amritsar, Surat, Jamnagar, and Ahmedabad.*

KECs are Growth Leaders Across All State Archetypes

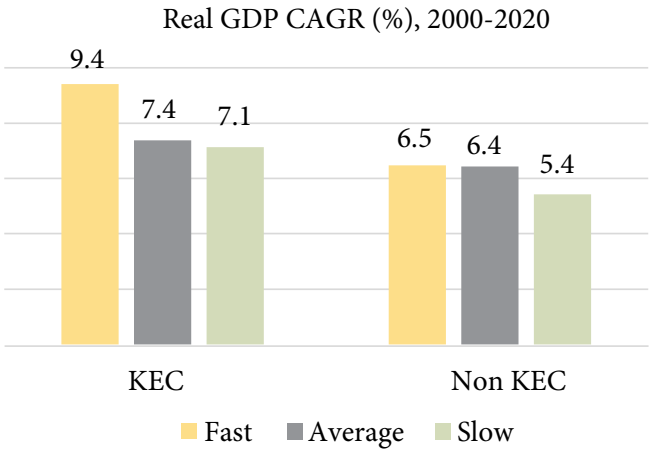
The table above clearly indicates that most KECs are substantial within their respective States and collectively contribute significantly to the national GDP. We now differentiate State growth between KECs and non-KECs to explore their growth dynamics. Figure 4 illustrates this growth division.

- **KECs drive growth across all state archetypes.** Figure 4 demonstrates that, regardless of whether a state is categorised as fast, average, or slow-growing, its KECs as a group have grown considerably faster than their respective non-KEC districts.[15] The difference could be as high as 3 per cent in the case of fast-growing states and 1 per cent for average-growing states. Thus, not only are the KECs richer,[16] but they also grow at a faster pace compared to the rest of the state. Explaining state growth necessitates understanding the performance of KECs. It is critical to realise that fast-growing states lead not because all their districts grow faster than those in other states, but due to the stellar growth of their KECs; their non-KEC growth is similar to that of average-growing states.

- **KEC growth is relatively muted for average-growing states.** While KEC growth for fast-growing states is high at 9.4 per cent annually, there is not much difference between the KEC growth performance of average- and slow-growing states, with barely a 0.3 per cent difference in annual GDP growth. The main difference between these two classes of states, thus, arises from the growth performance of their non-KECs, at 6.4 per cent and 5.4 per cent, respectively. The case of Maharashtra is particularly revealing in this regard. The state possesses strong growth-inducing attributes, yet it is part of the average-growing category due to the moderate growth performance of its KECs, which have grown at par or just marginally faster than the rest of the state. It is because of its strong growth attributes that the non-KEC growth is high, but something in its KECs prevented it from leading the growth charge, keeping the overall growth of the state average.

- **Slow-growing states are held back by lacklustre non-KEC performance.** The contrasting role of growth attributes and KECs is more starkly evident in the performance of slow-growing states. The KECs of this cohort of states have managed to grow at a respectable average of 7.1 per cent per annum. However, it is the lacklustre growth of their non-KECs that has pulled back their overall growth, making them slow-growing states. Arguably, while the performance of their KECs might be bolstered since they are typically rich in mineral endowments, such as Dhanbad, Purbi Singhbhum, and Durg,[17] the performance of non-KECs is lacking due to the relatively weak growth attributes of these states, highlighting their importance.

Figure 4: KECs Lead Growth for All Types of States



Source: NITI Aayog, State Economic Departments of various states, and MoSPI.

Note: Non-KECs represents the rest of the State. Growth rate calculations are elaborated in Appendix E. Growth rates are simple averages across districts for each category of state.

The above observations reaffirm the necessity of examining both lenses to explain state growth in a holistic manner—state-wide attributes and the performance of KECs. The differing growth performance between KECs and non-KECs significantly contributes to explaining the overall growth disparities among states. A state thrives only when both these dimensions perform effectively. These observations raise the question: why do KECs generally grow significantly faster than their respective states, and why do some KECs outpace others even within the same state?

[15] This refers to the growth comparison between two cohorts—KECs and non-KECs. It does not mean that every KEC must also perform better than its respective states, as we will see later.
[16] Per capita GDP of KEC is, on average, double that of non-KEC districts.
[17] Purbi Singhbhum and Durg are highly specialised in base metal manufacturing, which is a by-product of iron ore mining in the state.

Specialisation Plays a Big Role in Determining KECs' Growth Performance

Thus far, we have learnt that KECs are economically significant and, as a group, grow faster than their respective states. This phenomenon can be partly attributed to better infrastructure in KECs compared to the rest of the state. For instance, between 50 and 100 per cent of international airports, major railway junctions, and ports are situated within KECs, as illustrated in Appendix D. However, this concentration of infrastructure is consistent across all types of states, raising the question of why some KECs outperform others. A significant part of the explanation lies in the level of specialisation, which enhances the effects of agglomeration economies in KECs, thereby driving their growth. Many scholars, such as Storper (2010), have established a strong link between economic specialisation and urban growth: "A city grows by getting more of a sector, or when the sector grows faster in the city than at the national level." Firms located in the same areas often target identical markets. The ensuing competition within these geographically concentrated industries creates pressure to innovate or risk falling behind. This constant drive for improvement leads to increased productivity and growth (Gill & Goh, 2010). Furthermore, specialisation boosts productivity by offering enhanced opportunities for cost reduction in goods production and facilitating the sharing of inputs among firms, which in turn fosters economic development (M.Quigley, 2008).

We define specialisation as a disproportionate share of a sector in a KEC's GDP relative to the national average. The cells containing numbers in Table 6 represent the sectors of specialisation for the respective KECs. The intensity of the colour indicates the depth of specialisation, with the colour code based on each sector's distribution. For example, the maximum multiple in the services sector is 4.3, while in capital-intensive sectors, it is 38.9. Applying a uniform threshold would have resulted in overlooking most KECs specialising in the services sector. Please refer to box 1 for the detailed methodology.

Box 1: Specialisation Methodology

We define specialisation as a disproportionate share of a sector in district GDP relative to the sector's share in national GDP. The aim is to identify which sectors are driving growth in a KEC. To achieve this, we consider the following data sources:

- The Annual Survey of Industries (ASI) (2010) provides the latest disaggregated data for manufacturing at the district level. The sectors considered include four capital-intensive industries, three labour-intensive industries, and two mining-related manufacturing industries. We focus on industries with at least a 1per cent share of national GDP.
- The District Statistical Handbook for various years provides sector-wise district data for mining, agriculture, and service sectors across 17 states. We used the latest available data for each state. Within the service sector, our focus was on tradable activities, specifically finance and business services.
- We used the following formula to calculate the specialisation index numbers:
- Standardisation: The share of each sector in the district GDP was standardised using the following formula:

$$(Xit - \bar{Y}i) / (\text{standard deviation } i),$$

where i is the sector and t is the district.

- Selection of Specialised Sectors: After standardisation, values greater than one are selected as the specialised sectors for the respective KECs.
- For these identified specialised sectors within the KECs, we report the ratio of the sector's share in district GDP relative to its share in national GDP.

(Sector share in district GDP) / (Sector share in national GDP)

Table 6: Strong Association Between KEC Growth and Specialisation, Especially in Capital-Intensive Manufacturing

			Sector share in district GDP/Sector share in national GDP													
State	KECs	KEC GDP CAGR, 2000-2020 (%)	Capital Intensive				Labor Intensive			Mining-related Manufacturing		Mining	Agriculture		Services	
			Chemical and Pharmaceuticals	Machinery	Automobile	Petroleum	Leather	Textile	Food and Beverages	Non-Metallic	Base Metal		Crops and Livestock	Fishing	Business Services	Financial Services
Uttarakhand	Udham Singh Nagar	14.5	7.9	7.5	38.9				13.9				2.8			
Uttarakhand	Haridwar	14.3		10.9									1.8			
Gujarat	Rajkot	14.1								7.0						
Rajasthan	Barmer	13.6										22.0				
Uttar Pradesh	Gautam Buddha Nagar	12.6		6.9				4.8								
Gujarat	Amdavad	12.2						3.1								
Himachal Pradesh	Solan	11.0	26.2	10.6			11.3	4.1	4.8	4.6						
Orissa	Khordha	10.7														
Haryana	Gurgaon	10.4		3.8	26.8			5.7							1.9	1.7
Karnataka	Bangalore	10.3		3.9											4.3	
Gujarat	Jamnagar	9.9				15.9										
Andhra Pradesh	Hyderabad	9.9													2.2	
Haryana	Faridabad	9.3		4.2												
Tamil Nadu	Chennai	8.6			7.9		11.3									
Chhattisgarh	Raipur	8.2								7.9	6.2					
Chhattisgarh	Durg	8.2									21.1		1.8			
Andhra Pradesh	Krishna	8.1											1.7	23.5		
Uttaranchal	Dehradun	8.0	9.5	6.1			6.2									
Jharkhand	Dhanbad	7.9										13.4				
Tamil Nadu	Tiruchirappalli	7.7														1.7
Maharashtra	Nagpur	7.7													2.1	2.2
Andhra Pradesh	Visakhapatnam	7.6														
Gujarat	Surat	7.5														
Uttar Pradesh	Agra	7.5					23.6									
Maharashtra	Pune	7.4		4.7											2.0	2.1
Kerala	Kollam	7.4												5.2		
Kerala	Malappuram	7.2														
Maharashtra	Mumbai	7.2													2.1	2.1
Bihar	Patna	7.2														
Jharkhand	Purbi Singhbhum	7.1			13.2						28.3					
Maharashtra	Nashik	7.0											1.8		1.8	1.9
Maharashtra	Aurangabad	7.0		4.7	9.3										1.9	2.0
Tamil Nadu	Coimbatore	6.9						8.4								
Jharkhand	Ranchi	6.9														
Madhya Pradesh	Jabalpur	6.9														
Himachal Pradesh	Shimla	6.9														
Uttar Pradesh	Prayagraj	6.8						3.9								
Rajasthan	Jodhpur	6.7								3.5			3.2			
Rajasthan	Jaipur	6.7														
Uttar Pradesh	Lucknow	6.6			10.0											
Uttar Pradesh	Varanasi	6.6														
Uttar Pradesh	Meerut	6.3											2.0			
Kerala	Thrissur	6.2													1.9	
Kerala	Thiruvananthapuram	6.2														
Madhya Pradesh	Bhopal	6.2		7.2												2.3
West Bengal	Burdwan	6.1									7.4					1.9
Kerala	Kannur	6.1														
Uttar Pradesh	Kanpur: Urban	6.0					16.7									
Kerala	Kozhikode	5.9											1.7	5.4		
Tamil Nadu	Madurai	5.9														1.7
Punjab	Ludhiana	5.7						7.4								
Madhya Pradesh	Gwalior	5.7											1.7			
Rajasthan	Kota	5.6	5.6						5.5	7.8						
West Bengal	Kolkata	5.5											1.8			2.4
Kerala	Ernakulam	5.4				5.3									2.1	
Punjab	Amritsar	5.1											2.3			
Madhya Pradesh	Indore	5.0														1.8
Uttar Pradesh	Gaziabad	4.7														

Increasing order of per-capita GDP CAGR

No specialisation	Specialisation	Deep specialisation

Source: Based on authors' analysis using state district GDP data from various statistical handbooks and ASI 2010.

Notes: The blanks indicate that the district does not have any specialisation. Business services refers to real estate, ownership of dwellings, and the business services category. IT services are a sub-component of this category. For Gujarat's districts, the GDP growth values are manufacturing GDP growth for 2004–2020. Hyderabad sector-wise GVA data was available until 2004, and for Tamil Nadu's districts, sector-wise GVA data was available until 2006. Hence, for these districts, we have imputed their sector share in GDP for 2020 by assuming the ratio of "district sector share" to "state sector share" to be the same in 2020 as it was in the original data.

Several observations emerge from Table 6. Firstly, all but 15 KECs have some form of specialisation. This is intuitive, as KECs represent major districts in each state, making it common for most to specialise in one sector or another. Secondly, in KECs with specialisation, most have up to two sectors; only eight out of 58 specialise in three or more sectors. Thirdly, the impact of specialisation on growth is most evident in the relatively faster-growing KECs. For example, the top 20 fastest-growing KECs account for 50 per cent of all instances of specialisation and nearly two-thirds of all capital-intensive areas of specialisation. No KEC in the slower-growing half of the growth ladder has a deep specialisation in capital-intensive industries. Interestingly, while the majority of these fastest-growing KECs are from fast-growing states, five are from slow-growing states, and one is from an average-growing state, indicating their independent growth trajectory. These fast-growing KECs in slow-growing states have deep specialisation in mining and mining-related manufacturing, pointing to the role of natural endowments. For example, in 2004, an oil field was discovered in Barmer, leading to its specialisation in mining. Purbi Singhbhum district includes Jamshedpur, home to India's largest steel plant by Tata. Fourthly, fast-growing KECs include both landlocked and coastal districts, unlike China, where the coastal region has grown the fastest. For example, Udham Singh Nagar, Haridwar, Gurgaon, Gautam Buddha Nagar, and Bengaluru are among the fastest-growing districts despite being landlocked. This indicates the organic way in which KECs have developed in India. Fifthly, the positive impact of sector specialisation depth on growth holds even when comparing centres within a state. For example, in HP, there are two KECs: Shimla and Solan. While Shimla has grown at 6.9 per cent, Solan has grown significantly faster at 11 per cent. Solan is highly specialised in chemicals and machinery, whereas Shimla lacks specialisation. Similar patterns are observed in Uttarakhand. Uttarakhand has three KECs: Dehradun, Udham Singh Nagar (US Nagar), and Haridwar. Dehradun has lower specialisation, evident through the lighter shading for its specialised industries, and has the slowest growth compared to the other two. Dehradun's GDP grew by 8 per cent between 2000 and 2020, while US Nagar and Haridwar's GDP grew by more than 14 per cent. Lastly, while the industries of specialisation and their extent broadly align with ex-ante beliefs, there are some surprising instances that require further deliberation. For example, Kolkata emerges as the KEC with the deepest specialisation in the financial services industry, significantly higher than Mumbai, known as India's financial capital. This could be due to Kolkata's legacy as India's capital during British rule and its hosting of several public sector banks' head offices, such as UCO Bank and Allahabad Bank, and major firms like ITC and Coal India. However, it has not capitalised on this specialisation, recording a modest growth of 5.5 per cent between 2000 and 2020.

Capital-Intensive Manufacturing is Most Strongly Associated with Growth, while Labour-Intensive is the Least

One of the points briefly mentioned in the previous section is the association between the sectors in which a KEC specialises and its growth. KECs specialising in capital-intensive manufacturing have typically grown the fastest. In contrast, KECs, even with deep specialisation in labour-intensive manufacturing, do not exhibit the same pace of economic growth. Notable KECs specialising in labour-intensive industries include Ludhiana (textile) in Punjab, Coimbatore (textile) in Tamil Nadu, and Agra (leather) in UP, none of which achieve double-digit growth. Conversely, capital-intensive centres such as Udham Singh Nagar and Haridwar (automobile) in Uttarakhand, Solan (chemicals and machinery) in HP, and Jamnagar (petroleum) in Gujarat all experienced double-digit growth between 2000 and 2020. Even within the same state, KECs specialising in non-labour-intensive industries perform better, as evidenced by Chennai versus Coimbatore in Tamil Nadu, and Ahmedabad versus Jamnagar in Gujarat. Among the top 10 fastest-growing KECs, seven specialise in capital-intensive industries, while only four focus on labour-intensive industries. Furthermore, none of the KECs in the 10 fastest-growing category specialise solely in labour-intensive industries; there are three such KECs with exclusive capital-intensive specialisation in this cohort. Of the 10 slowest-growing KECs, only two specialise in capital-intensive sectors, while nine focus on other sectors such as agriculture, services, or labour-intensive manufacturing.

These observations from KEC-level specialisation and growth align with the well-known narrative that labour-intensive industries have not performed well in India over the past few decades, as India is losing its comparative advantage in these products. The Revealed Comparative Advantage (RCA) of the textile industry declined from 4.62 to 2.79 between 2000

and 2018 (Ahmed, 2022). This is reflected in the textile industry's share decreasing from 2.2 per cent to 1.9 per cent between 2000 and 2020, compared to an increase in the transport equipment industry's share from 1.3 per cent to 1.7 per cent in India's Gross Value Added (GVA) (KLEMS) during the same period. This helps explain why a state like Punjab, which possesses strong growth-inducing attributes and a decent level of specialisation in textiles, remains a slow-growing state. Its KECs specialise in labour-intensive industries like textiles, which are unable to boost state growth[18] by unleashing the agglomeration economies of their KECs. The lacklustre performance of labour-intensive manufacturing poses a constraint for States specialising in them to grow fast. This remains a big policy puzzle that needs resolution at the highest level. It is noteworthy that there is nothing inherent in labour-intensive industries that prevents KECs specialising in them from achieving deep growth. The Chinese cluster of the Pearl River Delta (PRD) in Guangdong province is a prime example of a world-leading labour-intensive cluster. The PRD's share in China's GDP increased from 5 to 9 per cent between 1990 and 2011, accounting for 27 per cent of China's exports and 19 per cent of China's foreign investment by 2013 (Cheng, 2018).

Concentration of Factors of Production, Policy Push and Natural Endowments are Pivotal for Developing Specialisation

Given the importance of specialisation in driving KEC growth, it is essential to understand the factors that contribute to specialisation. Specialisation arises from a combination of factors, including the concentration of certain production factors in a specific geography, explicit policy initiatives to develop certain regions, natural endowments in a particular area, or simply, historical legacy. For instance, Bangalore in Karnataka benefited from a highly educated and English-speaking labour force, providing it with a comparative advantage in skill-intensive industries. India accounts for 59 per cent of the global outsourcing market (Nasscom, 2022), with two-thirds of India's global IT share originating from Bangalore alone. On the other hand, Uttarakhand and HP received the Special Package of Industrial Incentive under the 2003 Industrial Policy by the Central government to promote industrialisation in these states. This policy granted new industrial units a 100 per cent excise duty exemption, a 100 per cent corporate tax exemption for five years, and a capital investment subsidy equivalent to 15 per cent of investment in plants, subject to a ceiling of INR 3 million (Chaurey, 2016). Consequently, Uttarakhand became a hub for two-wheeler production, while HP became a hub for pharmaceutical manufacturing.

Finally, some KECs benefited from the presence of natural resources. The KECs of Chhattisgarh and Jharkhand have a high specialisation score due to the presence of iron ore mining, which leads to base metal manufacturing (steel) (these case studies are elaborated in Appendix F).

A few lessons emerge from the above discussion on KECs and specialisation.

Firstly, specialisation in a KEC often occurs organically rather than being orchestrated. This is because all parts of the ecosystem must align such that companies find it optimal to agglomerate in a particular KEC around a set of anchor industries. Achieving this through planning and design is challenging. Therefore, State governments should focus on continuously improving growth attributes and nurturing specialisation where it exists or begins to develop, rather than force-fitting niche products or services in a geographically disaggregated manner. The governments should prioritise improving existing Centres and nurturing them rather than trying to create greenfield cities, as they can take a long time to yield results and are inherently uncertain. For example, Gurgaon took 20 years to become the central business district of North India, despite having favourable conditions such as proximity to the airport, adjacency to Delhi, and availability of land. Attempting to achieve specialisation at a district level across the country is antithetical to the concept itself; true specialisation cannot occur at scale in numerous locations.

Secondly, KECs are relatively well distributed in India; pursuing a more distributed model may imply slower growth. Governments in India have consistently aimed to maximise growth while addressing regional inequity. The current government also seeks to achieve "balanced regional development across all districts" (Government of India, 2022). Since KECs are present in all states, compared to some other countries like China where its growth hubs are concentrated in the east, India is relatively better off (Appendix G). If we pursue the strategy of a significantly more distributed model, it may

[18] Since this feature of why labour-intensive industries transcend KECs and States is beyond the scope of this paper, we do not investigate it further.

imply slower growth since it has the risk of diluting the agglomeration benefits by spreading resources thin, as argued above. Resources such as capital and labour should migrate to areas that are, and emerge as, growth engines, driving faster growth. This fundamental trade-off needs to be internalised by everyone, from policymakers to the general public, to ensure informed decision-making.

Thirdly, large firms[19] play a catalytic role in fostering specialisation. The examples of Bangalore and KECs in Uttarakhand highlight the importance of large firms. Typically, when a group of large firms (or anchor firms) establishes itself in a particular area, their supply chain, including Micro, Small, and Medium Enterprises (MSMEs), follows, leading to the development of specialisation. In 1982, Texas Instruments, a multinational semiconductor firm, established its Research and Development (R&D) facility in Bangalore, and in 1983, Infosys relocated from Pune to Bangalore, contributing to Bangalore's emergence as the Silicon Valley of India. In Uttarakhand, large motorcycle manufacturers set up factories to benefit from the Central Government's Special Package of Industrial Incentives in 2003. Mahindra & Mahindra started operations in 2005, Bajaj Auto in 2007, and Hero Honda and Tata Motors in 2008. This revitalises the local economy by creating jobs and income, generating a virtuous cycle, and fostering specialisation. "When an anchor firm is present in a particular industry, other establishments within a two-block radius of the anchor firm show 15–18 per cent higher employment in the anchor firm's industry" (Bolter & Robey, 2020).

Indian KECs have a Long Way to go Compared to Global Peers

Major Indian KECs, such as Bangalore, Chennai, Hyderabad, and Mumbai, have served as the country's economic powerhouses. However, if India aims to accelerate growth in the future, their growth trajectory pales in comparison to metropolises like Shanghai, Beijing, and Tianjin, which have acted as growth engines propelling China's meteoric rise. For instance, Beijing enjoyed a remarkable 10 per cent annual real GDP growth for an extraordinary 41 years, from 1978 to 2019 (Beijing Municipal Bureau of Statistics, 2020). Similarly, Shanghai boasted an average annual real GDP growth of 10 per cent for a similar duration, between 1979 and 2019 (Shanghai Statistical Handbook, 2012). In contrast, Bangalore, one of India's fastest-growing KECs, grew at 10.5 per cent annually for 18 years (2000–2018), only half the duration compared to major Chinese cities. KECs across Indian States, on average, had a real GDP Compound Annual Growth Rate (CAGR) of 7.9 per cent over 18–20 years. Consequently, while Beijing and Shanghai each have GDPs between US$500 billion and US$550 billion, and Tianjin's GDP is more than US$200 billion, the biggest Indian KEC (Mumbai) has a GDP equivalent to half of Tianjin's and a quarter of Shanghai's, and the average Indian KECs are significantly smaller at US$17 billion (Figure 6). Thus, Indian KECs have a long journey ahead to match up with global counterparts.

Table 7: The Performance of India's KECs Pales in Comparison with Their Chinese Counterparts

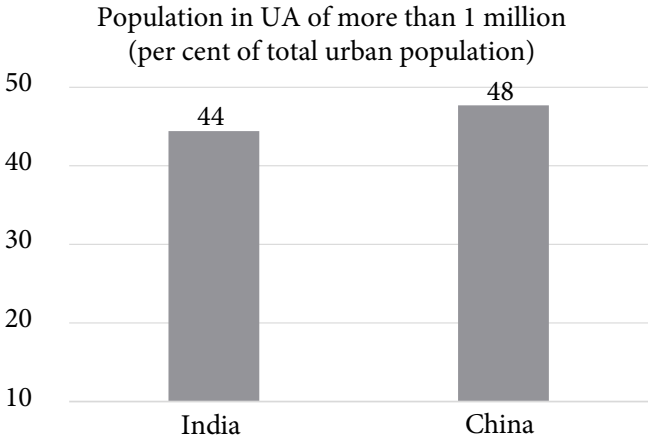
Country	Cities	Population (in millions)	GDP size (2019, USD billion, range)	Number of years of fastest growth	GDP growth rate (CAGR for the long-term, %)
China	Shanghai	25	550-560	41	9.9
	Beijing	22	515-525	40	9.9
	Guangzhou	19	400-410	No data	No data
	Tianjin	13	200-210	40	9.7
India	Mumbai	30	140-150	20	7.2
	Bangalore	10	60-70	18	10.7
	Hyderabad	15	60-70	26	9.9
	Chennai	14	55-65	14	9.0

Source: Shanghai, Tianjin, and Beijing growth rates are from respective statistical handbooks. These are the only three major cities in China, along with Guangzhou—which is the capital of Guangdong—a major manufacturing province in China. Growth rates for Indian cities are from district statistical handbooks of the states to which they belong.

Note: Real growth rates are the highest long-term growth rates for the cities. Cities are arranged based on GDP size by country.

[19] We refer to large firms as formal firms, which are generally more efficient and achieve economies of scale.

Figure 5: Similar Proportion of Urban Population Lives in Million-Plus UA in India and China



Source: World Bank.

The discussion makes it clear that the performance of large centres is crucial in determining the growth performance of States and, consequently, the Indian economy as a whole. Notably, India has 45 per cent of its urban population residing in cities with populations exceeding one million, a figure comparable to China's. Therefore, if large Indian agglomerations become globally competitive, they will benefit a significant portion of both the current and incoming urban population by providing higher incomes and improved standards of living.

Improving the Competitiveness of KECs Requires Better Planning, Governance, and Funding

What will it take for Indian Centres to improve productivity? All successful major urban centres provide their citizens with high-quality urban services, maximising productivity and driving growth. Apart from scale, there is little to cherish about the quality of life offered by Indian cities. For instance, although 92 per cent of municipal waste is collected, only about 54 per cent is treated (CPCB, 2024).

Water supplied by urban local bodies in India stands at approximately 70 litres per capita per day (LPCD), compared to the benchmark of 135–150 LPCD (Ministry of Housing and Urban Affairs, 2022). Furthermore, the Price-to-Income Ratio (PTI)—the cost of purchasing a 950-square-foot apartment by the median-earning household—is 11 in our cities, as opposed to the affordability benchmark of 5 (Gupta, Agnihotri, & George, 2023). Improving these aspects will necessitate fundamental improvements in the planning, governance, funding, and expenditure of India's urban centres.

- **Planning:** Key urban centres thrive on "agglomeration economies," where concentrated businesses benefit from economies of scale and scope. However, this density can lead to congestion and pollution if not well planned. Cities need a master plan that aligns with their future economic vision and addresses future land use and urban services. Only 28 per cent of cities in India have approved master plans on paper. Even where plans exist, cities rarely develop according to them. This is because the plans lack granularity (i.e., clarity on which areas will develop first) and are not tied to funding, rendering them largely ineffective. "In contrast, Singapore's 40–50-year concept plan is broken down into 20-year, plot-by-plot development plans with identified sequencing of projects and broad financing strategies, lending their plan much-needed credibility" (Gupta, Agnihotri, & George, 2023; Asian Development Bank, 2024). Additionally, with expanding populations and economic activities, cities may face unpredictable and significant challenges, which they address as they arise. For example, several cities in India are grappling with the pollution issue, given that India is the fifth worst country in terms of air quality in the world (IQAir, 2025). Beijing's example is instructive here. The city faced severe air pollution in the late 2000s, but due to the proactiveness of the local government, PM2.5 annual average levels decreased from 101 in 2013 to 32 in 2022. Closer home, Bangalore's specialisation in computer services has led to the city's population exploding from 6.5 million in 2001 to 11 million by 2021, thus putting pressure on civic infrastructure. Consequently, Bangalore has the sixth-worst traffic among nearly 400 international cities; it takes 28 minutes to cover 10 km (TomTom Traffic Index, 2024). Ensuring the KECs stay ahead of the curve requires credible and transparent master planning.

- **Governance:** Constraints in governance arise from the limited powers of our urban centres, as states have not devolved functions as mandated by the 73rd and 74th Constitutional Amendment Acts of 1993. According to the ASIC 2017 report, the average tenure of a municipal commissioner is 10 months, resulting in a suboptimal governance structure. This deficiency is longstanding. "Key problems in urban governance include weak legal and institutional frameworks within which the ULBs operate and their poor capacity, includ-

ing a lack of professional and sensitised cadre, to perform their development and regulatory functions" (Supreme Audit Institution of India, 2023). This contrasts starkly with countries like the US and China, where local governments have the authority to employ various tools and incentives, such as land-related incentives of rezoning and acquisition, to formulate and implement development plans. For example, in China's major cities, the Central government holds mayors directly responsible for delivering economic growth and improving the quality of life in their cities. Furthermore, in London, the mayor oversees key citywide strategic functions, including economic development, transportation, metropolitan planning, and police and emergency services (McKinsey Global Institute, 2010). The rejuvenation of KECs requires strong champions in the form of stable and empowered leadership. A first step could be to have a fixed five- to six-year term for municipal commissioners while also making the role desirable within the system.

- **More Funding and Expenditure Efficiency:** Indian cities are severely lacking in funds. Municipal revenue as a percentage of GDP has remained constant at 1 per cent since 2007–2008, much lower than other developing nations such as Brazil and South Africa, whose ratios stood at 7.4 per cent and 6 per cent, respectively (Ahluwalia et al., 2019). While efforts have been made to improve this, implementation remains woefully inadequate and largely theoretical. Consequently, there has been significant underinvestment in Indian cities for the provision of basic urban services such as water, sewage, city roads, and solid waste management (SWM). In 2008, India spent US$17 per capita on urban capital investment, compared to US$116 in China and US$391 in the United Kingdom. China recognised the importance of cities and invested ahead of demand. In Shanghai, 50 per cent of urban services are funded through local taxes, with the remainder financed through the monetisation of land assets and bank loans on preferential terms, as well as a 30 per cent share in local taxes such as Value Added Tax (VAT). However, in India, local bodies have not yet monetised land assets and have not fully tapped into revenue from property tax and user charges due to low tariffs, poor assessment methods, and non-compliance (Mckinsey Global Institute, 2010). Along with the push for more funds, an immediate step could be to focus on expenditure efficiency in our urban centres. Our analysis of expenditure and outcomes of 27 large municipalities on SWM indicated that 19 of them were spending significantly more than the norm, yet none had a perfect score under the Swachh Bharat rankings. Spending accounted for about 23 per cent of the variation in cleanliness services, with the remainder attributable to non-monetary dimensions such as stable leadership and citizen involvement (Gupta & Sachdeva, 2021).

To recap, two fundamental axes define state growth: a) state-level attributes and b) the performance of KECs. Strong determinants enhance the business environment and productivity, thereby fostering investment and growth. While this relationship is generally robust, careful observation reveals some gaps. For instance, although both Gujarat and Tamil Nadu score similarly on these growth attributes, their long-term growth performance differs significantly. Gujarat's real per capita GDP grew at 6.7 per cent per annum compared to 5.7 per cent for Tamil Nadu. Conversely, while both Maharashtra and Punjab possess attributes akin to fast-growing states, their economic growth was insufficient to classify them as such. A significant explanation for this gap is the role of KECs—districts comprising million-plus cities/UAs and capital cities, along with a few cities that have increased their share in state GDP by more than 5 per cent—in state growth. The fundamental difference between Gujarat and Tamil Nadu lies in the performance of their KECs, with the former growing at 10 per cent per annum compared to 7.7 per cent for the latter. Similarly, although Maharashtra and Punjab have attributes similar to fast-growing states, they did not grow fast enough because their KECs did not outperform sufficiently. Strong growth attributes and the performance of KECs are both critical for accelerated state growth. Fast-growing states are generally strong in both aspects, and the opposite is true for slow-growing states.

4. States Need a Bespoke Strategy for Accelerated Growth

We have established two fundamental axes of state growth: growth-inducing attributes, such as physical infrastructure, social infrastructure, and the quality of governance; and the performance of KECs. Growth attributes serve as foundational elements, while KECs act as catalysts, boosting state growth. Focusing only on state attributes may miss the binding constraint regarding KECs, while singularly focusing on KECs is not desirable since we find little evidence of isolated pockets of growth working in an environment of weak fundamentals. In an ideal world, each state should focus on improving its attributes and KECs growth. However, in reality, there is usually a resource constraint; hence, it is helpful to know which priority is likely to yield better outcomes in the short to medium run. When we juxtapose state growth performance relative to these two axes, it becomes apparent what different types of states should prioritise to accelerate growth. There is no one-size-fits-all strategy that will work for all states, given their heterogeneity. For example, if a state lacks in both axes, it may be better off focusing on improving the attributes; it is the non-KEC components of such states that are usually pulling down growth. This will improve growth in general and will also help KECs perform better. Conversely, if a state is strong on both, it should focus on unlocking the growth potential of its KECs by making them globally competitive while continuing to strengthen its attributes.

Table 8: Growth Strategies for States Depending on Their Performance on the Two Growth Axes

Category	States	Real Per Capita GDP CAGR, 1994–2020 *(Per cent)*	Growth Attributes in which a State is Higher than the State-Average *(Count)*	Real KEC GDP Growth Rate, CAGR, 2000–2020 *(Per cent) (Weighted Average)*
Fast	Gujarat	6.7	6	9.9
	Uttarakhand	6.5	5	12.6
	Combined AP	6.2	7	9.1
	Tamil Nadu	5.9	6	7.7
	Himachal Pradesh (HP)	5.8	7	9.4
	Karnataka	5.8	6	10.3
	Kerala	5.7	5	6.3
	Haryana	5.6	4	9.9
Average	Maharashtra	5.3	7	7.3
	West Bengal	5.0	4	5.6
	Odisha	4.9	5	10.7
	Rajasthan	4.8	3	7.7
	Bihar	4.5	2	7.2
	Madhya Pradesh (MP)	4.5	4	5.8
Slow	Punjab	4.1	6	5.4
	Chhattisgarh	3.9	5	8.2
	Jharkhand	3.7	2	7.3
	Uttar Pradesh (UP)	3.6	2	7.5
	Assam	3.5	4	No data
	Jammu & Kashmir	3.2	1	No data

Low to high performance

Source: MoSPI, District Statistical Handbooks of States, and growth attribute calculations are explained in Table 4.

Note: Ideally, all states should work on everything to improve growth, but given the resource constraint as well as time constraints, prioritising select areas becomes important.

In Table 8, we summarise the growth attributes and KEC growth rates for each state. Based on this summary, we conducted an Ordinary Least Squares (OLS) regression of per capita GDP for the cross-section of states. The results show that when a state's performance on a growth attribute moves from below average to average or above average, its long-term per capita real GDP growth increases by 0.3 per cent, ceteris paribus. Additionally, for a 10 per cent increase in KEC GDP growth rate, long-term per capita GDP CAGR increases by 0.2 per cent (Appendix H). This regression is helpful to get an idea about the potential growth magnitude if a state improves attributes and/or KECs.[20] What each state should ultimately do to prioritise depends on its Achilles' heel, as illustrated below for a subset of states.

- **Gujarat, Karnataka, HP, Uttarakhand, and the combined AP are strong on both axes and must therefore work towards removing all potential obstacles to their key economic centres (KECs) becoming globally competitive,** akin to Shanghai and Beijing. This will further accelerate growth by fostering deeper specialisation, resulting in a stronger agglomeration effect. Along with advancing their KECs, they should also continue to improve their growth attributes. Appendix B illustrates that, while this group of states is robust domestically in terms of growth attributes, they rank around the 60th percentile globally, indicating significant room for improvement.

- **Maharashtra, Tamil Nadu, and Punjab could prioritise their KECs.** Contrary to common perception, Maharashtra has been an average performer despite possessing some of the best growth attributes among states. The main reason is the tepid performance of its KECs at approximately 7 per cent per annum, compared to better-performing states such as Uttarakhand and Gujarat, whose KECs achieved double-digit growth. This lacklustre KEC performance significantly impacts the state and even India as a whole. For example, though Mumbai is known as the financial capital of the country, its specialisation has been weakening, as evidenced by the decline in financial services in district GDP from 30 per cent to 21 per cent between 2005 and 2020. Mumbai urgently needs to address its infrastructure issues, particularly concerning traffic and high house prices (Mumbai has a PTI of 40, one of the highest in the world), which are throttling its growth potential. Likewise, Tamil Nadu performs well in terms of growth attributes but lags in the performance of its KECs. While Chennai outperformed with a GDP CAGR of 8.5 per cent between 2000 and 2020, its other KECs grew in the range of 6–8 per cent. The main constraint appears to be that, apart from Coimbatore, which specialises in textiles, the other KECs lack specialisation. By focusing on its KECs, Tamil Nadu can accelerate growth, and in the process, these KECs may also develop and discover specialisation, enabling them to grow faster. In addition, Tamil Nadu should look to unlock Chennai's growth potential, whose growth is significantly slower than the neighbouring Bangalore's at more than 10 per cent. Punjab has been a slow-growing state despite having decent growth attributes. The state must address the bottlenecks in its two KECs—Amritsar and Ludhiana. Ludhiana has a strong specialisation in textiles, yet it is not achieving satisfactory growth. A comparison with another textile hub, Coimbatore, is instructive. While Coimbatore grew at 6.9 per cent per annum, Ludhiana managed only 5.7 per cent. There is, therefore, an urgent need to remove the obstacles to Ludhiana's growth. Given the lacklustre performance of labour-intensive industries in general, Punjab's reliance on this industry seems to limit the state's growth in the medium to long term. We find that Mohali (SAS Nagar) experienced a 2.5 per cent share increase in Punjab's GDP between 2006 and 2018 and has the potential to emerge as a new KEC. This could be attributed to its development as an IT hub with the establishment of the Infosys campus and educational institutions such as the Indian School of Business. One potential reason that may be constraining its growth is Chandigarh's lack of a full-fledged international airport, a standard feature for all major service sector hubs. As Punjab seeks to refine its KECs, it could focus on Mohali, which is emerging as a KEC specialising in services.

- **Rajasthan, Bihar, Jharkhand, and J&K could prioritise improving their growth attributes**. Together, these states have one of the smallest growth attribute counts of three, and hence,

[20] Regression results are directional, as the independent variable of growth attributes is discrete and does not capture the impact of improvement on growth attributes beyond the stage of average performance.

there is a dire need for them to start focusing on the areas in which they perform the worst. For instance, Jharkhand should focus on enhancing its road network; its per-capita road availability is half of the states' average. West Bengal has one of the lowest labour flexibility scores and hence should focus on improving labour laws. Bihar should focus on its social indicators, given that it had the weakest performance on education and health indicators across states, as well as compared to its performance on other indicators. Without adequate state infrastructure and governance, their growth is likely to remain underwhelming.

- **Haryana and UP are two states whose bordering districts with Delhi are benefiting from spillover gains, but both would be better off improving their growth attributes.** Haryana exhibits fast growth despite moderate to weak performance in growth attributes. The state has particularly benefited from Gurgaon's proximity to Delhi and an international airport, with Gurgaon growing more than 10 per cent per annum between 2000 and 2020. However, as competition across KECs intensifies, Haryana will need to improve its growth attributes to enable Gurgaon to maintain its pole position while helping other areas grow faster. For instance, Gautam Buddha Nagar, a district bordering Delhi in UP, is being developed as an IT hub and is likely to have an operational international airport by April 2025, posing serious competition to Gurgaon. Like Haryana, UP's growth is primarily driven by Gautam Buddha Nagar, which benefits from its proximity to Delhi. UP stands to gain in the short term as Gautam Buddha Nagar's economy expands, akin to Gurgaon's impact on Haryana. The State would benefit from improving its core attributes, which would not only push growth in non-KECs but also help unlock growth in its other KECs, such as Kanpur and Lucknow, among others.

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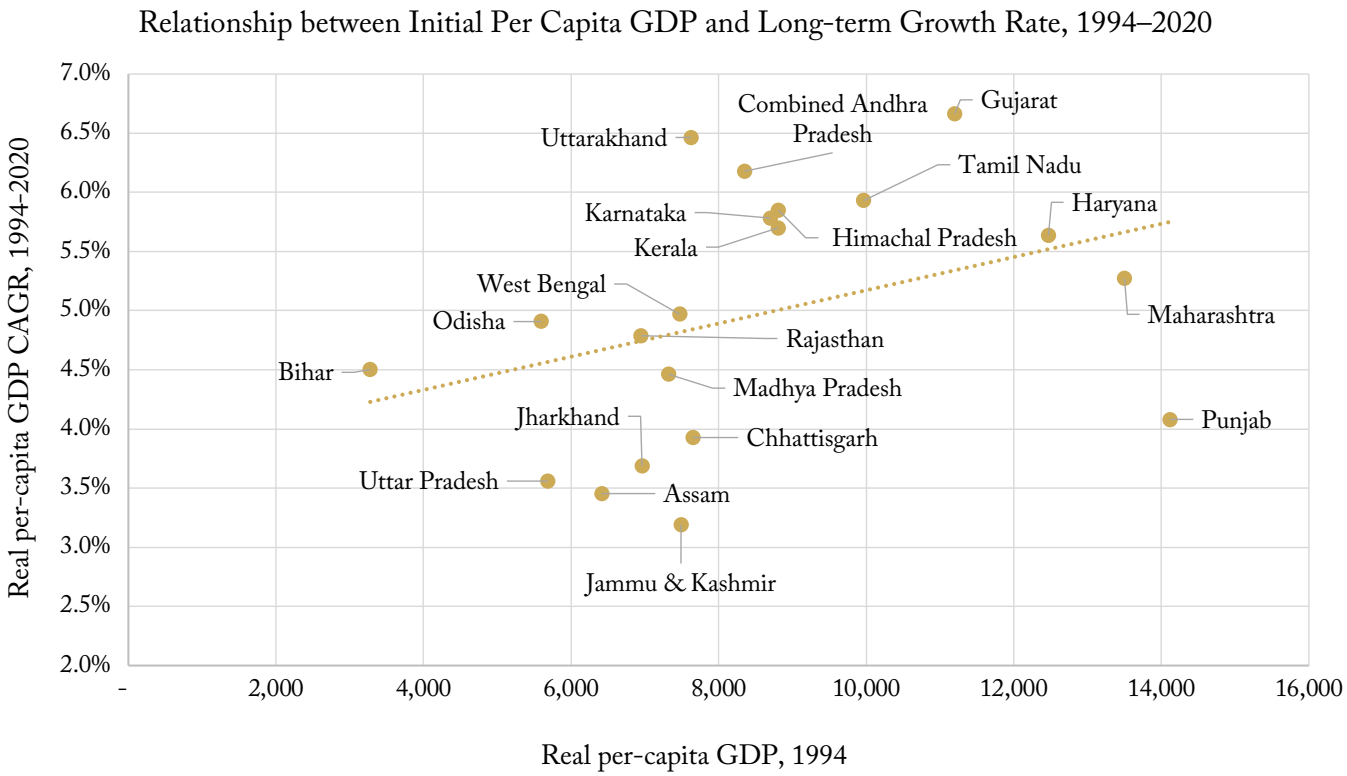
Appendices

Appendix A: Lack of Convergence between Indian States, 1981–1994 and 1994–2020

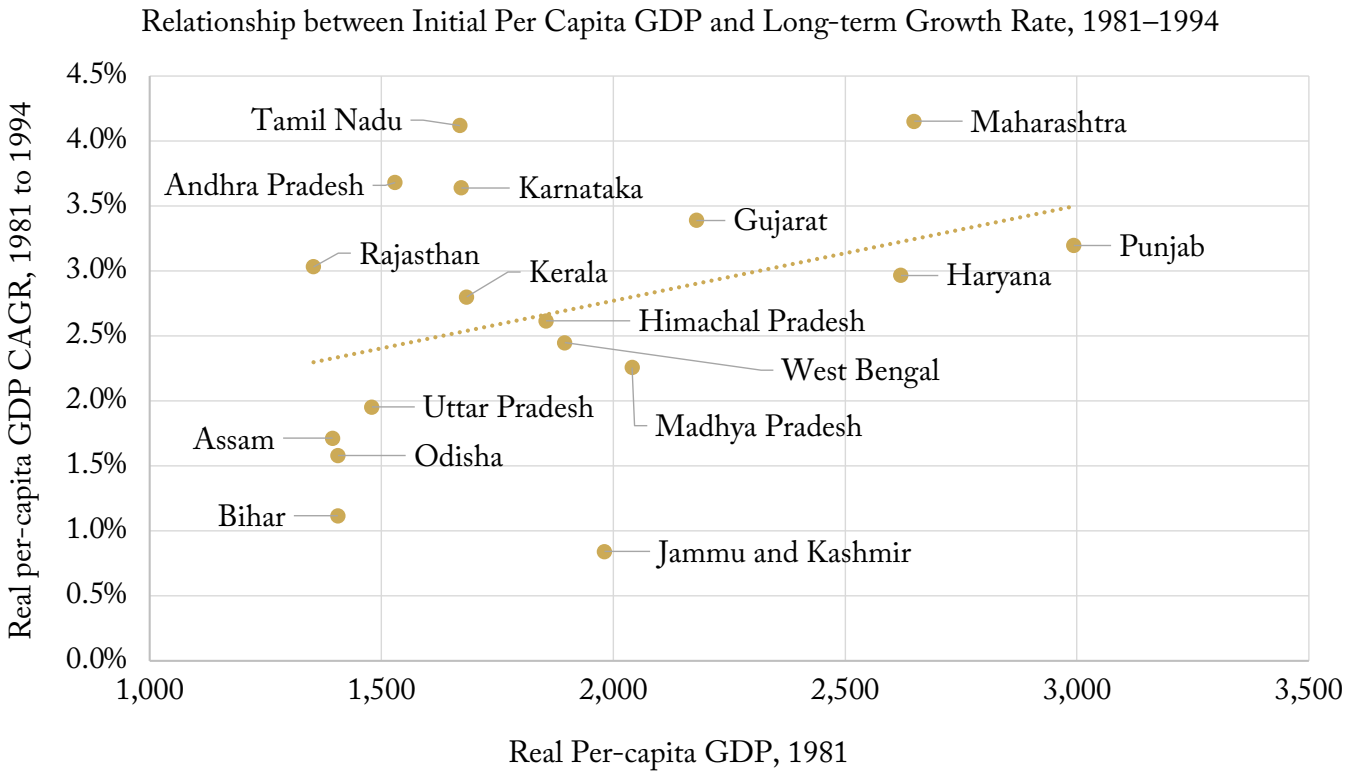
Appendix Figure A.1: Lack of Convergence between Indian States, 1994-2020



Source: MoSPI.

Note: The correlation between growth and initial per-capita GDP is 0.361.

Appendix Figure A.2: Lack of Convergence between Indian States, 1981-1994



Source: MoSPI.

Note: The correlation between growth and initial per capita GDP is 0.357.

Appendix B: Indian States' Comparison with Countries

Appendix Table B: Indian States' Performance on Key Metrics Compared to Countries

Real GDP 2023			
States	**Constant 2015 US$ billion**	**Comparable countries**	**Global percentile ranking**
Maharashtra	300–400	Vietnam, South Africa, Malaysia, Phillipines	81 –86
AP, Gujarat, Tamil Nadu, Karnataka, UP	200–299	Portugal, Bangladesh	76 –80
MP, Kerala, Haryana, West Bengal, Rajasthan	100–199	Uzbekistan, Morocco	72 -76
Chhattisgarh, Assam, Punjab, Bihar, Odisha	50–99	Ukraine, Sri Lanka, Myanmar, Kenya	61 –72
Himachal Pradesh, J&K, Uttarakhand, Jharkhand	20–49	Nepal, Uganda	48 –60
Population, 2020			
States	**In miilion**	**Comparable countries**	**Global percentile ranking**
UP	more than 200	Pakistan, Brazil, Indonesia	98
Maharashtra, Bihar	100–200	Bangladesh, Mexico, Russia	94 –97
AP, West Bengal	90–100	Vietnam	93
MP	80–90	Germany	92
Tamil Nadu, Rajasthan	70–80	Thailand	91
Gujarat, Karnataka	60–70	South Africa, France, United Kingdom	90
Kerala, Haryana, Punjab, Chhattisgarh, Assam, Jharkhand, Uttarakhand, Himachal Pradesh, J&K	less than 60	South Korea, Kenya	80 –90
Manufacturing share in GDP, 2020			
States	**%**	**Comparable countries**	**Global percentile ranking**
Uttarakhand, Gujarat	40–45	-	NA
Himachal Pradesh	30–35	-	99
Jharkhand, Odisha, Maharashtra, Haryana, Tamil Nadu	21–25	Vietnam, South Korea, Bangladesh, China	94 –97
Karnataka, UP, Assam, Chhattisgarh, Punjab, West Bengal	15–20	Japan, Indonesia, Germany, Egypt, EU	76 –92
MP, AP, Rajasthan, Kerala	10–14	India, USA, North America, Brazil	52 –71
J&K, Bihar,	5–9	Canada, UK, Australia, Nepal	31 –48
Life expectancy, 2020			
States	**In years**	**Comparable countries**	**Global percentile ranking**
Kerala, J&K, Himachal Pradesh	73–76	Malaysia, Brazil, Vietnam, South Korea	53 –68
Punjab, Maharashtra, Tamil Nadu, West Bengal	71–72	Philippines, Ukraine, India, Indonesia	40 -46
Haryana, Odisha, Karnataka, Jharkhand, Bihar, Rajasthan, Assam, MP, AP, Gujarat	67–70	Nepal	28 –35
UP, Chhattisgarh	63–66	South Africa	18 –25
Gross enrollment ration in tertiary education, 2020			
States	**%**	**Comparable countries**	**Global percentile ranking**
Tamil Nadu	41-50	Thailand, Malaysia, Mexico	51-55
Himachal Pradesh, Uttarakhand, Kerala, Combined Andhra Pradesh, Maharashtra, J&K	31-40	Indonesia	41-47
Punjab, Haryana, Karnataka, UP, Rajasthan, MP	21-30	India, Bangladesh, South Africa	33-39
Gujarat, West Bengal, Jharkhand, Assam, Chhattisgarh, Bihar	10--20	Pakistan, Nepal	16-29
GDP per capita 2023			
States	**Constant 2015 US$**	**Comparable countries**	**Global percentile ranking**
Gujarat, Haryana, Karnataka, Tamil Nadu, Kerala, Maharashtra	3000-4000	Vietnam, Philippines, Indonesia	37-45
Combined AP, Himachal Pradesh, Uttarakhand, Punjab	2000-3000	Bhutan, India	30-36
MP, Chhattisgarh, J&K, Odisha, Rajasthan, Assam, Jharkhand, West Bengal	1000-2000	Bangladesh, Nepal	20-29
Bihar, UP	1000 or less	Uganda, Ethopia	15-18

Source: MoSPI, Census, RBI, Ministry of Education GoI, World Bank. Note: Countries with a population of 20 million or more are selected for comparison.

Appendix C: Long-Term Growth Masks Short-Term Shifts in States' Growth

Since accelerating India's future growth necessitates most states growing at a faster pace, analysing state growth levels and patterns relative to India over the past 30 years is crucial. We examined the states' growth trends over three distinct periods between 1994 and 2020: 1994–2004, 2004–2012, and 2012–2020. The period 1994–2004 captures the initiation and consolidation of economic reforms. The years 2004–2012 represent a period of high growth in the Indian economy, while 2012–2020 marks a slowdown in growth.[21] Each state's performance is assessed in relative terms compared to the national average for that period.

1. Faster growth in the long run does not necessarily indicate an outperformer[22] in each period. Eight states grew faster than the national average during 1994–2020, and of these, three states maintained their fast growth across all three sub-periods: Gujarat, Combined AP, and Tamil Nadu. Haryana and Kerala also grew faster in each sub-period, but their relative outperformance compared to India's growth is decreasing over time. The last among the cohort of fast-growing states are Uttarakhand and HP, whose long-term trend results from a significant burst of very fast growth in one time period only—2004–2012 for Uttarakhand and 1994–2004 for HP. Thus, not all fast-growing states exhibit the same underlying pattern, which may affect their future growth outlook. It is one thing to be a consistent outperformer versus an outperformer due to one period of significant growth, which elevates the long-term growth average.

Long-term average performers display a variety of trends in the medium term. These are States whose long-term growth is similar to India's. They include States whose relative growth trajectory is rising over time, such as Odisha, Bihar, and MP; those whose trajectory is declining, like Rajasthan and West Bengal; and those that have oscillated around the Indian average, like Maharashtra.

Most of the slow-growing States have managed to bridge their growth gap over time. Five out of six States in this category have consistently grown slower than the average. Only Assam grew at 6.1 per cent during the period 2012–2020, comparable to one of the fast-growing States.

Appendix Table C: States' Long-Term Growth Hides Sub-Period Growth Movements

State Categories Based on their Growth Between 1994–2020	State	Per Capita Real GDP CAGR (Per Cent)			
		Long-Term	Sub-Periods		
		1994–2020	1994–2004	2004–2012	2012–2020
Fast	Gujarat	6.7	5.2	7.8	7.4
	Uttarakhand	6.5	3.5	11.7	5.1
	Combined AP	6.2	4.4	7.8	6.8
	Tamil Nadu	5.9	3.9	8.9	5.6
	Himachal Pradesh (HP)	5.8	5.2	6.9	5.6
	Karnataka	5.8	4.1	6.6	7.1
	Kerala	5.7	4.8	7.5	5.1
	Haryana	5.6	4.3	7.1	5.8
Average	Maharashtra	5.3	3.4	7.7	5.2
	West Bengal	5.0	4.8	5.2	5.0
	Odisha	4.9	2.9	7.0	5.4
	Rajasthan	4.8	4.8	5.4	4.1
	Bihar	4.5	1.5	7.1	5.7
	Madhya Pradesh (MP)	4.5	2.2	5.4	6.3
Slow	Punjab	4.1	2.6	5.6	4.5
	Chhattisgarh	3.9	2.2	5.8	4.3
	Jharkhand	3.7	1.4	5.5	4.7
	Uttar Pradesh (UP)	3.6	1.9	4.9	4.3
	Assam	3.5	1.3	3.5	6.1
	Jammu & Kashmir	3.2	2.1	3.9	3.9

Increasing order of per-capita GDP CAGR

Note: Calculated at 2004–2005 constant prices. Average growth for the three periods is 3.1 per cent, 6.4 per cent, and 5.3 per cent, respectively, in 1994–2004, 2004–2012, and 2012–2020.

[21] Please refer to (Gupta & Sachdeva, New Growth Recipe: India Needs Globally Competitive Large Firms, 2022) for details.
[22] Outperformer refers to achieving the fastest growth during the respective time period.

This basic description of relative growth performance over the three sub-periods helps develop a holistic understanding of how State growth rates have evolved relative to India's growth.

Appendix D: Majority of Key Modes of Connectivity are Present in KECs

Appendix Table D: Distribution of Key Infrastructure in KECs and the State

States	International Airports			Major Railway Junctions			Private and Major Ports		
	Total	KEC	Other Districts	Total	KEC	Other Districts	Total	KEC	Other Districts
Gujarat	3	3	-	5	4	1	4	0	4
Uttarakhand	0	-	-	1	1	0	1	0	1
Karnataka	2	1	1	3	2	1	2	0	2
Tamil Nadu	3	3	-	9	7	2	4	3	4
Combined AP	4	2	2	6	4	2	4	4	0
Haryana	0	-	-	2	0	2			
Himachal Pradesh (HP)	0	-	-	0	0	0			
Kerala	4	4	-	1	1	0	2	2	0
Rajasthan	1	1	-	4	3	1			
Maharashtra	5	4	1	13	11	2	8	5	3
Odisha	1	1	-	2	1	1	4	0	4
Madhya Pradesh (MP)	1	1	-	6	5	1			
Punjab	1	1	-	3	2	1			
Bihar	1	0	1	7	2	5			
Uttar Pradesh (UP)	5	2	3	10	5	5			
Chhattisgarh	0	0	0	3	2	1			
Assam	1	1	-	1	0	1			
Jharkhand	0	-	-	2	2	0			
Share of KEC in Total		**75**			**67**			**48**	

Source: Airports Authority of India, Ministry of Railways, Ministry of Ports, Shipping and Waterways.

Note: Major railway junctions refer to Non-Suburban Group (NSG) 1 and 2.

Appendix E: District GDP Data Calculations

District-level GDP data vary across states. To ensure comparability, we calculated the ratio of district GDP growth rate relative to its state growth rate and assumed that this ratio remained constant between 2000 and 2020. For instance, district GDP data for Karnataka were available for 2000–2018. During this period, Bangalore's GDP growth rate was 40 per cent higher than the state average. For 2018–2020, we assumed Bangalore's GDP CAGR was 40 per cent higher than Karnataka's growth rate, as state-level growth rates are readily available from the Ministry of Statistics and Programme Implementation (MoSPI). This methodology was applied to all other states. The original time period of district data available to us is detailed in Appendix Table E.

Additionally, for Bihar, Jharkhand, and Chhattisgarh, we had limited data for five to ten years. For these states, we analysed the relationship between urban population growth from 2001 to 2011 and GDP growth rates for the available periods to ensure our findings were directionally accurate. Finally, for Gujarat, no district GDP data were available; however, we found district ASI GVA data from 2004–2020. Therefore, for Gujarat's districts, we used ASI district distribution for 2004 and 2020 to distribute state manufacturing GDP amongst the districts. All KEC values for Gujarat refer to manufacturing GDP and its growth rate for 2004 to 2020.

Appendix Table E: District GDP Data Availability for States

State	Period
Gujarat (ASI)	2004–2020
Uttarakhand	2005–2018
Andhra Pradesh (AP) & Telangana	1994–2020
Tamil Nadu	2001–2015
Himachal Pradesh (HP)	1994–2018
Karnataka	2000–2018
Kerala	2000–2018
Haryana	2000–2019
Maharashtra	1994–2020
West Bengal	2003–2014
Odisha	1995–2012
Rajasthan	2000–2017
Bihar	2000–2011
Madhya Pradesh (MP)	1999–2016
Punjab	2002–2018
Chhattisgarh	2000–2007
Jharkhand	2000–2006
Uttar Pradesh (UP)	2000–2017
Assam	No data
Jammu & Kashmir	No data

Source: Authors' analysis.

Appendix F: Specialisation Develops Due to the Concentration of Factors of Production, Policy-Induced Factors, and Natural Endowments

- **Concentration of Factors of Production:** This type of specialisation develops when a KEC, or its underlying state, is particularly strong in key growth attributes such as education and physical infrastructure. These strengths make them ideal locations for companies seeking these intrinsic advantages to establish their businesses, thus fostering specialisation and agglomeration. To illustrate, consider the example of Bangalore. India accounts for 59 per cent of the global outsourcing market (Nasscom, 2022), and two-thirds of India's global IT share originates from just one city, Bangalore. Additionally, Bangalore accounted for 25 per cent of Karnataka's GDP in 2000, which increased to 38 per cent by 2018. This growth resulted from the expansion of the Information and Communications Technology (ICT) sector[23] in Bangalore, whose share in district GDP increased from 20 per cent to 53 per cent during the same period. What explains such a high level of specialisation? In the computer services industry, two key skills are required: English-speaking and engineering graduates. The former is crucial for hiring employees for Business Process Outsourcing (BPO), while the latter is necessary for outsourcing technical engineering work. Both skills were abundantly available in Bangalore. By 2004, English-medium high schools in Bangalore outnumbered Kannada-medium high schools by 58 per cent, in contrast to the rest of Karnataka (Pani, 2009). In 1991, Bangalore's ratio of people aged 30–34 years with a graduate degree was 13 per cent[24] compared to 11 per cent in other major cities like Mumbai and Madras.[25] In 1979, Electronic City was planned on the outskirts of Bangalore by Karnataka State Electronics Development Corporation Limited (Keonics) to create a cluster of IT industries across large, medium, and small firms (Karnataka State Electronics Development Corporation Ltd, 1979) In 1982, Texas Instruments, a multinational semiconductor firm, established its R&D facility in Bangalore, and in 1983, Infosys relocated from Pune to Bangalore, marking the beginning of Bangalore's transformation into the Silicon Valley of India. With large firms establishing a presence in the city, others also began to agglomerate around them. This led Bangalore to develop a deep specialisation in the computer services industry.
- **Policy-Induced:** Uttarakhand (and HP) was provided with a Special Package of Industrial Incentive by the Central Government in 2003 to promote industrialisation in industrially backward areas of the country. This scheme was initially applicable for a decade but was later extended to 2017. It entitled new industrial units to 100 per cent excise duty exemption, 100 per

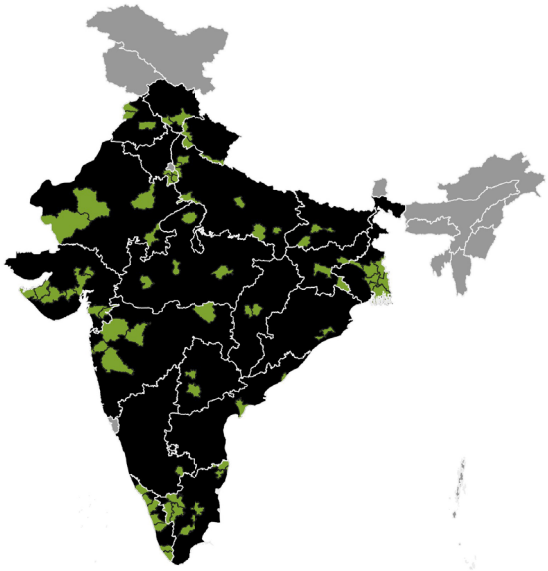
[23] The sector—real estate and business activities—includes ICT services in national accounts. Sector values mentioned are for real estate and business activities sector.
[24] This was due to early adoption of higher education institutes. As early as 1909, the Indian Institute of Science was set up in Bangalore. After independence, four universities, 14 colleges providing education in science and engineering, and 47 polytechnic institutes were opened.
[25] Mumbai and Madras have the highest rate of people with a graduate degree in Maharashtra and Tamil Nadu, respectively.

cent corporate tax exemption for five years, and a capital investment subsidy equivalent to 15 per cent of investment in plants, subject to a ceiling of INR 3 million (Chaurey, 2016). Large motorcycle producers opened factories in Uttarakhand to take advantage of the scheme. Mahindra & Mahindra started operations in 2005, Bajaj Auto in 2007, and in 2008, Hero Honda and Tata Motors also commenced operations. By 2018, Uttarakhand accounted for 16 per cent of national motorcycle production.[26] Before 2005, there were no factories in the state for the "manufacturing of other transport equipment." In 2005, there were three factories, and by 2011 the state had 59 factories in operation (ASI, various issues). Crucially, the state used this opportunity to invest in growth-inducing attributes, and consequently, it is today one of India's strongest states in terms of growth attributes. This is evident from Uttarakhand's improvement in its infrastructure: state highway length increased threefold, which is the highest increase across states between 2003 and 2011. National highway length doubled between 2003 and 2009, which was the highest increase across states. Power capacity in the state increased 1.6 times between 2005 and 2008.

- **Endowment-Based:** Let us now turn to an example where specialisation exists because of natural endowments, such as the presence of iron ore in a state. Chhattisgarh and Jharkhand have a high specialisation score due to the presence of iron ore mining in the state, which leads to base metal manufacturing (steel). However, neither of these states is fast-growing. This is because they have not focused on their growth attributes, as reflected in the growth attribute count in Table 4, which has not enabled them to exploit the potential of these natural endowments, nor attract any related industry to the state.

Appendix G: KECs in India are Present in all States

Appendix Figure G: KECs in India map



Source: Source: Based on authors' analysis using Table 5. Map is made using QGIS.

Note: The green colour highlights all the districts which are KECs. The grey colour represents all the states for which district level data was unavailable or states which were not considered for the study.

Appendix H: Regression Analysis

Appendix Table H: OLS Regression

OLS Regression	
Variables	**Dependent variable Real per-capita GDP CAGR, 1994–2020**
Growth inducing attributes count	0.0029***
	(0.0009)
Weighted average of real KEC GDP growth rates, 2000-20	0.21**
	(0.08)
Constant	0.02*
	(0.007)
R-square	0.57
Adjusted R-square	0.51
Number of observations	18
Standard errors are mentioned in parenthesis. ***p<0.01,**p<0.05,*p<0.1	

Source: Based on the summary of Table 8.

Note: The model satisfies diagnostics tests and is therefore robust. We tested for multicollinearity, heteroscedasticity, normality of residuals, linearity, and model specification.

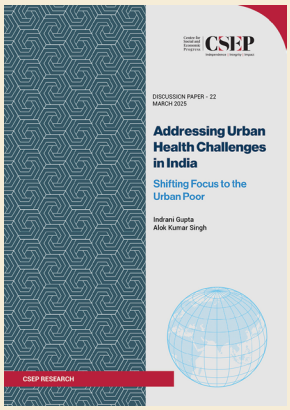
[26] There are only two other major motorcycle hubs in India: Haryana accounts for 23 per cent of national motorcycle production, and Tamil Nadu accounts for 16 per cent, based on ASI, 2018.

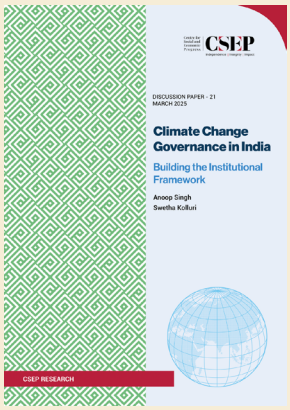
About the authors

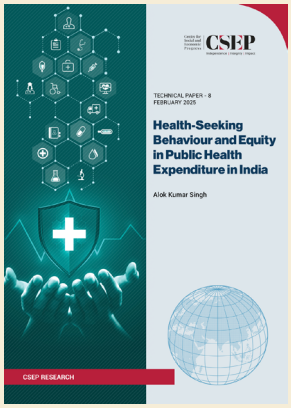
Shishir Gupta is a Senior Fellow at CSEP in New Delhi. His work focuses on many aspects of the Indian economy ranging from economic growth, governance and institutions to urbanisation and sub-national reforms, among others. Prior to joining CSEP in August 2020, Shishir was with the McKinsey Global Institute for 14 years. He is an economist by education, with an MA and MPhil from the Delhi School of Economics.

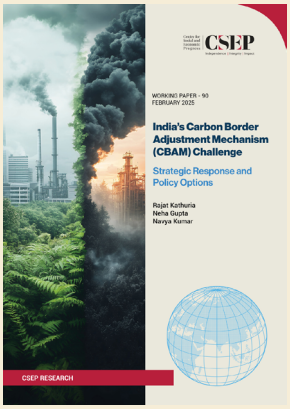
Rishita Sachdeva is an Associate Fellow with the Economic Growth and Development vertical. She has an Msc. Development Economics from University of Sussex. Her research focuses on economic growth of India and its states, as well as urban reforms. Beyond her research, Rishita is a strong advocate for active citizenship.

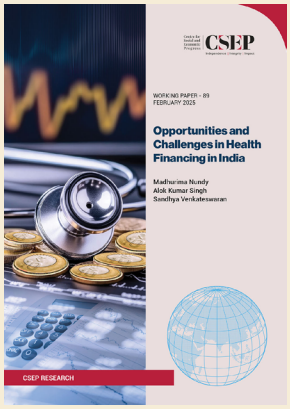
Other publications

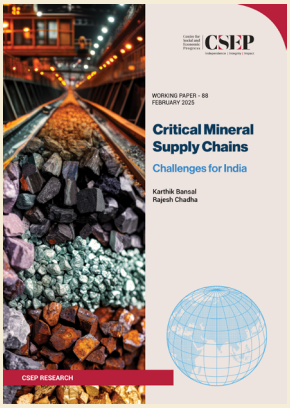


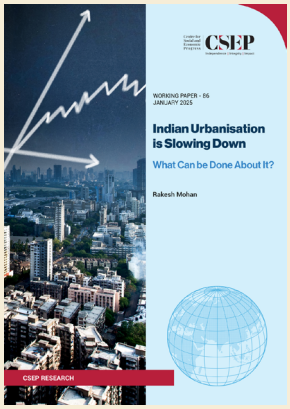


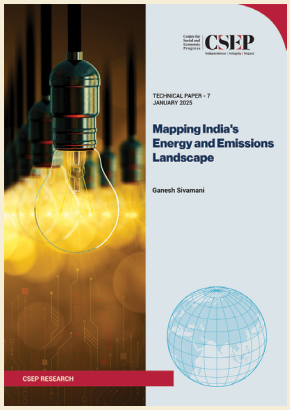


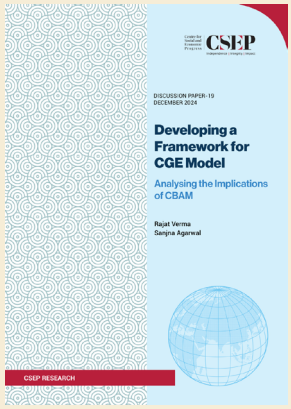


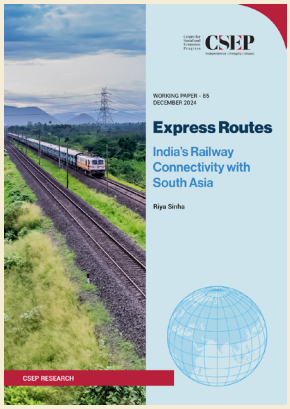


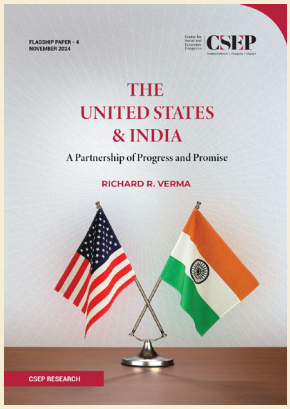


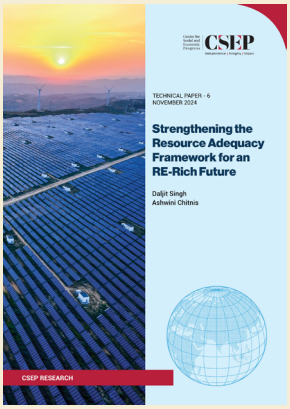












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