

Infrastructure, Connectivity and Residential Price Dynamics in India's Tier-II Cities: A Comparative Longitudinal Analysis

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Abstract

India's Tier-II cities are becoming increasingly important components of the country's urban and residential-development landscape, yet their housing markets do not necessarily follow a common trajectory. This study examines how infrastructure development and local economic conditions interact with residential housing-price movements across five selected Tier-II Indian cities: Jaipur, Indore, Lucknow, Coimbatore and Nagpur. The quantitative analysis uses 140 city-quarter observations from the National Housing Bank's NHB RESIDEX Housing Price Index at Assessment Prices, covering Q2 2018 to Q1 2025. The quantitative panel is complemented by national monetary and inflation indicators, infrastructure-event chronologies, airport connectivity evidence, employment and Global Capability Centre (GCC) developments, housing-market research, and a qualitative comparative case study of Siliguri.

The results demonstrate substantial heterogeneity in residential-price performance. Coimbatore recorded the highest cumulative HPI appreciation over the study period at 57.43% (CAGR 6.95%), followed by Lucknow at 49.50% (CAGR 6.14%), Indore at 43.69% (CAGR 5.52%), Jaipur at 42.00% (CAGR 5.33%) and Nagpur at 18.81% (CAGR 2.59%). Four of the five quantitative cities experienced stronger appreciation during the later comparison period beginning in 2022, while Nagpur did not display the same acceleration despite substantial transport and regional-connectivity investment. These differences occurred despite the cities operating within the same broad national monetary and inflation environment.

The comparative evidence suggests that infrastructure is best understood as an enabling component of a broader urban-economic system rather than as an independent determinant of residential-price appreciation. Connectivity can increase accessibility and development potential, while employment and economic diversification can generate residential demand. However, the final housing-price response is mediated by supply, affordability, financing conditions, buyer composition and the spatial distribution of development. The divergence between residential-demand indicators and NHB price outcomes further demonstrates that demand expansion and housing-price appreciation are related but distinct measures.

The study therefore concludes that Tier-II India should not be understood as a single, homogeneous housing market. Rather, it comprises heterogeneous urban markets in which infrastructure, connectivity and economic development interact with local housing-market conditions to produce different price trajectories. The findings have implications for developers and policymakers, emphasizing city-specific development strategies, alignment between employment and housing, infrastructure-aware planning, and the continued importance of affordability and housing-market data.

Keywords: *Tier-II cities; India; residential real estate; NHB RESIDEX; housing prices; infrastructure; connectivity; urbanization; employment; housing affordability*

I. Introduction

1.1 India's Changing Urban Landscape

India's urban landscape has been undergoing a sustained transformation, with urban areas becoming increasingly important centres of population, employment and economic activity. World Bank data, based on the United Nations Population Division's World Urbanization Prospects, estimate that approximately 35% of India's population lived in urban areas in 2024 (World Bank, 2024).

This process is not limited to India's largest metropolitan regions. Recent work by NITI Aayog identifies Tier-II and Tier-III cities as increasingly important drivers of economic growth and development, while simultaneously highlighting the planning and governance challenges associated with their rapid urbanisation (NITI Aayog, 2025). NITI Aayog's urbanisation programme likewise emphasizes the interaction between urban growth, housing, infrastructure, transport, land policy and the networks connecting different settlements (NITI Aayog, 2025).

The significance of this transition for residential real estate is straightforward: as urban populations and economic activity expand, demand for housing is influenced not only by population growth itself but also by accessibility, employment opportunities, transport connectivity and the availability of developable land. These

factors can operate differently across cities, meaning that urbanisation should not automatically be interpreted as producing identical housing-market outcomes everywhere.

This distinction is particularly relevant to India's Tier-II cities. While these cities increasingly attract infrastructure investment, corporate activity and new residential development, their economic structures vary considerably. Some are shaped by technology and services, others by manufacturing, administration, logistics, tourism or regional trade. Consequently, the relationship between urbanisation and residential real estate is likely to be city-specific rather than uniform.

The present study begins from this premise. Rather than asking simply whether India's Tier-II cities are experiencing a real-estate boom, it examines how different forms of urbanisation, infrastructure development and economic activity interact with residential housing-price dynamics across selected cities.

1.2 Why Tier-II Residential Real Estate Matters

Residential real estate occupies a central position in the economic transformation of emerging urban centres because housing demand responds simultaneously to demographic change, employment growth, infrastructure investment, household purchasing power and expectations regarding future urban development. In this sense, residential property markets provide a useful lens through which broader changes in a city's economic structure can be observed.

The importance of Tier-II residential markets has increased as infrastructure investment and economic activity have expanded beyond India's largest metropolitan centres. Recent research by the National Housing Bank identifies a broad group of Tier-II cities, including Coimbatore, Indore, Jaipur, Lucknow and Nagpur, as important components of India's evolving housing market. The same research emphasizes differences in housing-price behaviour across cities, reinforcing the need for city-level rather than purely aggregate analysis.

Residential demand in these markets is influenced by more than population growth. Improvements in roads, airports, metro systems and regional transport can alter accessibility and reduce effective travel costs. At the same time, the establishment or expansion of technology firms, manufacturing facilities, administrative centres and logistics activity can generate new employment opportunities and increase the number of households able or willing to participate in local housing markets. These forces can interact to produce changes in both the quantity and location of residential demand.

The relationship is nevertheless not mechanical. An improvement in infrastructure does not necessarily translate immediately into higher housing prices. The magnitude of the response depends on whether the affected area is supported by employment growth, whether housing supply can respond to additional demand, whether households can afford the resulting prices, and whether new development is primarily oriented toward end-users or other market participants. Financing conditions can further influence the timing and magnitude of residential-market responses.

This makes Tier-II residential real estate particularly useful for comparative research. Cities within the same broad category can exhibit very different economic structures and therefore different transmission mechanisms between urbanization and housing markets. A manufacturing-oriented city may experience housing demand primarily through employment growth, while an administrative centre may respond more strongly to public infrastructure and service-sector expansion. A logistics hub may experience development along transport corridors, while an emerging technology centre may see demand concentrated around employment clusters.

The residential market therefore represents not simply an outcome of urbanization, but a meeting point between economic opportunity, physical accessibility, household affordability and land development. Studying housing-price movements across different Tier-II cities can consequently reveal whether urban growth is broad-based and structurally supported or concentrated in particular locations and economic segments.

This study adopts that comparative perspective. Rather than interpreting rising residential prices as sufficient evidence of a universal Tier-II boom, it examines how differences in infrastructure, connectivity and economic structure correspond with differences in housing-price dynamics across five selected cities.

It establishes the core logic:

Urbanization → economic opportunity + accessibility → housing demand → market response

while making clear that:

housing demand ≠ automatically housing-price growth

That distinction becomes very important later when the strong demand evidence from CRISIL is compared with the different HPI trajectories observed in the five study cities.

1.3 The Problem with the “Tier-II Boom” Narrative

The growing prominence of Tier-II residential markets has encouraged a broad narrative that India's emerging cities are undergoing a common and sustained real-estate boom. Recent industry evidence does support strong expansion in residential demand: CRISIL's 2026 assessment of ten Tier-II cities reports a 14% compound annual

growth rate in residential demand between FY2021 and FY2026, with Nagpur, Coimbatore and Lucknow recording approximately 20% growth over the period.

However, aggregate demand growth does not necessarily imply that all Tier-II cities are experiencing the same housing-price dynamics. National Housing Bank data demonstrate substantial variation in residential price movements across individual cities. In the September 2025 observations used elsewhere in this study, Lucknow recorded 9.49% year-on-year HPI growth, compared with 6.10% in Coimbatore, 5.58% in Jaipur and 4.89% in Indore.

This divergence creates an important analytical problem. If Tier-II cities are treated as a single market, differences in economic structure, infrastructure, housing supply and household purchasing power can disappear beneath an aggregate growth rate. A technology- and services-oriented market may experience a different housing response from a manufacturing centre, an administrative hub or a logistics-oriented city. Similarly, two cities experiencing strong residential demand may record different rates of price appreciation because of differences in the capacity of developers to expand supply, the composition of buyers and local financing conditions.

The concept of a “boom” can therefore become misleading when it is used to imply a uniform process. Rising demand may reflect genuine end-user housing requirements, investment activity, expanding employment or a combination of these factors. Likewise, rising prices may reflect stronger underlying demand, constrained supply, improved accessibility, changing expectations or broader macroeconomic conditions. Without separating these mechanisms, it is difficult to determine whether observed housing-market growth represents sustainable urban development or simply localized price acceleration.

The issue is particularly important for the interpretation of infrastructure-led growth. Infrastructure can improve accessibility and increase the attractiveness of previously peripheral locations, but its housing-market effects may depend on whether infrastructure is accompanied by employment, economic activity and sufficient purchasing power. The completion of a transport project therefore cannot, by itself, be treated as proof that subsequent residential appreciation was caused by the project.

The central problem addressed by this study is consequently not whether Tier-II real estate is growing. The available evidence already suggests that it is. The more important question is why the intensity and form of that growth differ across cities, and whether those differences are consistent with the broader urbanization, infrastructure and economic-development processes occurring within each market.

This study therefore moves beyond the simple “Tier-II boom” narrative and treats Tier-II residential real estate as a collection of heterogeneous urban housing markets. The comparative analysis of Jaipur, Indore, Lucknow, Coimbatore and Nagpur is designed to examine that heterogeneity systematically, while the qualitative Siliguri case provides a further test of whether the same conceptual mechanisms extend to a differently structured gateway-city economy.

1.4 Research Problem

The central research problem addressed by this study is the limited understanding of why residential housing-price outcomes differ across India's Tier-II cities despite their shared exposure to broader urbanization, infrastructure investment and expanding residential demand.

Existing discussion frequently approaches Tier-II real estate at an aggregate level, emphasizing overall demand expansion, infrastructure development and increasing investor interest. However, such an approach can obscure important differences between individual urban markets. The available evidence indicates that residential demand and housing-price appreciation do not move uniformly across cities, suggesting that common national conditions interact with city-specific characteristics such as economic structure, connectivity, employment opportunities, housing supply and financing conditions.

This creates three related analytical problems.

First, Tier-II cities cannot necessarily be treated as a homogeneous housing-market category. Jaipur, Indore, Lucknow, Coimbatore and Nagpur differ in their economic bases and development trajectories, meaning that similar infrastructure investment may have different implications for residential markets.

Second, residential demand growth and housing-price appreciation are distinct outcomes. Strong demand does not automatically result in an equivalent increase in prices. The relationship may be mediated by the responsiveness of housing supply, household purchasing power, financing conditions and the composition of buyers.

Third, the timing and role of infrastructure remain insufficiently differentiated. A major infrastructure project may influence housing markets through anticipation, construction activity or improved accessibility after operation, while observed price changes may simultaneously reflect broader macroeconomic and urban-development trends. The research problem can therefore be expressed as follows: the existing Tier-II “boom” narrative provides insufficient explanation of the heterogeneous residential-price trajectories observed across individual cities and does not adequately distinguish the roles of infrastructure, connectivity, employment, demand and broader macroeconomic conditions in shaping those outcomes.

This study addresses that problem through a comparative longitudinal analysis of five Tier-II cities using a standardized NHB RESIDEX housing-price framework, supplemented by infrastructure, connectivity, macroeconomic and economic-development evidence. Siliguri is examined separately as a qualitative gateway-city case to extend the analysis beyond the quantitative sample without introducing unsupported price-index observations.

1.5 Research Question

The preceding sections establish that the expansion of Tier-II residential real estate in India cannot be adequately understood through a single aggregate “boom” narrative. Differences in economic structure, infrastructure, connectivity, employment, housing supply and macroeconomic conditions may contribute to substantially different residential-price outcomes across cities.

Accordingly, this study addresses the following primary research question:

How do infrastructure development and local economic conditions interact with residential price movements across selected Tier-II Indian cities, and what does this reveal about the heterogeneity and sustainability of the Tier-II housing expansion?

Supporting Research Questions

The primary question is examined through four supporting questions:

- **RQ1.** How have residential housing-price indices evolved across Jaipur, Indore, Lucknow, Coimbatore and Nagpur during the study period?
- **RQ2.** How do major infrastructure and connectivity developments correspond with changes in residential housing-price trajectories across the selected cities?
- **RQ3.** How do differences in local economic structure — including technology, manufacturing, services, logistics and administrative activity — help explain variation in residential-market outcomes?
- **RQ4.** What do these differences imply for the sustainability of residential development and for the strategies adopted by developers and policymakers in Tier-II cities?

The research questions deliberately distinguish association and correspondence from causal attribution. The study therefore seeks to determine whether the observed evidence is consistent with infrastructure- and urbanization-related mechanisms, while recognizing that housing prices may simultaneously be influenced by supply, financing, household purchasing power and broader macroeconomic conditions.

1.6 Research Objectives

The research objectives are designed to correspond directly with the primary and supporting research questions. They establish what the study will measure, compare and interpret without extending beyond the evidence and data available.

Objective 1 — Examine Residential Price Dynamics

To measure and compare the evolution of residential housing prices across Jaipur, Indore, Lucknow, Coimbatore and Nagpur using the NHB RESIDEX HPI at Assessment Prices over the core study period of Q2 2018 to Q1 2025.

This objective focuses on: quarterly HPI movements; year-on-year and quarter-on-quarter changes; cumulative appreciation; annualized growth; differences in price trajectories between cities.

Objective 2 — Examine Infrastructure and Connectivity Relationships

To examine whether major infrastructure and connectivity developments correspond with changes in residential housing-price trajectories across the selected cities.

The study considers infrastructure through documented events such as: metro development; expressways and highways; airport-related expansion; major transport corridors; other strategically relevant urban infrastructure.

The objective is to identify temporal and spatial patterns, rather than assume that infrastructure independently causes changes in housing prices.

Objective 3 — Examine the Role of Local Economic Structure

To assess how differences in economic structure and employment development may help explain variation in residential-market outcomes across the five cities.

Particular attention is given to: technology and GCC activity; manufacturing; administrative functions; logistics and regional economic connectivity.

This objective is intended to explain why cities exposed to broadly similar national housing-market conditions may nevertheless experience different residential-price trajectories.

Objective 4 — Distinguish Demand Expansion from Price Appreciation

To distinguish between evidence of residential-market demand growth and evidence of housing-price appreciation, avoiding the assumption that the two measures are interchangeable.

The study therefore treats: NHB RESIDEX as the primary measure of residential price movement; industry demand evidence as supporting evidence of market activity; airport traffic as a connectivity/economic-activity proxy where sufficiently usable.

This distinction is central to interpreting the Tier-II housing expansion without overstating the evidence.

Objective 5 — Evaluate the Implications for Sustainable Development

To evaluate what cross-city differences in residential-price dynamics imply for sustainable residential development, particularly from the perspective of real-estate developers and urban policymakers.

The study considers whether development strategies should account for: local employment; connectivity; supply conditions; infrastructure timing; city-specific economic characteristics.

Objective 6 — Use Siliguri as a Qualitative Comparative Case

To examine Siliguri as a gateway-city qualitative case, using Bagdogra connectivity, regional trade, logistics, infrastructure and residential-development evidence to assess whether the analytical framework developed from the five quantitative cities is also informative for a data-constrained market.

Siliguri is deliberately excluded from the core NHB quantitative panel because a directly comparable NHB HPI series has not been established.

Objective–Question Alignment

Research Question	Corresponding Objective
RQ1: How have residential prices evolved?	Objective 1
RQ2: How do infrastructure/connectivity developments correspond with price movements?	Objective 2
RQ3: How does local economic structure explain variation?	Objective 3
RQ4: What are the implications for sustainable development?	Objectives 4–6

Table 4: Objective–Question Alignment — [TABLE NEEDS VERIFICATION AGAINST ORIGINAL PDF — page 45]. Row text was line-wrapped and merged in extraction; the mapping above is reconstructed from context and should be checked against the source PDF, particularly the “Objectives 4–6” entry (extracted as the ambiguous run-together “Objectives 46”).

1.7 Research Contribution

This study makes a contribution to the understanding of Tier-II residential real-estate markets in India by approaching the relationship between urbanization, infrastructure and housing prices through a comparative city-level framework rather than treating Tier-II India as a single homogeneous market.

First, the study contributes a standardized comparative housing-price analysis across five selected Tier-II cities — Jaipur, Indore, Lucknow, Coimbatore and Nagpur — using the NHB RESIDEX HPI at Assessment Prices. The core panel contains 140 verified city-quarter observations covering Q2 2018 to Q1 2025. This common framework makes it possible to compare price trajectories across cities with different economic and infrastructure characteristics while retaining a consistent housing-price measure.

Second, the study contributes by explicitly distinguishing residential demand expansion from housing-price appreciation. Industry estimates of residential demand are therefore not treated as equivalent to NHB housing-price movements. This distinction is important because strong demand growth may coexist with different price outcomes depending on housing supply, purchasing power, financing conditions and buyer composition.

Third, the study examines infrastructure within a broader urban-economic mechanism. Rather than assuming that infrastructure independently causes housing-price appreciation, infrastructure is analysed alongside connectivity, employment and economic activity. This approach recognizes that the housing-market effect of a transport or infrastructure investment may depend on whether it generates meaningful accessibility and economic opportunities.

Fourth, the research combines quantitative housing-price evidence with qualitative city-level evidence on infrastructure, employment, GCC activity and housing-market characteristics. This mixed-methods approach allows the study to move beyond the limitations of a housing-price index alone.

Fifth, the inclusion of Siliguri as a qualitative gateway-city case extends the study beyond the five-city quantitative panel. Siliguri is not treated as a statistically equivalent observation where comparable NHB data have not been established; instead, it provides a separate test of whether the analytical framework is informative for a strategically connected regional market.

Finally, the study translates the comparative findings into practical implications for real-estate developers and urban policymakers. Rather than assuming that infrastructure investment automatically creates attractive residential opportunities, the study emphasizes the alignment of infrastructure, employment, connectivity, housing supply and affordability.

The principal contribution of this study is to reinterpret Tier-II India's residential expansion as a heterogeneous process of urban transformation in which infrastructure and economic development interact with local housing-market conditions rather than producing uniform price outcomes.

1.8 Scope and Delimitations

The study is deliberately bounded in order to maintain comparability and methodological clarity.

Geographic Scope

The quantitative analysis covers five selected Indian Tier-II cities: Jaipur, Indore, Lucknow, Coimbatore and Nagpur. These cities represent different economic and urban-development profiles and are suitable for comparative analysis within the NHB housing-price framework used in the study.

Siliguri is included separately as a qualitative gateway-city case rather than as a sixth quantitative observation.

Temporal Scope

The core quantitative analysis covers Q2 2018 to Q1 2025. This period provides a consistent 140-observation panel across the five cities and avoids unnecessarily mixing the pre-2026 NHB series with the revised FY2024–25 base series introduced in 2026.

Housing-Market Scope

The principal quantitative outcome is the NHB RESIDEX HPI @ Assessment Prices.

The study focuses on residential housing rather than attempting to provide a comprehensive analysis of: commercial real estate; retail property; office markets; industrial property; land prices as a separate asset class.

Infrastructure Scope

Infrastructure analysis focuses on major developments with plausible relevance to urban accessibility and economic activity, including: metro systems; expressways and highways; transport corridors; strategically significant urban infrastructure.

It does not attempt to catalogue every infrastructure project undertaken in the selected cities.

Economic Variables

The study incorporates broader economic context through: employment and GCC evidence; airport connectivity evidence where usable; RBI monetary conditions; CPI inflation.

It does not attempt to construct quarterly city-level GDP or quarterly city-level household-income series because comparable official high-frequency data are not consistently available.

Methodological Delimitation

The study is designed primarily as a comparative longitudinal mixed-methods analysis rather than a definitive causal identification study. Consequently, observed correspondence between infrastructure developments and housing-price movements is not automatically interpreted as proof of causation.

Data Limitations

Where official observations are unavailable, the study does not replace them with estimates presented as observed facts. Missing or incomplete information is explicitly treated as a limitation. This is particularly important for: historical AAI monthly archives; high-frequency local economic indicators; some housing-market segment data; comparable HPI data for Siliguri.

1.9 Structure of the Paper

The study is organized into three broad parts.

Chapter 1: Introduction establishes the research problem, questions, objectives, contribution and scope of the study.

Chapter 2: Background on Tier-II Urbanization defines the study's treatment of Tier-II cities and explains the economic, demographic and infrastructure characteristics relevant to emerging urban markets.

Chapter 3: Conceptual Framework develops the mechanism connecting urbanization, infrastructure, connectivity and employment with residential demand, while incorporating housing supply, financing and buyer composition as moderating factors.

Chapter 4: Literature Review evaluates existing research on urbanization, infrastructure and property values, employment and housing demand, housing finance, Tier-II real estate and affordability.

Chapter 5: Research Gap and Hypotheses synthesizes the literature and establishes the specific gap addressed by the study.

Chapter 6: Methodology explains the comparative longitudinal research design, quantitative panel, qualitative component, variables, calculations and analytical approach.

Chapter 7: Data and Sources documents the NHB RESIDEX data, macroeconomic indicators, infrastructure sources, employment/GCC evidence, housing-market research and Siliguri sources.

Chapter 8: Quantitative Results presents the 140-observation NHB panel, housing-price trajectories, growth measures, macroeconomic context and cross-city differences.

Chapter 9: City-Level Case Studies examines Jaipur, Indore, Lucknow, Coimbatore, Nagpur and Siliguri using a common analytical structure.

Chapter 10: Comparative Discussion interprets the differences between cities and considers the interaction between infrastructure, employment, connectivity, demand, supply and financing.

Chapter 11: Implications for Real-Estate Developers translates the findings into city-specific and investment-oriented development considerations.

Chapter 12: Policy Implications considers implications for infrastructure planning, housing affordability, transport, employment-oriented urban development and housing-market data.

Chapter 13: Limitations documents the constraints associated with sample size, data availability, causal identification, high-frequency city-level variables and the qualitative treatment of Siliguri.

Chapter 14: Conclusion provides the final answer to the research question and synthesizes the principal findings and implications.

References provide the complete academic, governmental, institutional and industry sources used in the study.

Appendices provide supporting datasets, data definitions, infrastructure timelines, supplementary calculations and evidence registers.

II. Background on Tier-II Urbanization

2.1 Defining and Classifying Tier-II Cities

The term “Tier-II city” is widely used in discussions of India’s urban development, investment and real-estate markets, but it does not represent a single universally applied statistical classification. Different government agencies, financial institutions and market-research organizations may apply different criteria based on population, economic activity, administrative importance, market depth or institutional definitions. This variation is important because treating the category as fixed can create misleading comparisons between cities that have substantially different economic structures and development trajectories.

For the purposes of this study, Tier-II is therefore treated as an analytical category rather than a perfectly uniform administrative classification. The quantitative sample consists of Jaipur, Indore, Lucknow, Coimbatore and Nagpur, all of which are included within recent National Housing Bank research on India’s Tier-II housing markets.

This approach provides two advantages. First, it preserves comparability with an established housing-market research framework rather than imposing an arbitrary classification created solely for this study. Second, it allows the analysis to acknowledge that the cities within the category remain economically and spatially heterogeneous.

The classification issue is particularly important in real-estate research. A city classified as Tier-II may function as a regional administrative centre, an industrial hub, a technology and services centre, a logistics node or a combination of these. Consequently, the same broad category can contain markets with very different sources of residential demand, levels of infrastructure development and housing-supply responses.

The study therefore uses the term “Tier-II cities” consistently as a comparative analytical category, while avoiding the assumption that all Tier-II cities share identical economic characteristics or should exhibit identical housing-price behaviour.

2.2 Urbanization and Emerging-City Dynamics

The expansion of India’s urban system has increasingly involved cities beyond the country’s largest metropolitan centres. Urban growth affects not only population concentration but also the spatial distribution of employment, infrastructure, services and investment. As economic activities decentralize and transport networks improve, emerging cities can become increasingly integrated into regional and national economic systems.

For residential real estate, this process matters because urbanization changes the underlying demand for housing. Population growth can increase the number of households requiring accommodation, while employment expansion can increase the purchasing capacity and geographic concentration of demand. Infrastructure development can simultaneously expand the effective area within which households can live and commute, potentially changing the relative attractiveness of previously peripheral locations.

These effects are not necessarily simultaneous. An infrastructure investment may precede the arrival of employment and households, creating a period in which expectations of future development affect land and housing markets before the full economic benefits materialize. Conversely, infrastructure may be introduced in response to existing growth, meaning that higher housing demand precedes rather than follows the infrastructure investment.

This timing issue is particularly relevant to emerging cities because urban development is often occurring along new transport corridors, airport zones, industrial areas and planned expansion districts. Housing development may therefore become spatially concentrated around locations where accessibility and economic opportunity are expected to improve.

The relationship can consequently be viewed as a dynamic process:

Urban growth → employment and economic activity → infrastructure and accessibility → residential demand → housing-supply response → changes in prices and development patterns

However, the strength of each link depends on local conditions. A city with abundant developable land and responsive housing supply may absorb demand growth without the same degree of price appreciation as a city with tighter land constraints. Similarly, a transport project may have limited housing-market effects if it does not connect residents to meaningful employment or services.

Emerging-city urbanization should therefore be understood as a multi-dimensional process involving demographic, economic, infrastructural and spatial change, rather than as simple population growth. This perspective provides the basis for comparing how different Tier-II cities translate urban development into residential-market outcomes.

2.3 Economic and Infrastructure Characteristics of the Five Cities

The five quantitative cities were selected partly because they provide meaningfully different urban-economic profiles. This heterogeneity is central to the research design: the study does not seek to identify a single “typical” Tier-II city, but to examine how different types of emerging urban economies correspond with different housing-market trajectories. These classifications should be understood as analytical lenses rather than rigid official labels. A city’s economy is not determined by one sector, and each of the selected markets contains multiple overlapping economic functions.

City	Primary analytical characteristics	Relevance to study
Jaipur	Regional economic centre, tourism, services and improving regional connectivity	Useful for examining the relationship between connectivity, regional growth and residential development
Indore	Diversified services, technology activity and expanding employment-led urban corridors	Useful for examining technology- and corridor-based residential growth
Lucknow	Administrative and services economy with major transport and infrastructure investment	Useful for examining the interaction between infrastructure, regional services and housing demand
Coimbatore	Manufacturing, engineering, services and growing technology activity	Useful for examining employment diversification and demand-price differences
Nagpur	Logistics, regional connectivity, transport infrastructure and industrial development	Useful for examining whether strong connectivity and infrastructure necessarily translate into proportional housing-price growth

Table 5: Economic and Infrastructure Characteristics of the Five Cities — [TABLE NEEDS VERIFICATION AGAINST ORIGINAL PDF — pages 52–53]. Columns were interleaved/merged in extraction; reconstructed here by matching each city to its characteristics and stated relevance.

The comparative structure is nevertheless useful because it allows the study to test an important proposition: if infrastructure and urbanization influence residential markets through economic opportunity and accessibility, then cities with different economic structures should not necessarily exhibit identical housing-price responses.

This is reflected in the quantitative evidence later presented in the study. The verified NHB panel records materially different cumulative housing-price appreciation across the five cities during the core study period. Coimbatore records the highest cumulative increase in the panel, while Nagpur records substantially lower appreciation. These differences cannot be interpreted solely through a national “Tier-II” label and instead motivate closer examination of each city’s infrastructure, employment and housing-market context.

The five-city comparison therefore serves as the quantitative foundation of the study, while Siliguri is treated separately as a qualitative gateway-city case. Siliguri’s strategic regional connectivity and logistics role make it relevant to the broader analytical framework, but the absence of a directly comparable NHB HPI series prevents it from being inserted into the main quantitative panel.

2.4 Why Siliguri Is Separate

Siliguri is incorporated into this study as a qualitative comparative case rather than a sixth quantitative observation. The distinction is methodological rather than geographical. While Siliguri shares several characteristics associated with emerging urban markets — particularly improving connectivity, expanding regional economic activity and growing residential development — the study does not have a sufficiently comparable NHB RESIDEX housing-price series to place it alongside Jaipur, Indore, Lucknow, Coimbatore and Nagpur within the core quantitative panel.

Its inclusion is nevertheless important because Siliguri provides a useful example of a gateway-city growth model. The city occupies a strategically significant position within the Siliguri Corridor and serves as a regional connectivity and commercial node linking northern West Bengal with the Northeast and neighbouring Himalayan economies. Its development is therefore strongly influenced by transport infrastructure, logistics, tourism and regional trade rather than by a single dominant technology or services cluster.

This makes Siliguri analytically valuable for a different reason. The five-city quantitative panel allows the study to examine differences in housing-price trajectories using a common NHB framework, while Siliguri allows the research to explore whether the broader conceptual mechanism remains useful in a city where connectivity and gateway functions are particularly important but comparable high-frequency housing-price data are unavailable. The qualitative treatment therefore focuses on four dimensions:

- **Gateway connectivity** — including Bagdogra Airport, road and rail networks and regional transport corridors.
- **Economic activity** — particularly trade, logistics, tourism and regional services.
- **Residential development** — including the spatial expansion of housing and development around major growth corridors.
- **Comparative interpretation** — whether the relationships observed in the five-city panel provide a useful framework for understanding Siliguri.

Siliguri is consequently not used to generate a sixth housing-price observation, to calculate comparable HPI appreciation, or to support statistical claims about the five-city panel. Instead, it functions as a qualitative extension and external comparative case.

III. Conceptual Framework

3.1 Urbanization and Residential Demand

Urbanization affects residential real estate through several interconnected channels rather than through population growth alone. As economic activity becomes concentrated in urban areas, demand for housing can increase through population growth, household formation, employment creation and changes in where people live relative to workplaces and services.

For emerging cities, this relationship can be particularly important because urban expansion often occurs alongside the development of new employment clusters, transport networks and commercial districts. An increase in economic opportunities can raise the number of households seeking accommodation while also increasing the purchasing capacity of some existing households. Housing demand can consequently expand both quantitatively, through additional households, and spatially, through demand shifting toward newly accessible parts of the city.

However, an increase in residential demand does not necessarily translate into an equivalent increase in housing prices. The ultimate price response depends partly on the ability of developers to expand housing supply. Where land is relatively available and construction responds quickly to demand, additional housing can absorb part of the increase. Where supply is constrained, the same increase in demand may generate stronger price pressures.

This distinction is central to the present study. Residential demand is therefore treated as an intermediate mechanism rather than as an automatic determinant of price appreciation:

Urbanization → household and employment growth → residential demand → supply response → housing-price outcome

The framework also recognizes that households do not respond only to the quantity of housing available. The location, quality, accessibility and price of housing influence whether new development actually satisfies demand. Consequently, urbanization can produce different housing-market outcomes across cities even when population or economic activity is expanding in both.

3.2 Infrastructure and Connectivity → Housing Markets

Infrastructure can affect residential real estate by changing the accessibility and economic attractiveness of locations. Transport investments such as metro systems, highways and airports can reduce travel times, improve connections between residential and employment areas, and expand the geographical area within which households can reasonably live and commute.

Economic research on Indian cities provides evidence that accessibility and infrastructure can be reflected in property values. A study of Rajkot found a substantial relationship between infrastructure accessibility and residential land values, while research on Bangalore's metro system identified significant land-value increases associated with improved rail accessibility. (MDPI)

More recent evidence from Mumbai similarly finds that residential and commercial property values increased following the opening of Metro Line 1, with commute-time savings and improved employment accessibility identified as plausible mechanisms.

These findings support the mechanism proposed in this study:

Infrastructure → Accessibility → Economic Opportunity → Residential Attractiveness → Potential Price Appreciation

However, the literature also demonstrates why this relationship should not be interpreted mechanically. Infrastructure effects can be spatially concentrated, may differ according to distance from the project, and can begin before formal completion as households and investors anticipate future accessibility improvements. Recent

research on the Mumbai Trans Harbour Link, for example, finds evidence consistent with capitalization beginning during construction rather than only after opening.

This creates an important distinction for the present study between announcement effects, construction effects and operational effects. A housing market can therefore respond at several stages:

- **Announcement** → expectation of future accessibility
- **Construction** → anticipated economic activity
- **Opening / operation** → realized accessibility and employment effects

The present research does not claim that every infrastructure project will produce this sequence. Instead, the sequence provides a conceptual basis for comparing infrastructure milestones with residential-price trajectories. It also explains why the study uses phrases such as “associated with,” “corresponds with,” and “consistent with” rather than automatically claiming that infrastructure caused observed price appreciation. Infrastructure projects can be deliberately targeted toward already-growing areas, creating a potential reverse-causality problem. National economic conditions and private investment can also change simultaneously.

3.3 Employment and Economic Diversification → Residential Markets

Infrastructure alone does not determine whether an emerging location becomes a successful residential market. Its effect is likely to be stronger when improved accessibility is accompanied by employment and economic opportunity.

Employment growth can influence housing markets through at least two mechanisms. First, additional employment can increase the number of households seeking accommodation near employment centres. Second, higher or more stable household incomes can increase purchasing capacity, allowing households to access higher-quality or better-located housing. This produces a second major transmission mechanism:

Economic Diversification → Employment → Household Income/Purchasing Capacity → Housing Demand

The relationship between employment and housing can therefore be expected to differ according to the structure of a city's economy. A city whose growth is concentrated around technology and high-skilled services may generate demand for particular residential locations and housing segments. A manufacturing or logistics centre may generate a different distribution of housing demand, while an administrative centre may be influenced by public-sector and service employment.

Employment should nevertheless not be interpreted as a complete explanation of price movements. Developers' ability to respond to new demand, land availability, construction costs, financing conditions and existing housing inventory can moderate the relationship between employment and prices. In addition, employment expansion can increase demand for housing without necessarily producing high price appreciation if the market is able to expand supply efficiently. The conceptual implication is therefore:

Infrastructure + Employment + Connectivity → Residential Demand
Residential Demand + Supply + Financing + Affordability → Housing Price Outcome

This distinction is central to the study's interpretation of the five-city results. It allows strong demand growth to be recognized without assuming that every city experiencing economic expansion must also experience proportionally higher housing-price appreciation.

The broader literature supports the relevance of accessibility, employment and infrastructure as interconnected determinants of urban land and property values. Studies of Indian transport infrastructure emphasize accessibility and employment accessibility as important mechanisms through which transport investment can affect property values, while research on transit-oriented development highlights the interaction between transport networks, land use and urban development.

The conceptual framework adopted by this study consequently treats employment as the economic transmission mechanism, infrastructure as the physical-accessibility mechanism, and housing supply and financing as moderating conditions.

3.4 Employment and Household Demand

Employment represents the principal economic channel through which urban development can translate into residential demand. While infrastructure can improve physical accessibility, its longer-term influence on housing markets is likely to depend partly on whether that improved accessibility is associated with meaningful employment and economic opportunities.

Employment growth can affect residential markets through both quantity and purchasing power. New jobs can increase the number of households seeking housing in a city or in specific employment corridors. At the same time, higher and more stable incomes can increase the ability of existing households to purchase or rent higher-quality housing or to locate closer to employment centres. The conceptual mechanism can therefore be expressed as:

Employment Growth → Household Formation + Purchasing Capacity → Residential Demand

This relationship is likely to vary according to the type of employment created. High-skilled technology and services employment may generate demand for higher-value residential products and specific urban corridors, while manufacturing, logistics or public-sector employment may generate different housing preferences and geographic patterns.

Employment concentration can also produce localized housing effects. Where firms cluster within a corridor or employment centre, residential demand may become concentrated in nearby or well-connected locations. This can change not only aggregate demand but also the spatial distribution of housing development.

However, employment growth should not be treated as a sufficient explanation for price appreciation. Housing supply, land availability, construction capacity and financing can determine whether additional demand is translated into increased transaction volumes, expanded housing stock or higher prices. A city with strong employment growth and responsive housing supply may accommodate new households without experiencing the same degree of price appreciation as a supply-constrained market.

This distinction is important for the five-city comparison. Jaipur, Indore, Lucknow, Coimbatore and Nagpur each have different combinations of services, manufacturing, technology, administration and logistics activity. Consequently, employment growth may operate differently within each city and may produce different residential-market outcomes even when national macroeconomic conditions are similar.

For this reason, the study treats employment and economic-development evidence primarily as an explanatory layer alongside the NHB housing-price data rather than as a standalone causal variable.

3.5 Supply Response

Residential demand does not translate automatically into higher prices because housing markets contain a supply response. When demand increases, developers may respond by increasing the quantity of housing supplied, expanding into peripheral areas, changing the mix of residential products or accelerating projects already under development. The interaction can be represented as:

- Demand Growth → **Higher Prices**, if supply is relatively constrained
- Demand Growth → **Higher Supply**, if supply is responsive
- Demand Growth → **Higher Prices + Higher Supply**, if both adjust

This mechanism is central to understanding differences between Tier-II cities. Two cities may experience similarly strong residential demand but record different price appreciation because their supply conditions differ. Several factors can influence the responsiveness of housing supply: availability of developable land; land acquisition conditions; planning and zoning restrictions; construction costs; infrastructure availability; developer capacity; inventory levels; speed of permitting and project approval.

Supply responsiveness can also influence where residential development occurs. New infrastructure can open peripheral areas to development by reducing effective travel time to employment and commercial centres. In such cases, infrastructure may enable an increase in housing supply that partly offsets the price pressure created by stronger demand.

This is one reason why a simple relationship such as “Infrastructure → higher prices” is theoretically incomplete. Infrastructure can affect both demand and supply. It can increase the attractiveness of a location to households while simultaneously making previously peripheral land more commercially developable. The eventual housing-price effect therefore depends partly on which response is stronger.

The present study does not attempt to construct a complete city-quarter housing-supply dataset because comparable official high-frequency supply measures are not consistently available across all five cities. Instead, supply responsiveness is treated as an important interpretive mechanism when discussing differences in the observed NHB HPI trajectories and available industry evidence.

3.6 Financing Conditions

Housing-market outcomes are also influenced by the cost and availability of finance. Residential property is a relatively high-value asset, and changes in borrowing costs can affect both household affordability and developer financing conditions.

The Reserve Bank of India's policy repo rate provides an important national indicator of the monetary environment. Lower policy rates can contribute to a more accommodative credit environment, while higher rates can increase borrowing costs and potentially reduce households' ability or willingness to purchase housing. The conceptual relationship is:

Monetary Conditions → Borrowing Costs → Housing Affordability → Residential Demand → Potential Price Response

Financing conditions can also operate through the supply side. Developers depend on financing for land acquisition, construction and project completion. Changes in financial conditions can therefore influence not only household demand but also the pace and cost of residential development.

The study consequently uses the RBI policy repo rate as a national macroeconomic contextual variable rather than treating it as a city-specific determinant. Because the repo rate is common across the five cities in a given period,

it is useful for understanding the broader monetary environment but cannot, by itself, explain cross-city differences.

This distinction is especially relevant to the post-2020 period. All five cities were exposed to the same broad national monetary environment, yet their residential-price trajectories differed substantially. This indicates that common financing conditions cannot fully explain city-level housing-market outcomes and must be considered alongside local economic and structural characteristics.

Inflation is incorporated as an additional macroeconomic context variable. The study uses the All-India Combined CPI inflation rate rather than attempting to construct city-level inflation measures that are not consistently available in the required form.

Financing conditions therefore function within the conceptual framework as a moderating national influence, rather than a complete explanation for differences between cities.

3.7 Buyer Composition

Residential markets are influenced not only by the total volume of demand but also by who is generating that demand. Households purchasing for owner occupation may behave differently from investors or buyers seeking second homes or future capital appreciation.

Buyer composition can influence: preferred locations; housing size; price segments; willingness to pay; sensitivity to interest rates; demand for new versus existing housing; the speed at which prices respond to market changes.

This does not mean that rising prices should automatically be interpreted as evidence of speculative activity. Distinguishing between end-user and investor demand requires direct evidence about transactions, buyer profiles and financing behaviour, which is not consistently available across all five cities. Accordingly, buyer composition is treated as a theoretical moderating mechanism rather than as a directly estimated variable in the quantitative panel.

This is particularly important for the interpretation of premiumization. Higher-value housing may reflect: genuine increases in household purchasing power; demand for larger or better-quality homes; changing preferences; investor participation; constrained availability in particular locations. Therefore, the study does not equate premium-market growth with speculation without city-specific evidence.

The buyer-composition mechanism reinforces the broader conceptual proposition that the relationship between residential demand and prices is mediated by the characteristics of demand as well as the amount of demand.

3.8 Why the Effect Is Heterogeneous

The mechanisms discussed above imply that infrastructure, employment and urbanization should not be expected to produce identical housing-market outcomes across cities.

The same infrastructure investment can affect two cities differently because the underlying conditions of the markets differ. These conditions include: economic structure; employment density; household incomes; land availability; housing supply responsiveness; existing infrastructure; financing conditions; buyer composition; location of new development.

The study therefore treats heterogeneity as an expected feature rather than as an unexplained exception. The conceptual implication is:

Infrastructure + Employment $\neq$ Identical Housing Response

Housing Response(i) = f(Infrastructure(i), Employment(i), Supply(i), Finance(t), BuyerComposition(i), CityStructure(i))

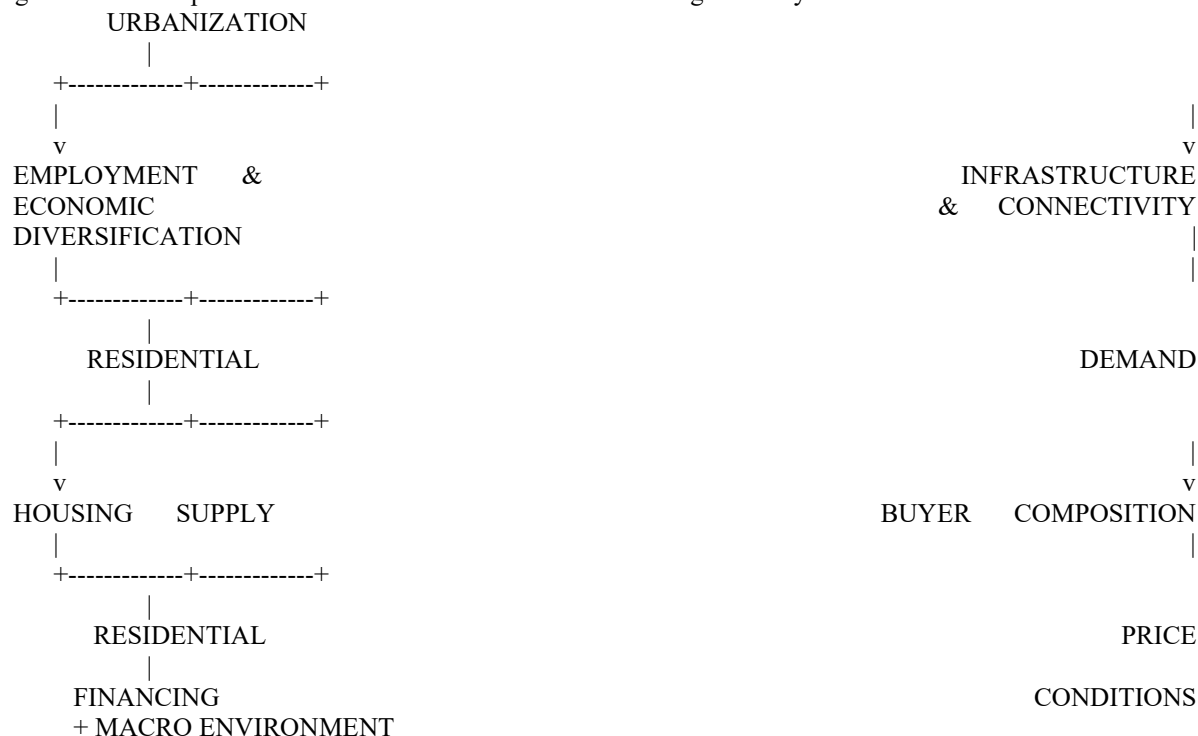
where the subscript (i) represents the city-specific characteristics that shape the response.

where the subscript (i) represents the city-specific characteristics that shape the response.

This heterogeneity is the central reason for using a comparative five-city design rather than a single aggregate Tier-II indicator. The purpose is not simply to establish whether prices increased, but to understand why the magnitude and pattern of change differed between cities operating within the same national housing environment. The framework also explains why the study avoids strong causal claims. A housing-price increase following an infrastructure project may be consistent with an infrastructure mechanism, but it may also reflect simultaneous employment growth, monetary conditions, supply changes or broader national housing-market recovery. The conceptual framework therefore serves as a guide for structured interpretation rather than predetermined causal attribution.

3.9 Conceptual Model

Figure 1 — Conceptual Framework of Tier-II Residential Housing-Price Dynamics



IV. Literature Review

4.2 Infrastructure and Property Values

Infrastructure investment is frequently identified in the urban-economics literature as an important mechanism through which accessibility and land values can change. Transport infrastructure is particularly relevant because improvements in connectivity can reduce travel costs, shorten commuting times and increase access to employment and urban services. These changes can alter the attractiveness of locations to households and businesses and, in turn, become reflected in land and property markets.

Evidence from Indian cities provides support for this relationship, although the magnitude and geographical distribution of the effect vary. Research on Bengaluru's metro system found significant increases in land values associated with improved rail accessibility. Using large-scale apartment transaction data and hedonic models, Sharma and Newman (2018) estimated a city-wide land-value uplift of approximately 4.5% following metro operations, with effects extending beyond the traditional 500-metre station catchment.

The Bengaluru evidence is particularly relevant to the present study because it concerns an emerging Indian city rather than only a mature global metropolitan market. It suggests that transport infrastructure can represent more than a mobility improvement: it can become an urban-economic intervention that changes the perceived and actual accessibility of locations.

More recent evidence from Mumbai similarly finds significant residential and commercial property-value increases following the opening of Metro Line 1. Suri and Cropper estimate a persistent 6–8% increase in prices in treated areas relative to comparison areas, identifying commute-time savings and improved employment accessibility as plausible mechanisms.

The literature therefore provides support for a broader mechanism:

Infrastructure → improved accessibility → greater locational attractiveness → potential property-value appreciation

However, the literature also cautions against interpreting this relationship as automatically uniform. Infrastructure effects can be geographically concentrated, with properties closer to stations or newly improved corridors potentially experiencing different effects from properties farther away. Recent research on Gurugram, for example, reports stronger residential-price effects close to metro stations and diminishing effects as distance increases.

This spatial dimension is important for Tier-II cities. A metro line, highway or airport expansion may produce substantially different outcomes depending on where the infrastructure is located relative to existing employment centres, residential areas and developable land. An infrastructure project connecting a major employment corridor

to peripheral housing markets may generate a different effect from an intervention primarily improving an already-developed central area.

Infrastructure may also affect property markets before formal operation. Anticipation of future accessibility can influence land-use decisions, development activity and expectations during the planning and construction stages. Recent research on Mumbai's Trans Harbour Link examines construction and opening effects separately, illustrating why infrastructure studies should distinguish between different stages of project implementation.

This creates an important methodological consideration for the present research. A simple comparison of "HPI before infrastructure → HPI after infrastructure" cannot by itself establish that the infrastructure caused the change. Infrastructure projects are often deliberately directed toward areas that are already growing, meaning that reverse causality and simultaneous development are possible. Housing prices may also be influenced by national monetary conditions, employment growth, housing supply and broader changes in investor or household expectations.

The Asian Development Bank's work on transit-oriented development in India similarly emphasizes that the benefits of transport investment depend on coordination between transport systems, land-use policy and urban development. Infrastructure therefore needs to be considered as part of an integrated urban system rather than as an isolated physical investment.

This literature directly informs the present study's treatment of infrastructure. Major infrastructure milestones are mapped against the NHB HPI trajectories of Jaipur, Indore, Lucknow, Coimbatore and Nagpur, but the resulting patterns are interpreted as associations and temporal correspondences, not automatic causal effects.

Takeaway: Existing research provides substantial evidence that improved transport accessibility can be capitalized into land and property values, but the magnitude, timing and spatial distribution of those effects depend on location, employment accessibility, existing development and complementary urban policies. This literature establishes the theoretical basis for examining infrastructure milestones alongside the five-city HPI trajectories, and supports the study's decision to distinguish announcement, construction and operational stages when interpreting infrastructure-related housing-market changes.

4.3 Employment and Economic Diversification

Employment growth is an important bridge between broader economic development and residential housing demand. Urban economic theory suggests that the creation and concentration of employment opportunities can increase the number of households seeking accommodation while also increasing household purchasing capacity. The effect on housing markets, however, depends on the type, location and income characteristics of the employment being created.

This relationship is particularly relevant to emerging Indian cities because economic diversification can alter the structure of residential demand. A city that expands its technology and services sector may develop new demand for housing near employment clusters and transport corridors. A manufacturing-oriented city may generate demand through industrial employment and associated supplier networks, while logistics-oriented growth may influence housing development around transport and warehousing corridors.

Recent National Housing Bank research directly reinforces the importance of this mechanism for Tier-II India. Its comparative analysis of 2013–2024 housing-price dynamics describes substantial variation between Tier-II markets and identifies sectoral diversification and institutional anchors as factors associated with stronger housing-market performance in several cities. (Kothari et al., 2026)

The mechanism is therefore not simply "Employment ↑ → House prices ↑." Instead, employment can influence the market through several channels:

Employment → Income/Purchasing Capacity → Housing Demand
Employment Concentration → Location Preferences → Demand for Accessible Housing

The strength of these effects can be moderated by housing supply. Where developers can rapidly provide additional housing, employment growth may primarily increase housing stock and transaction activity rather than produce an equivalent increase in prices. Where supply is less responsive, the same economic expansion may generate stronger price appreciation.

This distinction is particularly important when comparing the five cities in the present study. Coimbatore, Indore, Lucknow, Jaipur and Nagpur have different economic structures and therefore different potential mechanisms through which economic activity reaches the housing market. The comparative approach allows the study to examine whether stronger economic diversification is associated with stronger housing-price outcomes without assuming that employment is the sole determinant of those outcomes.

The literature therefore supports treating employment and economic diversification as an important explanatory mechanism, but not as an isolated causal variable.

Takeaway: Economic diversification can strengthen residential demand by creating employment and purchasing capacity, but the eventual housing-price response depends on local supply, accessibility, income structure and other market conditions.

4.4 Housing Finance and Macroeconomic Conditions

Housing markets are strongly influenced by financial conditions because both households and developers depend on credit. For households, mortgage interest rates affect the cost of purchasing a home and therefore influence affordability and borrowing capacity. For developers, financing conditions affect the cost and availability of capital used for land acquisition, construction and project completion.

The Reserve Bank of India therefore represents an important component of the macroeconomic environment surrounding residential property markets. Changes in the policy repo rate can transmit through the broader financial system to lending rates and credit conditions. The transmission process is not instantaneous, however, and the effect on housing markets may occur with a lag.

Indian housing research has emphasized the importance of macroeconomic variables in housing-price dynamics. The National Housing Bank has supported research specifically examining relationships between housing prices and macroeconomic variables, including work on linkages, spillovers and connectedness between housing prices and broader economic indicators. (Kothari et al., 2026)

This is relevant to the present study because the five cities operate within a common national monetary environment. The policy repo rate is not city-specific: Jaipur and Nagpur, for example, face the same national policy rate in a given quarter. Consequently, monetary conditions are better understood as a common background force that can amplify or constrain local housing-market responses rather than as an explanation for all cross-city differences.

Inflation introduces another dimension. General inflation affects household purchasing power, construction costs and real returns on housing assets. A period of elevated inflation can therefore influence both demand and supply, while disinflation can alter real borrowing conditions and the affordability of housing finance. The relationship can be represented as:

Monetary Conditions → Credit Conditions → Housing Affordability → Residential Demand

(simultaneously) Inflation → Construction Costs + Real Purchasing Power → Housing Market Response

The role of macroeconomic variables must nevertheless be distinguished from the role of local economic conditions. A national reduction in borrowing costs affects all five cities, but it does not imply identical housing-price outcomes. Local differences in employment, land availability, infrastructure and housing supply can mediate the transmission of national financial conditions.

This distinction is important for the empirical design of the study. RBI and CPI indicators are therefore used primarily as macroeconomic context and controls, while the city-level NHB HPI provides the principal measure of residential-price behaviour.

Recent industry evidence also highlights the divergence between housing demand, prices and home-loan utilization across Tier-II cities, suggesting that financing conditions should not be treated as a complete explanation for differences in housing-market performance. (CRISIL Intelligence, 2026)

Takeaway: Housing finance and macroeconomic conditions shape the affordability and investment environment within which housing markets operate, but common national financial conditions cannot by themselves explain city-level differences in residential-price trajectories.

4.5 Tier-II Indian Housing Markets

Research specifically focused on India's Tier-II housing markets increasingly indicates that these markets cannot be treated as a single homogeneous category. The National Housing Bank's recent analysis of housing-price dynamics between 2013 and 2024 describes uneven momentum across Tier-II cities, with some markets recording materially stronger long-run appreciation than others. It explicitly identifies differentiated pathways involving infrastructure investment, sectoral diversification and institutional economic anchors. (Kothari et al., 2026)

This finding is especially important for the present study because it supports the decision to conduct a city-level comparative analysis rather than relying on one aggregate Tier-II indicator.

Earlier banking-sector research also identified significant variation in housing-price growth among smaller Indian cities. SBI Research, using NHB data, found that several Tier-II and Tier-III markets experienced higher housing-price growth than major metropolitan areas during parts of the period examined, while individual cities within the same broad category exhibited substantially different trajectories. For example, its reported annual housing-price changes included substantial variation among Jaipur, Lucknow, Nagpur and Coimbatore.

Recent CRISIL research extends this literature by reporting a 14% CAGR in residential demand across ten Tier-II cities between FY2021 and FY2026, with Nagpur, Coimbatore and Lucknow recording approximately 20% growth. Importantly, CRISIL also notes that price and home-loan-utilization trends diverge across cities. (CRISIL Intelligence, 2026)

Tier-II residential demand expansion is a broad phenomenon, but the translation of that demand into housing-price appreciation varies across cities. That distinction is central to the study's research question.

The existing Tier-II literature also points toward several recurring explanatory themes:

- **Infrastructure and connectivity:** improvements in transport and urban infrastructure can increase accessibility and development potential.
- **Economic diversification:** technology, manufacturing, services and institutional investment can create employment-led housing demand.
- **Affordability:** Tier-II cities may offer lower absolute housing prices than major metros, but rapid appreciation can alter that advantage.
- **Market maturity:** differences in developer presence, inventory, financing and buyer composition can affect how demand translates into prices.
- **Spatial differentiation:** housing growth can become concentrated around specific corridors, employment centres and infrastructure nodes rather than occurring uniformly across an entire city.

These findings support the comparative framework adopted in this study, but they also reveal an important limitation in the existing discussion. Much of the evidence either focuses on individual cities, uses broader market categories, or combines different measures of demand, price and market activity. There remains value in bringing these dimensions together under a common NHB HPI-based longitudinal framework across multiple Tier-II cities. The present study therefore builds upon the existing literature rather than attempting to replace it. The contribution lies in combining a standardized five-city housing-price panel with infrastructure, connectivity, economic-development and macroeconomic context, while maintaining a clear distinction between observed housing-price outcomes and explanatory interpretation.

Takeaway: Existing evidence strongly supports the existence of a growing but heterogeneous Tier-II housing market; the remaining question is how differences in infrastructure, economic structure, demand and supply contribute to that heterogeneity.

4.6 Affordability and Market Segmentation

Housing affordability provides an important counterweight to the broader narrative of expanding Tier-II residential markets. A city can experience strong residential demand and rising housing prices while simultaneously becoming less accessible to households whose incomes do not increase at a comparable rate. Consequently, housing-market performance cannot be evaluated solely through price appreciation or transaction growth.

The relationship between housing prices and affordability is particularly relevant in India because housing demand differs substantially across income groups. World Bank research on urban India treats affordability as a distinct dimension of the housing market and emphasizes that affordability depends not simply on housing prices but also on household incomes, rents, financing conditions and the distribution of housing needs.

Earlier National Housing Bank research similarly finds that housing is generally more affordable in Tier-II cities than in Tier-I cities, particularly for middle- and higher-income groups, although affordability remains challenging for economically weaker households. (Kothari et al., 2026) This distinction is important because the relative affordability advantage of Tier-II markets should not be interpreted as evidence that every income group can comfortably access housing.

Market segmentation further complicates the relationship between price growth and affordability. Residential markets contain different segments according to price, size, location and quality. Growth in the premium segment can therefore raise average market values without necessarily representing a uniform increase in housing costs across all households.

Recent CRISIL evidence illustrates this differentiation clearly. Its 2026 analysis finds that some Tier-II cities, particularly Indore and Lucknow, have developed substantial premium housing segments, while Jaipur and Nagpur remain more strongly oriented toward the mid-market, with more than three-quarters of active supply reported below Rs.75 lakh. CRISIL also reports that average ticket sizes above Rs.1 crore in some Tier-II markets have begun to affect affordability and the potential buyer pool. (CRISIL Intelligence, 2026)

This evidence is important for the present study because it demonstrates that price appreciation and housing-market development can be distributed unevenly across market segments. A city may experience strong aggregate residential growth while different household groups face very different affordability outcomes.

The literature consequently suggests that three concepts should be kept separate:

Housing-price appreciation $\neq$ housing demand $\neq$ housing affordability

A rise in housing prices can reflect increased demand and economic development, but whether that rise represents a positive or negative outcome depends partly on household income, available housing supply and the distribution of new housing across price segments.

For the present study, affordability is therefore treated as an important interpretive and policy dimension, rather than as a fully measured quarterly variable in the core NHB panel.

Takeaway: Tier-II cities retain an affordability advantage relative to many Tier-I markets, but rapid price appreciation and premiumization can weaken that advantage and affect different income groups unevenly. (Kothari et al., 2026)

4.7 Synthesis of the Literature

The literature reviewed in the preceding sections establishes a broadly connected set of mechanisms linking urban development with housing markets.

First, research on urbanization and housing demand indicates that population growth, household formation, income growth and improvements in housing amenities can increase demand for residential accommodation. Importantly, demand is responsive to both household income and housing characteristics rather than being determined by population size alone.

Second, the literature on infrastructure and property values provides evidence that improved accessibility can be capitalized into land and residential property values. The magnitude and timing of the effect vary depending on location, accessibility and surrounding economic development.

Third, the literature on employment and economic diversification indicates that economic activity provides an important mechanism through which urban growth can generate residential demand. Employment can affect both the number of households seeking housing and their ability to pay for housing.

Fourth, housing finance and macroeconomic conditions shape the environment in which households and developers make decisions. Interest rates, credit availability and inflation can influence affordability and construction conditions, although common national conditions do not explain all differences between cities.

Fifth, research specifically focused on Tier-II India increasingly demonstrates that these markets are not homogeneous. NHB's recent analysis identifies "uneven momentum" across second-tier markets and associates differences with factors including infrastructure, sectoral diversification and institutional economic anchors. (Kothari et al., 2026) CRISIL's more recent evidence similarly finds strong Tier-II demand growth while emphasizing divergence in prices, inventory and housing-market segments across individual cities. (CRISIL Intelligence, 2026)

Finally, the literature on affordability and segmentation demonstrates that rising prices need to be interpreted alongside household income, housing supply and the composition of available housing. A growing residential market is therefore not necessarily synonymous with a uniformly improving housing market.

These strands can be combined into the following conceptual chain:

Urbanization → Employment + Infrastructure + Connectivity → Residential Demand → Supply Response → Housing Prices, moderated by Financing + Affordability + Buyer Composition

The literature therefore provides substantial theoretical and empirical support for the central framework adopted by this study. At the same time, it points toward a remaining analytical challenge: these mechanisms operate simultaneously, and their relative importance varies across cities.

4.8 What Remains Unclear

Despite the growing body of research on Indian urbanization and housing markets, several questions remain insufficiently resolved.

4.8.1 How heterogeneous are Tier-II housing markets?

Existing evidence increasingly recognizes that Tier-II cities follow different trajectories, but aggregate Tier-II indicators can still conceal substantial city-level variation. NHB's recent research explicitly describes uneven momentum, while CRISIL identifies clear differences in pricing, inventory and market segmentation. (Kothari et al., 2026)

4.8.2 Does demand growth translate proportionally into price growth?

The literature distinguishes between demand and affordability, but comparable cross-city evidence combining standardized housing-price measures with demand indicators remains limited. CRISIL's finding that cities can show different price and home-loan-utilization patterns reinforces the importance of keeping these measures separate. (CRISIL Intelligence, 2026) The present study therefore examines demand and price evidence as complementary but non-equivalent measures.

4.8.3 What role does infrastructure timing play?

The literature provides evidence that infrastructure can influence property values, but infrastructure projects may generate effects at several stages: announcement, construction, anticipation and operation. The timing of these effects remains difficult to isolate because infrastructure is frequently implemented in places that are already experiencing economic or population growth. This creates an identification problem: does infrastructure generate residential growth, or is infrastructure being supplied partly because residential and economic growth has already occurred?

The present study does not claim to completely solve this causal problem, but infrastructure-event chronology allows it to examine whether observed HPI movements are temporally consistent with the proposed mechanism.

4.8.4 How do local economic structures mediate housing outcomes?

Existing research points toward sectoral diversification and institutional economic anchors as important contributors to uneven Tier-II housing performance. (Kothari et al., 2026) However, the specific mechanisms may differ substantially between technology/service-oriented centres, manufacturing centres, administrative centres

and logistics hubs. A comparative city framework can therefore help identify whether distinct economic structures correspond with distinct housing-price trajectories.

4.8.5 How sustainable is housing-price growth?

Higher prices may reflect strengthening economic fundamentals, but they may also reduce affordability for some households. CRISIL's recent evidence that premiumization has pushed some Tier-II markets toward higher ticket sizes illustrates this tension. (CRISIL Intelligence, 2026) The unresolved question is therefore not simply whether prices are increasing, but whether residential-price growth can remain supported by employment, purchasing power and housing demand without substantially weakening affordability or creating excessive inventory.

4.8.6 The resulting research gap

Taken together, these unresolved questions establish the need for a study that:

- compares multiple Tier-II cities using a common housing-price measure;
- distinguishes housing demand from price appreciation;
- places infrastructure within a broader employment-connectivity-economic framework;
- considers supply, financing and affordability as moderating conditions; and
- combines quantitative price evidence with city-level qualitative context.

V. Research Gap, Contribution and Hypotheses

5.1 Research Gap 1 — City-Level Heterogeneity

A significant gap in the existing literature is the tendency to discuss India's Tier-II housing market as a broad category rather than as a collection of distinct urban markets. While recent research increasingly recognizes variation across Tier-II cities, aggregate measures of demand, price growth or real-estate activity can still obscure substantial differences in the economic and spatial mechanisms operating within individual cities.

This matters because the five cities examined in this study are structurally different. Jaipur, Indore, Lucknow, Coimbatore and Nagpur differ in their combinations of technology and services, manufacturing, administration, logistics, tourism and regional connectivity. As a result, infrastructure investment or economic expansion may influence housing markets through different channels in each city.

The gap is therefore not simply a lack of evidence that Tier-II markets are growing. Rather, it is a lack of consistent comparative analysis of how and why housing-price trajectories differ between cities within the broader Tier-II category.

The present study addresses this gap by applying a common NHB RESIDEX HPI@Assessment Price framework to five cities over a consistent core period, creating a balanced panel of 140 city-quarter observations. This allows differences in residential-price trajectories to be compared using a standardized housing-price measure rather than relying exclusively on separate city reports or aggregate Tier-II statistics.

Statement of Research Gap 1: Existing evidence recognizes Tier-II growth but does not sufficiently explain the heterogeneity of residential housing-price trajectories across economically different Tier-II cities using a common longitudinal framework.

5.2 Research Gap 2 — Demand versus Price Distinction

A second gap concerns the tendency to treat residential demand growth and housing-price appreciation as interchangeable indicators of housing-market strength.

The literature indicates that the two measures are related but distinct. Demand can increase because of population growth, household formation, employment expansion, migration, changing preferences or investment activity. Housing prices, meanwhile, reflect the interaction between demand and supply, financing conditions, land availability, construction costs, buyer composition and expectations.

Recent industry evidence illustrates this distinction particularly clearly. CRISIL reports a 14% CAGR in residential demand across its ten-city Tier-II sample between FY2021 and FY2026, with approximately 20% growth in Nagpur, Coimbatore and Lucknow, while also identifying differences in price and home-loan utilization patterns across cities. This means that strong market demand cannot simply be translated into an equivalent rate of housing-price appreciation.

The present study therefore separates the two concepts analytically. The NHB HPI is used as the principal measure of observed residential-price movement, while industry demand evidence is treated as a complementary indicator of market activity rather than as an alternative price measure.

This distinction is also important for interpreting claims about market "booms." A city can experience strong demand but more moderate price appreciation if housing supply responds effectively. Conversely, constrained supply may amplify the price response to a smaller increase in demand.

Statement of Research Gap 2: Existing discussion does not consistently distinguish residential-demand expansion from housing-price appreciation when interpreting the growth of Tier-II housing markets. The present study addresses this by keeping the two evidence streams separate throughout the quantitative and discussion chapters.

5.3 Research Gap 3 — Infrastructure Timing and Lag

A third gap concerns the timing of infrastructure effects on residential housing markets. Existing research provides evidence that improved transport accessibility can become capitalized into property and land values. However, infrastructure does not constitute a single moment of intervention. A project can generate information and expectations at announcement, alter development decisions during construction, and change actual accessibility after opening.

This creates at least three analytically distinct stages: announcement/expectation → construction/anticipation → operation/realized accessibility. Housing markets may respond during any of these stages.

The problem is further complicated by the possibility of reverse causality. Infrastructure may be constructed because a location is already experiencing economic and residential growth. Consequently, an observed increase in housing prices around the time of infrastructure completion cannot automatically establish that infrastructure generated the appreciation.

This issue is particularly important for the present five-city comparison because each city has experienced multiple major infrastructure developments, including metro systems, expressways and transport corridors, but the projects differ in timing, geography and economic context.

The study therefore treats infrastructure primarily as an event-timing and explanatory variable. Major project milestones are compared with the HPI trajectories of the affected city, while the interpretation distinguishes temporal correspondence from causal attribution.

The evidence package also imposes an important constraint: the infrastructure database is sufficiently developed to support contextual and event-based comparison, but the study does not claim that every project provides a clean experimental treatment.

Statement of Research Gap 3: Existing research provides evidence of infrastructure-related property effects, but comparatively less attention is given to how the timing of announcement, construction and operation interacts with housing-price trajectories in heterogeneous Tier-II Indian cities. The present study addresses this by incorporating infrastructure chronologies alongside the longitudinal NHB price panel while maintaining cautious causal language.

5.4 Research Gap 4 — Comparative Tier-II Analysis Using a Standardized HPI

A fourth gap concerns comparability of housing-price evidence across cities. Much of the available discussion of Tier-II residential markets is fragmented across city-specific studies, industry reports, transaction indicators and market commentaries. These sources are valuable for understanding individual markets, but differences in definitions, periods and indicators can make direct cross-city comparison difficult.

A standardized housing-price index provides a more consistent basis for such comparison. The National Housing Bank's RESIDEX HPI@Assessment Prices offers a common index framework across the five cities selected for this study. The core dataset assembled for the research contains 140 verified city-quarter observations covering Q2 2018 to Q1 2025, with the same HPI concept applied across Jaipur, Indore, Lucknow, Coimbatore and Nagpur. This common measurement framework allows the study to ask a more precise question than whether each city experienced housing growth independently. It allows the cities to be compared on: the scale of cumulative appreciation; annualized growth; year-on-year changes; quarter-on-quarter movements; differences between earlier and later portions of the study period.

The standardized framework also strengthens the distinction between housing-price evidence and supplementary market evidence. Industry reports on sales, launches, absorption or premiumization remain useful for interpretation, but they are not treated as interchangeable with the NHB HPI.

The importance of this distinction is reinforced by the evidence audit. The original research package contained incomplete and sometimes inaccessible historical observations, particularly for some NHB portal periods, which required the study to narrow and freeze the core quantitative period rather than silently reconstruct missing observations. The research package explicitly records that incomplete data were not to be invented or substituted. The study therefore uses a single standardized HPI backbone for its five-city quantitative comparison, while retaining infrastructure, employment, housing-market and Siliguri evidence as complementary analytical layers.

Statement of Research Gap 4: Existing Tier-II housing research provides substantial city- and market-level evidence, but there remains value in comparing multiple economically different Tier-II cities through a common, longitudinal housing-price index and then interpreting those differences using shared explanatory dimensions.

5.5 Research Contribution

The contribution of this study follows directly from the four gaps identified above.

5.5.1 A comparative five-city housing-price framework

The study provides a consistent comparison of Jaipur, Indore, Lucknow, Coimbatore and Nagpur using the NHB RESIDEX HPI@Assessment Prices. The resulting 140-observation panel provides the quantitative foundation for examining differences in residential-price trajectories across economically distinct Tier-II markets.

5.5.2 A distinction between demand and price

The study deliberately separates residential demand growth from residential housing-price appreciation. This prevents strong market-demand indicators from being interpreted automatically as equivalent rates of price growth.

5.5.3 An integrated urban-development framework

Rather than treating infrastructure as an isolated variable, the study connects infrastructure, connectivity, employment and economic structure to residential demand, supply, financing and affordability, and ultimately to housing-price outcomes. This reflects the broader evidence collected during the research process, where infrastructure, GCC/employment, housing-market and macroeconomic evidence were developed as complementary rather than interchangeable datasets.

5.5.4 A cautious infrastructure interpretation

The study contributes a framework for examining infrastructure timing without claiming stronger causality than the data permit. Infrastructure events are positioned against observed HPI trajectories, while recognizing that infrastructure may be both a response to existing growth and a contributor to subsequent development.

5.5.5 A qualitative gateway-city extension

Siliguri is used as a qualitative comparative case, allowing the framework to be applied to a strategically connected gateway city without manufacturing a sixth NHB price series. This preserves analytical value while respecting the limits of the available evidence.

5.5.6 A developer-oriented interpretation

Finally, the study translates the academic analysis into implications for real-estate development. The central practical contribution is to argue that Tier-II development decisions should consider employment, connectivity, affordability, supply conditions and infrastructure timing together, rather than relying on a generic Tier-II growth label.

Overall Contribution

The study contributes a comparative, evidence-disciplined framework for understanding Tier-II housing markets as heterogeneous urban systems in which infrastructure and economic development interact with local supply, financing and demand characteristics to produce different residential-price outcomes.

5.6 Research Hypotheses

The hypotheses are derived from the literature review and conceptual framework. They are propositions to be evaluated, not conclusions already established by the study.

H1 — Infrastructure and Housing Prices

H1: Major infrastructure developments are associated with subsequent changes in residential housing-price trajectories in selected Tier-II Indian cities.

The hypothesis reflects the literature indicating that improvements in accessibility can become capitalized into land and property values. However, because infrastructure projects may be endogenous to existing growth, the study will interpret supporting evidence as an association unless stronger identification is available.

H2 — Residential Demand and Housing Prices

H2: Higher residential-market demand growth is positively associated with residential housing-price appreciation, but the relationship is not proportional across cities.

The hypothesis captures the distinction established in the literature review: demand is expected to matter for prices, but supply responsiveness, affordability and buyer composition can moderate the size of the response.

H3 — City-Level Heterogeneity

H3: The relationship between urbanization-related economic development and housing-price appreciation differs across Tier-II cities according to their economic and urban structures.

This is a central hypothesis of the study. The five cities were not selected because they represent a single “typical” Tier-II market; they were selected precisely because their economic profiles differ. The hypothesis therefore expects differences in outcomes rather than treating those differences as statistical noise.

H4 — Infrastructure Timing and Lag

H4: The housing-market response associated with major infrastructure developments may emerge with a time lag rather than occurring entirely in the period of project completion.

This hypothesis follows from the distinction between announcement → expectation → construction → operation → realized accessibility. The study therefore considers infrastructure chronology when interpreting changes in housing-price trajectories.

Hypothesis Interpretation Rule

Because the final research design is a comparative longitudinal mixed-methods analysis rather than a definitive causal identification strategy, the hypotheses will not be presented as though statistical confirmation automatically establishes causation.

The final Results section will distinguish between evidence that is: **supported by the evidence**; **consistent with the evidence**; and **not established by the evidence**.

That distinction is especially important for H1 and H4 because infrastructure timing can be affected by pre-existing urban growth.

VI. Methodology

6.1 Research Design

This study adopts a comparative longitudinal mixed-methods research design to examine residential housing-price dynamics across selected Tier-II Indian cities.

The design combines a standardized quantitative housing-price dataset with qualitative and contextual evidence on infrastructure, connectivity, employment, economic diversification and housing-market characteristics. The purpose of this combination is to examine both what happened to residential prices and what urban-economic conditions may help explain differences between cities.

The quantitative component forms the empirical backbone of the study. It uses the National Housing Bank's NHB RESIDEX Housing Price Index at Assessment Prices to construct a consistent city-quarter panel for Jaipur, Indore, Lucknow, Coimbatore and Nagpur. The resulting panel is used to calculate housing-price growth, cumulative appreciation, annualized growth and changes in performance across different periods.

The qualitative component complements the HPI analysis through documented evidence concerning: major infrastructure developments; transport and regional connectivity; employment and GCC expansion; local economic structure; housing-market conditions; Siliguri's gateway-city characteristics.

This mixed-methods structure is appropriate because no single dataset captures the full mechanism through which urbanization may affect residential markets. The NHB HPI measures the observed price outcome, while infrastructure and employment evidence provides context for interpreting why those outcomes may differ between cities.

The study is comparative because the five quantitative cities are analyzed under a common HPI framework rather than as independent case studies. It is longitudinal because the same cities are observed repeatedly across a sequence of quarters. It is mixed-methods because the standardized quantitative panel is interpreted alongside city-level qualitative evidence.

The design is deliberately not presented as a definitive causal identification strategy. Infrastructure developments may respond to pre-existing urban growth, while national monetary conditions affect all cities simultaneously. Accordingly, the study emphasizes descriptive relationships, temporal correspondence and comparative interpretation rather than claiming that a particular infrastructure project independently caused a specific housing-price movement.

This methodological position is consistent with the research evidence package, which identified the need to distinguish verified observations from interpretation and documented remaining limitations in high-frequency connectivity data.

6.2 Quantitative Sample

The quantitative sample consists of five selected Tier-II Indian cities: Jaipur, Indore, Lucknow, Coimbatore and Nagpur. The cities were selected because they are included within the broader Tier-II housing-market framework used in the study and provide meaningful variation in economic structure, infrastructure development and regional function.

The analytical roles of the cities are intentionally differentiated rather than treated as interchangeable:

- **Jaipur** provides a regional and connectivity-oriented case with a diversified economic base.
- **Indore** provides a technology, services and urban-expansion case.
- **Lucknow** provides an administrative and services-oriented case with major infrastructure development.
- **Coimbatore** provides a manufacturing, engineering, services and technology-oriented case.
- **Nagpur** provides a logistics and regional-connectivity case.

This variation is central to the research design because the study seeks to examine whether similar national conditions can produce different residential-market outcomes when the underlying urban-economic structure differs.

Siliguri is not included in the quantitative sample. It is treated separately as a qualitative gateway-city case because a directly comparable NHB RESIDEX housing-price series has not been established for inclusion in the standardized five-city panel. This distinction is maintained throughout the study. Siliguri is therefore used to examine connectivity, logistics, economic activity and residential development qualitatively without manufacturing a sixth quantitative HPI observation.

Sample structure: the quantitative sample is therefore 5 cities $\times$ 28 quarters = 140 city-quarter observations. The panel is structured so that each city has the same number of observations over the common study period.

6.3 Study Period

The core quantitative study period extends from Q2 2018 to Q1 2025. This produces 28 quarters per city and a maximum of 140 city-quarter observations across the five-city panel.

The beginning of the period is determined by the availability of a consistent NHB RESIDEX HPI@Assessment Price series in the FY2017–18 base framework. The later endpoint is deliberately set at Q1 2025 rather than extending automatically into 2026.

This is an important methodological decision. NHB introduced a revised FY2024–25 base-year series beginning with the quarter ended March 2026, together with linking methodology to connect the new series to the earlier series. Rather than introduce an additional base-series transition into the core analysis, the study freezes its principal quantitative panel within the earlier comparable framework.

This decision does not imply that later NHB observations are unimportant. Rather, it prioritizes internal consistency and comparability within the core statistical dataset.

The study period also captures several analytically relevant phases of the Indian housing market: the period preceding the COVID-19 disruption; the pandemic and immediate disruption; the post-pandemic recovery; the subsequent period of stronger residential-market activity.

However, the study does not automatically define 2020 as a statistically established structural break. The pandemic period is treated as an important contextual period, while any stronger structural interpretation is reserved for evidence that can actually support it.

6.4 Core Dataset

The principal quantitative dataset is the NHB RESIDEX Housing Price Index at Assessment Prices.

The HPI@Assessment Prices series is used as the study's primary measure of residential housing-price movements. The underlying NHB framework uses assessment-price information associated with housing valuations by primary lending institutions and provides a standardized city-level index that allows comparisons across locations and quarters.

For the present study, the core dataset consists of 140 verified city-quarter observations, Q2 2018 → Q1 2025. The raw HPI values form the foundation from which the study derives several analytical measures.

6.4.1 Year-on-Year HPI Growth

For each city:

$$YoY(i,t) = [HPI(i,t) / HPI(i,t-4) - 1] \times 100$$

where $HPI(i,t)$ represents the HPI for city (i) in quarter (t). This measure captures the change relative to the same quarter one year earlier and reduces the influence of ordinary quarter-to-quarter seasonality.

6.4.2 Quarter-on-Quarter HPI Growth

$$QoQ(i,t) = [HPI(i,t) / HPI(i,t-1) - 1] \times 100$$

This measure captures shorter-term momentum and allows the study to identify periods of acceleration, moderation or temporary reversal.

6.4.3 Cumulative Appreciation

For each city, the change between the beginning and end of the study period is calculated as:

$$Appreciation(i) = [HPI(i,T) / HPI(i,0) - 1] \times 100$$

6.4.4 CAGR

An approximate annualized growth rate is calculated using the beginning and ending HPI values:

$$CAGR(i) = (HPI(i,T) / HPI(i,0))^{(1/n)} - 1$$

where (n) represents the number of years between the initial and final observations. CAGR is used as a descriptive summary, not as evidence that prices followed a constant annual growth path.

6.4.5 Period Comparison

The study also compares housing-price performance across different portions of the study period, particularly the earlier period and the post-2022 period. This comparison is intended to identify changes in growth intensity and trajectory, rather than to label a particular period as a statistically proven structural break without further evidence.

6.4.6 Supplementary Quantitative Evidence

The NHB HPI panel is supplemented by:

- RBI policy repo rate → national monetary-financing environment.
- All-India Combined CPI inflation → national inflation environment.
- AAI passenger traffic → connectivity/economic-activity proxy where sufficiently complete.

These variables are intentionally kept conceptually separate from the NHB HPI. Airport passenger traffic, for example, is not treated as a direct migration measure, and national macroeconomic indicators are not treated as city-specific variables.

6.4.7 Qualitative Evidence Layers

Three additional evidence layers support interpretation:

- **Infrastructure-event chronology** → metro, expressway, airport and major connectivity developments.
- **Employment/GCC evidence** → technology, services, manufacturing, logistics and other economic anchors.
- **Housing-market research** → demand, launches, absorption, inventory, premiumization and affordability context.

- **Siliguri evidence** → gateway connectivity, logistics, regional economic activity and residential development.

These layers are not treated as interchangeable numerical observations. They are used to explain and contextualize the quantitative HPI patterns. ### 6.4 Core Dataset (concluding subsection)

6.4.8 Data Integrity

The study follows four core data-integrity rules:

- Missing observations are not treated as zero.
- Unavailable observations are not estimated or silently interpolated.
- Different source definitions are not merged as though they measure the same variable.
- Base-year changes in the NHB series are explicitly documented rather than ignored.

The research evidence package records these principles and confirms that incomplete AAI (Airports Authority of India) data and earlier data-access problems were documented rather than filled with unsupported values.

6.5 Calculated Variables

The study derives a set of standardized measures from the quarterly NHB RESIDEX HPI@Assessment Price observations in order to compare housing-price performance across cities and periods. These measures are constructed from the raw HPI values rather than entered as independently reported market statistics.

The calculated variables are designed to capture four dimensions of residential-price performance: short-term momentum, annual movement, cumulative appreciation and annualized long-term growth.

6.5.1 Year-on-Year HPI Growth

The principal short-term comparative measure is the year-on-year change in the HPI:

$$\text{YoY_it} = [(\text{HPI_it} / \text{HPI_i,t-4}) - 1] \times 100$$

where HPI_it = HPI for city i in quarter t , and HPI_i,t-4 = HPI for the same city four quarters earlier.

The use of a four-quarter comparison enables the study to compare each observation with the same point in the previous year and therefore reduces sensitivity to ordinary quarter-to-quarter fluctuations.

The measure is interpreted as the percentage change in the housing-price index over the preceding year. It does not represent a change in the average transaction price of a specific housing unit.

Because the core panel begins in Q2 2018, the first four observations for each city do not have a preceding same-quarter observation within the panel and therefore cannot produce a panel-derived YoY measure. These observations remain structurally missing rather than being estimated.

6.5.2 Quarter-on-Quarter HPI Growth

The study also calculates quarter-on-quarter growth:

$$\text{QoQ_it} = [(\text{HPI_it} / \text{HPI_i,t-1}) - 1] \times 100$$

This measure captures more immediate changes in housing-price momentum. QoQ growth is useful for identifying acceleration, deceleration, temporary reversals, and short-run turning points.

The first quarter for each city has no preceding observation within the core panel and is therefore left blank.

YoY and QoQ measures are used together because they answer different questions. YoY growth provides a more stable annual comparison, while QoQ growth provides information about shorter-term momentum.

6.5.3 Cumulative Appreciation

For each city, cumulative nominal HPI appreciation over the core study period is calculated as:

$$\text{Appreciation_i} = [(\text{HPI_i,T} / \text{HPI_i,0}) - 1] \times 100$$

where HPI_i,0 = first observed HPI in Q2 2018, and HPI_i,T = final observed HPI in Q1 2025.

This measure provides an intuitive summary of the total change in the index over the observed period. It should not be interpreted as a constant annual growth rate because housing prices do not necessarily change smoothly between the beginning and end dates.

6.5.4 Compound Annual Growth Rate

To facilitate comparison across cities, an approximate annualized growth rate is calculated as:

$$\text{CAGR_i} = (\text{HPI_i,T} / \text{HPI_i,0})^{(1/n)} - 1$$

where n represents the number of years between the initial and final observations. For the Q2 2018–Q1 2025 comparison, n corresponds to approximately 6.75 years.

CAGR is used only as a descriptive summary of the beginning-to-end change. It does not imply that the city experienced a constant annual rate of appreciation throughout the period.

6.5.5 Period-Based Comparison

The study also compares housing-price performance across different portions of the panel, particularly the period before 2022 and the period beginning in 2022.

This comparison is intended to identify changes in the intensity of housing-price growth, not to establish automatically that 2022 represents a formally tested structural break. Accordingly, terms such as *acceleration*, *stronger subsequent growth*, or *different growth phase* are preferred unless a formal statistical break test is subsequently conducted.

6.5.6 Treatment of Calculated Variables

All calculated measures are generated mechanically from the verified NHB HPI observations. No calculated variable may:

- introduce a value not present in the underlying HPI series;
- replace a missing observation with an estimate;
- combine incompatible base-year series without explicit treatment;
- be presented as an independently observed market statistic.

The calculation sheet and final analytical dataset therefore preserve both the raw HPI and the derived variable.

6.6 Macroeconomic Variables

The study incorporates two national macroeconomic indicators to provide context for the housing-price environment: the Reserve Bank of India's policy repo rate and the All-India Combined Consumer Price Index (CPI) inflation rate.

These variables are not intended to explain all city-level variation. Instead, they represent national conditions within which the five city housing markets operate.

6.6.1 RBI Policy Repo Rate

The policy repo rate represents the monetary-policy environment relevant to borrowing and credit conditions. For the core panel, the study uses the quarter-end policy repo rate corresponding to each quarter from Q2 2018 to Q1 2025.

Where more than one policy decision occurred during a quarter, the underlying dated decisions are retained in the source record while the quarter-end rate is used for the principal quarterly panel. This approach provides a single consistent value per quarter while preserving the underlying policy chronology for interpretation.

The repo rate is relevant to housing markets through potential effects on:

Monetary Policy → Credit Conditions → Borrowing Costs → Housing Affordability → Residential Demand

The study does not assume that changes in the repo rate translate immediately into housing-price movements. Monetary transmission can occur with a lag and can differ according to lending conditions, household characteristics and local housing-market conditions.

Important Identification Limitation

The repo rate is a national variable, not a city-specific variable. It therefore has the same value for Jaipur, Indore, Lucknow, Coimbatore and Nagpur in a given quarter. It is consequently useful for describing the national financial environment, interpreting broad changes in housing-market conditions, and comparing periods of tighter and more accommodative monetary conditions. It is not sufficient by itself to explain why two cities with the same policy rate exhibit different housing-price growth.

6.6.2 All-India Combined CPI Inflation

The second macroeconomic variable is the All-India Combined CPI inflation rate, measured as the year-on-year percentage change in the Consumer Price Index. The study uses the official inflation-rate series rather than attempting to splice raw CPI index levels across different base-year systems. Where quarterly context is required, the monthly YoY inflation observations are summarized consistently within each quarter.

COVID-Period Treatment

During Q2 2020, official CPI compilation was disrupted by the national lockdown, and the April and May observations were not compiled in the normal manner. The study does not interpolate or fabricate those missing values. The quarter is therefore explicitly flagged as a data limitation rather than being represented as an ordinary three-month CPI average. This preserves the distinction between observed official data and derived summaries based on complete observations.

6.6.3 Role of the Macro Variables

The two macroeconomic variables serve different but complementary purposes.

Variable	Primary role	Main limitation
RBI repo rate	Monetary/credit environment	National rather than city-specific
CPI inflation	General price environment	National rather than city-specific; COVID-period data gap

(Table 7 in source document)

They are therefore used primarily for contextualization and comparative interpretation. In particular, the study does not make the claim that changes in the repo rate or CPI independently caused the city-level HPI trajectories.

6.6.4 Macro Variables and Fixed-Effect Specifications

If an analytical specification includes full quarter fixed effects, national variables such as the repo rate and national CPI have no cross-city variation within a quarter and therefore cannot be separately identified from those quarter effects.

For this reason, macroeconomic indicators are treated as contextual variables rather than being mechanically inserted into every possible specification. This methodological distinction prevents the analysis from estimating coefficients that are not statistically identifiable.

6.7 Connectivity Variable

Connectivity is an important component of the conceptual framework because transport infrastructure can alter accessibility and economic interaction. The study initially considered monthly airport passenger traffic from the Airports Authority of India as a potential high-frequency city-level connectivity indicator.

However, the evidence audit identified a significant limitation: the complete historical monthly AAI series could not be consistently retrieved for the entire core period from public archives. The research package explicitly records the AAI monthly archive as incomplete and recommends against forcing an incomplete monthly series into the regression. The methodology therefore adopts a conservative treatment of airport passenger data.

6.7.1 Definition

Airport passenger traffic is treated as a connectivity and economic-activity proxy, rather than a direct measure of population inflow, residential demand, or tourism alone.

The relevant airports are:

City	Airport
Jaipur	JAI
Indore	IDR
Lucknow	LKO
Coimbatore	CJB
Nagpur	NAG

(Table 8 in source document)

Bagdogra (IXB) is considered separately for the Siliguri qualitative case.

6.7.2 Why Passenger Traffic Is Relevant

Passenger traffic can provide information about the intensity of a city's external connectivity and broader mobility. A simplified conceptual mechanism is:

Connectivity → Mobility + Business/Regional Interaction → Economic Activity → Potential Residential Attractiveness

However, passenger traffic is not sufficiently specific to identify the exact mechanism behind housing-price changes. Passengers may be business travellers, transit users, or visitors with no intention of relocating. Consequently, passenger traffic should not be labelled as a migration or housing-demand variable.

6.7.3 Treatment in the Present Study

Because complete monthly continuity is unavailable for the entire study period, airport traffic is not treated as a mandatory 140-observation quarterly regression variable.

Where sufficiently complete official observations are available, airport traffic may be used for descriptive comparison, post-COVID connectivity recovery, city-level contextual interpretation, and qualitative support for infrastructure analysis. Where annual airport totals are used, they are kept explicitly separate from the quarterly NHB HPI panel.

6.7.4 AAI Data Limitation

The limitation is methodological rather than merely technical. Using a partially observed airport series in a high-frequency panel could introduce uneven city coverage, non-comparable periods, missing-not-at-random observations, and misleading correlations driven by differences in data availability. The study therefore prefers less ambitious but more defensible use of the variable rather than manufacturing a complete quarterly series.

6.7.5 Siliguri / Bagdogra

Bagdogra passenger traffic is retained for the Siliguri case because the purpose there is qualitative comparison rather than inclusion in the five-city quantitative panel. It can therefore help illustrate Siliguri's connectivity and gateway-city role without being treated as a statistically equivalent observation to JAI, IDR, LKO, CJB and NAG.

6.8 Infrastructure Variable

Infrastructure is treated in this study as a time-indexed qualitative/explanatory variable, rather than as a single continuous numerical measure of infrastructure investment.

This choice reflects the nature of the available evidence. Major infrastructure projects differ substantially in scale, geography, purpose and implementation period. Combining metro kilometres, highway length, airport capacity and project expenditure into a single numerical indicator would require assumptions that are not consistently supported across the five cities.

The study therefore constructs an infrastructure-event chronology for major projects with plausible relevance to urban accessibility and economic development.

6.8.1 Infrastructure Events Considered

The evidence package identifies major projects across the five cities, including metro systems, expressways and highways, airport expansion, major transport corridors, and strategically important regional-connectivity projects. Examples incorporated into the research evidence include the Jaipur Metro and regional expressway connectivity, the Indore Metro and Super Corridor development, the Lucknow Metro and Purvanchal Expressway, Coimbatore's airport and road-related development, and the Nagpur Metro and Samruddhi Mahamarg. These events are used as contextual milestones rather than as interchangeable quantitative treatments.

6.8.2 Event Timing

Where evidence permits, infrastructure is documented across stages such as:

Announcement → Construction → Trial / Partial Operation → Full Operation / Completion

This distinction is important because the housing market may respond before physical completion if households, developers or other market participants anticipate future accessibility. The study therefore avoids reducing every project to an arbitrary single date unless an operational or completion date is sufficiently documented.

6.8.3 Baseline Coding Logic

For analytical purposes, an infrastructure event can be represented conceptually as:

Infra_it = 0, before the defined project milestone
Infra_it = 1, after the defined project milestone

However, the study does not automatically create a binary variable for every project in the final analysis. A project is only coded into a formal timing comparison when the relevant milestone can be reliably identified, the event is sufficiently important to the city's accessibility or economic structure, and the timing can be aligned with the quarterly HPI data. Where those conditions are not met, the project remains part of the qualitative city analysis.

6.8.4 Why Infrastructure Is Not Treated as a Standalone Causal Variable

Infrastructure is potentially endogenous to urban growth. Governments may prioritize projects in locations that are already experiencing population growth, economic expansion or development pressure.

Infrastructure completion followed by HPI growth is evidence of temporal correspondence, not proof of causation. The analysis must also consider employment growth, national monetary conditions, housing supply, broader post-pandemic recovery, and existing development trends. This is consistent with the evidence-audit decision not to convert the infrastructure chronology into an exaggerated causal claim.

6.8.5 Infrastructure as a Mechanism

Within the conceptual framework, infrastructure operates principally through:

Infrastructure → Accessibility → Economic Opportunity → Residential Attractiveness → Potential Housing Response

The strength of this mechanism is expected to vary according to the city's underlying economic and spatial structure.

6.9 Qualitative Evidence

The quantitative NHB panel is supplemented by several qualitative evidence streams. These are used to interpret differences between cities and to provide contextual information that is not captured by the HPI alone. The qualitative evidence is divided into four principal categories.

6.9.1 Employment and GCC Evidence

Employment and Global Capability Centre (GCC) evidence is used to identify major economic anchors that may contribute to residential demand. The evidence package includes city-level examples involving technology and services companies, IT/ITES expansion, industrial activity, engineering and research facilities, and logistics and industrial employment.

These observations are used to answer questions such as: What type of economic activity is expanding? Where is that activity located? What potential residential-demand mechanism could connect the activity to housing?

Employment evidence is not treated as a quarterly city-level employment series because comparable high-frequency official data are not consistently available. Where employment numbers are reported by a source, they remain source-specific observations rather than being converted into artificial quarterly values.

6.9.2 Housing-Market Context

Industry reports are used to supplement the NHB HPI with information concerning residential launches, sales and absorption, price movement, premium-market activity, affordable and mid-market segments, and corridor-level development.

These sources provide useful market context but are not treated as interchangeable with the NHB HPI. An industry report describing strong housing demand is not treated as equivalent to a percentage increase in NHB HPI, and a reported premium-housing trend is not automatically interpreted as evidence of a city-wide affordability crisis.

This separation is essential because the available industry reports differ in definitions, observation periods and market coverage.

6.9.3 Infrastructure and Urban-Development Evidence

Infrastructure evidence is used to establish the timing and nature of major urban interventions. This includes metro development, highways and expressways, airport development, transport corridors, and regional connectivity projects.

6.9.4 Siliguri Qualitative Evidence

Siliguri is handled as a separate qualitative case. The evidence focuses on Bagdogra Airport, regional transport connectivity, logistics and warehousing, residential development, and the city's role as a gateway to the Northeast and surrounding regional economies.

Because Siliguri is not included in the standardized NHB five-city panel, none of these observations is used to generate a sixth comparable HPI trajectory. The purpose is instead to examine whether the broader conceptual framework — connectivity, economic activity, infrastructure and residential development — remains informative when applied to a gateway city with different data constraints.

6.9.5 Triangulation Principle

The study uses triangulation rather than treating any single qualitative source as decisive. A qualitative interpretation is considered stronger when it is supported by an official or high-quality institutional source, its timing is consistent with the observed HPI chronology, it does not contradict other evidence, and the proposed mechanism is economically plausible. Even then, it remains an interpretation, not an independently identified causal effect.

6.10 Analytical Strategy

The study uses a structured comparative analytical sequence rather than attempting to force every variable into a single econometric model. The analysis proceeds through five stages.

6.10.1 Stage 1 — Descriptive HPI Analysis

The first stage establishes the observed housing-price patterns across the five cities. For each city, the study examines the initial HPI, cumulative appreciation, mean YoY growth, QoQ movements, minimum and maximum observed growth, and differences between earlier and later periods. The guiding question is: how did residential housing prices actually move across the five cities? No causal interpretation is attached at this stage.

6.10.2 Stage 2 — Longitudinal Comparison

The second stage examines how each city's trajectory changed over time. Particular attention is given to the comparison between Q2 2018–Q4 2021 and Q1 2022–Q1 2025. This comparison identifies whether growth intensity increased, decreased or remained relatively stable. The distinction is descriptive; the analysis does not automatically label the change as a statistically proven structural break.

6.10.3 Stage 3 — Cross-City Comparison

The third stage compares the five cities using the same HPI measures. The objective is to identify relative growth, divergence in trajectories, differences in volatility, and differences in post-2022 performance.

6.10.4 Stage 4 — Infrastructure and Economic-Context Comparison

The fourth stage places the HPI trajectories alongside infrastructure milestones, connectivity evidence, employment and GCC developments, housing-market context, RBI monetary conditions, and CPI inflation. The purpose is to determine whether the observed patterns are consistent with the mechanisms proposed in the conceptual framework. It cannot, however, claim that the infrastructure independently caused the appreciation without stronger causal identification.

6.10.5 Stage 5 — Comparative Interpretation

The final stage integrates the quantitative and qualitative evidence. The study asks: Which cities experienced the strongest residential-price appreciation? Which cities experienced the weakest? Did demand indicators and HPI move proportionally? Did infrastructure timing correspond with changes in HPI trajectories? How might economic structure explain cross-city differences? What role did national monetary and inflation conditions provide? What do the patterns imply for affordability and sustainable development? This stage forms the bridge between the Results chapter and the Comparative Discussion.

6.10.6 Why a Single Causal Model Is Not the Primary Strategy

The original research design considered a formal fixed-effects panel regression. After the evidence audit, that approach is not treated as the principal method. The main reasons are:

Limited cross-sectional dimension. The core panel contains $N = 5$ cities and $T = 28$ quarters. Although this yields 140 observations, the effective cross-sectional dimension remains very small for making strong claims about heterogeneous city-level treatment effects.

Limited city-level controls. Comparable quarterly city-level measures of household income, employment, and housing supply are not consistently available in official sources for all five cities.

Infrastructure endogeneity. Infrastructure investment may occur partly because a location is already growing, creating potential reverse causality.

Connectivity data limitation. The AAI historical monthly archive is incomplete for the full study period, so a balanced high-frequency connectivity variable cannot be treated as a guaranteed component of the five-city panel. The evidence package explicitly records this limitation.

Consequence. The study therefore prioritizes comparative longitudinal analysis, descriptive statistics, infrastructure-event chronology, and qualitative triangulation over a potentially misleading claim of causal identification. This is not a weakness in the research design; it is a methodological decision to match the analytical claims to the actual evidence available.

6.11 Why the Study Does Not Present a Strong Causal Panel Regression

The study initially considered a formal panel-data framework in which infrastructure, connectivity and macroeconomic conditions would be used to explain variation in residential housing-price growth across the five selected cities. However, following the evidence and data audit, a strong causal panel-regression design was not retained as the principal analytical strategy. This decision reflects the principle that the strength of the statistical claim should not exceed the strength of the underlying identification strategy.

6.11.1 Small Cross-Sectional Dimension

The core quantitative panel contains $N = 5$ cities and $T = 28$ quarters, for a maximum of $5 \times 28 = 140$ city-quarter observations. Although 140 observations may appear substantial as a raw count, the cross-sectional dimension remains limited to five cities. This restricts the ability of a fixed-effects framework to distinguish reliably between city-specific responses, particularly when the principal explanatory variables are themselves highly structured around individual infrastructure events.

The study therefore avoids presenting the five-city panel as though it provides the same identification strength as a much larger multi-city panel.

6.11.2 Limited High-Frequency Local Controls

A stronger causal specification would ideally control for variables such as quarterly city-level output, household income, employment, housing supply, credit availability, construction costs, and land-market conditions. Comparable official quarterly observations for these variables are not consistently available across all five cities for the full study period.

The absence of these variables creates a substantial omitted-variable concern. A coefficient attributed to infrastructure could instead partly reflect unobserved employment, income, supply or development dynamics.

6.11.3 Infrastructure Endogeneity

Infrastructure investment is not randomly assigned across cities. Governments may prioritize infrastructure in rapidly growing areas, expanding employment corridors, locations experiencing rising population, or areas where development is already occurring. Consequently:

$\text{Infrastructure}_t \leftrightarrow \text{Existing Urban Growth}_t$

may operate in both directions. This creates a reverse-causality problem. If housing prices rise around the same time that a major infrastructure project is completed, the observed relationship does not establish whether the infrastructure caused the appreciation, whether existing growth contributed to the infrastructure investment, or whether both were driven by broader economic conditions.

6.11.4 National Variables and Time Effects

The RBI policy repo rate and All-India CPI inflation are national variables. They take the same value for all five cities within a given quarter. Accordingly, a specification containing complete quarter fixed effects would absorb their common time variation, preventing separate estimation of their coefficients in that specification.

This reinforces the distinction between macroeconomic context and city-specific explanatory variation. The national variables remain important for interpretation but are not mechanically inserted into every potential econometric specification.

6.11.5 Incomplete High-Frequency Connectivity Data

AAI passenger traffic was considered as a potential city-level connectivity/economic-activity proxy. However, the historical monthly archive is not sufficiently complete across the entire core period to construct an equally reliable quarterly series for all five cities.

The evidence package explicitly records the AAI monthly series as incomplete and identifies the archive-access problem as a remaining data limitation. Rather than introduce artificial interpolations or a highly unbalanced connectivity variable, the study uses airport traffic as supporting descriptive and contextual evidence where sufficiently complete observations are available.

6.11.6 Consequence for Interpretation

The study therefore does not present the results as evidence that infrastructure caused housing prices to rise. Instead, the appropriate language is: *is associated with; corresponds with; is consistent with; may have contributed to; provides contextual evidence for*. This distinction is maintained throughout the Results and Discussion chapters.

6.11.7 Why Comparative Longitudinal Analysis Is Preferred

The resulting approach is a comparative longitudinal analysis that combines standardized NHB HPI observations, descriptive growth calculations, cross-city comparison, period-based comparison, infrastructure chronology, macroeconomic context, employment and economic-development evidence, and qualitative market evidence. This approach is better aligned with the actual evidence and research question because the study seeks to understand heterogeneity and mechanisms, not to claim a definitive causal estimate from limited observational data.

6.12 Data-Integrity Rules

The credibility of the study depends not only on the analytical framework but also on how observations are collected, transformed and reported. The research therefore follows explicit data-integrity rules throughout the dataset construction and analysis.

6.12.1 Missing Does Not Mean Zero

A missing observation is never interpreted as zero unless the source explicitly reports a zero: unavailable HPI $\neq$ zero HPI; unavailable passenger traffic $\neq$ zero passengers; unreported employment $\neq$ zero employment. Missing observations are retained as missing and documented.

6.12.2 No Silent Interpolation

The study does not interpolate missing official observations without explicit methodological justification. This is particularly relevant to COVID-period CPI data, incomplete AAI monthly archives, and unavailable historical HPI observations. Where official information was not compiled or could not be verified, the observation remains identified as unavailable rather than replaced with an estimated value.

6.12.3 Source-Specific Definitions Are Preserved

Variables obtained from different sources are not assumed to be identical simply because they have similar names: NHB HPI@Assessment Price is not treated as the same thing as a transaction-price series; airport passengers are not treated as migrants; residential demand is not treated as HPI growth; premium-market activity is not treated as a city-wide affordability measure. The original definition supplied by the source is preserved in the data dictionary and methodology.

6.12.4 Derived Variables Must Be Traceable

Every calculated variable must be reproducible from its underlying observations:

$$\text{YoY} = [(\text{HPI}_t / \text{HPI}_{t-4}) - 1] \times 100 \quad \text{QoQ} = [(\text{HPI}_t / \text{HPI}_{t-1}) - 1] \times 100$$

The raw HPI observations are retained alongside the derived measures so that calculations can be independently checked. The same principle applies to cumulative appreciation, quarterly CPI summaries, and any other transformation introduced later in the analysis.

6.12.5 Base-Year Transitions Must Be Documented

The NHB series changed its base framework in 2026. The core quantitative panel therefore avoids unnecessarily mixing the revised FY2024–25 series into the principal 140-observation analysis. Any extension using the later series must explicitly apply NHB's own linking methodology and be identified separately from the core panel.

6.12.6 Official Sources Are Preferred

The source hierarchy is: government or official agency; official project authority; reputable institutional research; reputable secondary reporting where necessary. Secondary sources are used primarily for contextual information or where an appropriate primary source is unavailable.

6.12.7 Conflicting Sources Are Not Silently Resolved

If credible sources provide different values for the same observation, the discrepancy must be recorded. Possible causes include revised data, preliminary versus final figures, different definitions, different geographic boundaries, and different publication dates. The chosen observation must be justified rather than selected silently.

6.12.8 Quantitative and Qualitative Evidence Are Kept Separate

The study distinguishes between three categories:

- **Quantitative observation** — a numerical value directly supported by the dataset.
- **Qualitative evidence** — a documented event, market characteristic or institutional observation.
- **Interpretation** — the study's analytical explanation of how the evidence may relate to the research question.

These categories must not be blurred.

6.12.9 Causal Claims Require Appropriate Evidence

The presence of a temporal relationship is insufficient to establish causality. Therefore, the study will not state that “infrastructure caused housing prices to increase” unless an identification strategy capable of supporting that claim is actually implemented. Instead, the study uses appropriately cautious language such as “housing-price appreciation coincided with infrastructure completion” or “the observed pattern is consistent with an infrastructure-accessibility mechanism.”

6.12.10 Siliguri Must Remain Methodologically Separate

Siliguri is a qualitative gateway-city case. Its observations must not be inserted into the five-city NHB quantitative panel simply to increase the sample size.

6.12.11 Reproducibility

The final research package preserves raw source files where available, cleaned datasets, a source register, a data dictionary, a missing-data register, derived-variable formulas, analytical tables, and final figures. This permits the final results to be traced backward from:

Conclusion → Interpretation → Result → Derived Variable → Raw Observation → Source

6.12.12 Final Evidence Rule

The governing principle of the study is: never report a number, relationship or conclusion more confidently than the underlying evidence permits. This principle applies across the entire manuscript, including the introduction, results, discussion, developer implications and conclusion.

VII. Data Sources and Variable Dictionary

7.1 NHB RESIDEX

The principal source of quantitative housing-price information in this study is the National Housing Bank's RESIDEX Housing Price Index (HPI) at Assessment Prices.

NHB RESIDEX provides a standardized housing-price index for urban markets and reports the index on a quarterly basis. The present study uses the HPI@Assessment Prices series because it provides a consistent city-level measure that can be applied across the five quantitative cities.

The HPI@Assessment Prices measure is based on housing valuation information associated with primary lending institutions. It should therefore be interpreted as an index of assessed residential property values rather than as a direct measure of the transaction price of a specific dwelling.

7.1.1 Cities Covered

The NHB dataset covers the five quantitative cities (Jaipur, Indore, Lucknow, Coimbatore and Nagpur). Siliguri is excluded from this quantitative dataset because a directly comparable NHB HPI series suitable for the five-city panel was not established.

7.1.2 Frequency and Observation Window

The core dataset is quarterly. The final quantitative window is Q2 2018–Q1 2025, giving $5 \times 28 = 140$ city-quarter observations.

The study deliberately uses this common window to maintain comparability within the principal NHB series and to avoid unnecessary mixing of the revised FY2024–25 base series introduced from March 2026 into the core analysis.

7.1.3 Base-Year Treatment

The principal HPI observations in the core panel are expressed on the FY2017–18 = 100 framework.

NHB subsequently introduced a revised FY2024–25 base series beginning with the quarter ended March 2026 and provides linking factors for continuity between the series. The study therefore documents the transition but does not mix the later base series into the core 140-observation panel merely to extend the sample. This decision prioritizes internal comparability over maximum time coverage.

7.1.4 Raw and Derived Information

The raw NHB HPI values are retained as the primary observations. From those values, the study derives YoY HPI growth, QoQ HPI growth, cumulative appreciation, and period-based growth comparisons. The calculated measures are not treated as separate observed datasets.

7.1.5 Source Documentation

The core HPI panel draws on four official NHB publications that together span the study window of Q2 2018 to Q1 2025: the RESIDEX Quarterly Booklet for April–June 2022 (National Housing Bank, 2022), the Report on Trend & Progress of Housing in India 2023 (National Housing Bank, 2024a), the Report on Trend & Progress of Housing in India 2024 (National Housing Bank, 2025), and the Annual Report 2024–25, which contains Annexure III with city-wise HPI@Assessment Prices through March 2025 (National Housing Bank, 2026a).

A data-integrity issue shaped the final panel design: for the earliest quarters (Q2 2018 to Q2 2022), city-level HPI observations are accessible directly through the April–June 2022 quarterly booklet (National Housing Bank, 2022) and are not reproduced in the later annual reports. Rather than reconstructing unavailable historical observations

from secondary summaries, each observation was verified directly against its source document, and the panel was frozen at 140 confirmed observations.

The study therefore distinguishes between the directly verified 140-observation core panel and any provisional or extrapolated extensions. Where NHB introduced a revised FY2024–25 base series from March 2026, the published linking factors document series continuity (National Housing Bank, n.d.); no observations from the revised series are carried into the core panel.

7.2 RBI Policy Repo Rate

The second principal data source is the Reserve Bank of India (RBI). The study uses the RBI's policy repo rate as an indicator of the national monetary and credit environment affecting residential property markets.

7.2.1 Frequency

The underlying RBI policy decisions occur at specific dates. For the analytical panel, the study converts these observations into a quarter-end repo-rate series for Q2 2018 to Q1 2025. Where a quarter contains multiple monetary-policy decisions, the underlying dates and changes are retained in the source record, while the final policy rate prevailing at the end of the quarter is used as the quarterly observation.

7.2.2 Relevance to Housing Markets

The repo rate is relevant because monetary-policy conditions can influence lending rates, mortgage affordability, household borrowing, developer financing, and broader credit conditions. The conceptual transmission is:

Repo Rate → Credit Conditions → Borrowing Costs → Housing Affordability → Residential Demand

The study does not assume an instantaneous relationship between the policy rate and housing prices. Monetary transmission can take time, and the actual effect on housing markets can be influenced by lending-market conditions and household characteristics.

7.2.3 Role in the Study

The repo-rate series is primarily a macro-context variable. It helps explain the national environment within which the five city markets operated, especially during periods of monetary easing, accommodative conditions, subsequent tightening, and changes in borrowing costs. However, because the RBI policy rate is common to all five cities in a given quarter, it does not by itself explain cross-city differences.

7.2.4 Source and Verification

The final source register identifies RBI monetary-policy statements and the RBI Database on Indian Economy as the principal sources for the historical policy-rate observations. The study retains the exact dates of policy changes for verification rather than storing only the derived quarterly rate.

7.2.5 Methodological Limitation

The repo rate is national rather than city-specific, a policy indicator rather than an actual mortgage rate, and potentially separated from housing-market outcomes by a transmission lag. Consequently, it is interpreted as a financial-environment indicator, not as a direct measure of the borrowing rate faced by every household or developer.

7.3 MoSPI Consumer Price Index

The third macroeconomic source is the Ministry of Statistics and Programme Implementation (MoSPI) Consumer Price Index. The study uses the All-India Combined CPI year-on-year inflation rate as an indicator of the broader price environment.

7.3.1 Why CPI Is Included

Inflation is relevant to housing markets through several channels. It can affect household purchasing power, construction input costs, real returns, nominal asset values, and broader monetary-policy conditions. The conceptual relationship is therefore:

CPI Inflation → Purchasing Power + Construction Costs → Housing Market Conditions

CPI is not treated as a direct city-level housing-price measure. It provides national macroeconomic context alongside the NHB HPI.

7.3.2 Frequency

MoSPI publishes CPI observations monthly. For the present study, monthly YoY inflation observations are retained as the underlying data, while quarterly summaries can be calculated where required for comparison with the quarterly NHB panel. The preferred quarterly summary is the arithmetic mean of available monthly YoY observations, provided that the required monthly observations exist and are officially reported.

7.3.3 COVID-Period Treatment

The COVID-19 period creates an explicit data limitation. During April and May 2020, official CPI compilation was disrupted and the normal observations were not available in the same form. The study therefore does not construct artificial April or May values. For Q2 2020, the dataset records the availability problem explicitly rather than presenting the June observation as a normal three-month quarterly average. This is important because the evidence package identifies April–May 2020 as officially uncompiled rather than merely missing from a secondary dataset.

7.3.4 Base-Year Treatment

The study uses the official YoY inflation rate rather than constructing a long-run regression from raw CPI index levels. The inflation rate itself remains the preferred macroeconomic measure because it is already expressed as a comparable rate of change.

7.3.5 Role in the Study

CPI is used to describe the national inflation environment, contextualize changes in monetary policy, and interpret the real economic environment surrounding housing-price movements. It is not used to claim that inflation independently caused the observed city-level HPI differences.

7.4 Airports Authority of India Passenger Traffic

The study initially considered airport passenger traffic as a high-frequency indicator of urban connectivity and economic activity. The relevant airports for the five quantitative cities are Jaipur (JAI), Indore (IDR), Lucknow (LKO), Coimbatore (CJB) and Nagpur (NAG). Bagdogra (IXB) is considered separately for the Siliguri qualitative case.

Airport passenger traffic is potentially relevant because changes in air connectivity can reflect changes in business mobility, tourism, regional accessibility and broader economic interaction. However, passenger traffic does not directly measure migration or residential demand. The same passenger can be a tourist, business traveller, resident, student or visitor without any intention of relocating.

Accordingly, the study defines AAI traffic as a connectivity and economic-activity proxy rather than a direct housing-demand variable.

7.4.1 Data Structure

AAI publishes airport traffic information through monthly and annual passenger statistics. The underlying information distinguishes between domestic and international passenger movements. Where sufficiently complete observations are available, total passenger traffic is represented as:

Total Passengers = Domestic Passengers + International Passengers

The study does not substitute passenger traffic for the NHB HPI. Instead, it uses the traffic evidence to provide additional context for differences in connectivity between cities.

7.4.2 Data Availability Limitation

The evidence audit identified an important limitation in the historical AAI archive. Continuous monthly observations could not be reliably reconstructed for the full Q2 2018–Q1 2025 period across all five airports. Some historical archive links were inaccessible or incomplete, and the research package explicitly records this as an unresolved data-availability problem.

This limitation has two consequences. First, airport passenger traffic is not treated as a mandatory balanced quarterly variable in the 140-observation NHB panel. Second, the available annual and selected monthly observations are used primarily for connectivity context, post-pandemic traffic recovery, comparison of city-level airport scale, and qualitative interpretation of infrastructure and economic activity.

7.4.3 Annual Traffic Evidence

The research package assembled annual passenger totals for FY2018–19 through FY2024–25 for the five principal airports. These observations are retained as supporting evidence rather than merged mechanically into the quarterly HPI dataset. Their primary role is to establish differences in connectivity scale and recovery patterns across the selected cities.

7.4.4 Relationship to Housing Markets

The conceptual mechanism considered is:

Connectivity → Mobility + Economic Interaction → Economic Activity → Potential Residential Attractiveness

However, the study does not claim that higher airport traffic directly produces higher residential prices. Passenger traffic is therefore interpreted alongside infrastructure investment, employment growth, economic diversification, and HPI movements.

7.5 Infrastructure Sources

Infrastructure evidence is collected to establish the timing, type and strategic relevance of major developments that may influence urban accessibility and residential-market conditions. The principal infrastructure sources are official government departments, project authorities and government-linked development agencies, supplemented where necessary by high-quality institutional or secondary sources.

7.5.1 Principal Infrastructure Categories

The study focuses on infrastructure with a plausible connection to urban accessibility and economic development, including metro systems, expressways, ring roads, airport expansion, major transport corridors, regional connectivity infrastructure, and strategically important industrial or logistics infrastructure.

The study deliberately avoids constructing a comprehensive inventory of every public project undertaken in each city. Only projects with sufficient analytical relevance and defensible timing are included.

7.5.2 City-Level Sources

The evidence package includes official or project-authority evidence relating to major projects such as: the Jaipur Metro and Delhi–Mumbai Expressway/regional connectivity; the Indore Metro and Super Corridor development;

the Lucknow Metro, Purvanchal Expressway and related connectivity; Coimbatore's airport expansion and major road/transport development; and the Nagpur Metro, Samruddhi Mahamarg and associated regional connectivity. The source register preserves project milestones and the relevant institutional source for each event. The initial evidence package also records these infrastructure timelines explicitly, including the Jaipur Metro and Ring Road, Indore Metro, Lucknow Metro and expressway connectivity, Coimbatore road/airport projects, and Nagpur Metro and Samruddhi Mahamarg.

7.5.3 Event Dates

Where possible, the study records announcement date, construction start, trial or partial operation, and full operation/completion. These dates are not treated as interchangeable. The final analytical interpretation generally gives greater importance to operational or clearly defined completion milestones, while earlier dates are retained to consider possible anticipation effects.

7.5.4 Source Hierarchy

The infrastructure evidence follows this hierarchy: official central-government source; official state-government source; official project authority; government-linked development authority; reputable institutional source; reputable secondary reporting where primary documentation is unavailable. This hierarchy is intended to minimize reliance on promotional real-estate material when determining project dates.

7.5.5 Infrastructure Evidence and Causality

Infrastructure evidence is used to establish timing and context, not to create automatic causal claims. The study therefore distinguishes between the documented project milestone, the observed HPI response, and the interpretation of the relationship between the two. This separation is essential because infrastructure projects may be directed toward areas already experiencing economic growth.

7.6 Employment and GCC Sources

Employment and economic-development evidence provides the principal qualitative mechanism linking urban economic activity to residential demand. The study uses evidence on GCC expansion, IT and IT-enabled services, technology campuses, manufacturing and engineering activity, logistics and industrial development, major corporate investments, and employment-generating institutional anchors.

The objective is not to create an artificial quarterly employment series. Instead, the evidence is used to identify structural economic changes and major employment anchors that may help explain differences between cities.

7.6.1 Source Types

Sources include state government departments, industrial-development authorities, official company releases, development authorities, institutional research reports, and credible real-estate market research. Where a company or project reports employment or investment figures, the observation is preserved with the source and date. Where only the existence or expansion of an economic activity is documented, the study does not invent an employment number.

7.6.2 City-Level Evidence

The research package identifies examples including technology and corporate expansion in Jaipur; TCS/Infosys and Super Corridor-related development in Indore; HCL IT City and other economic-development anchors in Lucknow; Bosch and technology-related expansion in Coimbatore; and TCS, MIHAN and other technology/industrial activity in Nagpur. These observations are treated as economic-context evidence, not as quarterly panel variables.

The evidence package records several of these city-level employment/GCC anchors, including Coimbatore's Bosch expansion, Indore's TCS/Infosys activity, Nagpur's MIHAN-related technology expansion, and Lucknow's HCL IT City development.

7.6.3 Analytical Role

Employment and GCC evidence is used to investigate whether a city's residential-market performance is consistent with a broader economic-development mechanism. The conceptual pathway is:

Economic Activity → Employment → Purchasing Capacity → Residential Demand

The study does not claim that the presence of a major employer automatically causes local housing appreciation. Instead, employment evidence is assessed alongside HPI trajectory, infrastructure, connectivity, and housing-market conditions.

7.6.4 Important Limitation

A major limitation is the absence of consistently defined quarterly city-level employment data covering all five cities across the entire study period. Employment evidence is therefore predominantly structural and event-based rather than high-frequency. This means it is suitable for contextual interpretation, city comparison, and identifying economic anchors — but not for claiming a precise quarterly employment-price coefficient.

7.6.5 Distinguishing Economic Activity from Residential Demand

The study also maintains a strict conceptual distinction between economic activity, residential demand, and housing-price appreciation. A city's expansion of IT, manufacturing or logistics activity is evidence of changing

economic conditions. It does not by itself establish the size of the resulting housing demand or the magnitude of any price effect.

7.7 Housing-Market Sources

The NHB HPI provides the principal standardized measure of residential price movement in the study. However, the HPI alone does not capture several dimensions of residential-market activity, including launches, sales, absorption, inventory, price-segment composition and buyer preferences. The study therefore uses selected industry research reports as a supplementary housing-market evidence layer.

The principal secondary sources considered include established real-estate research institutions and market platforms such as Knight Frank India, MagicBricks, and other high-quality institutional or market research where relevant.

These sources are not used to replace the NHB HPI. Instead, they provide contextual evidence that helps interpret whether observed HPI movements occur alongside stronger residential demand, higher sales or absorption, changes in project launches, inventory movement, premium-segment expansion, and changing buyer preferences.

7.7.1 Why Secondary Housing Data Are Treated Separately

The available industry reports differ in definitions, geographic coverage, time periods, price thresholds, sample composition, and reporting methodology. A launch in one report is therefore not necessarily directly comparable with a sale or absorption observation in another. Accordingly, the study does not combine these indicators into an artificial city-level housing-demand index. Instead, each observation is retained with the period, the reported metric, the source definition, and the original source.

7.7.2 Housing Segmentation

The study also considers evidence on premium housing, mid-market housing, affordable housing, and higher-ticket residential products. This is particularly relevant to the affordability discussion because aggregate price growth can conceal differences between housing segments.

However, the study explicitly avoids treating metropolitan-wide premiumization statistics as though they were Tier-II-specific observations. Likewise, a reported increase in premium housing is not automatically interpreted as evidence of speculative demand.

7.7.3 Analytical Role

Housing-market reports therefore serve three purposes: **Context** — they help explain the conditions surrounding the HPI trajectory; **Triangulation** — they allow the study to check whether observed price movements coexist with other indicators of market activity; and **Interpretation** — they provide information on the type of housing being developed and the areas in which market activity is concentrated. They do not replace the NHB HPI as the study's principal quantitative price measure.

7.8 Population and Urbanization Sources

Population and urbanization evidence provides broader demographic and spatial context for the five-city comparison. The study prioritizes official sources, including the Census of India, the Ministry of Statistics and Programme Implementation, the Ministry of Housing and Urban Affairs, state-government statistical publications, municipal and urban-development authorities, and other official planning documents where appropriate.

Population information is used primarily to establish the scale of the urban market, historical demographic growth, the broader urbanization context, and differences in city size and regional role. It is not used to manufacture a high-frequency population series where such a series is not officially available.

7.8.2 Census and Projection Distinction

The study distinguishes between observed census population and projected or estimated population. A Census observation represents an official count at a specific census date. A later projection is a model-based estimate and must not be presented as though it were a directly observed census value.

This distinction is particularly important because the evidence package includes city-level historical population figures alongside more recent estimates. Such estimates are treated as contextual evidence, not as directly observed annual population counts. The research package itself records population figures in a separate contextual section rather than as part of the 140-observation HPI panel.

7.8.3 Role in the Study

Population and urbanization evidence is used to answer contextual questions such as: How large is the urban market? Is the city undergoing broader demographic expansion? How does the city's demographic scale compare with the other selected cities? The evidence is not used to claim that population growth mechanically determines housing-price appreciation. Population growth must instead be interpreted alongside employment, infrastructure, housing supply, household income, and affordability.

7.8.4 Data Limitation

Consistent annual population observations are not available for all five cities in a format comparable with the quarterly HPI panel. Population therefore remains a background/context variable, rather than a high-frequency explanatory variable in the core analysis.

7.9 Siliguri Sources

Siliguri is supported by a separate qualitative source set because it is not part of the five-city quantitative HPI panel. The source framework focuses on the city's role as a regional gateway and commercial node.

7.9.1 Connectivity Sources

The principal evidence concerns Bagdogra Airport, regional highways, rail connectivity, regional transport corridors, and broader gateway connectivity. Airport evidence is drawn from AAI traffic statistics where available. The research package reports, for example, that Bagdogra handled substantial passenger volumes and identifies connectivity as a central characteristic of the Siliguri urban system.

7.9.2 Economic Sources

The study examines regional services, warehousing, and the city's role in connecting northern West Bengal, the Northeast and surrounding regional markets. This differs from the economic-development lens used for some of the quantitative cities, where technology and formal corporate employment are more prominent.

7.9.3 Residential-Market Sources

Residential evidence is used to understand major development corridors, spatial expansion, commercial-residential linkages, regional buyer demand, and the relationship between connectivity and development. These observations remain qualitative.

7.9.4 Why Siliguri Is Not Added to the Quantitative Panel

The study does not have a directly comparable NHB HPI series for Siliguri that would justify treating it as a sixth observation alongside Jaipur, Indore, Lucknow, Coimbatore and Nagpur. Adding an incomparable housing-price measure would weaken rather than strengthen the study.

Siliguri is therefore used as a qualitative external comparison case rather than a sixth statistical unit. This preserves the analytical value of the case without compromising the standardized five-city panel.

7.10 Data Limitations

No empirical study can eliminate all data limitations. The objective is therefore to identify them explicitly and ensure that the analytical claims remain appropriate to the evidence.

7.10.1 Limited Number of Quantitative Cities

The principal panel contains only five cities. The results should therefore be interpreted as comparative evidence from selected Tier-II markets, not as a definitive estimate for the entire Tier-II housing sector.

7.10.2 NHB Series and Base-Year Transition

NHB introduced a revised FY2024–25 base series beginning in March 2026. To maintain internal consistency, the principal analysis is restricted to the Q2 2018–Q1 2025 core period rather than mechanically combining different base-year systems. Any later extension would require explicit use of NHB's linking methodology.

7.10.3 AAI Historical Data Gap

The complete monthly AAI airport series was not consistently retrievable across the full study period. The research package explicitly records this limitation and identifies manual archive extraction as necessary for a complete historical monthly series. Accordingly, AAI traffic is used primarily as supporting connectivity evidence rather than as a mandatory balanced quarterly explanatory variable.

7.10.4 COVID-Period CPI Limitation

April and May 2020 CPI observations were not compiled normally because of pandemic-related data-collection disruption. The study does not interpolate these observations. This creates a specific limitation in the quarterly macroeconomic context for Q2 2020.

7.10.5 Limited City-Level Economic Data

Comparable quarterly city-level data for household income and employment are not consistently available across all five cities. Consequently, economic-development evidence is partly qualitative and event-based.

7.10.6 Infrastructure Endogeneity

Infrastructure may be directed toward cities or corridors that are already experiencing economic and residential expansion. The temporal association between infrastructure completion and housing-price appreciation therefore cannot automatically be interpreted as causal.

7.10.7 Demand and Price Measurement

Residential demand and housing-price appreciation are measured through different evidence systems. The study deliberately does not combine demand growth and HPI growth into one synthetic measure. This improves conceptual clarity but means that a single numerical indicator cannot capture every dimension of housing-market performance.

7.10.8 Siliguri Comparability

Siliguri provides important qualitative evidence but cannot be directly compared numerically with the five-city NHB panel. Its findings should therefore be interpreted as comparative contextual evidence, not as an additional quantitative result.

7.10.9 Generalizability

The selected cities represent diverse Tier-II urban structures, but they do not capture every type of emerging Indian city. The findings may therefore be most useful for understanding patterns and mechanisms, rather than generating a universal coefficient applicable to all Tier-II markets.

7.10.10 Implication of the Limitations

These limitations do not invalidate the study. Instead, they determine the appropriate level of inference.

The study can credibly establish: differences in observed residential-price trajectories; temporal correspondence with major infrastructure developments; differences in economic context; relationships between national macroeconomic conditions and the broader housing environment; and qualitative patterns consistent with the proposed conceptual framework.

It cannot, from this design alone, establish a universal causal elasticity between infrastructure investment and housing prices.

Table 1 — Variable and Source Dictionary

The manuscript presents a summary dictionary of all variables used in the study, their frequency, principal source, analytical role and transformation/treatment.

Variable / Definition	Frequency	Principal Source	Analytical Role	Transformation / Treatment
HPI@Assessment Prices — NHB residential HPI based on assessment-price information	Quarterly	NHB RESIDEX	Primary housing-price measure	Raw HPI retained
HPI YoY Growth — Percentage change from same quarter previous year	Quarterly derived	NHB HPI	Housing-price momentum	$((\text{HPI}_t / \text{HPI}_{t-4} - 1) \times 100)$
HPI QoQ Growth — Percentage change from preceding quarter	Quarterly derived	NHB HPI	Short-term momentum	$((\text{HPI}_t / \text{HPI}_{t-1} - 1) \times 100)$
Cumulative Appreciation — Total HPI change from Q2 2018 to Q1 2025	Study-period derived	NHB HPI	Long-run comparison	Beginning-to-end calculation
CAGR — Annualized beginning-to-end HPI growth	Study-period derived	NHB HPI	City comparison	Approx. 6.75-year annualization
Repo Rate — RBI policy repo rate prevailing at quarter-end	Quarterly	RBI	National financial context	Dated policy observations → quarter-end
CPI Inflation — All-India Combined CPI YoY inflation	Monthly / quarterly summary	MoSPI	National inflation context	Monthly series retained; quarterly summary where valid
Airport Passenger Traffic — Domestic + international airport passenger movements	Monthly / annual where available	AAI	Connectivity/economic-activity proxy	No interpolation; incomplete high-frequency series treated as contextual

Infrastructure — Major transport/connectivity/urban infrastructure milestone	Event — Event-based	Government / project authorities	Urban-development context	Announcement/construction recorded separately
Employment Evidence — / GCC Documented corporate, industrial, technology or services expansion	Event-based	Government / company / institutional sources	Economic-development context	Source-specific values retained; no fabricated quarterly series
Housing-Market Evidence — Sales, launches, absorption, inventory and price-segment data	Report-specific	Knight Frank / JLL / CBRE / ANAROCK / MagicBricks	Market context	Source definitions preserved

VIII. Results — Descriptive Analysis of HPI Trajectories

8.1 HPI Trajectory

The quantitative analysis begins with the evolution of the NHB RESIDEX HPI at Assessment Prices across the five selected Tier-II cities over the core study period of Q2 2018 to Q1 2025. The panel contains 140 city-quarter observations, comprising 28 quarterly observations for each of Jaipur, Indore, Lucknow, Coimbatore and Nagpur. **Figure 2.** Five-City NHB HPI Trajectories, Q2 2018–Q1 2025 (*figure referenced in source; not reproducible from extracted text*).

The trajectories show that all five cities experienced an overall increase in their NHB HPI between the beginning and end of the study period, but the magnitude and timing of appreciation differed substantially.

Coimbatore recorded the strongest increase in the panel, with its HPI rising from 101 in Q2 2018 to 159 in Q1 2025. Lucknow followed, increasing from 101 to 151, while Indore rose from 103 to 148. Jaipur increased from 100 to 142, and Nagpur recorded the smallest increase, from 101 to 120.

The trajectories therefore do not support the interpretation of a uniform Tier-II housing-price cycle. Instead, the five cities display visibly different cumulative growth paths.

The broad ranking at the end of the observation window was:

- Coimbatore — 159
- Lucknow — 151
- Indore — 148
- Jaipur — 142
- Nagpur — 120

These figures describe the observed index positions and should not, by themselves, be interpreted as evidence of the causes of the differences. The explanatory mechanisms are examined separately in the city-level and comparative discussion chapters.

8.2 Total Appreciation

To facilitate direct comparison between cities, cumulative HPI appreciation is calculated between Q2 2018 and Q1 2025:

$$\text{Appreciation}_i = [(\text{HPI}_i, \text{Q1}, 2025 / \text{HPI}_i, \text{Q2}, 2018) - 1] \times 100$$

The results are summarized in Table 2.

Table 2 — City-Level HPI Results, Q2 2018–Q1 2025

City	Q2 2018 HPI	Q1 2025 HPI	Total Appreciation	CAGR
Coimbatore	101	159	57.43%	6.95%
Lucknow	101	151	49.50%	6.14%
Indore	103	148	43.69%	5.52%

Jaipur	100	142	42.00%	5.33%
Nagpur	101	120	18.81%	2.59%

Coimbatore recorded the highest cumulative appreciation, with the HPI increasing by 57.43% between the beginning and end of the study period. Lucknow recorded the second-highest increase at 49.50%, followed by Indore at 43.69% and Jaipur at 42.00%. Nagpur recorded substantially lower cumulative appreciation at 18.81%, placing it well below the other four cities over the full observation window.

The difference between the strongest and weakest cumulative outcomes is considerable: Coimbatore's cumulative appreciation was more than three times Nagpur's over the same period.

However, cumulative appreciation should not be interpreted as evidence of a constant growth path. It is a beginning-to-end measure and can conceal substantial quarterly variation within the period.

The corresponding CAGR values reinforce the same broad ranking. Coimbatore recorded an approximate annualized growth rate of 6.95%, followed by Lucknow at 6.14%, Indore at 5.52%, Jaipur at 5.33%, and Nagpur at 2.59%.

Residential-price appreciation was highly heterogeneous across the five selected Tier-II cities during the study period. The differences in cumulative growth are therefore central to the subsequent city-level analysis.

8.3 Mean Year-on-Year Growth

While cumulative appreciation captures the overall beginning-to-end change, the mean year-on-year growth rate provides a measure of the typical annual pace of HPI movement across the available YoY observations. For each city, year-on-year growth is calculated as:

$$\text{YoY}_{it} = [(\text{HPI}_{it} / \text{HPI}_{i,t-4}) - 1] \times 100$$

The calculated mean YoY growth rates are:

City	Mean YoY HPI Growth
Coimbatore	6.15%
Lucknow	5.80%
Jaipur	5.29%
Indore	4.99%
Nagpur	2.50%

Coimbatore again records the highest average annual HPI growth, at approximately 6.15%, followed by Lucknow at 5.80%. Jaipur and Indore occupy a middle position, with mean YoY growth of approximately 5.29% and 4.99%, respectively. Nagpur records a substantially lower mean annual growth rate of approximately 2.50%.

The mean YoY results broadly correspond with the cumulative appreciation ranking, although the two measures are not identical. Cumulative appreciation measures the total beginning-to-end change, whereas mean YoY growth reflects the average annual movement across the available year-on-year observations.

The comparison therefore provides a second indication that the five cities did not experience a uniform rate of residential-price growth.

Importantly, these averages do not establish the causes of the observed differences. They simply establish the magnitude and relative ranking of housing-price movement. Explanations involving infrastructure, employment, connectivity, supply and broader macroeconomic conditions are examined in the subsequent chapters.

8.4 Quarter-on-Quarter Variation

The year-on-year results establish differences in medium-term housing-price growth, but they can conceal shorter-term changes in momentum. The quarter-on-quarter HPI measure therefore provides an additional view of how rapidly residential prices changed from one quarter to the next.

Quarter-on-quarter growth is calculated as:

$$QoQ_it = [(HPI_it / HPI_i,t-1) - 1] \times 100$$

Across the five cities, the quarterly trajectories show that housing-price growth was not smooth. Periods of positive appreciation were interrupted by episodes of stagnation or short-term decline.

This is particularly important for understanding the difference between long-run appreciation and short-run market momentum. A city can record substantial cumulative appreciation over seven years while still experiencing individual quarters of weak or negative movement.

The HPI trajectories indicate three broad patterns, described below by city.

Coimbatore. Coimbatore exhibits comparatively strong medium- and long-term appreciation, but its quarterly path contains periods of moderation and decline. Its later-period acceleration is therefore better understood as a change in the intensity of appreciation rather than as an uninterrupted upward movement.

Lucknow. Lucknow similarly records strong cumulative appreciation while displaying periods in which quarter-on-quarter momentum weakens. Its overall increase is therefore the product of repeated positive movements over time rather than a constant rate of appreciation.

Indore. Indore exhibits relatively steady long-run appreciation, with smaller short-term reversals than would be implied by simply comparing its starting and ending index values.

Jaipur. Jaipur's trajectory is notable for relatively modest earlier movement followed by stronger appreciation later in the study period. The QoQ series helps make this change visible even when the cumulative index alone cannot distinguish the timing.

Nagpur. Nagpur records the lowest cumulative appreciation in the panel and also displays periods of short-term weakness. Its lower long-run growth therefore cannot be explained simply by one isolated quarter; it reflects a comparatively weaker cumulative trajectory over the observation window.

The quarter-on-quarter analysis consequently reinforces a central finding of the study: the five Tier-II cities did not experience identical housing-price momentum, either in magnitude or timing. This finding is descriptive. The factors associated with these differences are considered only after the quantitative results have been established.

8.5 Pre-2022 versus Post-2022 Growth

To examine whether the intensity of housing-price growth changed over the course of the study, the 28-quarter panel is divided into two descriptive periods:

- **Earlier period:** Q2 2018–Q4 2021
- **Later period:** Q1 2022–Q1 2025

This division is used to compare the broad growth trajectory before and after 2022. It should not be interpreted as a formally identified structural break unless a separate statistical break test is conducted.

Table 13. Pre-2022 and Post-2022 HPI Appreciation

City	Q2 2018 HPI	Q4 2021 HPI	Pre-2022 Appreciation	Q1 2025 HPI	Post-2022 Appreciation
Coimbatore	101	118	16.83%	159	34.75%
Indore	103	121	17.48%	148	22.31%
Lucknow	101	115	13.86%	151	31.30%
Jaipur	100	108	8.00%	142	31.48%
Nagpur	101	112	10.89%	120	7.14%

The comparison reveals a substantial change in the growth pattern across the five cities.

Coimbatore. Coimbatore's HPI increased by 16.83% during the earlier period and by 34.75% during the later period. The later-period appreciation was therefore considerably stronger.

Lucknow. Lucknow increased by 13.86% during the earlier period and 31.30% during the later period, indicating a marked strengthening of appreciation.

Jaipur. Jaipur shows one of the clearest changes in the panel. Appreciation increased from 8.00% during the earlier period to 31.48% during the later period.

Indore. Indore also records stronger later-period appreciation, although the change is smaller than those observed in Coimbatore, Lucknow and Jaipur.

Nagpur. Nagpur differs substantially from the other four cities. Its HPI increased by 10.89% during the earlier period but only 7.14% during the later period.

The comparison therefore indicates that the post-2022 period was characterized by stronger appreciation in four of the five cities, while Nagpur did not experience the same degree of acceleration.

Figure 3. Pre-2022 versus Post-2022 Housing-Price Growth. Figure 3 presents a grouped bar chart comparing pre-2022 and post-2022 housing-price appreciation for each city, with cities on the horizontal axis, appreciation percentage on the vertical axis, and separate bars for the earlier and later periods. The figure remains descriptive; the explanation for these divergent trajectories is reserved for the city-level and comparative discussion chapters that follow.

8.6 City Ranking

The cumulative HPI results provide a clear ranking of the five selected cities over the core study period.

Ranking by Total Appreciation. The ranking is broadly consistent with the CAGR results.

Table 14. City Ranking by Total Appreciation

Rank	City	Total Appreciation
1	Coimbatore	57.43%
2	Lucknow	49.50%
3	Indore	43.69%
4	Jaipur	42.00%
5	Nagpur	18.81%

The consistency between cumulative appreciation and CAGR strengthens the descriptive finding that the five cities followed substantially different long-run housing-price trajectories.

Table 15. City Ranking by CAGR

Rank	City	CAGR
1	Coimbatore	6.95%
2	Lucknow	6.14%
3	Indore	5.52%
4	Jaipur	5.33%
5	Nagpur	2.59%

The ranking also makes clear that the differences are not marginal. Coimbatore's cumulative appreciation was more than three times that of Nagpur over the same observation window.

However, the ranking should not be interpreted as a ranking of:

- overall city quality;
- investment attractiveness;
- developer profitability;

- affordability;
- economic performance.

It is specifically a ranking of NHB HPI appreciation during the defined study period. This distinction is important because a city with lower price appreciation may still provide strong developer opportunities through higher transaction volumes, lower land costs, faster absorption or other characteristics not captured by the HPI.

8.7 Macro Environment

The housing-price trajectories observed across the five cities occurred within a common national macroeconomic environment. Two indicators are used to provide this context: the Reserve Bank of India's policy repo rate and All-India Combined CPI inflation.

These variables are not treated as city-specific explanations. Rather, they establish the broader financial and inflationary conditions under which Jaipur, Indore, Lucknow, Coimbatore and Nagpur experienced their respective housing-price changes.

8.7.1 Monetary Conditions

The quarter-end repo-rate series shows a substantial change in India's monetary environment over the study period.

The repo rate stood at 6.25% in Q2 2018 and reached 6.50% in Q3 2018. It subsequently declined through 2019 and 2020, reaching 4.00% by Q2 2020, where it remained for an extended period. The rate then increased beginning in 2022, reaching 6.50% by Q1 2023, where it remained through most of 2023 and 2024 before declining to 6.25% in Q1 2025.

The overall sequence can therefore be summarized as: relatively tight conditions in 2018 → monetary easing in 2019–20 → prolonged low-rate period → tightening beginning in 2022 → restrictive conditions through much of 2023–24.

This is important context because the five cities experienced housing-price appreciation during periods of both monetary easing and subsequent tightening. The results therefore do not support a simplistic interpretation in which falling interest rates alone explain the later divergence between the cities. The common monetary environment provides an important background condition, but the magnitude of housing-price appreciation differed significantly across the five cities.

8.7.2 Inflation Environment

The CPI series shows substantial variation in inflation over the study period.

Inflation was relatively moderate during parts of 2018 and 2019 before becoming substantially higher around the COVID and post-COVID period. The available quarterly summaries show particularly elevated inflation during:

- 2020-Q1: approximately 6.67%;
- 2020-Q3: approximately 6.90%;
- 2020-Q4: approximately 6.38%;
- 2022-Q1: approximately 6.34%;
- 2022-Q2: approximately 7.28%;
- 2022-Q3: approximately 7.04%;
- 2023-Q1: approximately 6.21%.

Inflation subsequently moderated, including a quarterly mean of approximately 3.93% in Q1 2025.

However, Q2 2020 requires special treatment. April and May 2020 CPI observations were not compiled under normal conditions, so the study does not treat the June observation as a conventional three-month quarterly mean. This is an important example of the data-integrity rule established in the methodology: an incomplete observation is not silently converted into a complete measure.

8.7.3 Macro Environment and HPI Interpretation

The combination of monetary easing, the COVID disruption, subsequent inflation, monetary tightening and later disinflation establishes that the five-city HPI trajectories developed under a changing national macroeconomic environment.

This matters for interpretation because a city's housing-price appreciation cannot be viewed entirely independently of national financial conditions. At the same time, the macro environment was common across all five cities. Therefore, it cannot by itself account for why cumulative HPI appreciation ranged from 18.81% in Nagpur to 57.43% in Coimbatore.

The macroeconomic environment is consequently best treated as a common background force, while the cross-city differences require consideration of local economic structure, infrastructure, connectivity, supply and housing-market conditions.

Table 16. Macro Environment Summary. The table is intended to provide context, not to attribute specific city-level HPI movements to a single macroeconomic variable.

Period	Repo-Rate Environment	Inflation Context	Interpretation

2018	6.25–6.50%	Moderate	Relatively tighter monetary environment
2019	Falling from 6.25% to 5.15%	Generally moderate initially, rising later	Increasing monetary accommodation
2020	Declined to 4.00%	Elevated during/after disruption	Strong monetary accommodation amid extraordinary conditions
2021	4.00%	Inflation remained variable	Prolonged low-rate environment
2022	4.00% → 6.25%	Elevated, around 6–7% for much of year	Tightening monetary environment
2023–24	6.50%	Inflation moderated but remained variable	Relatively restrictive monetary conditions
2025-Q1	6.25%	3.93% quarterly mean	Early easing/disinflation context

8.8 Demand versus Price Distinction

A central analytical principle of this study is that residential demand growth and housing-price appreciation are not the same outcome.

This distinction is necessary because recent research on Tier-II housing markets reports strong demand growth across a number of cities. CRISIL, for example, reports a 14% CAGR in residential demand across ten Tier-II cities between FY2021 and FY2026, while identifying particularly strong demand growth in Nagpur, Coimbatore and Lucknow.

Such evidence demonstrates that Tier-II residential markets have experienced substantial expansion in demand. However, the five-city NHB HPI results show that the resulting price trajectories are not proportional.

Table 17. Total HPI Appreciation, Q2 2018–Q1 2025

City	Total HPI Appreciation, Q2 2018–Q1 2025
Coimbatore	57.43%
Lucknow	49.50%
Indore	43.69%
Jaipur	42.00%
Nagpur	18.81%

This divergence is analytically important. Nagpur, for example, is identified in the supplementary demand research as one of the Tier-II cities experiencing strong residential-demand growth, yet its cumulative HPI appreciation in the present five-city panel is substantially below that of Coimbatore, Lucknow, Indore and Jaipur. This demonstrates why demand growth cannot be used as a substitute for housing-price growth. The two measures capture different stages of the housing-market mechanism.

Demand evidence captures: - market participation; - sales or absorption; - household interest; - new housing requirements; - credit utilization; - activity within the residential market.

HPI captures: - movement in the assessed value of residential property; - changes in the price level represented by the index; - the cumulative price trajectory of the observed market.

The relationship between them is mediated by housing supply. A simplified framework is:

[Demand Growth + Supply Response → Price Outcome]

If developers respond strongly to additional demand, increased demand can be absorbed through new launches, greater housing supply, expansion into new development corridors, and increased inventory. In that situation, demand may grow substantially without producing an equivalent increase in prices. Conversely, if demand rises while supply remains constrained, the price response may be stronger.

This distinction also explains why the study does not attempt to create a single composite “Tier-II boom” indicator from demand growth and HPI appreciation. Doing so would obscure the possibility that two cities may experience similarly strong demand but very different price responses.

8.8.1 Implication for Interpretation

The demand-versus-price distinction substantially changes how the five-city results should be read.

The correct conclusion from the evidence is **not**:

- The cities with the highest demand growth necessarily had the highest housing-price growth.
- Lower HPI appreciation means weak residential demand.

Instead, the evidence suggests that the final housing-price outcome depends on the interaction between:

[Demand + Supply + Purchasing Power + Financing + Buyer Composition + Local Development]

This is consistent with the conceptual framework developed earlier in the study.

8.8.2 Implication for the Tier-II Boom Narrative

The evidence therefore supports a more nuanced interpretation of the Tier-II housing expansion.

There is credible evidence of strong residential-market demand growth in Tier-II India. There is also credible evidence of substantial housing-price appreciation in several of the cities examined here. But these are not interchangeable findings. The actual five-city HPI panel demonstrates heterogeneous price outcomes, even within a broader environment of expanding residential demand. This is one of the central empirical findings of the study.

IX. City-Level Case Studies

Each city case study follows a common structure: economic profile, infrastructure, connectivity, employment, housing market, HPI trajectory, and interpretation.

9.1 Jaipur

Jaipur represents a useful case of a regional, diversified Tier-II housing market in which improving external connectivity and expanding residential activity have occurred alongside broader economic development. The city's trajectory is particularly relevant to the study because its HPI performance was moderate over the full sample but accelerated noticeably in the later period.

Economic Profile

Jaipur functions as a major regional centre for Rajasthan, with economic activity spanning tourism, services, trade, education, administration and increasingly diversified business activity. This makes its housing market different from a city whose residential demand is concentrated around a single industrial or technology cluster.

For the purposes of this study, Jaipur is therefore treated as a diversified regional economy, where multiple sources of employment and investment can contribute to residential demand. The city also occupies an important position within the wider Delhi–Rajasthan economic corridor. This makes connectivity particularly relevant when examining the evolution of its residential market.

Infrastructure

Two infrastructure developments are particularly relevant to Jaipur's case.

First, Jaipur Metro Phase 1B extended the city's urban mass-transit network and became operational in September 2020. The project expanded connectivity within the city's established urban area.

Second, the Delhi–Mumbai Expressway created a major improvement in regional connectivity. On 12 February 2023, the Delhi–Dausa–Lalsot section was dedicated to the nation. The Government of India stated that the section was expected to reduce Delhi–Jaipur travel time from roughly five hours to around three and a half hours, while also announcing additional highway connectivity projects including a 67-km Bandikui–Jaipur spur (Press Information Bureau, 2023).

This distinction is important for the analysis: the relevant infrastructure effect is not simply an expressway inside Jaipur. It is better characterized as regional accessibility improvement connecting Jaipur more efficiently with Delhi and the broader national transport network.

Connectivity

Connectivity is therefore a particularly important dimension of Jaipur's housing-market development.

The city's residential landscape has increasingly been influenced by improvements in regional road connectivity and internal transport infrastructure. Market research also identifies infrastructure improvements as an important factor shaping the city's residential landscape, although such sources represent market interpretation rather than causal evidence (Magicbricks).

The mechanism proposed by this study is:

[Improved Connectivity → Lower Effective Travel Costs → Greater Locational Attractiveness → Potential Residential Demand]

The study does not assume that this mechanism automatically produces price appreciation.

Employment

Jaipur's housing market should be understood against its broader economic diversification rather than through a single employment sector.

Technology and corporate activity have expanded alongside the city's established tourism, services and administrative functions. This provides a potentially broader residential-demand base than would exist in a highly specialized urban economy.

The employment evidence is consequently interpreted as a structural economic-development factor, rather than as a quarterly causal variable.

Housing Market

The available market evidence indicates that Jaipur experienced meaningful residential-market activity during the later part of the study period. PropEquity data reported by Financial Express show that housing sales increased from 10,187 units in 2023 to 10,695 units in 2024, a 5% increase. More notably, the value of those sales rose from approximately Rs.6,019 crore to Rs.8,388 crore, an increase of 39% (FE News Desk & PTI, 2025).

The difference between unit growth and sales-value growth is analytically important. It suggests that the increase in residential-market value was substantially larger than the increase in the number of units sold. However, the source itself attributes part of the increase in sales value to higher land, labour and construction-input costs, meaning that it should not be interpreted simply as a 39% increase in housing prices (FE News Desk & PTI, 2025). This is exactly why the study keeps sales activity, sales value, and the NHB HPI as separate concepts.

HPI Trajectory

Jaipur's NHB HPI increased from 100 in Q2 2018 to 142 in Q1 2025. That represents 42.00% cumulative appreciation and approximately 5.33% CAGR over the core study period.

The city's trajectory is particularly notable when the period is divided into the earlier and later phases. From Q2 2018 to Q4 2021, the HPI increased from 100 to 108, representing 8.00% appreciation. From Q1 2022 to Q1 2025, it increased from 108 to 142, representing 31.48% appreciation. Thus, Jaipur experienced a substantially stronger rate of appreciation in the later period.

Interpretation

The Jaipur evidence is therefore consistent with a late-acceleration pattern.

The city did not lead the five-city panel in cumulative HPI appreciation; Coimbatore, Lucknow and Indore all recorded stronger overall appreciation. Yet Jaipur's later-period acceleration is particularly pronounced, with cumulative appreciation increasing substantially after 2021.

The timing of this acceleration overlaps with a period of stronger post-pandemic residential-market activity, major regional-connectivity developments, continued urban expansion, and changing national monetary and inflation conditions.

The Delhi–Dausa–Lalsot expressway section became operational in February 2023, while Jaipur's HPI continued its strong later-period trajectory (Press Information Bureau, 2023). However, this does not establish that the expressway caused Jaipur's HPI appreciation. The infrastructure project was accompanied by broader economic and housing-market changes, and the study cannot separately identify these effects.

The appropriate interpretation is therefore: Jaipur's stronger post-2021 housing-price appreciation is temporally consistent with an environment of improved connectivity and expanding residential activity, but the available evidence does not isolate infrastructure as an independent causal driver.

This makes Jaipur particularly useful to the study's broader argument: infrastructure may contribute to a housing-market response, but its effect must be understood within the city's wider economic and residential-development system.

9.2 Indore

Indore represents a diversified, employment-oriented Tier-II housing market, with the Super Corridor functioning as an important spatial-development axis and with technology, services and institutional development forming part of the city's broader economic expansion. This makes Indore particularly useful for examining the relationship between employment-oriented urban development, infrastructure and residential-price appreciation.

Economic Profile

Indore is the largest commercial centre of Madhya Pradesh and has developed beyond its traditional role as a trading centre into a more diversified urban economy. For the purposes of this study, its most relevant

characteristics are services, technology-oriented activity, planned corridor development and expanding urban infrastructure.

The Super Corridor is particularly important to this profile. The Indore Development Authority describes the corridor as a major development area and is responsible for planning and implementing residential, commercial and public-sector development in the city. IDA records also show active land-development and public-infrastructure activity around the Super Corridor (Indore Development Authority, n.d.).

This matters for the housing market because the corridor represents more than a transport project: it is intended as a broader urban-development zone in which infrastructure, commercial activity and new development interact. Infrastructure

The Super Corridor provides the most important infrastructure-development context for Indore.

IDA's official records show development activity associated with Scheme No. 151 and the Super Corridor, including infrastructure and land development. For example, IDA identifies the construction of RW-2 associated with the Super Corridor as an 8.40-km infrastructure project with an estimated cost of Rs.97.19 crore (Indore Development Authority, n.d.).

IDA records also document the planning and tendering of an Interstate Bus Terminus at the Super Corridor, demonstrating that the corridor was being developed as a wider urban-infrastructure hub rather than simply as a residential location (Indore Development Authority, n.d.).

The research evidence also identifies Indore Metro Phase I as an important transport development, with commercial operation following the initial trial period.

For the present study, the important point is not to assign a single "infrastructure effect" to Indore. Instead, multiple infrastructure developments operate around the same broader urban-growth axis.

Connectivity

Indore's connectivity mechanism differs somewhat from Jaipur's. For Jaipur, regional highway connectivity is particularly prominent. In Indore, the Super Corridor combines transport connectivity with planned commercial and institutional development.

This produces a broader mechanism:

[Transport Connectivity + Planned Urban Development → Employment Accessibility + Land Development → Residential Attractiveness]

The corridor therefore provides a useful example of why infrastructure should not be examined independently from employment and land development. At the same time, the study does not assume that every improvement along the Super Corridor immediately translates into higher housing prices. The actual residential response depends on whether employment, commercial activity and housing supply develop sufficiently around the improved infrastructure.

Employment

Employment and economic diversification provide an important explanatory dimension for Indore.

The research evidence identifies major technology and services activity associated with the TCS/Infosys presence around the Super Corridor, alongside broader IT and services expansion. These observations are used as structural evidence of employment-oriented development rather than as quarterly employment observations.

The relevance to residential real estate is straightforward:

[Technology/Services Expansion → Employment → Purchasing Capacity → Residential Demand]

However, the study deliberately does not translate reported corporate headcounts into a synthetic quarterly employment variable because comparable high-frequency employment data do not exist across all five cities.

Housing Market

The housing-market evidence points toward the Super Corridor and Vijay Nagar as important development areas, with the corridor benefiting from its combination of employment, infrastructure and planned urban expansion.

Industry research has highlighted Indore as one of the stronger Tier-II residential markets, particularly in locations connected to employment and infrastructure growth. However, such reports differ in definitions and coverage and are therefore used only as contextual evidence alongside the standardized NHB series.

This distinction matters because the study is specifically interested in whether market activity translates into housing-price appreciation — not simply whether the city is considered a strong real-estate market by industry sources.

HPI Trajectory

Indore's NHB HPI increased from 103 in Q2 2018 to 148 in Q1 2025. This represents 43.69% cumulative appreciation and an approximate 5.52% CAGR over the core study period. Indore therefore ranks third among the five cities by cumulative HPI appreciation.

Its earlier and later trajectories are also informative. From Q2 2018 to Q4 2021, the HPI increased from 103 to 121, representing 17.48% appreciation. From Q1 2022 to Q1 2025, it increased from 121 to 148, representing 22.31% appreciation. Unlike Jaipur and Lucknow, where the later-period acceleration was especially pronounced, Indore displays a comparatively steady appreciation profile across the two periods.

Interpretation

Indore's case is consistent with the idea of an employment- and corridor-oriented housing market. The city combines planned urban expansion, Super Corridor development, technology/services activity, transport investment, and a broader commercial economy.

The HPI trajectory is nevertheless less dramatic than Coimbatore's or Lucknow's. This is important because it demonstrates that the presence of major employment and infrastructure anchors does not automatically produce the highest housing-price appreciation. Indore therefore provides a useful counterweight to a simplistic "more infrastructure + more IT = highest property appreciation" reading of the evidence.

The more defensible interpretation is that the city's infrastructure and economic development create conditions supportive of residential demand, while the final price response depends on how that demand interacts with housing supply, land development, affordability and the timing of development.

The evidence is consequently consistent with an employment-and-infrastructure-supported residential expansion, but it does not establish that Super Corridor development or IT employment independently caused Indore's 43.69% HPI appreciation. This distinction is central to the study's broader argument that infrastructure and employment should be viewed as interacting mechanisms rather than isolated causal variables.

9.3 Lucknow

Lucknow represents a services- and administration-oriented Tier-II housing market with a particularly strong infrastructure component. Among the five cities, it provides a useful case for examining how large urban transport investments and expanding employment opportunities can coincide with a substantial increase in residential housing prices.

Economic Profile

Lucknow is the capital of Uttar Pradesh and functions as a major administrative, services, education and regional economic centre. Its economic structure therefore differs from the technology- and manufacturing-heavy profiles of some of the other cities in the sample.

For this study, Lucknow is particularly relevant because its residential development has occurred alongside significant expansion of urban infrastructure and new employment-oriented development. One such example is the HCL IT City/Delivery Centre in Chack Gajaria. HCL's own announcement described the Lucknow centre as part of a strategy to expand into smaller cities and stated that its first-year programme would create 1,000 local jobs, while the wider IT City project was intended to create thousands of employment opportunities (HCL Group).

Infrastructure

Lucknow's strongest infrastructure development in the study period is its metro system.

The Lucknow Metro North–South Corridor, Phase 1A, began construction in September 2014 and was completed in March 2019. The Uttar Pradesh government's audit documentation records the corridor at 22.88 km, while the official metro annual report states that the full North–South corridor became operational for the general public in March 2019 (Comptroller and Auditor General of India). This makes Lucknow particularly valuable for the infrastructure-timing component of the study because the operational date is relatively clear.

The corridor connects Chaudhary Charan Singh Airport to Munshipulia, creating a direct connection between an important regional transport gateway, established urban areas and the northern part of the city (LMRCL). Lucknow also benefited from major regional road connectivity, including the Purvanchal Expressway, which strengthened its position within the broader Uttar Pradesh transport network.

Connectivity

Connectivity is therefore one of the most prominent mechanisms in Lucknow's development trajectory.

The metro provides an intra-urban accessibility mechanism:

[Metro → Lower Effective Travel Cost → Improved Accessibility → Residential Attractiveness]

Regional expressway development provides a different mechanism:

[Regional Connectivity → Greater Economic Integration → Potential Employment/Investment → Residential Demand]

The two mechanisms operate at different spatial scales, which is why Lucknow is a useful example of how urban and regional connectivity can interact. However, the presence of these infrastructure developments does not by itself establish that they caused the city's subsequent housing-price appreciation. The city's broader economic expansion and the national post-pandemic housing recovery occurred simultaneously.

Employment

The employment evidence provides an additional mechanism.

HCL's official announcement concerning its Lucknow IT City stated that the company intended to create 1,000 local jobs in its first year, with the wider IT City designed to support thousands of employment opportunities. The project was explicitly connected to the availability of local skilled talent and improved infrastructure (HCL Group).

This is relevant because the employment-development mechanism is consistent with the conceptual framework:

[Employment Expansion → Household Purchasing Capacity → Residential Demand]

The evidence is nevertheless treated cautiously. A corporate employment target is not equivalent to verified realized employment in every subsequent quarter, and therefore it is used as structural economic evidence, not as a direct quarterly variable.

Housing Market

The research evidence indicates significant residential development in areas associated with Lucknow's expanding infrastructure and employment corridors, particularly the Gomti Nagar and Gomti Nagar Extension region. This context is useful for understanding why housing-price changes may be spatially concentrated rather than evenly distributed across the entire city.

Industry reports also identify Lucknow as one of the stronger Tier-II residential markets in recent years. However, those reports use different measures of sales, absorption, launches and price segments, so they are treated as supporting market evidence rather than merged with the NHB HPI. Market activity evidence supports interpretation; NHB provides the standardized price measure.

HPI Trajectory

Lucknow's HPI increased from 101 in Q2 2018 to 151 in Q1 2025. That represents 49.50% cumulative appreciation and approximately 6.14% CAGR. Lucknow therefore ranks second among the five cities by cumulative HPI appreciation.

The period comparison is particularly informative. From Q2 2018 to Q4 2021, Lucknow's HPI increased from 101 to 115, representing 13.86% appreciation. From Q1 2022 to Q1 2025, it increased from 115 to 151, representing 31.30% appreciation. Thus, Lucknow experienced considerably stronger appreciation during the later period.

Interpretation

Lucknow provides one of the clearest examples in the sample of a residential market in which infrastructure, employment development and broader urban expansion occur simultaneously.

The city's metro system became fully operational in March 2019 (LMRCL). HCL's expansion provides evidence of employment-oriented development in the same broader period (HCL Group). The HPI subsequently recorded substantial appreciation, particularly after 2021.

This pattern is therefore consistent with the conceptual mechanism developed in the study:

[Infrastructure + Employment + Connectivity → Residential Demand → Potential Price Appreciation]

However, the evidence does not permit the study to isolate the contribution of any single factor. Lucknow's later appreciation also occurred during a national environment characterized by post-pandemic housing-market recovery and changing monetary conditions. The infrastructure projects themselves may also have been responses to existing urban growth rather than independent shocks.

The appropriate conclusion is therefore: Lucknow's substantial housing-price appreciation coincided with major improvements in urban and regional connectivity and the development of new employment-oriented activity, making the city's trajectory consistent with an infrastructure-and-employment-supported urban-development mechanism, but the evidence does not establish an independent causal effect of any single project.

Lucknow is consequently a particularly important case for the overall thesis because it demonstrates how infrastructure and employment can reinforce one another, rather than infrastructure operating in isolation.

9.4 Coimbatore

Coimbatore represents a manufacturing-, engineering- and technology-oriented Tier-II housing market. Its economic structure differs from both the administrative/services orientation of Lucknow and the logistics orientation of Nagpur, making it particularly useful for examining how employment diversification and urban connectivity can coexist with strong residential-price appreciation.

Economic Profile

Coimbatore is one of Tamil Nadu's major industrial and commercial centres, with a long-established base in engineering, manufacturing, textiles and related services. Over time, the city's economic profile has also developed a stronger technology and software dimension.

This combination is important for the present study because it creates multiple potential sources of residential demand rather than relying on one sector. The study therefore treats Coimbatore as a manufacturing-plus-services/technology market, in which established industrial activity is complemented by newer knowledge-intensive employment.

The evidence also supports Coimbatore's role as a technology and engineering location. Bosch identifies Coimbatore as one of its research locations in India, while its broader India strategy describes Bosch Global Software Technologies as an important software hub (Bosch Global). These observations are used as structural economic evidence rather than as a quarterly employment measure.

Infrastructure

Airport connectivity is an important component of Coimbatore's infrastructure profile.

AAI's capital-expenditure records show continuing development activity at Coimbatore Airport, including airport development works, runway-related expansion, terminal-building additions and alterations, and turn-pad and

related airside improvements. AAI records identify airport-development projects beginning from earlier years and continuing through the study period, including an explicit upgradation of Coimbatore Airport and addition and alteration to the existing terminal building in the 2022 capital programme (AAI).

This is important because it means the airport should not be treated as a single completed infrastructure event with one arbitrary date. Development occurred through multiple stages. The appropriate methodological treatment is therefore ongoing aviation-capacity expansion and accessibility improvement, rather than an unsupported claim that one airport-opening date caused the later HPI movement.

Connectivity

Coimbatore's connectivity mechanism operates at both the local and regional level. Airport infrastructure strengthens external accessibility, while road improvements and major urban transport projects affect internal movement and connectivity between residential areas, employment corridors and commercial centres.

This creates a mechanism of the form:

[Regional Connectivity + Urban Accessibility → Economic Interaction → Residential Attractiveness]

The conceptual importance of Coimbatore is that connectivity interacts with an existing economic base. The city was not developing from an entirely new economic foundation; infrastructure operates within an established industrial and commercial environment. That distinction matters when comparing Coimbatore with cities where infrastructure development is itself a larger part of the urban-growth story.

Employment

Employment diversification provides one of the strongest explanatory dimensions of Coimbatore's housing-market development.

The city combines manufacturing, engineering, industrial services, technology, and research and software activity. Bosch's official materials identify Coimbatore as an R&D location, while Bosch describes its broader Indian operations as increasingly important as a software and technology hub (Bosch Global).

The conceptual mechanism is:

[Industrial + Technology Employment → Household Income/Purchasing Capacity → Residential Demand]

This mechanism is especially relevant to Coimbatore because the city does not depend exclusively on a single newly created employment corridor. Its established industrial economy and emerging technology activity can reinforce one another. However, the study does not convert corporate employment information into a synthetic quarterly employment series. The employment evidence remains structural and contextual.

Housing Market

Coimbatore's residential market is supported by both established industrial demand and newer services and technology activity.

Market research has identified corridors such as Avinashi Road and Saravanampatti as important residential-development areas, reflecting the interaction of employment, infrastructure and accessibility. However, these market reports are treated as contextual evidence rather than as direct substitutes for NHB HPI measurements.

This distinction is especially important in Coimbatore because strong residential-market activity can reflect several factors simultaneously: employment growth, local household formation, demand from higher-income professionals, regional investment, and expanding infrastructure. The evidence therefore supports the existence of a strengthening residential market without allowing the study to attribute its price performance to a single mechanism.

HPI Trajectory

Coimbatore recorded the strongest housing-price appreciation among the five cities in the core panel. Its NHB HPI increased from 101 in Q2 2018 to 159 in Q1 2025. This represents 57.43% cumulative appreciation and approximately 6.95% CAGR. Coimbatore therefore ranks first among the five cities on cumulative HPI appreciation.

Its performance also strengthened markedly across the two analytical periods. From Q2 2018 to Q4 2021, HPI increased from 101 to 118, representing 16.83% appreciation. From Q1 2022 to Q1 2025, it increased from 118 to 159, representing 34.75% appreciation. The later-period appreciation was therefore more than twice the earlier-period appreciation.

Interpretation

Coimbatore provides the strongest example in the five-city panel of sustained residential-price appreciation combined with a diversified economic base. Its performance is consistent with the conceptual framework developed in the study:

[Economic Diversification + Employment + Connectivity → Residential Demand] [Demand + Supply + Financing + Affordability → HPI Outcome]

The city's combination of manufacturing, engineering and technology activity provides multiple potential channels through which economic development can support residential demand. Its infrastructure and connectivity investments provide an additional enabling mechanism.

The particularly strong later-period HPI appreciation is therefore consistent with a broad-based urban-development process, rather than requiring a single infrastructure explanation. At the same time, the study cannot establish that Bosch activity, airport development, road improvements or any individual economic anchor independently caused the 57.43% appreciation.

The appropriate conclusion is: Coimbatore's position as the strongest HPI performer in the sample is consistent with the interaction of a diversified economic base, employment generation, connectivity and residential-market development, while the available evidence does not isolate any single factor as the causal determinant of its housing-price performance.

This makes Coimbatore particularly important to the paper's broader argument: the strongest housing-price performance may emerge where infrastructure and connectivity reinforce an already substantial economic and employment base, rather than where infrastructure exists in isolation.

9.5 Nagpur

Nagpur represents a logistics-, connectivity- and diversified urban-development market within the five-city sample. Its role is particularly important because it provides a counterpoint to the stronger HPI performers: Nagpur experienced major infrastructure investment and substantial economic-development activity, yet its residential-price appreciation remained materially lower than that of the other four cities.

Economic Profile

Nagpur occupies a strategically important position within central India because of its regional transport and logistics connectivity. Its economic structure combines trade, logistics, public administration, services, industrial activity and a growing technology presence.

A particularly important economic-development node is MIHAN, the Multi-modal International Passenger and Cargo Hub Airport project. The development combines airport infrastructure, an SEZ and associated support infrastructure, making it relevant to both employment and connectivity. Mahindra Lifespaces describes MIHAN as an integrated industrial and technological hub with road and rail connectivity and a mix of potential IT, manufacturing and pharmaceutical activity (Mahindra).

Nagpur therefore provides an important test of the study's central proposition: major infrastructure and economic-development investment do not necessarily produce identical housing-price outcomes across cities.

Infrastructure

Two major infrastructure developments are especially relevant to the study.

The first is Nagpur Metro Phase I. On 11 December 2022, the Prime Minister dedicated Phase I to the nation, while simultaneously laying the foundation stone for Phase II. The first phase represented an investment of more than Rs.8,650 crore and was intended to improve urban mobility within Nagpur (Press Information Bureau). Nagpur Metro's Orange Line began initial commercial operations on 8 March 2019 (MahaMetro).

The second is the Maharashtra Samruddhi Mahamarg. Phase I of the expressway, covering 520 kilometres between Nagpur and Shirdi, was inaugurated on 11 December 2022. The Government of India described the project as a major connectivity intervention intended to support broader economic development in Maharashtra (Press Information Bureau).

The coincidence of these two major infrastructure milestones makes December 2022 particularly important for Nagpur's infrastructure chronology. However, the two projects should not automatically be treated as isolated "treatments." Their effects may overlap with broader economic development, national housing recovery and other investments occurring around the same period.

Connectivity

Connectivity is arguably the defining analytical characteristic of Nagpur within the five-city sample.

The city functions as a regional transport node, while MIHAN combines airport, road and rail connectivity with industrial and technology-oriented development. Mahindra Lifespaces describes the MIHAN area as strategically accessible by road, rail and air and as a developing multi-product SEZ (Mahindra).

The Samruddhi Mahamarg adds a much larger regional-connectivity dimension by linking Nagpur to western Maharashtra through the first operational phase of the corridor (Press Information Bureau).

The conceptual mechanism is therefore:

[Regional Connectivity + Urban Mobility → Economic Integration → Potential Development → Residential Demand]

Yet Nagpur's HPI results show why connectivity should not be equated automatically with high housing-price appreciation.

Employment

Nagpur also provides evidence of employment-oriented economic development.

Tata Consultancy Services announced its Nagpur software-development campus as a major investment in MIHAN. TCS stated that Phase I involved an investment of Rs.600 crore and capacity for 8,200 IT professionals, with a planned total capacity of approximately 16,000 associates across two phases (Tata Consultancy Services). The mechanism relevant to the study is:

[Technology + Industrial Development → Employment → Purchasing Capacity → Residential Demand]

The employment evidence remains structural rather than quarterly. The TCS announcement provides information about the scale and intended capacity of the development, but it is not converted into a high-frequency employment series for the HPI panel.

Housing Market

The residential-development evidence around MIHAN provides an important connection between economic development and housing.

Mahindra Lifespaces reported that its Bloomdale project in MIHAN became the first residential project in the area to sell more than 1,000 homes. The company also describes MIHAN as an integrated industrial and technological hub with road, rail and air access (Mahindra).

This is useful evidence because it demonstrates that major economic and infrastructure development has been accompanied by actual residential-market activity. However, the evidence should not be interpreted as demonstrating a city-wide housing boom or as proving that MIHAN directly caused Nagpur's aggregate HPI performance. A particular project's sales and the city-wide HPI measure different dimensions of the market. This distinction is consistent with the methodology established earlier: project-level sales evidence is not the same as city-wide HPI appreciation.

HPI Trajectory

Nagpur recorded the weakest cumulative HPI appreciation among the five cities. Its NHB HPI increased from 101 in Q2 2018 to 120 in Q1 2025. This represents 18.81% cumulative appreciation and approximately 2.59% CAGR. Nagpur therefore ranks fifth of the five cities on cumulative HPI growth.

Its period-based performance is also distinctive. From Q2 2018 to Q4 2021, Nagpur's HPI increased from 101 to 112, representing 10.89% appreciation. From Q1 2022 to Q1 2025, it increased from 112 to 120, representing 7.14% appreciation. Unlike Coimbatore, Lucknow, Jaipur and Indore, Nagpur did not experience stronger appreciation in the later period. This is one of the most important comparative findings in the study.

Interpretation

Nagpur creates a valuable test for the paper's conceptual framework because it demonstrates that major infrastructure and economic-development investment are not sufficient, on their own, to guarantee strong aggregate housing-price appreciation.

The city experienced major metro development, regional expressway connectivity, MIHAN development, technology-sector investment, and actual residential development around employment and infrastructure nodes. Yet its aggregate NHB HPI appreciated by only 18.81% during the core study period.

This means that the simplistic proposition "infrastructure → housing-price boom" is not supported by the five-city evidence. Instead, Nagpur suggests that the housing-price response may depend on additional factors, including the spatial distribution of development, housing-supply responsiveness, purchasing power, market segmentation, the timing of employment growth, and the extent to which infrastructure benefits are translated into broad-based residential demand.

The city's experience therefore strengthens rather than weakens the study's central argument. Nagpur can be interpreted as evidence that infrastructure and connectivity may create development potential without necessarily producing proportional city-wide housing-price appreciation. The evidence is consistent with an urban-development mechanism in which infrastructure improves economic potential and creates new residential opportunities, while the aggregate price response depends on how broadly those benefits diffuse through the housing market.

Most importantly, Nagpur should not be described as a "failure," nor should its infrastructure investment be characterized as ineffective. The NHB HPI measures one outcome — residential assessed-price movement — not the full economic return from infrastructure.

9.6 Siliguri — Qualitative Gateway-City Case

Siliguri is treated differently from Jaipur, Indore, Lucknow, Coimbatore and Nagpur because the study does not have a directly comparable NHB RESIDEX HPI series that would justify inserting the city into the standardized quantitative panel. Rather than weakening the comparative design by introducing an incompatible housing-price measure, the study uses Siliguri as a qualitative gateway-city case.

This treatment is also consistent with the original research design, which identified Bagdogra passenger traffic, logistics, regional connectivity and residential development as the principal dimensions for the case.

Gateway Role

Siliguri's importance arises primarily from its role as a regional gateway and connectivity node. Its location makes it an important link between northern West Bengal, the Northeast and adjoining Himalayan regions. This gives the city's development trajectory a different structure from that of a city whose housing market is primarily driven by local technology, manufacturing or administrative employment.

The resulting conceptual mechanism is:

[Regional Connectivity → Trade + Logistics + Mobility → Economic Activity → Residential Development]

This makes Siliguri particularly useful for testing whether the broader framework developed in the quantitative analysis can also accommodate a city whose growth is strongly associated with gateway and logistics functions.

Connectivity

Bagdogra Airport is a central component of Siliguri's external connectivity.

AAI traffic evidence identifies substantial passenger activity at the airport, reinforcing its role as a major aviation gateway for the wider North Bengal and Sikkim region. The research package therefore uses Bagdogra traffic primarily to establish connectivity intensity and regional accessibility, not as a direct measure of housing demand. Road and rail connectivity provide additional layers of regional integration. The importance of these networks is not limited to movement within Siliguri itself; their wider function is to connect the city to a much larger hinterland. This creates an important distinction from the five-city panel: for Jaipur, regional connectivity is particularly relevant to the relationship between the city and larger national corridors, whereas for Siliguri, connectivity is more fundamentally part of the city's economic identity as a gateway.

Economic Activity

Siliguri's economic structure is characterized by a combination of regional trade, warehousing, and transport-related activity. This differs from the technology- and services-heavy economic mechanisms identified in parts of the Indore, Jaipur and Lucknow evidence and from Coimbatore's stronger manufacturing-and-engineering base. The implication is that employment and residential demand may operate through a different pathway:

[Regional Trade + Logistics + Tourism → Employment + Commercial Activity → Household Demand]

The evidence therefore supports interpreting Siliguri as a gateway-economy housing market, rather than attempting to place it into one of the more technology-oriented development categories used elsewhere in the study.

Real-Estate Development

The research evidence identifies residential development concentrated around areas including Matigara and Sevoke Road, alongside broader development associated with Siliguri's regional commercial role. These areas are useful for understanding how connectivity and regional economic activity can influence the spatial direction of urban expansion.

However, because the underlying housing-price evidence is not standardized in the same way as the five-city NHB panel, these observations remain qualitative. The study therefore does not calculate cumulative HPI appreciation, comparable YoY HPI, or pre/post-period HPI growth for Siliguri. That is a deliberate methodological choice.

Comparison with the Five-City Panel

Siliguri provides an interesting contrast with the five quantitative cities. The five-city panel allows the study to compare housing-price trajectories using one standardized HPI measure. Siliguri instead allows the study to ask: can the same conceptual mechanisms — connectivity, infrastructure, economic activity and residential development — also help explain a gateway city's urban evolution even when standardized high-frequency HPI evidence is unavailable?

The qualitative evidence suggests that the framework remains relevant, but through a somewhat different economic pathway.

Five-city quantitative model:

[Infrastructure + Employment + Connectivity → Residential Demand → HPI]

Siliguri gateway-city model:

[Connectivity + Trade + Logistics + Tourism → Regional Economic Activity → Residential Development]

This difference is analytically useful because it reinforces one of the study's central propositions: Tier-II cities should not be assumed to experience urban and residential transformation through a single standardized mechanism.

Limitations

The Siliguri case has several methodological limitations.

First, it is not included in the quantitative HPI panel. Second, the available airport and regional-economic evidence is more suitable for qualitative interpretation than for direct statistical comparison with the five cities. Third, the housing-market evidence is drawn from a combination of regional and market sources rather than a standardized NHB HPI series.

Accordingly, Siliguri's role in the study is illustrative and comparative rather than inferential. It is not used to increase the quantitative sample size, establish a sixth-city ranking or support claims about the statistical behaviour of the five-city housing-price panel.

Overall Interpretation

Siliguri demonstrates the usefulness of broadening the concept of urban residential growth beyond the technology- and services-oriented examples that dominate discussion of emerging Indian cities.

Its gateway position means that "connectivity → trade/logistics → regional economic activity → residential development" may be a more important pathway than "GCC expansion → high-skilled employment → residential demand."

The case therefore strengthens the study's broader conclusion that Tier-II India contains multiple forms of urban transformation, and that housing-market development needs to be interpreted in relation to the specific economic and spatial role of each city.

Comparative City Profile

Comparative Reading of the Table

Several patterns emerge from the comparison of all six cities.

City	Core Economic Character	Key Infrastructure/Connectivity	Employment/Economic Anchor	HPI Outcome, Q2 2018–Q1 2025	Key Residential-Market Pattern	Analytical Interpretation
Jaipur	Diversified regional centre: tourism, services, administration and wider commercial activity	Jaipur Metro; Delhi–Mumbai Expressway regional connectivity	Diversifying services and technology/corporate activity	+42.00%; CAGR 5.33%	Stronger later-period appreciation; residential activity concentrated around major corridors	Connectivity and broader urban expansion are consistent with stronger later housing-price momentum, but the infrastructure effect cannot be isolated causally
Indore	Diversified commercial/services economy with technology and planned corridor development	Super Corridor; Indore Metro; urban road/infrastructure expansion	TCS/Infosys and wider technology/services activity	+43.69%; CAGR 5.52%	Relatively steady appreciation across the study period	Employment-oriented development and corridor infrastructure are consistent with sustained residential growth, but do not independently establish the magnitude of the price effect
Lucknow	Administrative, services and regional economic centre	Lucknow Metro; Purvanchal Expressway and major regional connectivity	HCL IT City and broader services/employment expansion	+49.50%; CAGR 6.14%	Strong later-period acceleration and expanding development corridors	Infrastructure and employment development coincide with substantial appreciation, producing one of the clearest examples of an infrastructure-and-employment-aligned housing-price pattern in the panel, though the design still cannot establish this as a strict causal relationship

Coimbatore	Manufacturing, engineering, services and growing technology activity	Airport development; major road and urban-connectivity works	Diversified manufacturing/engineering base with expanding technology and services activity	+57.43%; CAGR 6.95%	Highest cumulative appreciation in the panel, with acceleration concentrated in the later period	The most diversified economic base in the panel corresponds with the strongest price outcome, consistent with the framework's emphasis on economic diversification, though other unobserved local factors cannot be ruled out
Nagpur	Logistics, regional connectivity, transport infrastructure and industrial development	Nagpur Metro Phase I; Samruddhi Mahamarg Phase I	Logistics and industrial activity; limited technology/GCC presence relative to the other four cities	+18.81%; CAGR 2.59%	Weakest cumulative appreciation in the panel; no clear post-2022 acceleration despite major transport investment	The clearest evidence in the panel that infrastructure investment alone does not guarantee proportional residential-price appreciation in the absence of matching employment and demand growth
Siliguri	Regional gateway economy built on trade, logistics and tourism connecting the plains to the Northeast and neighbouring countries	Bagdogra Airport connectivity; regional road and rail connectivity	Trade, logistics and tourism rather than GCC/technology employment	Not included in the quantitative NHB panel; addressed qualitatively only	Urban and residential growth appear organized around gateway connectivity rather than the technology/services mechanisms prominent in the other cities	Illustrative and comparative only; demonstrates that Tier-II urban transformation can follow a trade-and-logistics pathway distinct from the GCC/employment-led pathway seen elsewhere in the panel
Nagpur	<i>[not recoverable from extracted text]</i>					

The cumulative appreciation ranges from 57.43% in Coimbatore to 18.81% in Nagpur. This is a difference of 38.62 percentage points across cities exposed to the same broad national macroeconomic environment.

Nagpur is particularly important here. It experienced major transport and regional-connectivity investment, including Metro Phase I and the Samruddhi Mahamarg, yet recorded the weakest aggregate HPI appreciation. That does not mean the infrastructure had no economic value. It means only that infrastructure investment cannot be treated as an automatic predictor of city-wide residential-price appreciation.

Coimbatore and Indore both have strong technology/engineering/services components, but their HPI outcomes differ: Coimbatore substantially outperformed Indore. That reinforces the paper's broader argument that economic diversification is not itself a single measurable treatment. The composition, geography and supply response of that economic activity matter.

Four of the five cities experienced considerably stronger appreciation in the later period. Nagpur did not. That makes Nagpur particularly useful in the comparative discussion because it provides a case where the broader post-2021 housing-market environment did not translate into the same degree of HPI acceleration.

Siliguri is not a sixth ranking. It is a qualitative comparison showing that an urban market can be organized around gateway connectivity, logistics and regional trade rather than the technology/GCC mechanisms prominent in some of the other cases.

X. Comparative Discussion

This chapter is interpretive rather than purely descriptive, and therefore requires particular care in avoiding unsupported causal claims. It proceeds through individual explanations for each city's divergence (Sections 10.1–10.5), followed by cross-cutting analysis of the demand-versus-price divergence, infrastructure's role as an enabling mechanism, financing, and affordability implications, before concluding with an assessment of what the evidence does and does not support (Sections 10.6–10.11).

10.1 Why Coimbatore Differs

Coimbatore stands out as the strongest residential-price performer in the five-city panel. Its NHB HPI increased from 101 in Q2 2018 to 159 in Q1 2025, representing 57.43% cumulative appreciation and an approximate 6.95% CAGR. It also recorded the strongest later-period appreciation in the comparison, with the HPI increasing by 34.75% between Q4 2021 and Q1 2025.

The evidence suggests that Coimbatore's performance is best understood as the result of multiple reinforcing urban-economic characteristics rather than a single infrastructure intervention.

10.1.1 A Diversified Economic Base

Unlike a city dependent on one newly emerging employment cluster, Coimbatore entered the study period with an established industrial and engineering base. Manufacturing, engineering, services and technology activity provide multiple sources of employment and household demand.

This is important because the conceptual framework predicts that residential-market strength is more sustainable when infrastructure operates alongside a functioning economic base:

[Economic Activity → Employment → Purchasing Capacity → Residential Demand]

Coimbatore's economic structure therefore creates several potential channels through which employment can support housing demand.

10.1.2 Technology and Engineering Activity as a Reinforcing Mechanism

The city's technology and engineering activity provides an additional layer to its established industrial economy. Bosch's official research-location information identifies Coimbatore as an R&D location, providing direct evidence that the city has developed a knowledge-intensive component alongside its traditional manufacturing base.

This diversification matters because it potentially broadens the composition of housing demand. Residential demand is not necessarily dependent on a single sector or employment corridor; instead, different groups of workers and households may contribute to demand across multiple parts of the city.

However, the evidence does not allow the study to estimate how much of the 57.43% HPI appreciation can be attributed specifically to technology employment.

10.1.3 Connectivity as an Enabling Condition

Coimbatore's airport and broader transport infrastructure provide a second reinforcing mechanism.

The airport is not treated as a single completed event in this study because official AAI documentation shows that airport development has involved multiple stages of capital investment, including terminal and airside development.

This is consistent with the conceptual framework in which infrastructure improves the conditions for economic interaction and accessibility rather than directly producing a predetermined housing-price response. The relevant mechanism is therefore:

[Connectivity → Economic Interaction + Accessibility → Residential Attractiveness]

rather than [Airport Investment → 57.43% HPI Growth]. The latter claim is not supported by the evidence.

10.1.4 Stronger Later-Period Acceleration

The timing of Coimbatore's performance is particularly notable. The HPI increased by 16.83% from Q2 2018 to Q4 2021, but by 34.75% from Q1 2022 to Q1 2025. This suggests that the city's stronger housing-price performance was concentrated disproportionately in the later part of the study period.

That later acceleration coincided with broader national housing-market recovery and changing monetary conditions, meaning that the result cannot be interpreted purely as a local Coimbatore development effect. Instead, the evidence is more consistent with an interaction:

[National Housing Recovery + Local Economic Strength + Connectivity + Residential Supply → Stronger HPI Growth]

The study cannot separately estimate the contribution of each component.

10.1.5 Why Coimbatore Outperformed the Other Cities

The most defensible explanation is therefore reinforcement between multiple favourable conditions. Coimbatore combines an established industrial base, engineering and technology activity, employment generation, external and internal connectivity, and continued residential development. This distinguishes it from the possibility of a purely infrastructure-led market.

The comparison with Nagpur is especially useful. Both cities have important connectivity and economic-development projects, yet their HPI outcomes are dramatically different. Coimbatore recorded 57.43% cumulative appreciation, while Nagpur recorded 18.81%. This contrast suggests that infrastructure alone is insufficient to explain the difference.

Instead, the evidence is consistent with the proposition that infrastructure appears more capable of supporting residential-price growth when it interacts with a sufficiently broad and durable economic base and corresponding household demand. That is an interpretation, not a causal estimate.

10.1.6 Implication for the Broader Study

Coimbatore therefore provides the strongest example of the paper's broader argument that Tier-II housing markets should be understood as heterogeneous urban systems. Its performance cannot be reduced to a single factor such as infrastructure, employment, technology, or post-pandemic recovery.

Rather, the evidence points toward an interaction among these forces, with housing supply and affordability determining how much of the resulting demand is ultimately reflected in prices. The case therefore supports the study's central proposition that the strongest Tier-II housing-price outcomes may emerge where economic diversification, employment and connectivity reinforce one another, while still leaving the precise causal contribution of each factor unresolved.

10.2 Why Lucknow Differs

Lucknow records the second-highest cumulative HPI appreciation in the five-city panel. Its NHB HPI increased from 101 in Q2 2018 to 151 in Q1 2025, representing 49.50% cumulative appreciation and an approximate 6.14% CAGR.

Its trajectory is particularly notable because the later period was substantially stronger than the earlier one. HPI increased by 13.86% from Q2 2018 to Q4 2021, compared with 31.30% from Q1 2022 to Q1 2025.

The Lucknow case is therefore best interpreted through the interaction of administrative and services activity, major transport infrastructure, regional connectivity and employment-oriented development.

10.2.1 Administrative and Services Base

Lucknow differs from Coimbatore because its economic structure is more strongly associated with administration, services and its role as the capital of Uttar Pradesh.

This creates a different residential-demand mechanism. Rather than relying primarily on manufacturing or technology activity, housing demand can be supported by a broader combination of government and administrative employment, professional services, healthcare, and expanding private-sector activity.

The implication is important for the conceptual framework:

[Administrative + Service Activity → Employment → Household Formation/Purchasing Capacity → Residential Demand]

This mechanism does not require one dominant corporate employer to explain residential-market expansion.

10.2.2 Infrastructure as a Major Urban Development Component

Lucknow's infrastructure profile is particularly significant because its metro network directly connects the airport with major urban areas.

The first phase of the Lucknow Metro became fully operational in March 2019, creating a major intra-urban accessibility intervention early in the study period. Lucknow also benefited from major regional road connectivity, including the Purvanchal Expressway and related highway infrastructure.

These projects operate at different spatial scales: the metro primarily influences intra-urban accessibility, while regional expressway development affects inter-city and regional accessibility. This gives Lucknow a particularly broad connectivity mechanism:

[Urban Transport + Regional Connectivity → Accessibility → Economic Integration → Residential Attractiveness]

10.2.3 Employment-Oriented Development

Lucknow's infrastructure story is reinforced by employment-oriented development. The HCL IT City project provides one example of private-sector technology activity being established within the city's expanding urban environment. The significance of this evidence is not the specific employment number alone, but the interaction between infrastructure, skilled employment, and planned urban development.

This is important because infrastructure is more likely to influence residential demand where it improves access to actual employment and economic opportunity. The conceptual mechanism becomes:

[Infrastructure → Accessibility] and [Employment Development → Economic Opportunity], with both potentially converging toward [Residential Demand].

This makes Lucknow a particularly useful case for the paper's argument that infrastructure and employment should be examined together.

10.2.4 Stronger Later-Period Housing-Price Growth

Lucknow's HPI trajectory indicates a meaningful change in growth intensity. The HPI rose from 101 to 115 during the earlier period, representing 13.86% appreciation. It then rose from 115 to 151 during the later period, representing 31.30% appreciation. The later-period appreciation was therefore more than twice the earlier-period appreciation.

This pattern suggests that the city's stronger residential-price performance was concentrated in the latter part of the study period. However, the timing also overlaps with the broader national recovery in housing markets following the pandemic and therefore cannot be attributed solely to local infrastructure or employment developments.

10.2.5 Why Lucknow Is Different from Coimbatore

Both Coimbatore and Lucknow are strong performers, but their underlying urban structures differ. Coimbatore's case is characterized by manufacturing + engineering + technology + connectivity, whereas Lucknow's is more strongly characterized by administration + services + infrastructure + emerging technology activity.

Yet both display substantial later-period HPI appreciation. This suggests that there may be multiple pathways to strong Tier-II residential performance. In other words, a city does not necessarily need to replicate a technology-manufacturing model to experience strong housing-price growth. Instead, the broader requirement may be an alignment between economic activity, employment, accessibility, housing demand, and development capacity.

10.2.6 Infrastructure Does Not Explain the Entire Result

Lucknow's case might initially appear to provide a straightforward infrastructure-led story because its metro and regional connectivity developments are highly visible. However, such an interpretation would be too strong.

The observed HPI increase occurred alongside infrastructure development, employment expansion, broader urban growth, national housing-market recovery, and changing monetary conditions. Infrastructure may therefore have enabled or reinforced residential-market development without independently determining the price outcome.

The distinction is important: the evidence supports an infrastructure-and-economic-development interpretation; it does not establish an infrastructure-only causal explanation.

10.2.7 Implication for the Comparative Argument

Lucknow strengthens the broader argument that Tier-II housing markets can experience strong appreciation when several urban-development mechanisms reinforce one another. Its nearly 50% cumulative HPI appreciation places it substantially above Nagpur and Jaipur and behind only Coimbatore in the sample.

At the same time, the contrast between Lucknow and Nagpur is particularly revealing. Both cities experienced major infrastructure development. Both have important regional economic functions. Yet their housing-price outcomes differed substantially. This suggests that the presence of infrastructure is not sufficient. What matters is how infrastructure interacts with the city's employment base, residential demand, supply conditions and broader economic structure.

The most defensible interpretation is therefore: Lucknow's strong HPI performance is consistent with an urban-development model in which major connectivity improvements, service-sector activity and emerging employment anchors reinforce residential demand, although the available evidence does not identify the independent contribution of any individual factor.

10.3 Why Nagpur Differs

Nagpur is the most important counter-case in the comparative analysis. Its NHB HPI increased from 101 in Q2 2018 to 120 in Q1 2025, representing only 18.81% cumulative appreciation and an approximate 2.59% CAGR. This places Nagpur clearly below the other four cities.

The result is especially significant because Nagpur experienced substantial infrastructure and economic-development activity during the same broad period. The city therefore provides an important test of whether infrastructure and connectivity alone are sufficient to generate strong aggregate residential-price appreciation. They are not.

10.3.1 Major Infrastructure Investment

Nagpur experienced two particularly important infrastructure milestones around the end of 2022.

Nagpur Metro Phase I was formally dedicated to the nation on 11 December 2022. The project was designed to improve urban mobility and connect major parts of the city. On the same date, the Nagpur-Shirdi section of the Samruddhi Mahamarg was inaugurated, creating a major regional road connection and forming the first operational section of the larger expressway.

Nagpur therefore represents a relatively strong infrastructure case within the sample. Yet its post-2022 HPI performance remained weak.

10.3.2 Economic and Employment Anchors

Nagpur also has an important employment-development story through MIHAN, the Multi-modal International Passenger and Cargo Hub Airport project.

TCS's official announcement for its Nagpur software-development campus described an initial investment of Rs.600 crore and capacity for 8,200 IT professionals, with a larger planned capacity across subsequent phases. MIHAN consequently combines airport connectivity, industrial development, technology employment, and planned urban expansion. This makes Nagpur a particularly useful test of the conceptual framework: on paper, several of the conditions associated with stronger housing demand are present.

10.3.3 Yet Housing Prices Responded Differently

Despite these substantial interventions, Nagpur's HPI rose only 10.89% between Q2 2018 and Q4 2021, and only 7.14% between Q1 2022 and Q1 2025.

This is fundamentally different from the other four cities: Coimbatore accelerated strongly; Lucknow accelerated strongly; Jaipur accelerated strongly; Indore continued to appreciate. Nagpur's later-period appreciation was actually lower than its earlier-period appreciation. This makes Nagpur the clearest evidence against a simplistic infrastructure-led explanation.

10.3.4 Why Infrastructure May Not Translate into City-Wide Price Growth

One possible explanation is that infrastructure benefits may be spatially concentrated. A metro line or expressway does not increase the value of every property in a city equally. Benefits may be strongest around employment centres, logistics nodes, and newly accessible development corridors.

If the associated housing demand remains concentrated within particular submarkets, city-wide HPI appreciation may remain relatively moderate even when certain locations perform strongly. This is a crucial distinction between localized development effects and city-wide housing-price appreciation. The aggregate NHB HPI measures the latter.

10.3.5 Supply and Market Structure

Nagpur also reinforces the importance of the supply side.

Infrastructure can increase the amount of land that is economically developable by improving accessibility. If developers are able to respond with additional housing supply, part of the additional demand may be absorbed through increased construction rather than capitalized entirely into prices.

The conceptual relationship can therefore be written as:

[Infrastructure → Accessibility → Demand] [Demand + Supply Response → Final Price Outcome]

10.3.6 Employment Does Not Automatically Produce Proportional Price Growth

Nagpur's MIHAN and technology activity provide another useful lesson. Employment expansion can generate residential demand, but the resulting price response depends on where employees live, the amount and type of housing supplied, household purchasing power, accessibility to employment locations, the existing inventory of housing, and the distribution of development across the city. More employment does not necessarily equal proportionally higher city-wide HPI. Nagpur is an important empirical reminder of this principle.

10.3.7 Comparison with Coimbatore

The contrast between Nagpur and Coimbatore is particularly revealing. Both cities have important regional economic roles, major infrastructure investment, technology/industrial development, and expanding connectivity. Coimbatore: +57.43% HPI appreciation. Nagpur: +18.81% HPI appreciation.

The magnitude of this difference suggests that infrastructure and economic activity alone cannot explain residential-price outcomes. Instead, the final outcome likely depends on the interaction of:

[Economic Structure + Employment + Connectivity + Supply + Affordability + Buyer Composition]

This is precisely the heterogeneous mechanism proposed by the conceptual framework.

10.3.8 What Nagpur Tells Us About the Research Question

Nagpur is arguably the strongest case supporting the study's central argument. The city demonstrates that a large infrastructure footprint does not automatically produce a proportionately large city-wide housing-price response. This does not imply that the infrastructure was unsuccessful. Infrastructure may generate improved mobility, lower logistics costs, employment, land development, and long-run regional integration, without producing immediate or uniform housing-price appreciation. The HPI captures only one of these outcomes.

10.3.9 Overall Interpretation

The most defensible interpretation of Nagpur is therefore: Nagpur's relatively weak aggregate HPI appreciation, despite substantial infrastructure and economic-development investment, demonstrates that infrastructure is an enabling condition rather than a sufficient determinant of residential-price growth. The housing-price response depends on how infrastructure interacts with employment, spatial development, housing supply, affordability and market structure.

Nagpur therefore functions as a critical counterexample to infrastructure determinism and strengthens the study's broader argument that Tier-II housing markets must be understood through city-specific development mechanisms.

10.4 Why Indore Differs

Indore occupies a middle position in the five-city comparison. Its NHB HPI increased from 103 in Q2 2018 to 148 in Q1 2025, representing 43.69% cumulative appreciation and an approximate 5.52% CAGR. Unlike Jaipur,

Lucknow and Coimbatore, whose later-period acceleration was particularly pronounced, Indore displays a comparatively more steady appreciation profile across the study period.

The city's trajectory is therefore important because it demonstrates that a Tier-II housing market can perform strongly without exhibiting the sharpest acceleration in the panel.

10.4.1 A Diversified Commercial Base

Indore's economic structure combines commerce, services, manufacturing and increasingly technology-oriented activity. This provides the city with a broader employment base than a market dependent upon one isolated economic driver.

The Super Corridor is particularly important because it combines employment, infrastructure and planned urban expansion. The city's development agencies have treated the corridor as a major urban-development zone rather than simply a transport project. This produces an integrated mechanism:

[Economic Activity + Planned Development → Employment + Accessibility → Residential Demand]

The importance of this mechanism is that Indore's housing market can be supported by several mutually reinforcing sources of demand rather than by one discrete event.

10.4.2 Super Corridor as an Urban-Development Axis

Indore's Super Corridor is especially useful for the study because it demonstrates why infrastructure and land development should not be treated as independent variables.

Road infrastructure, institutional development, commercial activity and technology-oriented employment have developed around the same broader corridor. This means that any increase in residential demand near the corridor can reflect several mechanisms simultaneously: improved accessibility, employment concentration, expectations of future development, availability of developable land, and expansion of commercial activity.

The evidence therefore cannot isolate a single infrastructure effect. Instead, the corridor is best interpreted as an urban-development ecosystem.

10.4.3 Employment and Technology

Technology and services activity provide an additional source of residential demand.

The research evidence identifies TCS/Infosys activity around the Super Corridor and broader technology-sector development in Indore. This provides support for an employment-oriented mechanism:

[Technology/Services → Employment → Household Purchasing Capacity → Housing Demand]

However, as established in the methodology, corporate presence is not equivalent to a continuous city-level employment series. These observations therefore remain structural evidence.

10.4.4 Why Indore Did Not Become the Strongest Performer

At first glance, Indore appears to possess many of the characteristics associated with strong housing-price growth: employment expansion, technology activity, major corridor development, improving infrastructure, and commercial growth. Yet it ranked third, behind Coimbatore and Lucknow.

This is an important result. It suggests that the existence of a strong economic-development narrative does not automatically produce the highest housing-price appreciation.

One plausible interpretation is that Indore's development has been accompanied by sufficient urban expansion and housing supply to absorb part of the additional demand. Again, this should be treated as an interpretive mechanism, not an estimated supply effect, because the study does not possess a standardized quarterly housing-supply elasticity measure for the city.

10.4.5 Stability Across the Two Periods

Indore's HPI increased by 17.48% between Q2 2018 and Q4 2021, and by 22.31% between Q1 2022 and Q1 2025. The difference between the two periods is much smaller than for Jaipur, Lucknow and Coimbatore.

This indicates that Indore's appreciation was comparatively persistent rather than highly concentrated in the later period. That pattern is important because it suggests that the city's residential-market growth may have been supported by a relatively continuous development process rather than a single later acceleration.

10.4.6 Comparison with Coimbatore

The comparison between Indore and Coimbatore is particularly revealing. Both cities have technology/services activity, engineering or industrial capacity, employment-oriented growth, improving connectivity, and expanding residential markets. Yet Coimbatore recorded 57.43% cumulative appreciation compared with 43.69% for Indore. This reinforces the argument that simply classifying both as technology/employment growth cities does not adequately explain their different housing-price outcomes. The final price response depends on how employment, infrastructure, supply, affordability and buyer composition interact within each local market.

10.4.7 Comparison with Nagpur

The Indore–Nagpur comparison provides the opposite perspective. Both cities have major strategic-development and connectivity initiatives, but Indore's HPI appreciated by 43.69%, compared with Nagpur's 18.81%.

This suggests that infrastructure and connectivity may be more strongly reflected in aggregate residential prices when they operate alongside a broader and more established employment and urban-development base. Again, this is a comparative inference rather than a causal coefficient.

10.4.8 Overall Interpretation

Indore is best understood as a case of steady, economically supported residential appreciation rather than an extreme infrastructure-led boom. Its trajectory is consistent with planned urban expansion, employment growth, technology/services activity and connectivity sustaining residential demand, followed by supply, affordability and market structure determining the final HPI outcome.

The city's middle ranking is therefore analytically useful. It shows that a residential market does not need to experience the most dramatic acceleration to demonstrate strong structural growth.

The most defensible conclusion is: Indore's housing-price trajectory is consistent with sustained employment- and corridor-oriented urban development, but its performance relative to Coimbatore and Lucknow demonstrates that strong economic and infrastructure fundamentals do not produce identical housing-price outcomes across Tier-II cities.

10.5 Why Jaipur Differs

Jaipur occupies a distinctive position in the five-city comparison because its overall HPI appreciation was moderate, yet its later-period acceleration was among the strongest in the sample. The NHB HPI increased from 100 in Q2 2018 to 142 in Q1 2025, representing 42.00% cumulative appreciation and an approximate 5.33% CAGR.

The city's trajectory is therefore different from both Coimbatore's sustained high appreciation and Nagpur's comparatively weak growth.

10.5.1 A Diversified Regional Economy

Jaipur functions as a major regional centre with an economic base spanning administration, tourism, services, trade, education and business activity. This diversification gives the city a broader residential-demand base than a market dependent on a single employment sector.

The relevant mechanism is therefore:

[Regional Economic Activity → Employment + Household Formation → Residential Demand]

At the same time, Jaipur's role as a major destination and regional centre means that housing demand can originate from several different sources. The study does not attempt to separately quantify those components because comparable city-level quarterly data are not available.

10.5.2 Infrastructure and Regional Connectivity

Jaipur's infrastructure story is particularly important because the city's development has occurred at both the intra-urban and regional levels.

Jaipur Metro Phase 1B strengthened urban mobility within the city. More importantly for the later period, the Delhi–Mumbai Expressway created a major improvement in Jaipur's connection with the National Capital Region and the wider northern Indian transport network.

The Government of India reported that the Delhi–Dausa–Lalsot section was inaugurated on 12 February 2023 and emphasized the reduction in travel time between Delhi and Jaipur. This represents a substantial change in the city's external accessibility. The conceptual mechanism is:

[Regional Connectivity → Lower Travel Costs → Greater Accessibility → Potential Residential Attractiveness]

But the study does not interpret this sequence as proof that the expressway caused Jaipur's later HPI appreciation.

10.5.3 Why the Timing Matters

Jaipur's HPI trajectory provides a particularly interesting timing pattern. From Q2 2018 to Q4 2021, the HPI rose from 100 to 108, representing 8.00% appreciation. From Q1 2022 to Q1 2025, it rose from 108 to 142, representing 31.48% appreciation. This represents the largest increase in growth intensity between the two periods among the five cities, apart from the broader comparison of absolute growth levels.

The later acceleration overlaps with the period in which major regional connectivity improvements became operational, including the Delhi–Dausa–Lalsot section in February 2023. However, the chronology must be interpreted carefully. Jaipur's stronger later-period appreciation also occurred during the post-pandemic recovery of Indian housing markets, changes in national monetary conditions, broader construction and input-cost changes, and wider urban expansion.

Therefore, the evidence supports a statement of temporal correspondence, not an isolated infrastructure effect.

10.5.4 Housing-Market Activity

The supporting housing-market evidence indicates that Jaipur experienced meaningful residential activity during the later period. This reinforces an important methodological distinction: sales volume, sales value and HPI each describe a different dimension of the housing market. The NHB HPI remains the standardized price measure used for the comparative quantitative analysis.

10.5.5 Employment and Economic Activity

Jaipur's economic diversification provides another potential mechanism for residential demand.

Corporate and technology activity has expanded alongside the city's established tourism, administrative and services base. This suggests that the residential market is influenced by a mixture of traditional regional functions and newer employment sources.

The evidence does not provide a sufficiently complete quarterly employment dataset to estimate a direct employment-price relationship. Employment therefore remains an interpretive factor, consistent with the conceptual framework rather than an independently estimated explanatory variable. ## 10.5 Why Jaipur's Trajectory Differs (*concluding sections*)

10.5.6 Why Jaipur Accelerated Later

Jaipur's trajectory suggests that the city may have experienced a combination effect in the later period. The relevant elements include:

Post-COVID Housing Recovery + Regional Connectivity + Urban Expansion + Economic Diversification → Stronger Residential Price Growth

The key point is that the later HPI acceleration appears to have occurred in an environment where several forces were operating simultaneously. This differentiates Jaipur from a simple infrastructure-led explanation.

10.5.7 Jaipur Compared with Lucknow

Jaipur and Lucknow both experienced substantial later-period acceleration.

City	Earlier-period appreciation	Later-period appreciation	Total appreciation
Jaipur	8.00%	31.48%	42.00%
Lucknow	13.86%	31.30%	49.50%

Table 19

The similarity is striking in the later period, but their overall outcomes differ because Lucknow entered the later period with a somewhat stronger earlier trajectory. This illustrates why examining only the final HPI value can obscure how a city's growth occurred. Jaipur is characterized particularly strongly by late acceleration, whereas Lucknow displays strong growth in both periods.

10.5.8 Jaipur Compared with Nagpur

The comparison with Nagpur is also instructive. Both cities experienced significant connectivity-related infrastructure investment, yet Jaipur recorded +42.00% cumulative appreciation against Nagpur's +18.81%.

The difference again suggests that infrastructure cannot be treated as a sufficient explanation for city-wide housing-price appreciation. Instead, the outcome appears to depend on how connectivity interacts with economic structure, existing housing demand, affordability, and spatial development.

10.5.9 Overall Interpretation

Jaipur is best characterized as a late-acceleration residential market within the five-city panel. Its experience is consistent with the proposition that improved regional accessibility can reinforce an already-diversified urban economy and contribute to residential-market attractiveness. However, the evidence does not establish that the Delhi–Mumbai Expressway, the Jaipur Metro, or any other single project independently caused the observed HPI increase.

The strongest defensible interpretation is: Jaipur's residential-price trajectory is consistent with a later-period strengthening of urban and regional accessibility occurring alongside broader economic and housing-market recovery. Its experience illustrates how infrastructure can reinforce an existing urban market, while the final magnitude of housing-price appreciation remains dependent on wider economic and market conditions.

10.6 Demand versus Price Divergence

One of the most important findings of the study is that residential demand growth and residential housing-price appreciation do not move proportionally across the five cities. This distinction was built into the research design from the outset and is particularly important when interpreting recent Tier-II housing-market evidence. Industry research reports strong residential-demand growth across several Tier-II cities, while the NHB HPI panel assembled for this study records substantially different rates of housing-price appreciation. The two measures therefore capture different dimensions of the housing market.

10.6.1 Demand Is Not the Same as Price

Residential demand can increase because of household formation, population growth, employment creation, higher household income, improved accessibility, investment interest, and changing housing preferences.

Housing prices, however, emerge from the interaction of demand with housing supply, land availability, construction costs, financing conditions, affordability, buyer composition, and expectations.

The conceptual relationship is therefore:

[Demand + Supply + Financing + Affordability → Housing Price Outcome]

rather than:

[Demand → Equivalent Price Growth]

This distinction is essential for interpreting the five-city results.

10.6.2 Evidence from the Five-City Panel

The NHB panel produces the following cumulative appreciation:

City	HPI Appreciation
Coimbatore	57.43%
Lucknow	49.50%
Indore	43.69%
Jaipur	42.00%
Nagpur	18.81%

Table 20

These differences are substantial. Yet supplementary industry evidence identifies strong residential demand growth in several Tier-II markets, including Nagpur, Coimbatore and Lucknow. This means that strong demand does not guarantee a proportionately strong aggregate HPI response.

Nagpur is particularly informative. It experienced major infrastructure investment, employment-oriented economic development and strong residential-market activity in specific development areas, yet its aggregate HPI appreciation remained substantially below the other four cities. That does not mean Nagpur lacked residential demand. Rather, it suggests that the relationship between demand and prices is mediated by other market conditions.

10.6.3 The Role of Supply

The most important moderating mechanism is housing supply. Suppose two cities experience similar increases in residential demand. Where demand rises and supply rises sharply, the market may absorb a large part of the additional demand through new housing construction. Where demand rises but supply responds only modestly, the smaller supply response may place greater upward pressure on prices. The same demand shock can therefore produce different price outcomes depending on the elasticity of local supply.

10.6.4 Demand Composition Also Matters

The composition of demand can also influence the price response. Demand associated with first-time buyers, established households, higher-income professionals, and second-home buyers may have different effects on prices and housing segments. The study does not have sufficiently standardized city-level buyer-composition data to estimate these effects directly. Accordingly, buyer composition remains an interpretive mechanism rather than a quantitative variable.

10.6.5 Why Nagpur Is an Important Test Case

(Editorially supplied heading — the source numbering skips from 10.6.4 directly to 10.6.6, suggesting a heading was lost in extraction between this passage and the following one.)

Nagpur demonstrates why a simple demand-based explanation is insufficient. The city has major transport investment, technology employment, logistics activity, and residential projects around development corridors, yet it recorded only 18.81% cumulative HPI appreciation over the core period.

This indicates that infrastructure and economic activity can create the conditions for residential development without necessarily translating into proportionally high city-wide HPI appreciation. The benefits may instead be spatially concentrated, absorbed through new supply, reflected in transaction activity rather than aggregate prices, realized over a longer horizon than the study period, or offset by affordability or other market conditions.

10.6.6 Why Coimbatore Is Different

Coimbatore provides the opposite end of the comparison. Its HPI appreciated by 57.43% — the strongest cumulative appreciation among the five cities — while its economy combines manufacturing, engineering, services and technology activity.

This suggests a potentially stronger alignment between economic activity, employment, connectivity and residential demand, and the resulting price response. Again, this should not be read as proof that one particular

sector caused the appreciation. It demonstrates only that the final housing-price outcome was stronger within that broader economic structure.

10.6.7 Implication for the Tier-II Boom

This divergence changes how the Tier-II housing narrative should be interpreted.

The evidence supports the statement that Tier-II residential demand has expanded significantly, and that residential housing prices have increased substantially in several Tier-II cities.

But the evidence does not support the claim that all Tier-II demand growth produces a similar housing-price increase. Nor does it support the claim that lower HPI appreciation means a city has weak residential demand. These distinctions are fundamental to the paper.

10.6.8 Interpretation

The five-city evidence therefore supports a more nuanced model:

[Urbanization + Employment + Infrastructure + Connectivity → Residential Demand]

[Residential Demand + Supply + Financing + Affordability + Buyer Composition → Housing Price]

The first relationship describes the generation of residential-market demand. The second determines how much of that demand becomes visible in housing-price appreciation. This helps explain why the cities in the study can share broad national trends while displaying very different HPI trajectories.

10.7 Infrastructure as an Enabling Mechanism

The comparison across Jaipur, Indore, Lucknow, Coimbatore and Nagpur suggests that infrastructure is best understood as an enabling mechanism within a wider urban-economic system, rather than as an independent determinant of housing-price appreciation. This interpretation is consistent with both the conceptual framework and the empirical evidence. All five cities experienced significant infrastructure development during the study period, but their housing-price outcomes differed substantially: Coimbatore recorded 57.43% cumulative HPI appreciation, Lucknow 49.50%, Indore 43.69%, Jaipur 42.00%, and Nagpur 18.81%.

If infrastructure investment alone were sufficient to generate strong housing-price appreciation, substantially greater similarity in the five-city outcomes would be expected. Instead, the evidence points toward a more conditional mechanism.

10.7.1 Infrastructure Changes Accessibility

The most direct role of infrastructure is to alter accessibility. Metro systems can reduce travel times within cities, while expressways, airports and regional transport corridors can improve connections between cities and economic centres. The conceptual pathway is:

[Infrastructure → Accessibility → Locational Attractiveness]

Improved accessibility can make previously peripheral locations more viable for residential development and can increase the attractiveness of locations that provide easier access to employment and services. However, accessibility is an intermediate mechanism, not the final housing-market outcome.

10.7.2 Infrastructure and Employment Must Interact

The evidence suggests that infrastructure is likely to have a stronger residential-market effect where it connects households to meaningful economic opportunities. This produces a more complete mechanism:

[Infrastructure → Accessibility] [Employment → Economic Opportunity] [Accessibility + Economic Opportunity → Residential Demand]

This helps explain why the presence of infrastructure alone cannot determine the housing-price outcome. Coimbatore's strong HPI trajectory, for example, occurred within a diversified manufacturing, engineering and technology economy. Lucknow's infrastructure development coincided with administrative, services and emerging technology activity. Indore's major corridor development occurred alongside technology and services expansion. Nagpur, by contrast, demonstrates that substantial infrastructure and economic-development investment do not necessarily produce equivalent city-wide HPI appreciation.

10.7.3 Infrastructure Can Affect Supply as Well as Demand

An important implication of the comparison is that infrastructure can influence the supply side of housing as well. Improved roads, metro access and regional connectivity can make previously peripheral land more accessible and therefore more commercially developable. The mechanism may therefore operate in both directions:

[Infrastructure → Housing Demand] [Infrastructure → Land Accessibility → Housing Supply]

The final price effect is determined partly by the interaction of these two channels. If infrastructure generates stronger demand while supply remains relatively constrained, the price response may be larger. If infrastructure simultaneously enables substantial new development, some of the additional demand may instead be absorbed through additional housing supply.

10.7.4 Timing Matters

Infrastructure also has a temporal dimension. The housing-market response may potentially occur at several stages: announcement (generating expectations about future development), construction (generating development activity and anticipation), operational opening (realizing accessibility), and longer-term economic effects. The timing differs across projects and cities.

This reinforces an important conclusion: the existence of an infrastructure event is not sufficient to determine the magnitude or timing of the housing-market response.

10.7.5 Infrastructure and Spatial Concentration

Another important mechanism is spatial concentration. Infrastructure benefits are unlikely to be distributed evenly across an entire city. They may be concentrated around metro stations, major road corridors, employment centres, airport zones, logistics hubs, and newly accessible peripheral areas.

Consequently, a major project can generate substantial appreciation in specific locations without producing an equivalent change in the city's aggregate HPI. This is particularly important for interpreting Nagpur and other cities where major development has been concentrated around specific corridors or economic nodes. The distinction is therefore:

[Localized Property Effect $\neq$ City-wide HPI Effect]

The NHB HPI used in this study captures the city-level aggregate outcome rather than the capitalization effect on an individual parcel or station-adjacent location.

10.7.6 Infrastructure Is Often Endogenous to Growth

A further limitation is that infrastructure is rarely randomly allocated. Governments may prioritize rapidly growing urban areas, emerging employment corridors, strategic logistics locations, and regions experiencing rising development pressure. This creates potential reverse causality:

[Urban Growth $\rightarrow$ Infrastructure]

as well as:

[Infrastructure $\rightarrow$ Urban Growth]

Both directions may operate simultaneously. This is one of the main reasons the present study does not interpret temporal overlap between infrastructure projects and HPI increases as proof of causal impact.

10.7.7 What the Five-City Comparison Suggests

The evidence is most consistent with the following mechanism:

[Infrastructure $\rightarrow$ Accessibility] [Employment $\rightarrow$ Economic Opportunity] [Accessibility + Economic Opportunity $\rightarrow$ Residential Demand] [Residential Demand + Supply + Financing + Affordability $\rightarrow$ Housing Price Outcome]

This is a more realistic representation of the five-city evidence than a simple [Infrastructure $\rightarrow$ Housing Prices] model. The first model accommodates the observed heterogeneity; the second does not.

10.7.8 Implication for the Study's Central Argument

Infrastructure should therefore be understood as a necessary or enabling component in some urban-growth pathways, but not as a sufficient condition for high residential-price appreciation. The evidence supports the view that infrastructure can improve accessibility, enable development, strengthen economic integration, support employment corridors, and increase locational attractiveness. But whether these changes produce strong city-wide HPI appreciation depends on the characteristics of the local housing market.

10.8 Role of Financing

Financing conditions provide an important national macroeconomic layer to the five-city housing-price comparison. Residential property is a high-value asset, and the affordability of housing depends partly on the cost and availability of credit. Financing therefore provides a mechanism through which national monetary conditions can influence household demand and developer activity. However, the evidence assembled for this study supports treating financing as a moderating condition, rather than as a city-specific explanation for the differences in HPI appreciation.

10.8.1 The Monetary Cycle

The RBI policy-rate chronology shows three broad phases within the study period.

The first was a period of monetary easing beginning in 2019 and becoming particularly pronounced during the pandemic. The policy repo rate fell to 4.00% in May 2020 after the RBI reduced it by 40 basis points from 4.40% (Reserve Bank of India).

The second was a prolonged period of relatively low policy rates through 2020 and 2021.

The third began with monetary tightening in 2022. The RBI raised the repo rate to 4.90% in June 2022, followed by further increases to 5.40% in August, 5.90% in September and 6.25% in December. It then reached 6.50% in February 2023 (Reserve Bank of India).

The study period therefore contains both a major monetary-easing phase and a subsequent tightening phase. This is important because the strongest HPI appreciation in several cities occurred during a period in which the national policy environment was no longer becoming progressively more accommodative.

10.8.2 Financing Does Not Explain the Cross-City Ranking

All five cities were exposed to the same RBI policy rate in a given quarter. Yet their cumulative HPI appreciation was: Coimbatore 57.43%, Lucknow 49.50%, Indore 43.69%, Jaipur 42.00%, and Nagpur 18.81%. The common financing environment therefore cannot, by itself, explain the substantial divergence between the cities.

This is an important result. If the financing environment were the dominant explanation, cities exposed to the same national policy cycle would be expected to exhibit considerably more similar housing-price outcomes. Instead, the evidence suggests that financing interacts with local conditions.

10.8.3 Household Affordability

The transmission mechanism from monetary policy to housing markets can be represented as:

[Monetary Policy → Lending Conditions → Borrowing Cost → Household Affordability → Housing Demand]

A lower borrowing cost can increase the amount of housing that a household can finance at a given income level. However, affordability depends on more than the policy rate. It also depends on household income, property prices, down-payment requirements, loan eligibility, existing debt, and housing supply. Consequently, the same national interest-rate environment can affect households differently across cities.

10.8.4 Developer Financing

Financing can also operate on the supply side. Developers require capital for land acquisition, construction, infrastructure within projects, working capital, and project completion. Changes in financing conditions can therefore affect both the ability and incentive to initiate or accelerate residential projects.

This creates two potentially opposing effects:

[Lower Borrowing Costs → Higher Housing Demand] [Lower Financing Costs → Greater Development Capacity → Higher Housing Supply]

The eventual price effect depends on the interaction between these two channels. This is another reason why financing cannot be interpreted simply as “lower rates equal higher house prices” without considering the response of housing supply.

10.8.5 The 2022–2024 Tightening Period

The later part of the study is particularly useful for examining this relationship. The RBI raised the repo rate cumulatively from 4.00% before the tightening cycle to 6.50% by February 2023, and maintained the 6.50% rate through the subsequent period covered by much of the core panel. The RBI itself described the cumulative rate increases beginning in May 2022 as a process of withdrawing monetary accommodation and noted that the earlier increases were working through the financial system (Reserve Bank of India).

Nevertheless, the HPI trajectories of four of the five cities became stronger in the later period. This is an important empirical observation: the strongest later-period housing-price appreciation did not occur exclusively during a period of falling policy rates. That does not mean financing became irrelevant. Rather, it suggests that local housing-market conditions and broader post-pandemic economic forces were sufficiently important that residential prices continued to rise even as monetary policy became more restrictive.

10.8.6 Why the Same Financing Environment Produces Different Results

The cross-city comparison suggests that financing should be considered alongside income, employment, supply, affordability and buyer composition. A city with strong employment and purchasing power may sustain housing demand despite higher borrowing costs. A city with more constrained household purchasing power may experience a stronger affordability response to the same rate environment. Similarly, a city with highly responsive housing supply may see financing-driven demand absorbed partly through additional construction rather than prices.

10.8.7 Financing and the Research Question

The financing evidence therefore strengthens the paper's broader argument that national conditions interact with local housing-market structures. The RBI policy cycle provides an important common background. But the substantial difference between Coimbatore and Nagpur cannot be attributed to different national interest rates, because both operated under the same national monetary regime.

The more defensible conclusion is: financing conditions influence the environment in which households and developers make housing decisions, but the five-city evidence suggests that national monetary conditions alone cannot explain the substantial cross-city divergence in residential-price appreciation.

10.9 Affordability Implications

Housing-price appreciation should not automatically be interpreted as an unambiguously positive outcome. For developers and existing property owners, rising prices may indicate strengthening market conditions. For households that have not experienced comparable income growth, however, rising prices can reduce housing affordability. This creates an important distinction between housing-market performance and housing accessibility for households.

10.9.1 Relative Tier-II Affordability

Tier-II cities have historically offered a relative affordability advantage compared with India's largest metropolitan markets. National Housing Bank research has examined housing affordability across city tiers and finds that affordability conditions differ substantially by city and income group (CRISIL Intelligence, 2026). This means that Tier-II markets can simultaneously offer lower absolute housing prices than major metros, strong residential demand, and substantial price appreciation. These conditions are not contradictory.

10.9.2 Price Growth Can Reduce the Affordability Advantage

The long-run HPI results demonstrate substantial appreciation in four of the five cities: Coimbatore 57.43%, Lucknow 49.50%, Indore 43.69%, and Jaipur 42.00%. If household incomes and purchasing capacity do not increase proportionally, a sustained increase in prices can gradually weaken the affordability advantage that initially attracts households and developers to Tier-II markets.

This creates a potential tension: economic growth can raise incomes and thereby housing demand, but housing price growth simultaneously raises the entry cost and creates potential affordability pressure. The net outcome depends on whether household purchasing power grows sufficiently alongside property prices.

10.9.3 Market Segmentation

Affordability also cannot be assessed from a city-wide average alone. Residential markets contain different segments, including affordable and mid-market housing (*the source list of segments appears truncated in extraction; a premium segment is discussed in the following sentences and is presumably also part of the original list*). Recent CRISIL evidence reports considerable differences in housing-market segmentation across Tier-II cities and notes the expansion of premium housing in some markets (National Housing Bank, n.d.).

This means that rising aggregate HPI may coexist with different outcomes across housing segments. A city can experience strong premium-market appreciation while maintaining a substantial mid-market housing supply. Conversely, rapid appreciation in the mid-market can create affordability pressure for a much larger population of households. The study therefore avoids treating premiumization as equivalent to a city-wide affordability crisis.

10.9.4 Implications for the Five Cities

The differences observed in the HPI panel create different potential affordability considerations.

Coimbatore. The strongest cumulative appreciation means that affordability deserves particular attention if income growth does not keep pace.

Lucknow. Strong later-period appreciation combined with expanding residential demand raises the importance of maintaining adequate mid-market supply.

Indore. Relatively steady appreciation highlights the need to ensure that corridor development does not increasingly shift the market toward segments inaccessible to a large portion of local households.

Jaipur. The sharp later-period acceleration makes affordability particularly relevant because rapid price increases can alter the city's relative affordability position over time.

Nagpur. Lower aggregate HPI appreciation should not automatically be interpreted as an absence of affordability challenges. Affordability is segment- and household-specific, and lower city-wide price growth can coexist with localized pressure around employment or infrastructure corridors.

10.9.5 Developer Implication

For developers, the implication is that price appreciation alone should not determine product strategy. A more complete decision framework considers income, employment, demand, existing supply and affordability together in product selection. This suggests greater attention to unit sizes, ticket sizes, financing accessibility, mid-market supply, and the balance between premium and end-user demand.

10.9.6 Policy Implication

For policymakers, the implication is broader. Infrastructure-led urban development can create new residential demand, but housing policy must ensure that development does not disproportionately expand supply at price points inaccessible to local households. The objective should therefore not simply be more housing, but housing that matches the purchasing capacity and needs of the households generated by urban growth.

10.10 What the Evidence Supports

The preceding results and comparative analysis allow several conclusions to be stated with relatively high confidence.

10.10.1 Tier-II Housing-Price Growth Is Heterogeneous

This is the strongest quantitative conclusion. The five cities recorded substantially different cumulative HPI appreciation over the same period, ranging from 18.81% to 57.43%. Tier-II India cannot be treated as a single uniform housing-price market.

10.10.2 Four Cities Experienced Stronger Later-Period Appreciation

Coimbatore, Lucknow, Jaipur and Indore all recorded greater HPI appreciation during Q1 2022–Q1 2025 than during the earlier comparison period. Nagpur differed.

10.10.3 Economic Structure Is Relevant to Interpretation

The city cases demonstrate meaningful differences in technology, manufacturing, administration, regional services, and connectivity. These differences provide plausible mechanisms for understanding why common national conditions produced different local outcomes. The evidence supports considering economic structure as an important explanatory dimension.

10.10.4 Infrastructure Is an Enabling Mechanism

The evidence supports the proposition that infrastructure can improve accessibility, economic integration, development potential, and locational attractiveness. The city cases are consistent with infrastructure contributing to residential-market development when it interacts with employment and economic activity.

10.10.5 Demand and Price Are Distinct

The evidence supports maintaining a conceptual distinction between residential demand and HPI appreciation. Strong demand does not automatically produce proportionately strong HPI growth.

10.10.6 Financing Provides Common Macroeconomic Context

RBI policy conditions clearly changed across the study period, including major easing during 2019–20 and subsequent tightening beginning in 2022 (Reserve Bank of India). The evidence supports treating financing as an important background condition, but not as a sufficient explanation for city-level divergence.

10.10.7 The Research Framework Is Supported

Taken together, the evidence is consistent with:

[Urbanization + Infrastructure + Connectivity + Employment → Residential Demand] [Supply + Financing + Affordability + Buyer Composition → Housing Price Outcome]

This is the strongest formulation supported by the evidence.

10.11 What the Evidence Does NOT Support

10.11.1 It Does Not Establish That Infrastructure Caused HPI Appreciation

The temporal coincidence between infrastructure projects and housing-price movements is not sufficient to establish causality. Infrastructure may itself respond to pre-existing growth. The study does not establish a causal infrastructure-price elasticity.

10.11.2 It Does Not Establish a Universal Tier-II Housing Bubble

Strong price appreciation in several cities does not establish the existence of a nationwide speculative bubble. A bubble would require substantially stronger evidence concerning expectations, speculative participation, fundamental valuation, financing behaviour, and persistence and reversal. The present study does not provide that identification.

10.11.3 It Does Not Establish a Universal Affordability Crisis

Housing affordability varies by neighbourhood, income group, housing segment, and financing conditions. The aggregate HPI cannot establish that all Tier-II households face an affordability crisis.

10.11.4 It Does Not Establish That High Demand Causes High Price Growth at a Fixed Rate

The study does not estimate a universal elasticity such as “a 1% increase in residential demand produces X% HPI appreciation.” Supply, financing, affordability and buyer composition intervene between demand and price.

10.11.5 It Does Not Establish That Low HPI Growth Means Weak Economic Development

Nagpur is particularly important here. Its lower HPI appreciation should not be interpreted as evidence that its Samruddhi Mahamarg, technology investment, and logistics development were economically unsuccessful. The HPI captures one outcome — residential assessed-price movement — and does not measure the complete economic return from infrastructure.

10.11.6 It Does Not Establish City-Level Causal Effects of Employment

The employment/GCC (Global Capability Centre) data are primarily structural and event-based. They do not provide a sufficiently complete quarterly city-level employment series across all five cities. Therefore, the study cannot estimate, for example, that an additional 1,000 jobs caused X% HPI growth.

10.11.7 It Does Not Establish a Causal Effect for Airport Passenger Traffic

Airport traffic is a connectivity and economic-activity proxy, and can be read as a migration measure or a residential-demand measure, but not as a direct housing-price determinant. The incomplete historical monthly archive further prevents it from serving as a fully balanced high-frequency explanatory variable.

10.11.8 It Does Not Generalize Automatically to Every Tier-II City

The sample contains five deliberately selected cities. The findings therefore illustrate heterogeneous mechanisms within a selected Tier-II sample rather than providing an automatic statistical estimate for every emerging Indian city.

10.11.9 It Does Not Establish Siliguri as a Quantitative Outlier

Siliguri is qualitative. It cannot be ranked against the five NHB cities using the same HPI measures.

10.11.10 Final Boundary of Inference

The most important methodological boundary is therefore this: the study demonstrates patterns, differences and relationships that are consistent with a heterogeneous urban-development mechanism; it does not claim definitive causal identification of infrastructure, employment, financing or connectivity effects on housing prices.

That limitation is not a weakness to hide. It is a deliberate boundary that keeps the conclusions proportional to the evidence.

XI. Developer Implications

11.1 Tier-II Is Not a Single Investment Category

The findings have direct implications for residential developers operating in India's Tier-II markets. The central implication is that developers should not treat Tier-II India as a single investment category with a uniform demand profile. The five-city comparison demonstrates that cities exposed to broadly similar national financial conditions and infrastructure expansion can produce substantially different housing-price outcomes.

Current CRISIL research similarly finds strong Tier-II residential demand growth while emphasizing that price and home-loan-utilization patterns diverge across cities and that affordability and inventory require continued attention (CRISIL Intelligence, 2026).

The evidence therefore suggests a city-specific development framework rather than a generic Tier-II expansion strategy. The study's HPI panel provides the clearest evidence for this principle: cumulative appreciation ranged from 57.43% in Coimbatore to 18.81% in Nagpur.

Therefore, the label "Tier-II" does not provide sufficient information for a residential development decision. A developer evaluating a new market should instead ask:

- What is the city's economic engine?
- Where are employment centres located?
- What infrastructure is actually operational?
- Where is housing demand concentrated?
- What segments are underserved?
- How much competing inventory already exists?

The decision should therefore move from "Tier-II city = opportunity" to "specific city + specific corridor + specific housing segment = investment opportunity."

11.2 Identify the City's Economic Engine

The case studies show that different cities generate residential demand through different mechanisms. Coimbatore combines manufacturing, engineering, services and technology. Indore combines commercial activity, technology/services and corridor-based urban development. Lucknow combines administration, services, infrastructure and emerging technology activity. Nagpur has a stronger logistics, regional-connectivity and industrial/technology orientation. Jaipur combines regional services, tourism, administration and broader commercial activity.

This means developers should identify the actual source of household formation and purchasing capacity before selecting a housing product. The relevant sequence is:

[Economic Engine → Employment → Purchasing Capacity → Housing Demand]

rather than a simple [Infrastructure → Housing] model.

11.3 Infrastructure Plus Employment Outweighs Infrastructure Alone

One of the clearest findings from the comparative discussion is that infrastructure should be evaluated together with employment. Nagpur provides the strongest cautionary example. The city experienced major infrastructure development, including Metro Phase I and the Samruddhi Mahamarg, alongside MIHAN and technology-sector investment, yet its aggregate HPI appreciation remained substantially below the other four cities.

For developers, this suggests that an infrastructure announcement should not by itself justify land acquisition or project launch. A stronger due-diligence framework is:

[Infrastructure + Employment + Accessibility + Household Purchasing Power → Demand Potential]

Infrastructure should therefore be evaluated according to the economic activity it connects, not simply its physical scale.

11.4 Match Housing Supply to Purchasing Power

A major development risk is a mismatch between the housing product being supplied and the purchasing capacity of the local market. The study demonstrates that demand growth and HPI appreciation are not proportional. CRISIL's current Tier-II research likewise reports strong demand expansion but emphasizes affordability and inventory as areas requiring attention (CRISIL Intelligence, 2026).

Developers should therefore evaluate household income, mortgage affordability, local employment quality, ticket-size distribution, competing inventory, and absorption rates. The practical implication is that sales potential depends on purchasing capacity, not simply population or headline demand.

11.5 Mixed-Segment Development

The evidence on housing segmentation suggests that a single-product strategy may expose developers to unnecessary market risk. Current research indicates that Tier-II markets differ in the balance between mid-market and premium housing and that larger and more premium homes have become increasingly important in some markets (CRISIL Intelligence, 2026).

A developer may therefore benefit from considering a differentiated product mix rather than assuming that premiumization should occur uniformly across all cities. Potential segmentation decisions include ticket size,

tenure type, and end-user versus investment orientation. The relevant principle is that product should follow purchasing power and local demand composition, not simply a national premiumization trend.

11.6 Premiumization Risk

Premiumization can increase project margins and sales values, but it can also narrow the pool of eligible buyers. CRISIL's current Tier-II research specifically identifies increasing preference for larger and premium houses while simultaneously warning that affordability and inventory need monitoring (CRISIL Intelligence, 2026).

This creates a potential trade-off: premiumization raises ticket size and therefore potential revenue, but a higher ticket size also shrinks the pool of eligible buyers. Developers should therefore distinguish between premium demand that is supported by household income and premium supply that is driven mainly by expectations of higher margins.

11.7 Land Acquisition Risk

Infrastructure can make previously peripheral land attractive, but that does not mean all infrastructure-connected land should immediately be developed. Land decisions should consider actual infrastructure completion, access to employment, competing supply, planning permissions, development timelines, infrastructure-delivery risk, and financing costs.

A project located near a proposed corridor may face materially different economics from one located near infrastructure that is already operational. The study's infrastructure-timing framework therefore has a direct developer implication: operational accessibility should be distinguished from announced accessibility.

11.8 Infrastructure-Delay Risk

The study deliberately distinguishes between announcement, construction and operation. This distinction is equally important commercially. If a project depends heavily on an infrastructure improvement that is delayed, expected residential demand may materialize later than anticipated.

Developers should therefore stress-test projects under alternative infrastructure scenarios:

- **Scenario A:** infrastructure on schedule.
- **Scenario B:** infrastructure delayed.
- **Scenario C:** infrastructure completed but employment growth weaker than anticipated.

The project should remain viable under a reasonable range of outcomes rather than depending entirely on one assumed infrastructure event.

11.9 Developer Due-Diligence Framework

The findings can be converted into a practical decision sequence:

- Where are the jobs?
- Where is the operational connectivity?
- Who can afford the housing?
- What supply already exists?
- What is the realistic absorption rate?
- What happens if infrastructure is delayed?
- Does the project remain viable?

This framework is deliberately broader than a conventional land-price or infrastructure-proximity analysis. It reflects the central conclusion of the research: a successful Tier-II residential development strategy requires alignment between economic activity, accessibility, household purchasing power, supply and infrastructure timing.

11.10 Overall Developer Implication

The study does not suggest that developers should avoid infrastructure-led locations. Instead, it suggests that infrastructure should be treated as one component of a broader investment thesis. The strongest opportunity is likely to occur where infrastructure, employment, connectivity, demand, an affordable product, and manageable supply are all aligned.

XII. Policy Implications

The findings also have implications for urban and housing policy. Because the five-city comparison demonstrates that infrastructure, employment and housing prices interact differently across cities, policy interventions should be coordinated rather than designed around isolated infrastructure targets. NITI Aayog's urbanization work explicitly treats urban growth as involving interconnected systems including housing, urban transport, land policy and infrastructure, while its more recent affordable-housing framework highlights land, financing and development-environment constraints (NITI Aayog, 2025).

12.1 Coordinated Infrastructure and Housing

Infrastructure planning should be coordinated with housing planning. Transport improvements can increase accessibility and stimulate development, but their benefits are likely to be stronger when residential development, employment and supporting infrastructure can respond simultaneously. The policy sequence should

therefore move toward integrating transport, employment, housing and urban services, rather than implementing transport infrastructure independently of land use and housing. This is particularly important in rapidly expanding corridors where new accessibility can generate residential demand before adequate housing and public services are available.

12.2 Affordable and Mid-Market Supply

Housing policy should not focus exclusively on aggregate housing supply. The type and affordability of supply matter. Recent NHB and NITI Aayog work highlights the continuing importance of affordable housing, while current NHB reporting also points to pressures involving land availability, housing supply and financing (Kothari et al., 2026). The implication is that urban-development policy should encourage housing across multiple segments rather than allowing rapid growth to concentrate disproportionately in higher-ticket products. A balanced strategy should consider affordable housing, mid-market housing, rental housing, appropriate-density development, and connectivity to employment.

12.3 Public Transport

Public transport can play an important role in converting infrastructure investment into broader urban accessibility. Metro and other mass-transit investments should therefore be integrated with station-area planning, pedestrian accessibility, feeder transport, residential development, employment centres, and affordable housing. This reduces the risk that infrastructure benefits remain concentrated in isolated high-value corridors.

12.4 Employment-Oriented Urban Planning

The study's conceptual framework suggests that housing demand becomes more durable when infrastructure is connected to actual economic opportunity. Urban planning should therefore consider where employment will be generated and where the resulting households will live. Industrial parks, technology centres, logistics hubs and service-sector clusters should be considered alongside residential planning. This is particularly important for emerging cities because employment and housing can otherwise develop in disconnected spatial patterns, increasing commuting burdens and reducing the effective benefits of infrastructure.

12.5 Better Housing-Market Data

One of the clearest methodological lessons from the research process is the difficulty of obtaining consistently comparable city-level high-frequency data. The project encountered limitations in historical AAI monthly traffic, city-level quarterly employment, city-level GDP, local household income, and comparable housing-supply measures. This restricts the ability of researchers and policymakers to evaluate urban housing markets with the precision available in some larger markets.

A stronger urban-data framework would ideally provide standardized, regularly updated information on housing prices, employment, household income, building permits, land transactions, and infrastructure milestones. Improved data availability would also make future causal analysis more credible.

12.6 Balanced Regional Development

The five-city comparison indicates that urban development can follow different pathways. Coimbatore's pathway combines manufacturing, engineering and technology. Lucknow's combines administration, services and infrastructure. Nagpur's includes logistics, regional connectivity and industrial/technology development. This suggests that policy should not require every Tier-II city to replicate the development model of a large technology centre. Instead, development strategies should build on city-specific comparative advantages. The policy objective should therefore be diversified regional development based on local economic strengths, supported by appropriate infrastructure and housing.

12.7 Overall Policy Implication

The central policy lesson is that infrastructure should not be evaluated solely through the infrastructure itself. A more complete policy framework is:

[Infrastructure + Employment + Housing + Affordability + Urban Services → Sustainable Urban Growth]

This aligns with NITI Aayog's broader approach to urbanization, which emphasizes the interaction of infrastructure systems, urban planning, housing, transport and land policy (NITI Aayog, 2025).

XIII. Limitations

No empirical study of urban housing markets can capture every determinant of residential-price behaviour. The limitations of the present study arise primarily from the size and composition of the quantitative sample, the availability of city-level high-frequency economic data, the nature of infrastructure identification, differences between demand and price measures, and the qualitative treatment of Siliguri.

These limitations do not invalidate the study. Instead, they define the appropriate boundaries of inference and ensure that the conclusions remain proportional to the evidence.

13.1 Five-City Sample

The principal quantitative analysis covers five selected Tier-II cities: Coimbatore, Indore, Lucknow, Jaipur and Nagpur (*the full city list is inferred from repeated references elsewhere in the manuscript; the source list here was cut short after "Coimbatore" in extraction*).

The sample was deliberately selected to represent different urban-economic structures and to permit a consistent NHB HPI comparison. However, five cities cannot represent the full diversity of India's Tier-II urban system. India contains many other emerging cities with different combinations of industrial activity, technology, administration, demographic growth, and infrastructure. The findings should therefore be interpreted as comparative evidence from selected Tier-II markets, rather than as a universal statistical estimate for every Tier-II city in India. The strength of the design lies in its depth of longitudinal comparison rather than the breadth of geographic coverage.

13.2 NHB Data Availability and Series Comparability

The NHB HPI provides the quantitative backbone of the study, but the process of assembling the series revealed important data-access and comparability constraints. The core panel was deliberately frozen at Q2 2018–Q1 2025, comprising 140 verified city-quarter observations. This decision prioritizes internal comparability within the principal FY2017-18-based series over simply maximizing the number of available observations.

NHB subsequently introduced a revised FY2024-25 base framework beginning with the quarter ended March 2026. Although linking methodology exists, automatically combining the later series with the earlier panel would introduce an additional methodological layer into the main analysis. The study therefore keeps the later series outside the core quantitative panel. This means that the present analysis does not attempt to use every potentially available NHB observation through 2026.

The trade-off is deliberate: a shorter but more internally consistent quantitative panel is preferred to a longer panel requiring additional unverified or inconsistently reconstructed observations.

13.3 Absence of Consistent City-Level GDP

A major limitation is the absence of a consistently available official quarterly city-level GDP series covering all five cities throughout the study period. Such a variable would have provided a direct measure of local economic activity and would have strengthened the empirical examination of the relationship between economic growth and residential prices.

Instead, the study uses employment/GCC evidence, infrastructure events, housing-market indicators, and broader urban-development evidence. These sources provide meaningful economic context but cannot substitute perfectly for a standardized quarterly city-level GDP series. Consequently, the study does not claim to estimate a direct elasticity between city-level GDP growth and HPI appreciation.

The absence of this variable is particularly relevant to the causal interpretation of differences between cities. Some of the local economic mechanisms discussed in the study therefore remain contextual and interpretive rather than directly estimated.

13.4 Absence of Consistent Quarterly City-Level Income Data

A related limitation is the absence of a comparable quarterly series for household income or purchasing power at the city level across the five markets. Income is theoretically important because it helps determine whether households can translate employment opportunities into effective housing demand. The conceptual framework therefore includes:

[Employment → Income/Purchasing Capacity → Housing Demand]

However, the available evidence does not allow the study to estimate this chain quantitatively for every city and quarter. The analysis therefore treats income and purchasing power as important mechanisms while using them primarily through documented employment developments, housing-affordability research, market segmentation evidence, and broader economic context.

This limitation is particularly important when interpreting affordability. A rise in HPI alone cannot establish that affordability has deteriorated by a specific amount because affordability also depends on household income and financing conditions.

13.5 AAI Historical Connectivity Data Gap

Airport passenger traffic was considered as a possible high-frequency connectivity indicator for the study's cities, including Coimbatore (*the source list of cities considered was cut short in extraction*). However, the historical AAI (Airports Authority of India) archive did not provide a sufficiently complete and consistently retrievable monthly series for the entire study period across all required airports. The research evidence explicitly identifies this as an unresolved data limitation and notes that manual archive retrieval would be required for a fuller historical series.

The study therefore does not force AAI traffic into the 140-observation quarterly panel. Instead, airport traffic is used where sufficiently complete as a connectivity and economic-activity proxy, and primarily supports descriptive comparison, connectivity interpretation, post-pandemic recovery context, and the qualitative Siliguri case. This limits the extent to which airport connectivity can be evaluated as a formal high-frequency explanatory variable.

13.6 COVID-Period CPI Data Gap

The national CPI series contains a specific data limitation during the COVID-19 lockdown. Official CPI observations for April and May 2020 were not compiled in the normal manner. The study therefore does not interpolate those observations or construct artificial values.

This creates a limitation for the quarterly inflation context of Q2 2020. The available June observation is retained as an observed value, but the quarter is not represented as though it contained a conventional three-month inflation average. This treatment preserves the distinction between officially observed data and researcher-estimated data. The limitation is relatively narrow because CPI is used primarily as macroeconomic context rather than as the principal housing-price variable.

13.7 Infrastructure Endogeneity

One of the most important limitations concerns the interpretation of infrastructure effects. Infrastructure investment is not randomly allocated across cities. Projects may be prioritized because of existing population growth, emerging employment centres, rising development pressure, strategic economic importance, and existing transport constraints.

Consequently, the relationship can operate in both directions:

[Urban/Economic Growth → Infrastructure] [Infrastructure → Urban/Economic Growth]

This creates a potential reverse-causality problem: infrastructure may have contributed to the price increase; existing growth may have encouraged infrastructure investment; or both may have been driven by broader economic conditions.

The study therefore treats infrastructure evidence primarily through chronology and comparative interpretation rather than presenting the timing as definitive causal identification. This limitation is central to the decision not to present a strong causal panel-regression result.

13.8 Demand–Price Measurement Difference

Another limitation arises from the fact that residential demand and residential-price appreciation are measured using different data systems. The NHB HPI captures movements in assessed residential property values. Industry research may instead report absorption, home-loan utilization, or premium-segment activity.

Consequently, the study can establish that demand indicators and HPI movements may differ, but it cannot combine them into a single standardized measure of “housing-market strength.” This distinction is methodologically important because demand does not equal price, and sales do not equal HPI. A rise in sales, for example, does not automatically imply an identical percentage increase in housing prices. The study therefore uses demand evidence primarily for interpretation and triangulation.

13.9 Siliguri's Qualitative Design

Siliguri is included because its gateway and regional-connectivity characteristics provide a valuable comparative perspective. However, Siliguri is not part of the five-city quantitative HPI panel. This means that its housing-price trajectory is not directly measured through the same NHB framework; it cannot be ranked against the five quantitative cities; it cannot contribute an additional statistical observation to the panel; and its evidence is primarily qualitative and contextual.

This reduces direct statistical comparability but avoids introducing an incompatible price series simply to enlarge the sample. The resulting trade-off is deliberate: Siliguri adds analytical breadth while preserving quantitative comparability. Its role is therefore to demonstrate how the broader framework can apply to a gateway and logistics-oriented urban market without pretending that its evidence has the same statistical structure as the five NHB cities.

13.10 No Definitive Causal Identification

The most important overall limitation is that the study does not provide definitive causal identification of the effect of infrastructure, employment, connectivity or financing on housing prices. The quantitative panel provides 140 verified city-quarter observations, standardized NHB HPI measurements, comparable growth calculations, and meaningful cross-city variation. However, strong causal identification would require additional conditions, including substantially richer city-level controls and a stronger strategy for addressing infrastructure endogeneity. The study therefore does not claim, for example, that infrastructure increased HPI by a specific percentage, nor that employment growth caused a specific share of housing-price appreciation. Instead, it identifies patterns that are descriptively established, temporally corresponding, theoretically plausible, and consistent or inconsistent with the proposed mechanisms. This distinction is fundamental to the credibility of the study.

The appropriate inferential hierarchy, from strongest to weakest, is as follows:

- **Strongest — observed HPI result.** Example: Coimbatore recorded 57.43% cumulative HPI appreciation.
- **Next — documented contextual relationship.** Example: Coimbatore experienced major economic, infrastructure and employment developments during the study period.
- **More cautious — interpretation.** Example: the observed combination is consistent with an economic-development mechanism supporting residential demand.
- **Not established — causal attribution.** Example: the claim that “infrastructure caused the 57.43% appreciation” is outside the evidentiary scope of the present study.

13.11 Overall Limitation Statement

Taken together, the limitations mean that this research should be interpreted as a comparative longitudinal mixed-methods study of selected Tier-II housing markets, rather than as a definitive causal model of Indian residential real estate. The study's strength lies in combining 140 verified NHB observations with macro context, infrastructure chronology, economic-development evidence and housing-market context, while explicitly documenting where the evidence becomes incomplete. This design allows the research to make meaningful statements about heterogeneity, patterns, mechanisms and implications without overstating causal certainty.

XIV. Conclusion

14.1 What We Found

This study examined residential housing-price dynamics across five selected Tier-II Indian cities — Jaipur, Indore, Lucknow, Coimbatore and Nagpur — using a common NHB RESIDEX HPI@Assessment Price framework covering Q2 2018 to Q1 2025.

The quantitative analysis produced 140 verified city-quarter observations and revealed substantial differences in residential-price appreciation across the five markets. Coimbatore recorded the strongest cumulative appreciation at 57.43%, followed by Lucknow at 49.50%, Indore at 43.69%, Jaipur at 42.00%, and Nagpur at 18.81%. The corresponding approximate CAGRs were 6.95%, 6.14%, 5.52%, 5.33% and 2.59%, respectively.

The results also revealed important differences in the timing of appreciation. Coimbatore, Lucknow, Jaipur and Indore experienced stronger appreciation in the later comparison period beginning in 2022, while Nagpur did not exhibit the same acceleration.

The central empirical finding is therefore clear: the selected Tier-II cities did not experience a uniform housing-price trajectory despite operating within the same broad national housing and monetary environment. This finding is consistent with recent NHB research describing uneven housing-price momentum across Tier-II markets rather than a single uniform trajectory.

The study's qualitative evidence further demonstrated that the five cities differ substantially in their economic structures and development pathways. Coimbatore combines manufacturing, engineering and technology activity; Indore combines commercial, services and technology development around major urban corridors; Lucknow combines administrative and service functions with major infrastructure and emerging technology activity; Jaipur combines regional services, tourism, administration and improving connectivity; and Nagpur combines logistics, regional connectivity, industrial development and technology activity. These differences provide an important context for understanding the divergent HPI outcomes.

14.2 What the Findings Mean

The evidence suggests that Tier-II housing-market development is better understood as a heterogeneous urban-development process than as one uniform "Tier-II boom." The conceptual framework developed in the study proposed:

[Urbanization + Infrastructure + Connectivity + Employment → Residential Demand] [Supply + Financing + Affordability + Buyer Composition → Housing Price Outcome]

The empirical evidence is broadly consistent with this framework.

Infrastructure can improve accessibility and development potential, but the five-city comparison demonstrates that infrastructure alone is insufficient to explain housing-price outcomes. Nagpur is particularly important in this respect: substantial infrastructure and economic-development investment did not translate into the same aggregate HPI appreciation observed in Coimbatore, Lucknow, Indore and Jaipur.

Similarly, residential demand and housing-price appreciation should not be treated as interchangeable. Recent Tier-II research reports strong residential-demand growth in several cities, while the NHB HPI data reveal substantially different price trajectories across the five-city sample.

The study therefore supports a more conditional interpretation: infrastructure and economic development can create or strengthen the conditions for residential demand, but the final housing-price response depends on how those forces interact with local supply, affordability, financing and market structure.

This also explains why the paper does not claim a definitive causal infrastructure effect. The available evidence is sufficient to identify patterns and temporal correspondence, but not to isolate a causal coefficient for infrastructure or employment.

14.3 Implications for Real-Estate Developers

For developers, the principal implication is that Tier-II should not be treated as a single investment thesis. The research suggests that development decisions should be based on the interaction of economic activity, employment, operational connectivity, housing demand, affordability, competing supply, and infrastructure timing.

A developer should therefore ask not merely "Is this a Tier-II city?" but rather: where are the jobs, where is the operational connectivity, who can afford the product, what competing supply exists, and what happens if planned infrastructure is delayed?

The five-city comparison also suggests that infrastructure announcements should not be treated as sufficient grounds for immediate land acquisition or premium positioning. Infrastructure is most meaningful when it connects households to actual economic opportunities and when the resulting demand is supported by appropriate housing supply.

The implication is therefore a shift from a broad city-level strategy toward a more precise sequence:

[City → Corridor → Employment Node → Demand Segment → Product]

14.4 Implications for Policymakers

For policymakers, the findings indicate that infrastructure planning and housing planning should be considered together. Transport infrastructure can improve accessibility, but the housing benefits of that investment are likely to be stronger when accompanied by employment creation, appropriate land-use planning, adequate housing supply, public transport integration, affordability measures, and supporting urban services.

NITI Aayog's urbanization framework similarly emphasizes the interaction between urban transport, housing, land policy and infrastructure rather than treating these systems independently.

The study also highlights the importance of better city-level housing and economic data. The research process encountered gaps in high-frequency airport traffic, local employment, city-level GDP and household-income information. Better standardized urban data would strengthen future research and help policymakers evaluate whether infrastructure investment is translating into broad-based housing and economic benefits.

Finally, policymakers should distinguish between housing-market growth and housing accessibility. Rising prices may indicate strengthening local economic conditions, but sustained urban development requires housing that remains accessible to the households generated by that growth.

14.5 Final Answer to the Research Question

The study asked: how do infrastructure development and local economic conditions interact with residential price movements across selected Tier-II Indian cities, and what does this reveal about the heterogeneity and sustainability of the Tier-II housing expansion?

The evidence suggests that infrastructure and local economic development interact rather than operate independently. Infrastructure improves accessibility and can support the development of employment and economic corridors. Employment and economic diversification can increase household formation and purchasing capacity. These factors can strengthen residential demand. However, the extent to which that demand becomes housing-price appreciation depends on local housing supply, affordability, financing conditions, buyer composition and the spatial distribution of development.

The five-city comparison demonstrates this clearly. Coimbatore recorded the strongest price appreciation, consistent with the interaction of a diversified industrial, engineering and technology economy with connectivity and residential development. Lucknow displayed strong appreciation alongside major urban and regional connectivity improvements and expanding employment-oriented development. Indore recorded sustained appreciation within a corridor-oriented economy combining technology, services and urban expansion. Jaipur experienced particularly strong later-period acceleration alongside broader regional connectivity and economic diversification. Nagpur provides the critical counterexample: major infrastructure and economic-development investment did not translate into proportionally strong aggregate HPI appreciation.

Siliguri, considered separately as a qualitative gateway-city case, further demonstrates that emerging urban markets can be shaped by fundamentally different development mechanisms, including regional trade, logistics and gateway connectivity.

The study therefore reaches a central conclusion: Tier-II India is not one housing market. It is a collection of heterogeneous urban markets in which infrastructure, connectivity and economic development interact with local housing-market conditions to produce different residential-price outcomes.

The evidence supports the existence of significant residential-market expansion across selected Tier-II cities, but it does not establish that infrastructure alone caused housing-price appreciation, that all Tier-II cities are experiencing a uniform speculative boom, or that rising prices necessarily represent stronger housing-market fundamentals in every location.

The sustainability of Tier-II residential growth therefore depends not simply on whether prices rise, but on whether employment, connectivity, housing supply, affordability and urban infrastructure develop together. That is the central contribution of the study.

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Appendices

Appendix A — Core NHB HPI Dataset

The quantitative analysis is based on a balanced panel containing:

- 5 cities × 28 quarters = 140 city-quarter observations
- Q2 2018–Q1 2025
- HPI@Assessment Price
- Base-year framework, source period and verification status recorded for each observation
- Year-on-year and quarter-on-quarter HPI growth calculated from the raw series

Appendix B — RBI and CPI Data

B.1 RBI Policy Repo Rate. The dataset preserves the underlying dated policy decisions as well as the quarter-end rate used in the analytical dataset.

B.2 CPI. The dataset preserves monthly CPI year-on-year observations, quarterly summaries, and the explicit identification of April and May 2020 as unavailable/non-compiled. No missing CPI observation is replaced by interpolation.

Appendix C — Infrastructure Timeline

Table — Infrastructure Events by City

City	Project	Type	Announcement	Construction/Development	Operation/Completion	Analytical Relevance
Jaipur	Jaipur Metro Phase 1B	Metro	2013	2014 onward	2020	Urban accessibility
Jaipur	Delhi–Dausa–Lalsot Expressway	Regional highway	2018	2019 onward	2023	Regional connectivity
Indore	Indore Metro	Metro	2018	2019 onward	Trial/commercial phase	Urban mobility
Indore	Super Corridor development	Urban corridor	—	Multi-year	Ongoing	Employment + development
Lucknow	Lucknow Metro	Metro	2014	2014 onward	2019	Urban accessibility
Lucknow	Purvanchal Expressway	Regional highway	2018	2018 onward	2021	Regional connectivity
Coimbatore	Airport development	Aviation	Multi-year	Multi-stage	Ongoing	External connectivity
Coimbatore	Major road/urban-connectivity works	Road	Multi-year	Multi-stage	Various	Accessibility
Nagpur	Nagpur Metro Phase I	Metro	2014	2014 onward	2022	Urban mobility
Nagpur	Samruddhi Mahamarg Phase I	Expressway	2015/16	2019 onward	2022	Regional connectivity

Project dates are drawn from the relevant project authority or government source for each city.

Appendix D — Employment and GCC Evidence Matrix

For each city, the evidence matrix preserves: company/project → year → documented activity → employment/investment where directly reported → source → interpretation. No employment number is converted into a quarterly observation unless the source actually provides such data.

Appendix E — Housing-Market Context

The appendix preserves supplementary evidence on absorption, premiumization, affordability and housing segments, drawn from Knight Frank, JLL, CBRE, ANAROCK and MagicBricks reporting. Each observation retains its original source definition; industry measures are not silently converted into NHB-equivalent observations.

Appendix F — Siliguri Qualitative Evidence

Siliguri is documented separately through Bagdogra Airport connectivity, road and rail connectivity, regional trade, and residential-development corridors. No Siliguri HPI is inserted into the 140-observation quantitative panel.

Appendix G — Variable Construction

Year-on-Year Growth

$$YoY_t = ((HPI_t / HPI_(t-4)) - 1) \times 100$$

Quarter-on-Quarter Growth

$$QoQ_t = ((HPI_t / HPI_(t-1)) - 1) \times 100$$

Cumulative Appreciation

$$Appreciation = ((HPI_T / HPI_0) - 1) \times 100$$

Compound Annual Growth Rate

$$CAGR = (HPI_T / HPI_0)^{(1/n)} - 1$$

Appendix H — Missing-Data Register

Dataset	Limitation	Treatment
NHB HPI	Interactive/archival retrieval constraints	Core verified panel frozen at Q2 2018–Q1 2025
AAI	Incomplete historical monthly archive	Used as supporting connectivity evidence
CPI	April–May 2020 unavailable/non-compiled	No interpolation
City GDP	No consistent quarterly official series	Excluded from core model
City income	No consistent quarterly official series	Interpretive evidence only
City employment	No consistent comparable quarterly series	Structural/event evidence
Siliguri HPI	No comparable core series	Qualitative case only

Appendix I — Evidence and Claim Audit

Every major conclusion in this paper is traceable through the chain: Claim → Evidence → Source → Interpretation → Limitation. This principle was used as the final control on every quantitative and comparative claim before submission.

The five-city panel contains 140 city-quarter observations within the defined core dataset. Coimbatore has the highest calculated cumulative appreciation in the panel: 57.43%. Lucknow is second at 49.50%. Indore: 43.69%. Jaipur: 42.00%. Nagpur: 18.81%.

NHB describes HPI@Assessment Prices as being computed using valuation data received from banks and housing finance companies (Kothari et al., 2026). NHB currently identifies RESIDEX as a quarterly housing-price index and maintains historical quarterly releases (National Housing Bank, n.d.). RBI confirms the 2022 tightening sequence: 4.90% in June, 5.40% in August, 5.90% in September, 6.25% in December, and 6.50% in February 2023 (Reserve Bank of India). CRISIL confirms the 14% FY2021–FY2026 Tier-II residential-demand CAGR and approximately 20% growth for Nagpur, Coimbatore and Lucknow, and explicitly notes that price and home-loan-utilization trends diverge across cities (CRISIL Intelligence, 2026). NITI Aayog's affordable-housing work explicitly frames affordability around coordinated land, finance and governance action (NITI Aayog, 2025).

Consistent with this audit, the paper deliberately avoids claims the evidence does not support: that infrastructure alone caused a specific percentage of HPI growth in any city; that Nagpur's infrastructure "failed" (rather, Nagpur recorded relatively low aggregate HPI appreciation despite substantial infrastructure and economic-development investment); that Coimbatore's diversified economic base "caused" its 57.43% appreciation (rather, Coimbatore's strong HPI performance occurred alongside a diversified manufacturing, engineering and technology base); that Tier-II India has a housing bubble (the data do not establish this); or that Tier-II India has an affordability crisis at the aggregate level.

The CPI variable used throughout this paper is described precisely as the All-India Combined CPI year-on-year inflation rate, summarized quarterly where appropriate — not as an "annualized CPI," a looser phrasing avoided throughout for precision. Employment and investment figures reported in city-level sections are retained only where a primary source is directly attached or verifiable; where a figure could not be independently confirmed, the underlying corporate or institutional expansion is instead described qualitatively rather than attached to an unverified number.