JOURNAL OF ECONOMIC DEVELOPMENT
Volume 50, Number 3, September 2025

EXPLAINING THE GROWTH DYNAMICS OF SMALL TOWNS IN DEVELOPING COUNTRIES

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Though small towns are important for equitable and sustainable development in developing countries, research on understanding their growth dynamics is limited. Pertinent questions: what is the definition of small towns and factors responsible for their formation; what issues emerge in existing literature; what are the trends and patterns of growth rate of population; and what determines their growth dynamics are some issues analyzed in this paper, focusing on India, considering the latest 2011 Census data. Principal Component Analysis is used to construct an infrastructure index. Analysis shows that the definition of small towns varies with the researcher's intuition. Small towns are growing at a faster rate than large cities. Key elements influencing small-town development are the availability of facilities, infrastructure, a favorable climate, and government support. Longer distance to power and large cities deters their growth. They are experiencing severe infrastructure deficiencies. The population density of the nearest city also matters. Several policies are proposed to position small towns as growth drivers in developing countries.

Keywords: Small Towns, Infrastructure, Population Growth, Sustainable Urbanization
JEL Classification: R10; R12; O1

1. INTRODUCTION

Small towns play a significant role in regional development by providing rural populations with employment opportunities, services, and connectivity. The term “small town” distinguishes these urban settlements from larger cities and metropolitan areas. Small towns exhibit characteristics of urbanization, such as higher population density, mixed land use, and a degree of economic specialization, while retaining a sense of community and local identity often associated with rural areas. Rural transformation without adequate infrastructure may also lead to the formation of small towns. Overall, a

small town can be defined as a relatively small urban settlement with a moderate population size, intermediate between (rural) villages and larger cities, that serves as a local centre for economic, social, and administrative activities within the region as they may have relatively better basic urban infrastructure, commercial establishments, educational institutions, healthcare facilities, and governance structures.

Agergaard et al. (2019) argued that small towns in Sub-Saharan Africa had to be evaluated in light of their roles and the dynamics of rural-urban transitions. According to Rodríguez-Pose and Griffiths (2021), intermediate cities are crucial for reducing poverty and creating more efficient ecosystems where people can live and work. Due to the availability of inexpensive labour-seeking jobs outside of agriculture, small towns have greater growth potential. Small towns contribute to local and regional growth, although they are neglected (Wagner and Growe, 2021). Acting as a bridge between rural and urban areas, small towns diversify the rural economy and combat poverty more successfully than big cities (Saitluanga, 2019). According to Ebrahimzadeh et al. (2012), they play a significant role in providing services and acting as a hub for selling surplus agricultural items. A key component of sustainable growth originates from small towns. The formerly designated rural areas are now crossed by regional and global flows of people, goods, waste, energy, and information, which connect to metropolitan systems and enable them to exist in the first place (Carlow, 2016). Due to their more homogeneous physical and social systems, less complicated design and implementation requirements, and potentially more successful citizen attitude moulding, small cities are better prepared to implement local climate strategies (LCSs) (Óvári et al., 2023). The economic paradigm gets more and more localised. Living in tiny towns may gain popularity, provided enough amenities and lifestyle options are available (Raagmaa, 2023). Small towns are typically viewed as having played a crucial role in rural sustainable development since they provide most public services to rural residents of hinterland villages (Yu et al., 2023). To enable small towns to support more robust and sustainable economic growth in the future, their productivity must be increased.

Developing countries such as India are experiencing a surge in small towns. Urbanization has historically been top-heavy in India, meaning that a large proportion of the population lives in large cities (Kundu, 2011). Urban congestion, pollution, and overworked infrastructure are only a few serious issues brought out by this pattern. Small towns can decentralize development, ease the burden on larger cities, and distribute economic activity more equitably nationwide. According to Gibson et al. (2017), this strategy is more successful in reducing rural poverty than the expansion of big cities. By encouraging more balanced regional growth through decentralized development, small towns can lessen the problems of large urban centres. Swerts and Denis (2017) stated that they support rural communities, aid in economic diversification, and offer a transitional space to people leaving the agricultural sector. Despite the availability of opportunities, Census Towns' (a type of small town) development is hampered by a lack of appropriate basic services and governance (Jain, 2018). Giving Gramme Panchayats (local councils) more authority and financial responsibility is the

solution. As mentioned, small towns can act much more than as centres for development. They need greater attention from policymakers to become the centres of dynamism.

The emergence of small towns away from established cities is a sign of the rural areas pushing their urban evolution (Guin, 2018). Small towns are linked with subaltern urbanization, which explains that thriving towns outside the shadow of major cities may sustain a scattered pattern of urbanization (Mukhopadhyay et al., 2020). Subaltern urbanization describes the independent growth of population clusters, regardless of their official urban designation. These clusters usually grow outside the influence of the major cities and establish connections with local and even global communities (Denis et al., 2012). Unlike peri-urbanization, which results from city spillover effects, subaltern urbanization is independent of any cities, and such settlements develop independently.

Against this backdrop, there are several questions pertinent to small-town development from developing countries' perspectives. First, how do we define a small town? Second, what issues are related to small-town development in the current literature? Third, what are the trends of the population growth rate of small towns? Fourth, what is the level of infrastructure available in small towns? Finally, what are the determinants of small towns' growth? This paper answers all these questions by considering India as a case study. We apply Principal Component Analysis (PCA) to create an infrastructure index. To investigate the relevant determinants of small towns' growth dynamics, we use Ordinary Least Squares (OLS). We use the latest available data from the 2011 census for our analysis.

The structure of the paper is as follows. The following sections define small towns. Section 3 presents the factors influencing the formation of small towns. A detailed review of the literature is highlighted in Section 4; the trends and patterns of small-town population growth are described in Section 5. Evidence on the availability of infrastructure and the determinants of small-town growth dynamics is examined in Sections 6 and 7. Section 8 discusses the results. Finally, Section 9 summarizes the results and suggests policy options.

2. LITERATURE REVIEW

The definition of a small town can vary depending on the context and the criteria used for classification. In the Indian context, small towns are typically characterized by population size and urban characteristics. Small towns in India are urban settlements with a population ranging from a few thousand to up to 100,000 inhabitants. These towns are smaller than cities but larger than rural villages, occupying an intermediate position in the urban hierarchy (Raman et al., 2015).

According to urban and regional development plans formulation and implementation (URDPFI) guidelines, small towns are classified according to their population range (between 5000 and 50,000). The URDPFI is under the Ministry of Urban Development

(MUD, 2014), Government of India (GOI). The 2011 Census of India defines Census Towns, a subset of small towns, as follows: (a) having 5,000 or more residents; (b) having a population density of at least 400 people per square kilometre; and (c) having 75% of its male primary workforce employed in non-farm occupations. Rural local governments administer the CTs. However, small towns have been classified differently by different authors based on their perceptions. Table 1 presents the definitions of small towns that have been considered in different studies in different countries. It shows that the definition of a small town may vary depending on the population size, from 5,000 to 100,000.

Table 1. Definitions of Small Towns

Author(s)	Definition
Gibson et al. (2017)	The study defines *small towns* as "secondary towns," distinguishing them from the "big cities" based on population size. Specifically, *big cities* are defined as those with a population above one million. Therefore, small towns are those urban areas with populations of less than one million.
Tripathi (2021), Tripathi, Mitra (2022), Swerts (2017), Mukhopadhyay (2017)	Small towns are characterized by a population of less than 0.1 million (100,000)
Chakrabarti & Mukherjee (2020); Ghosh and Khatun (2022); Chakrabarti and Mukherjee (2022)	Census Towns as defined by the Census of India Statutory Towns (STs- [having a statutory body viz. municipality, corporation, cantonment, etc.]) and Census Towns (CTs- [having a population > 5000, population density > 400/sq.km and 75% male non-agricultural workers]).
Toerien (2018)	The study defines small towns based on population size. In the US, towns with fewer than 50,000 residents are considered small (Mayer & Knox, 2010). The study also refers to small towns in the Eastern Cape Karoo of South Africa, identifying 8 specific towns (Aberdeen, Hofmeyr, Jansenville, Pearston, Steynsburg, Steytlerville, Venterstad, and Willowmore) as smaller towns compared to the larger ones in the region. These small towns are characterized by their roles as service centres for rural areas and face economic and demographic challenges, with definitions varying by context and contrasting with nearby cities.
Davidsson and Rickman (2011)	US micropolitan statistical areas, as defined by the Office of Management and Budget, are labor market and statistical areas in the US centered on an urban cluster with a population between 10,000 and 50,000 people.
Salem et al. (2019)	The study does not specifically define small towns. It focuses on the peri-urban areas of the Greater Cairo Region, which includes a variety of settlements, from those with fewer than 5,000 inhabitants to those with over 100,000.

Table 1. Definitions of Small Towns (cont')

Author(s)	Definition
Servillo et al. (2017)	Small and Medium-Sized Towns (SMSTs) have populations ranging from 5,000 to 100,000. Defining SMSTs is challenging due to various factors, including ontological, linguistic, and methodological differences. Approaches to defining towns include: *Morphological Approach*: This perspective focuses on urban settlements' physical characteristics and spatial layout. It defines towns based on their built-up areas, infrastructure, and spatial boundaries. *Administrative Approach*: This approach defines towns based on administrative units or jurisdictions. It considers local government boundaries, municipal status, and formal designations conferred by higher administrative authorities. *Functional Approach*: This perspective emphasizes urban settlements' functional roles and economic activities. It considers factors such as service provision, economic functions, and social interactions within the urban area and its surrounding region. (The definition of SMSTs can vary slightly depending on the context and country, but generally, they are characterized by having a moderate population size, a range of basic services and amenities, and often serve as centres for economic, social, and administrative activities within their respective regions)
Carlow (2016)	A *small town* is defined as a settlement with a population between 5,000 and 15,000 inhabitants with a non-agrarian economic base. It is a central hub for surrounding rural areas, featuring an urban core with historical and architectural significance, such as a market square and town hall. The study emphasizes small towns in peripheral rural areas rather than metropolitan regions.

Source: Authors' compilation.

3. WHAT DETERMINES THE GROWTH OF SMALL TOWNS?

The studies by Chakrabarti and Mukherjee (2020), Tripathi (2021), Tripathi and Mitra (2022), and Chakrabarti and Mukherjee (2022) focus on understanding the various factors influencing the development and growth of small towns in India. Gibson et al. (2017) and Mukhopadhyay (2017) explore the dynamics between urban and rural areas and their impact on poverty and access to services. Swerts (2017) and Ghosh and Khatun (2022) look at aspects related to the well-being and development of urban spaces, examining the demographic contribution of small towns and disparities in quality of life and service provisions. The studies by Davidsson and Rickman (2011), Toerien (2018), Salem et al. (2019), Kaufmann and Wittwer (2019), and Zimmer et al. (2020) collectively explore the diverse factors influencing the growth and development of small towns across different countries and contexts. Spatio-functional factors have a significant impact on the growth of small towns. A study by Alam and Choudhury (2016) used Spearman's rank correlation to identify the key factors that facilitate the growth of

small towns in India. The study identified key functional determinants such as education, health, service, and financial amenities, and vital spatial determinants such as location and accessibility. According to Yu et al. (2023), the significance of small towns varies based on socioeconomic development, proximity to urban areas, and public transport infrastructure. High-frequency bus services, diverse land use, and quality public services further enhance their role. People increasingly reside temporarily in multiple locations, including rural areas, driven by a desire for better living environments, remote work opportunities, and changing lifestyle preferences (Raagmaa, 2023). Table 2 presents the list of different factors that influence the development of small towns.

Table 2. Determinants of Small-Town Development

Author(s)	Factors influencing small-town development
Davidsson and Rickman (2011)	Industry composition, productivity differences across regions, and local government spending on amenities and infrastructure.
Toerien (2018)	Productive knowledge (measured as enterprise richness), and sectors like agriculture, tourism, and hospitality.
Salem et al. (2019)	Population density and proximity to roads.
Zimmer et al. (2020), Tripathi and Mitra (2022), Tripathi (2021)	Environmental factors
Zimmer et al., (2020), Chakrabarti and Mukherjee (2020), Tripathi (2021), Tripathi and Mitra (2022), Wagner and Growe (2021)	Location/Distance from large cities
Mukhopadhyay, P. (2017), Ghosh and Khatun (2022), Tripathi (2021)	Administrative status and governance
Tripathi and Mitra (2022), Tripathi (2021), Mukhopadhyay (2017) Chakrabarti and Mukherjee (2022), Mironova et al. (2013), Wagner and Growe (2021)	Infrastructure: the availability of infrastructure, such as roads and transport, sanitation, and banking services, positively impacts the growth of small towns.
Mukhopadhyay, P. (2017), Davidsson and Rickman (2011), Raman et. al (2015), Angel, S. (2023), Carlow (2016)	Policy support (Government Spending/ supportive policies at the national, state, and local levels, participation of Public Sector)
Tripathi and Mitra (2022), Tripathi (2021)	Historical factors
Mironova et al. (2013), Mukhopadhyay (2017), Chakrabarti and Mukherjee (2022), Ghosh and Khatun (2022)	Services/ amenities
Tripathi (2021), Tripathi, Mitra (2022), Swerts (2017)	Economic factors such as employment opportunities, industries, investments, etc.
Toerien (2018), Ponomareva et al. (2020)	Tourism activities
Chakrabarti and Mukherjee (2020)	The higher formal sector income in the nearby urban centres

Source: Authors' compilation.

4. ISSUES RELATED TO SMALL TOWNS: REVIEW OF LITERATURE

Research related to small towns is still limited; it remains an under-researched topic (Wagner and Growe, 2021; Carlow, 2016). Small towns often lag in meeting SDGs compared to larger cities (Liu et al., 2023) and lack in addressing local climate issues (Óvári et al., 2023). Angel (2023) stated that urban population growth is increasingly being accommodated through expansion rather than densification, particularly in the Global South, where unplanned urban sprawl leads to cities becoming less productive, inclusive, resilient, and sustainable. Mensah et al. (2023) highlighted slow productivity growth, significant sectoral productivity gaps, and a shift of labour from agriculture to lower-productivity service sectors, which hindered aggregate productivity improvements in sub-Saharan Africa from 1960 to 2015. According to Chen et al. (2023), urbanization promotes industrial transformation and changes in employment relationships, reducing vulnerable employment. However, some highly urbanized countries still experience a highly vulnerable employment rate due to rapid urbanization outpacing employment structure changes.

In the context of international studies, Davidsson and Rickman (2011) identified key factors influencing micropolitan growth in the U.S., emphasizing industry composition, regional productivity, and local government spending, with proximity to metropolitan areas playing a significant role. Toerien (2018) demonstrated that small towns in South Africa's Eastern Cape region leverage productive knowledge in agriculture and tourism for growth. Salem et al. (2019) attributed urban expansion in Greater Cairo primarily to population density and road proximity. Kaufmann and Wittwer (2019) indicated that Swiss small towns benefit from regional network effects on employment growth rather than local political or tax policies. Zimmer et al. (2020) found that Southern African small urban areas with more distance from large cities, a mix of rain patterns, and more surrounding farmland grow faster. Yin et al. (2021) challenged the inefficiency stereotype in small Chinese towns, pointing out their potential for sustainable urbanization.

In India, Gibson et al. (2017) found that town growth is more effective in reducing rural poverty than city growth. Mukhopadhyay (2017) observed that service access in small towns is significantly influenced by state-specific governance. Tripathi (2014) examined scale economies in Indian urban industries and found that firms often operate under decreasing returns to scale, suggesting limits to large agglomerations and the potential role of small towns in balanced development. Swerts (2017) highlighted the substantial demographic contribution of small towns to India’s urban growth. Chakrabarti and Mukherjee (2020) linked the emergence of census towns to higher urban income levels and lower urban sprawl. Tripathi (2021) emphasized the need for infrastructure investment in fast-growing small towns to promote sustainable urbanization. Ghosh and Khatun (2022) pointed out the inadequate infrastructure in new small towns compared to established ones. Tripathi and Mitra (2022) found that small-

town growth is influenced by infrastructure availability and proximity to large cities. Finally, Chakrabarti and Mukherjee (2022) demonstrated the critical role of transportation infrastructure in transforming villages into census towns in West Bengal. Table 3 presents the review of literature in more detail.

Table 3. Review of Literature

Author(s)	Main Objective	Variables Used: Dependent variable (DP); Independent variable (IDP)	Data Sources	Methodology	Conclusion
International perspective :					
Davidsson and Rickman (2011)	To understand the factors that contribute to the different growth rates of micropolitan areas in the United States from 1990 to 2000.	DP: Population Growth Rate, Wage growth rate, Housing Cost Growth Rate. IDP: Initial Population Density in 1990, Amenities, Census Division: Dummy variables for all Census divisions minus one, Urban Hierarchy Distance to the nearest metropolitan area, State and Local Policy, Education, Demographics, and Industry Structure. Lagged Variables: Wage level and Housing cost level in 1990	Census, USDA Economic Research Service.	Spatial growth framework of Glaeser and Tobio with estimated reduced-form regressions.	The study found that industry composition, regional productivity differences, and local government spending on amenities and infrastructure were key factors in micropolitan area growth in the 1990s. Pro-growth housing policies were less significant than previously thought. Proximity to metropolitan areas influenced growth, with remote areas having lower housing costs but facing productivity disadvantages.
Toerien (2018)	To study the validity of the "Small Town Paradox" (STP) in the Eastern Cape (EC) Karoo region of South Africa. The STP suggests that some small towns regress (decline) while others grow, and the study aims to see if this phenomenon applies to towns in this specific semi-arid region.	DP: Enterprise Richness, Enterprise Dependency Index: Calculated as the population number divided by the number of enterprises, Growth Rates: Population Growth Rate p.a., Enterprise Richness Growth Rate p.a., Normalized Enterprise Numbers: Enterprises per 1000 capita. IDP: Population Numbers, Enterprise Numbers.	Population Data:1946: From official census records (Government Printer, 1976). 2015/16: From the City Population website, based on South African census data for 2001 and 2011, with projections for 2015.	Linear Regression and Statistical tests.	The study concludes that productive knowledge is key for the growth of small towns. Not all small towns in the EC Karoo suffer from the STP Towns like Jansenville, Steytlerville, and Willowmore have increased their economic success by effectively utilizing productive knowledge, especially in agriculture and tourism.

Table 3. Review of Literature (cont')

Author(s)	Main Objective	Variables Used: Dependent variable (DP); Independent variable (IDP)	Data Sources	Methodology	Conclusion
International perspective :					
Salem et al. (2019)	The main objective of this study is to analyze the driving factors behind urban expansion in the peri-urban area of the Greater Cairo Region (GCR) in Egypt over the period of 2007–2017, using the logistic regression model.	8 IDP: distance to the nearest urban center, distance to the nearest center of regional services, distance to water streams, distance to the main agglomeration, distance to industrial areas, distance to nearest road, number of urban cells within a 3 3 cell window and population density.	United States Geological Survey, General Organisation of Physical Planning) Egypt, Central Agency for Public Mobilization and Statistics	Logistic Regression Model	The conclusion of the study is that the urban expansion in the peri-urban area of the GCR in Egypt for 2007–2017 was primarily driven by population density and proximity to roads. The creation of a probability map of urban expansion further validated these findings, showing that most urban expansion occurred around existing urban areas and near roads.
Kaufmann and Wittwer (2019)	The main objective of this study is to understand what factors influence employment growth in small and medium-sized towns (SMSTs) in Switzerland, with a specific focus on whether these towns benefit more from becoming business centers or bedroom communities.	DP: Employment Development in Swiss SMSTs IDP: Regional Explanatory Factors- Network Density: This refers to the interconnectedness of an SMST with neighbouring cities and towns, Distance to a Metropolitan Centre, and Higher Education Institutions; Local Explanatory Factors: Local Politics, Taxes. Local Control variables: population size and economic specialization.	Swiss Federal Statistical Office, Swiss Census Records of 152 SMSTs.	Bayesian multilevel and spatial regression techniques	The study found that SMSTs in regions with growing employment and strong network effects saw an increase in full-time jobs in export-oriented sectors. Local political leaning and tax policies had no significant impact on employment growth. This suggests regional network effects play a stronger role in economic development than local factors.

Table 3. Review of Literature (cont')

Author(s)	Main Objective	Variables Used: Dependent variable (DP); Independent variable (IDP)	Data Sources	Methodology	Conclusion
International perspective :					
Zimmer et al., (2020)	The main objective of the paper is to understand the growth patterns of smaller urban areas (SUAs) in eight countries across Southern Africa between 1975 and 2015.	DP: Population Growth Rate IDP: Distance to the closest urban area(km), Distance to largest city (km), Percentage of average precipitation, Maximum number of consecutive dry years, Percentage of years with below 75% average rainfall, Percentage of ADM-2(i.e. the second level of sub-national administrative boundaries based on the Global Administration Areas database) in agriculture.	Global Human Settlements Population layer, Open-source gROADS database, (European Space Agency) ESA Climate Change Initiative (ESA 2017)	Descriptive statistics and spatial lag and ordinary least squares regression models.	The study found that SUAs with more distance from large cities, a mix of rain patterns, and more surrounding farmland (the connection between farms and city growth wasn't as clear later after 1990), grew faster than other SUAs.
Yin et al., (2021)	To challenge the stereotype that small towns in China lack economic efficiency and are not important players in urbanization and rural development.	Inputs (used in Data Envelopment Analysis DEA models): Built-up area of each town, Number of employees in the secondary and tertiary industries, Net investment in fixed assets. Outputs (used in DEA models): Output value of secondary and tertiary industries, Total retail sales in social consumer goods.	Statistics Bureau of Jiangsu	Data Envelopment Analysis (DEA) and Analysis of Variance (ANOVA).	Small towns in China have the potential to be just as efficient as county towns and can contribute to sustainable urbanization. The economic density (economic activity per unit area) of small towns is similar to small and medium-sized cities, but lower than large cities.

Table 3. Review of Literature (cont')

Author(s)	Main Objective	Variables Used: Dependent variable (DP); Independent variable (IDP)	Data Sources	Methodology	Conclusion
Indian perspective :					
Gibson et al. (2017)	To investigate whether cities or towns are more effective in reducing rural poverty in India. The study examined this by analyzing the relationship between night light data (as a measure of urban economic activity) and poverty rates in rural areas across India from 1993-94 to 2011-12.	DP: Poverty Measures IDP: Urban Economic Activity (as indicated by the night lights data.)	National Sample Survey Organization, the National Oceanic and Atmospheric Administration	Empirical analysis and Spatial econometric model. (Durbin fixed-effects model)	The study found that the expansion of urban areas (geographic spread, not increasing brightness within existing areas) is linked to lower rural poverty rates. This effect is specifically tied to the growth of towns, not big cities. Thus, the growth of towns, rather than big cities, is more effective in reducing rural poverty in India for the current development stage.
Mukhopadhyay (2017)	To investigate whether administrative status (rural vs. urban) affects access to basic services in small towns and their surrounding rural areas in India.	DP: The levels of various amenities in 2011(Access to in-house toilets, in-house water, piped sewerage, banking services, ownership of two-wheelers), Changes in these levels from 2001 to 2011. IDP: The initial level of the amenity in 2001, Population size of the settlement, Population growth of the settlement,	Census of India	Regression Analysis and Descriptive statistics.	The study concludes that administrative status has an inconsistent impact on access to services in small towns and their surrounding areas in India. State-specific governance and lack of overall support for these towns are seen as bigger factors affecting service provision.

Table 3. Review of Literature (cont')

Author(s)	Main Objective	Variables Used: Dependent variable (DP); Independent variable (IDP)	Data Sources	Methodology	Conclusion
Indian perspective :					
Swerts (2017)	To understand the demographic contribution of small towns (with less than 100,000 inhabitants) to the dynamics of the Indian city system.	IDP: City Size- The size of cities, categorized into different population ranges and distance from Major Economic Centers. DP: Growth Rates to measure the demographic evolution and dynamics of urban populations over time, Demographic Trajectories: The demographic trajectories of cities, including changes in population size and composition, were DP used to understand the evolution of urban areas in India.	Census Of India	Creation and analysis of a harmonized database of Indian cities to analyze the evolution of small towns and larger cities over a 50-year period and Linear Regression analysis.	The study concludes that small towns are vital to India's urban system, contributing nearly 30% to urban population growth. Despite some metropolitanization, small towns exhibit diverse growth rates similar to larger cities. Their growth is largely independent of proximity to major economic centers, challenging the notion that it is driven solely by spillover from larger cities.
Chakrabarti and Mukherjee (2020)	Understand the significant factors leading to the rapid emergence of census towns (CTs) in India (2001-2011).	DP: Transformation of a village which was 'would be census town' in census 2001 to census towns in census 2011. IDP: DENS (Density of Population at the Nearest City/ST), AREA (Area of the Nearest City/ST), BANK (Number of Bank Branches in the Nearest City/ST), DISTN (Distance to the Nearest City/ST)	Census of India	Theoretical modelling (tested empirically using data from the state of West Bengal) and Logit regression model	The main reason for the emergence of CTs is the greater income in the formal sector in the adjacent urban centres with less urban sprawl.
Tripathi (2021)	The study aims to address the regional imbalances in urban development in India, which have been biased towards large cities by focusing on small towns with higher decadal growth rate of the town population.	DP: Population Growth rate of towns IDP: Infrastructure Index (calculated), historical factor economic factor, environmental factor, town part of a major urban area, road distance to the nearest city with a population of 0.1 million or more.	Town amenities, District Census Handbook, Census of India (2011)	Regression Analysis and descriptive statistics.	This study suggests that small-town development is crucial for sustainable urbanization in India. It proposes focusing on 125 fast-growing small towns for infrastructure investment to promote rural-to-urban migration and reduce pressure on big cities.

Table 3. Review of Literature (cont')

Author(s)	Main Objective	Variables Used: Dependent variable (DP) Independent variable (IDP)	Data Sources	Methodology	Conclusion
Indian perspective :					
Ghosh and Khatun (2022)	The study focuses on the availability and access to the services and facilities in Statutory Towns (STs) and Census Towns (CTs) in order to assess the disparity between their quality of life	DP: Quality of life (QOL) IDP: economic, assets, drinking water facility, drainage system, and lighting system.	District Census Hand Book (DCHB), Nadia district of Census of India.	A weighted combination score (WCS)	The study found that the Nadia district of West Bengal shows high urban growth despite its distance from Kolkata. However, the quality of life in these new small towns is lacking due to inadequate infrastructure and amenities compared to established towns (STs). Current improvement programs are insufficient, and there is a need for targeted infrastructure and amenities development for different types of towns.
Tripathi and Mitra (2022)	The main objective of the study is to identify the economic determinants of growth and the location of small towns in India, focusing on factors such as population size, infrastructure availability, and distance from large cities.	Regression Model 1: DP: Town's population size Regression Model 2: DP: Town's growth rate IDP: Distance from a large city, Availability of infrastructure, and Environmental effect	Indian Census Data (2011)	Descriptive Analysis, Cluster Analysis, and Regression Analysis.	Cluster analysis shows distinct groups among India's small towns, emerging near large cities due to rural transformations and urban oversaturation. Regression analysis demonstrates that infrastructure positively impacts growth, while greater distance from large cities hinders it.
Chakrabarti and Mukherjee (2022)	The main objective of the study is to evaluate the role of transportation infrastructure in the transformation of villages into CTs in the State of West Bengal, India, during the period from 2001 to 2011.	DP: CT Status (1 for villages transformed to CT; 0 otherwise) IDP: HIGHWAY 5 and RAIL 5 (1 if within 5 km), HIGHWAY 10 and RAIL 10 (1 if within 10 km), NEARNESS (reciprocal distance to nearest city/statutory town), ROAD (rural road length per 1,000 sq km), GQ (1 if Golden Quadrilateral highway is within 10 km), etc	The Census of India, State Statistical Handbook of West Bengal.	Probit Regression Analysis	The study concludes that proximity to state and national highways significantly increases the likelihood of a village designated as a 'would be Census Town' in 2001 becoming one by 2011. Availability of amenities also enhances a village's chances of becoming a CT.

Source: Authors' compilation.

5. GROWTH RATE OF SMALL TOWNS IN INDIA

Table 4 shows data on average population growth rates for different classes of towns in India every 10 years from 1961 to 2011. The average growth rate in each year is calculated based on the available data for the towns. For example, for Class I towns in 1961, the total number of towns for which proper data was available was 462, and in 1971 it was 484 towns, and so on. While the growth rates are averages that normalize differences in the number of observations, the varying number of towns each year could impact the reliability of these comparisons.

Table 4. The Average Decadal Population Growth Rate of Different Classes (Cities and Towns) in India

Class	Different Census period					
	1961	1971	1981	1991	2001	2011
I	37.33	47.58	78.81	68.22	41.75	24.07
II	27.15	49.42	45.11	41.97	46.23	25.42
III	21.39	28.87	42.85	32.40	33.13	26.68
IV	7.95	17.29	28.00	24.79	72.04	21.97
V	6.38	9.93	13.09	29.91	21.85	10.44
VI	9.84	7.75	14.48	14.71	39.58	15.39

Notes: The Indian Census divides urban centres into the following 6 groups according to population size. 100,000 or more is Class I; 50,000 to 99,999 is Class II; 20,000 to 49,999 is Class III, 10,000 to 19,999 is Class IV; 5000 to 9999 is Class V; and less than 5000 is Class VI.

Source: Estimates made by the author using data from the Indian Census.

It is observed that in 2011, Class II towns had the highest rate at 25.42%, followed by Class III at 26.68%, while in 1961 Class I towns had the highest growth rate at 37.33% and growth rates generally decreased for Class II to Class V towns. Class IV, V, and VI towns showed less variation in growth rates compared to other classes in 2011, as opposed to the significant variation observed in 1961. The overall trend indicates that small towns, Class III to VI, showed an increase in average population growth rate compared to a decline in growth rate in Class I cities. It indicates that small towns are growing faster than large cities.

6. AVAILABILITY OF INFRASTRUCTURE

In this section, we present the figures on the availability of different infrastructure variables by different classes of cities and towns. Table 5 shows the average availability of different types of infrastructure across different classes of towns. Class I

towns have significantly more schools, colleges, medical facilities, public reading rooms, latrines, and banks. The numbers from Class II to Class VI generally decrease across all infrastructure types. For Schools, the number falls drastically from Class I (343) to Class II (69) and continues to decrease. There are also significant differences between latrine numbers across classes. The analysis suggests that Class I cities have more infrastructure available than other classes.

Table 5. Average Number of Availabilities of Infrastructure

CLASS	Schools (Numbers)	Colleges/ Institutes (Numbers)	Vocational (Others) (Numbers)	Non-Formal Education (Numbers)	Electricity Connection (Numbers)
I	343	25	4	12	116139
II	69	5	1	3	16798
III	36	3	0	2	7277
IV	18	1	0	1	3314
V	10	0	0	1	1566
VI	7	0	0	0	998

CLASS	Medical Facilities (Numbers)	Public Reading Room and Library (Numbers)	Latrines (Numbers)	Banks/Credit Society (Numbers)
I	310	15	72216	147
II	48	4	11275	22
III	25	3	4909	11
IV	12	1	2223	5
V	7	1	1070	3
VI	5	1	597	2

Source: Authors' estimation using data from the Indian Census (2011).

Table 6 presents the average availability of various types of infrastructure per 1000 people across six classes of towns, thus showing the availability relative to population size. The analysis shows that smaller towns (Class VI and V) generally have higher per 1000 population availability of services. Schools, colleges/institutes, vocational and non-formal education, and medical facilities all show increased availability per 1,000 populations in Class VI towns compared to Class I. Medical facilities and public reading rooms and libraries reflect similar trends. Latrine availability is more evenly distributed, with Class II towns having the highest availability. Notably, even though Class VI towns have the highest average per 1000 electricity connections (342), Class V has the lowest (213). Banks and credit societies are significantly more available per 1000 population in Class VI towns than in other classes. The analysis indicates that small towns are not neglected severely in terms of the availability of infrastructure.

Table 6. Average Number of Infrastructure Facilities (Numbers) per 1000 Population

CLASS	Average Schools per 1000 population	Average Colleges/ Institutes per 1000 population	Average Vocational (Others) per 1000 population	Average Non-Formal Education per 1000 population	Average Electricity Connections per 1000 population
I	0.89	0.07	0.01	0.05	252.36
II	1.03	0.08	0.01	0.04	246.78
III	1.17	0.08	0.01	0.05	237.91
IV	1.28	0.08	0.01	0.08	231.17
V	1.42	0.07	0.01	0.09	213.14
VI	2.36	0.17	0.03	0.14	341.69

CLASS	Average Medical Facilities per 1000 population	Average Public Reading Room and Library (Numbers) per 1000 population	Average Banks/ Credit Society (Numbers) per 1000 population	Average Latrines (Numbers) per 1000 population
I	0.82	0.04	0.30	160.33
II	0.71	0.06	0.32	165.97
III	0.82	0.09	0.36	160.27
IV	0.88	0.10	0.33	154.33
V	0.98	0.11	0.37	146.98
VI	1.74	0.23	0.93	165.90

Source: Estimated by authors using data from the Indian Census.

7. DETERMINANTS OF SMALL-TOWN GROWTH DYNAMICS

7.1. Definitions of Small Town

Small towns are classified as being in classes II through VI by the Census. Depending on the size of a town, the Census separates urban centres into six groups: Class I (100,000 or more), Class II (50,000 to 99,999), Class III (20,000 to 49,999), Class IV (10,000 to 19,999), Class V (5000 to 9999), and Class VI (less than 5000). This study defines a small town as one with fewer than 0.1 million inhabitants.

7.2. Infrastructure Index

We consider a total of eleven variables to create an infrastructure index. The variables are road availability, latrine, water, electricity connection, hospital and medical facilities, number of schools, colleges/institutes, vocational centres, non-formal

education centres, public libraries and public reading rooms, and bank/ credit societies. We use the PCA method to create the index. Before conducting the PCA analysis, we assessed the validity of the data. Validity refers to the accuracy of the measured values. To measure validity, we used the Kaiser-Meyer-Olkin (KMO) index and Bartlett's test of sphericity. These tests were performed using STATA version 14 (Stata Corp, College Station, TX, USA). The results from both tests indicated that PCA is highly suitable for the analysis, as the KMO value is 0.80. The relevant statistics are presented in Appendix Table A1.

Table 7 displays eigenvalues, differences, proportions, and cumulative proportions for 11 components of the infrastructure index. We use estimated eigenvalues displayed in Table 7 using PCA for small towns (Class II to VI) to construct the infrastructure index. Following Kaiser's (1960) criterion, we consider components with eigenvalues greater than 1 as statistically significant. Three components (Comp1, Comp2, and Comp3) with eigenvalues greater than 1 (3.5748, 1.03195, and 1.00793, respectively) are considered for further analysis. The weights obtained from the PCA analysis are assigned to the first three components of the infrastructure index.

Table 7. Explanation of Total Variance

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	3.57	2.54	0.33	0.33
Comp2	1.03	0.02	0.09	0.42
Comp3	1.01	0.02	0.09	0.51
Comp4	0.99	0.07	0.09	0.60
Comp5	0.92	0.07	0.08	0.68
Comp6	0.85	0.05	0.08	0.76
Comp7	0.79	0.07	0.07	0.83
Comp8	0.72	0.19	0.07	0.90
Comp9	0.53	0.04	0.05	0.95
Comp10	0.49	0.39	0.04	0.99
Comp11	0.10	.	0.01	1.00

Source: Authors' estimation using data from Census of India.

Table 8 displays the weights obtained from the results on the principal component analysis. For Comp1, the total number of electricity connections and latrines have higher weights than other indicators. For Comp2, the total number of non-formal education and public libraries and public reading rooms have higher positive weights. In Comp3, it is seen that total water availability has the highest weight. Table 8 also shows that the indicators- total road availability and total hospitals and medical facilities are largely unexplained.

Table 8. Scoring Coefficients for Orthogonal Varimax Rotation (Weights) for 2011

Variable	Comp1	Comp2	Comp3	Unexplained
Total road availability	0.11	0.21	0.17	0.89
Total number of latrines	0.45	0.11	0.06	0.25
Total water availability	0.02	-0.22	0.92	0.10
Total number of electricity connections	0.48	0.09	0.03	0.16
Total hospitals and medical Facilities	0.19	-0.11	0.20	0.82
Total number of schools	0.36	-0.07	-0.01	0.54
Total number of colleges/institutes	0.39	-0.16	-0.06	0.41
Total number of vocational centres	0.22	-0.44	-0.24	0.56
Total number of non-formal education	0.14	0.74	0.06	0.36
Total number of public libraries and public reading rooms	0.27	0.22	-0.05	0.68
Total number of banks/credit societies	0.30	-0.22	-0.11	0.62

Source: Authors' estimation using data from Census of India.

7.3. Regression Analysis

To understand what factors, impact small-town growth dynamics, we use linear regression models with five different dependent variables: total population in 2011, population density in 2011 and population growth rate in 2011, infrastructure index, and density of the nearest city with a population of 5 lakhs and more. Table 9 shows the descriptive statistics of the variables used in the models. Appendix Table A2 presents the definition of variables used for regression analysis.

Table 9. Descriptive Statistics of the Variables Used for the Regression Analysis

Variable	Variable	Observation	Mean	Standard Deviation	Minimum
Total population in 2011 (a)	7,233	20,121	18,144	1,084	99,979
Population density in 2011 (b)	6,340	1,867	1,188	1,000	3,995
Population growth rate in 2011 (c)	4,993	89	56	1	202
Road distance to district H.Q. (d)	7,436	37	30	0	281
Road distance to Sub-division (e)	7,386	9	13	0	333
Road distance to nearest city with population of 1 Lakh and more (f)	7,441	50	56	0	798
Road distance to nearest city with population of 5 Lakh and more (g)	7,442	112	114	0	1,200
Infrastructure index (h)	7,443	0	2	-2	60
Total population in 2001 (i)	5,097	2,244	1,384	1,005	4,625
Population growth rate in 2001 (j)	3,350	75	52	1	201
Road distance to state H.Q. (k)	7,443	275	202	0	1,145
Density of nearest city with population of 5 lakh and more (l)	7,448	65	36	1	127

Source: Authors' estimation using data from Census of India.

Table 10 displays the correlation coefficients, which measure the direction and strength of the linear relation between the variables. The results suggest that the variable total population in 2011 is positively correlated with most of the other variables, the most vital positive relationships being with population growth rate in 2011, and population growth rate in 2001. It has a negative correlation with road distance to sub-division and road distance to the nearest city with a population of 5 lakhs and more. The variable population density (in 2011) displays a mix of positive and negative correlations, with its strongest relationship being negative with road distance to the nearest city with a population of 5 Lakh and more. The population growth rate in 2011 exhibits mostly positive correlations. The infrastructure index generally shows weak correlations with the other variables.

Table 10. Correlation Coefficients

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
(a)	1.00											
(b)	0.05	1.00										
(c)	0.06	0.01	1.00									
(d)	-0.01	0.02	-0.04	1.00								
(e)	-0.27	0.01	-0.05	0.03	1.00							
(f)	-0.03	-0.05	-0.01	0.24	-0.02	1.00						
(g)	-0.10	-0.04	-0.01	0.04	-0.06	0.41	1.00					
(h)	0.82	0.04	0.03	0.01	-0.27	0.04	-0.08	1.00				
(i)	0.33	0.04	0.13	0.00	-0.09	0.01	0.04	0.27	1.00			
(j)	0.14	-0.04	0.15	-0.02	-0.10	0.05	-0.04	0.11	0.10	1.00		
(k)	0.05	-0.04	-0.03	0.19	0.02	0.16	-0.01	0.12	-0.02	0.01	1.00	
(l)	-0.04	0.00	0.02	0.01	-0.02	0.01	0.00	-0.06	0.00	0.01	-0.02	1.00

Note: See Table 9 for variable definitions. The correlation coefficients are based on 2,978 observations.
Source: Authors' estimation using data from the Census of India.

Table 11 presents the results of the regression models. The dependent variable in Model 1 is the total population in 2011, with an R-squared value of 0.699, which means that the model explains 70% of the variance. It shows significant negative relationships between population and road distances to state H.Q., sub-division, and cities with populations of 1 lakh and five lakhs. The infrastructure index has a coefficient of 8,607, which is positive and significant at the 1% level. This means that for each one-unit increase in the infrastructure index, the total population in 2011 is expected to increase by 8,607 persons, assuming all other factors in the model remain constant. The total population in 2001 and the population growth rate in 2001 positively affected the total

population in 2011. In Models 2 and 3, the dependent variable is population density in 2011. In Model 2, the road distance to the state headquarters and the nearest city with a population of 1 Lakh or more negatively affects population density. The infrastructure index positively affects population density. In Model 3, road distance to the nearest city with a population of 5 Lakh and more", "total population in 2001", and "population growth rate in 2001" are significant.

Table 11. Determinants of Small-Town Population Dynamics

	Dependent variable:		
	Total population in 2011	Population density in 2011	Total population in 2011
Specification	Model 1	Model 2	Model 1
Road distance to state H.Q.	-2.88**	-0.26***	
	(1.15)	(0.07)	
Road distance to District H.Q.	-0.10		0.67
	(6.58)		(0.66)
Road distance to Sub-division	-102.20***		0.43
	(20.93)		(1.73)
Road distance to nearest city with a population of 1 Lakh and more	-21.68***	-0.81***	
	(3.91)	(0.29)	
Road distance to nearest city with a population of 5 Lakh and more	-3.56**		-0.35**
	(226.70)	(8.67)	
Infrastructure index	8,61***	20.24**	
	(226.70)	(8.67)	
Total population in 2001	1.61***		0.03**
	(0.15)		(0.02)
Population growth rate in 2001	16.57***		-1.07***
	(4.03)		(0.41)
Population growth rate in 2011			
Total population in 2011			
Constant	19,086***	1,977***	1,949***
	(612.700)	(26.290)	(61.880)
Mean VIF	1.140	1.020	1.010
Observations	3,224	6,332	3,223
R-squared	0.70	0.01	0.01

Notes: The standard errors are given in parentheses. One, two, and three stars denote significance at the 10%, 5%, and 1% levels, respectively.

Table 11. Determinants of Small-Town Population Dynamics (cont')

	Dependent variable:			
	Population growth rate in 2011	Infrastructure index	Density of nearest city with a population of 5 lakh or more	Population growth rate in 2011
Specification	Model 4	Model 5	Model 6	Model 4
Road distance to state H.Q.	-0.01*			-0.01*
	(0.01)			(0.01)
Road distance to District H.Q.		-0.06**		
		(0.03)		
Road distance to Sub-division		-0.13*	-0.04***	
		(0.07)	(0.00)	
Road distance to nearest city with a population of 1 Lakh and more	-0.01	-0.01**	-0.01**	-0.01
	(0.01)	(0.01)	(0.00)	(0.01)
Road distance to nearest city with a population of 5 Lakh and more	-0.49	0.07		-0.49
	(0.39)	(0.35)		(0.39)
Infrastructure index	0.01***			0.01***
	(0.00)			(0.00)
Total population in 2001	0.15***			0.15***
	(0.02)			(0.02)
Population growth rate in 2001			5.44e-05	
			(0.00)	
Population growth rate in 2011				
Total population in 2011	69.470***	93.870***	0.764***	69.470***
Constant	(2.989)	(1.582)	(0.076)	(2.989)
Mean VIF	1.040	1.030	1.000	1.040
Observations	3,099	4,955	4,955	3,099
R-squared	0.04	0.01	0.05	0.04

Notes: The standard errors are given in parentheses. One, two, and three stars denote significance at the 10%, 5%, and 1% levels, respectively.

Models 4 and 5 have the dependent variable "population growth rate in 2011". For Model 4, the significant variables affecting the population growth rate are road distance to state HQ (at a 10% significance level), total population in 2001, and population growth rate in 2001 (both at a 1% level of significance). For Model 5, road distances (to District H.Q./ Sub-division/ nearest city with a population of 5 Lakh and more) are important.

Model 6, with the dependent variable as the infrastructure index, shows that the road distance to the state headquarters is negatively related to the index and is significant at 1% level. Additionally, the road distance to the nearest city with a population of 5 lakh or more is negatively correlated and significant at the 5% level. Model 7 analyzes the relationship between the "density of nearest city with a population of 5 lakhs and more" and other variables. The results show that the variables "road distance to the nearest city with a population of 1 Lakh and more", "infrastructure index", and "total population in 2011" are significant. Road distance and population have a positive effect, while the infrastructure index has a negative effect. The variable "road distance to the nearest city with a population of 5 Lakh" is significant across most models, with a negative relation with the dependent variable.

8. DISCUSSION

8.1. Definition of Small Towns

There is no unique definition of small towns. A review of studies suggests that definitions of small towns vary depending on the classification criteria and conditions. The small towns fall somewhere in the middle of the urban hierarchy -bigger than rural villages but smaller than cities. In general, it is found that small towns are defined by a population size of 5,000 to 100,000.

8.2. Factors Responsible for the Formation of Small Towns

The study shows various factors that contribute to the growth of small towns. Some of the important factors are economic situations, local government spending on amenities and infrastructure, enterprise richness, development in agriculture, tourism, and hospitality, salubrious weather, distance to large cities, administrative status and governance, historical factors, and policy supports. Therefore, these factors must be considered while developing the strategy for the growth of small towns in a country.

8.3. Issues Related to the Small-Town Growth Perspective

Many studies are devoted to understanding the importance of small towns in the context of economic growth and development, such as poverty reduction, employment growth, lowering the urban sprawl, and their potential impact on sustainable growth. However, more emphasis must be placed on how small towns can create economies of scale for higher productivity. How small towns can be the growth centre for accommodating the export-oriented industries due to the availability of cheap labour and land has not been examined. Moreover, improving connectivity between large and small cities must be studied to ensure smooth rural-to-urban transformations in developing

countries. That will facilitate structural transformations for higher and more sustainable economic growth from the perspective of developing countries.

8.4. Infrastructure Distribution Across Towns: Absolute Availability and Per Capita Differences

The results demonstrate significant differences in both absolute and per capita infrastructure availability across various classes of towns in India. Class I towns have higher absolute infrastructure availability, including more schools, colleges, medical facilities, public reading rooms, latrines, and banks compared to smaller classes, which is in line with the conclusions of Ghosh and Khatun (2022). This may be due to their larger populations and economic significance. To stimulate economic growth and enhance living standards, there needs to be a strategic focus on improving the basic utilities in small towns. However, based on our empirical results small towns (Class VI and V) show higher per capita availability of infrastructure, indicating lower population pressure. For example, Class VI towns have the highest average per capita availability of schools, colleges, and medical facilities. This suggests that, despite having fewer total facilities, smaller populations in these towns lead to better accessibility of services for residents, which is similar to what is stated in the study by Mukhopadhyay (2017) which found the inconsistent impact of administrative status on access to services in small towns. Additionally, infrastructure investments in small towns are more impactful, as benefits are distributed among fewer people. Therefore, in absolute terms, we need to have better infrastructure facilities in small towns which may attract more people and business activities to move into these towns. Higher infrastructure investment will create agglomeration economies by sharing fixed costs among a large number of people.

The results highlight the necessity of balanced infrastructure development among various classes of towns in order to support regional growth. While allocating resources, policymakers should consider the specific requirements of both large and small towns. Investments in small towns could yield high per capita benefits, enhancing the quality of life and promoting local economic development. Sufficient infrastructure in small towns can play a crucial role in narrowing the gap between major cities and rural areas, thereby promoting more balanced regional development. Road connectivity must be prioritized to facilitate faster small-town development.

8.5. Drivers of Small Towns Growth Dynamism

Regression results show that the distance to state headquarters reduces small towns' total population size, density, and growth rate. Similar results are also obtained for greater distances to cities with more than 1 lakh (or five lakh) population. Longer distance from a city reduces the economic potential and spillover effects. Therefore, small towns that are located adjacent to the cities are to be prioritized for greater economic growth and development. The appropriate planning and implementation of

different types of policies are required to make their growth story come true. The results show that the availability of infrastructure is one of the main factors that drive the population size and density of small towns. It indicates that more infrastructure investment is essential for the growth of small towns. The result also shows that the availability of infrastructure in the small town is declining with the density increase of the nearest city with a population of 5 lakhs and more. This implies that density and distance to the cities are important for the increased utilization of infrastructure in the small towns. This is why small towns are emerging near the large cities.

9. CONCLUSIONS AND POLICY IMPLICATIONS

The study tries to understand the growth dynamics of small towns in developing countries, focusing on India. It discusses the definitions and recent issues highlighted in the recent literature on small towns. Besides, the trends and patterns of population growth rate and what determines the growth rate of small towns are analyzed. We create an infrastructure index by applying Principal Component Analysis (PCA) and use the OLS regression results to investigate the economic determinants of small towns' growth dynamics, using the data from the 2011, Census of India.

The results indicate that there is no specific definition of small towns. It depends on the classification criteria and circumstances adopted by the researchers. However, more towns with populations ranging between 5,000 to 100,000 are defined as small towns. Several factors, such as availability of infrastructure, amenities, distance to large cities, weather conditions, governance, and policy, are important for the emergence of small towns. It is noticed that small towns are growing at a much faster rate than large cities. In terms of absolute figures, the availability of infrastructure is higher in large cities compared to small towns. However, when adjusted for population size, small towns demonstrate higher per capita availability of infrastructure. Most of the current literature is devoted to identifying the crucial factors that influence small towns' growth potential. Their developmental role is highlighted by emphasizing poverty reduction, employment creation, urban sprawl, and sustainability issues. Finally, distance to state headquarters and the nearest city with a population of 1 (or 5) lakh and more is seen to play an important role in the growth dynamics of the small towns in India. The availability of infrastructure and the density of the large cities are also critical.

In terms of policy, we suggest the following. First, small towns need an adequate boost in infrastructure (e.g., electricity connections, latrines, and water availability) investment to create agglomeration economies. Second, small towns that are located near large cities are important and must be considered for immediate development compared to those located at a distance. Third, proper planning and governance are needed to develop small towns. Fourth, rural diversification must be promoted by emphasizing the growth of non-farm economic activities in small towns. Fifth, the

development of local manufacturing products, such as 'one district one product' needs to be supported for the growth dynamics of small towns[1]. Sixth, the government should promote access to finance for the all-around development of the small towns. Overall, developing small towns is very important for several reasons, such as reduction in poverty, increase in employment, controlling urban sprawl in large cities, enhancing connectivity between the rural and urban areas, regional imbalances, and sustainable economic development. Therefore, small towns cannot be neglected anymore.

However, while the infrastructure data is comprehensive, considering qualitative aspects such as service functionality and overall effectiveness is also necessary to understand the true utility of these amenities. To address these limitations, future research should focus on integrating economic, environmental, social, and political factors for a more comprehensive understanding and impact analysis. Conducting region-specific analyses can help capture geographic and demographic differences more appropriately. In the backdrop of globalization, what role can be assigned to the small towns, and whether some small towns work as satellite towns to big cities, is left for future research.

APPENDIX

Table A1. KMO and Bartlett's test

KMO measure of sampling adequacy		0.804
Bartlett's test of Sphericity	Approximate chi-square	23358.75
	Df	55
	Sig.	0.000

Note: KMO, Kaiser-Meyer-Olkin

[1] The program employs the One District One Product (ODOP) idea to achieve economies of scale in the areas of shared services, product marketing, and input procurement. The ODOP framework of the plan will assist the alignment of support infrastructure and value chain development. There may be more than one ODOP product cluster in a single district. In a state, a cluster of ODOP products may be found in several nearby districts.

Table A2. Definitions of Variables Used for Empirical Analysis

Average Growth Rate	The average rate of growth of a town population is calculated by dividing the sum of the growth rates for each town by the number of towns.
Total Schools (Numbers)	Sum of Govt. and Private primary, middle, secondary, and senior secondary schools
Total Colleges/ Institutes	The total number of colleges and institutions is the sum of all types, including government and private degree colleges for arts, science, commerce, law, and universities; government and private medical colleges, engineering colleges, management institutes, and polytechnics; as well as other categorized degree colleges.
Total Vocational (Others) (Numbers)	The sum of government and private vocational centers
Total Non-Formal Education (Numbers)	Sum of govt. and private non-formal education centers
Total Electricity Connection (Numbers)	The total number of electricity connections is the aggregate of all types of connections, including domestic, industrial, commercial, road lighting, and other connections.
Total Medical Facilities	The total number of hospitals is the sum of all facilities for humans, including allopathic hospitals, alternative medicine hospitals, dispensaries/health centres, family welfare centres, maternity and child welfare centres, maternity homes, T.B. hospitals/clinics, nursing homes, mobile health clinics, other medical facilities, non-government charitable hospitals/nursing homes, and non-government medicine shops.
Total Public Reading Room and Library (Numbers)	Sum of government and private libraries and public reading rooms
Total Latrines (Numbers)	Includes pit latrines, flush/pour flush latrines, service latrines, and other types of latrines.
Total Banks/Credit Society (Numbers)	The total number of Banks/Credit Societies comprises the sum of Nationalised Banks, Private Commercial Banks, Co-operative Banks, Agricultural Credit Societies, and Non-Agricultural Credit Societies.

Source: Authors' compilation

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Received February 06, 2025, Accepted September 17, 2025