

ANALYSING THE IMPACT OF INNOVATION HUBS ON URBAN REAL ESTATE TRENDS IN INDIA

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Abstract. This research analyses the influence of emerging innovation hubs on urban real estate trends in India. A quantitative methodology is employed to collect primary data through a structured online survey via Google Forms. Data were distributed to 228 relevant stakeholders with direct or indirect experience in urban innovation environments, of whom 225 responded to the survey. The survey was analysed using Spearman's rank-order correlation to assess relationships between innovation hubs and variables such as job creation, commercial transformation, gentrification, investment patterns, property value shifts, urban fragmentation, and sustainability discrepancies. Results show strong positive associations between innovation hubs and business space transformation ($r = 0.628, p = 0.000$), job creation and urban growth ($r = 0.602, p = 0.000$), and increased property values and demand ($r = 0.585, p < 0.001$). Certain consequences were also evident, notably gentrification ($r = 0.666, p\text{-value } 0.000$). Urban fragmentation and inconsistency in sustainable development were found to have a weaker correlation with innovation hubs. Hence, these two impacts are statistically insignificant. Findings reflect that innovation hubs promote economic and infrastructural growth while simultaneously addressing social equity issues. The study ends with recommendations for how innovation hub planning can be more embedded into general urban policy to even out development outcomes and reduce social differentiation. This research provides a novel, data-driven evaluation of exactly how innovation hubs shape the urbanised development of India through Spearman's correlation analysis.

Keywords: *Innovation hubs, Spearman correlation analysis, sustainability challenges, urban growth theory, urban real estate trends.*

INTRODUCTION

Rapid economic growth, technological advancements, and knowledge-based industries have influenced India's urban landscape in recent decades. As cities develop and grow, real estate dynamics are altered by infrastructure improvements, governmental policy, and demographic shifts. Among these, innovation hubs are nowadays important drivers of urban evolution, triggering entrepreneurship, technology-related industries, and collaborative paradigms that have a significant influence on real estate patterns. These hubs (research centres, business incubators, co-working spaces) catalyse regional economic growth, which creates demand for

residential, commercial, and mixed-use properties around them. Concentrated intellectual capital and investment around innovation hubs result in higher property valuation, higher rental yields, and strategic urban planning to accommodate the workforce and businesses drawn to these knowledge-driven clusters. This expansion of such hubs across Tier I city locations of India's metropolitan areas, such as Bengaluru, Hyderabad, Pune, and the National Capital Region, highlights their growing importance in urban spatial development and market dynamics (Li & Zhang, 2020). Hence, the main research question is: How do innovation hubs influence urban real estate trends in India, namely, how do they affect property demand, pricing strategies, investment patterns, and sustainability-oriented urban growth? This research examines the mechanisms by which these hubs promote economic concentration and real estate change, revealing their role in creating modern, competitive, and sustainable urban ecosystems.

Because innovation hubs interplay with the economics of the underlying urban real estate, such hubs afford insights relevant to the creation of value that policymakers, developers, and investors can leverage to stimulate economic activity while remedying problems of affordability, infrastructure, and market speculation that often accompany such growth, as well as others (Kauko, 2018). While past works have analysed technology clusters and entrepreneurial ecosystems in global city regions, the indirect impact of innovation hubs on real estate markets in India is an open issue. The current fills that gap by exploring the influence of these innovation hubs on the urban real estate sector. Importantly, this research can address the needs of real estate stakeholders regarding the benefits and risks of innovation-led urban development.

There are very few sufficiently broad frameworks linking innovation hubs to real estate investment decisions, affordability questions, and long-term urban planning strategies. Addressing this issue is critical, as unchecked development around innovation hubs could create income inequalities, gentrification, and inadequate housing for low-income groups. The research thus seeks to bridge the theoretical and practical gap for urban policy formulation, market optimisation, and sustainable development initiatives. The theoretical framework that explains the link between innovation hubs and the urban real estate trends is the urban growth theory (UGT) that highlights the importance of agglomeration economies in real estate dynamics.

1. LITERATURE REVIEW

In the current section, the theoretical framework that explains the impacts of innovation hubs on urban real estate trends in India and those impacts are discussed.

1.1. The Urban Growth Theory

The urban growth theory documents how cities grow and change in response to economic development, technology, and dynamics of the underlying market. According to this theory, cities grow when industries, business, and innovation-driven firms congregate and create demand for housing, commercial space, and

infrastructure development. To the extent that cities are economic centres, employment opportunities, transport, and investment flows induce urban expansion and thus land-use patterns and property values. These aggregation economies form the basis of urban growth theory and describe how businesses and talent cluster in particular locations to create high-value urban districts that draw additional investment and development. In real estate, this clustering effect drives up property values, creating demand for mixed-use developments and city planning to house new industries (Bhusal et al., 2024). The theory explains how cities respond to entrepreneurial ecosystems, technological innovation, and policy interventions, and is thus an appropriate lens for analysing structural changes in urban landscapes. Understanding mechanisms of urban expansion allows developers and policymakers to foresee future real estate trends, land use optimisation, and sustainable infrastructure in line with innovation-led urbanisation dynamics. (Bhusal et al., 2024).

Also, the UGT reveals how innovation hubs shape real estate trends – property markets, investment strategies, and spatial planning. These hubs – with research centres, startup incubators, and high-tech business districts – renew the city by attracting skilled professionals, businesses and investors to city centre locations. The resultant concentration of economic activity causes real estate appreciation as demand for office spaces, residential units, and commercial establishments grow within and around these hubs of economic activity. (Zhang et al., 2023). Moreover, the UGT describes how development driven by innovations inspires infrastructure expansion, enhances land utility, and reforms zoning regulations for new businesses. The theory highlights the problems of fast urbanisation, issues around affordability, gentrification, and altering market forces that affect the poorest. Drawing upon the UGT, real estate stakeholders, urban planners, and policymakers could guide the location of innovation hubs in city planning to enable balanced development of economic activities with less speculative growth risks. This theoretical foundation makes a predictive framework of urban transformation possible whilst also making more comprehensible how innovation hubs form the basis of real estate ecosystems in modern, sustainable, and adaptive Indian cities (Zhang et al., 2023).

Furthermore, the UGT reveals the significance of incorporating innovation hubs into broader urban planning frameworks to reduce the risks associated with uneven development. Despite of their significant role in augmenting economic growth, and adoption of advanced technology, these innovation hubs have benefits limited to specific areas. With the help of UGT, policymakers, and urban planners can analyse this imbalance via equitable allocation of resources, inclusive zoning policies, and strategic land-use planning and make sure that the growth and development stimulated by these innovation hubs benefit all sections of society (Li & Gong, 2016).

Thus, the UGT helps interpret the influence of innovation hubs on urban real estate trends. The theory also sheds light on spatial and economic shifts around innovation hubs by focusing on the effect of economic clustering and entrepreneurial ecosystems on land use, infrastructural development, and property markets. It thus also highlights the challenges of the ongoing rapid urbanisation –

issues of affordability and socio-spatial inequality – and is, hence, useful to interpret ongoing transformations, but equally and more broadly to anticipate future patterns of (urban) development. In India's changing urban context, this theoretical lens helps planners, developers, and policymakers align innovation-driven growth with balanced, inclusive, and sustainable real estate strategies.

1.2. Major Impacts of Innovation Hubs on Urban Real Estate Trends in India

Innovation hubs stimulate economic activity and, consequently, demand for commercial and residential properties in urban areas is rising. They influence property values along with investment patterns and city planning and also create questions about housing affordability and infrastructure strain. These hubs are modernising the urban landscape of India (Coelho & Sood, 2022).

1.2.1. Economic and Market Impacts

Innovation hubs increase property value and demand in urban areas. As these hubs draw businesses, startups and skilled professionals, the surrounding real estate market is very active for residential and commercial space. Investors and developers see high returns and properties get expensive fast. This is very prominent in cities such as Bengaluru, Pune, and Hyderabad where technology parks and research centres have changed the local real estate paradigm. This growth benefits homeowners and investors but raises affordability questions for middle- and lower-income households. Moreover, rising costs might drive some away and render some housing inaccessible to some demographics. This suggests innovation hubs are economic drivers despite their influence on real estate markets that causes housing inequality (Mukund et al., 2024).

The existence of innovation hubs changes investment patterns in terms of the types of properties developed and the financial strategies of investors. The developers need commercial space for technology firms, co-working space, and mixed-use developments for professionals and entrepreneurs (Florida et al., 2017). It generates a real estate market dynamic where former office space becomes an innovation-led flexible workplace. High-growth areas are spotted by foreign and domestic investors and urban transformation accelerates. This shows that innovation hubs draw huge investments (Tagliaro et al., 2024).

The innovation hubs also redefine commercial spaces – leasing models and business environments. Traditional office setups are replaced by co-working spaces, incubators and technology parks for collaboration and entrepreneurship. That change enables business efficiency and adaptability for startups or enterprises to thrive in innovation-based ecosystems. The need for contemporary commercial areas makes developers think about smart infrastructure, energy-efficient designs, and technologically advanced facilities. That changes things for businesses and boosts urban productivity, which means innovation hubs reconfigure commercial real estate to reflect contemporary business surroundings (Jiménez & Zheng, 2021).

Innovating hubs develop jobs and businesses of their own that affect urban real estate trends. As such, hubs draw professionals and entrepreneurs, housing, office spaces and retail establishments are in high demand. All that talent creates new

home construction, shopping centres, and entertainment districts. This cycle of growth gives vitality to local economies and urban areas. This shows that innovation hubs foster the economic dynamism of the city (Tricarico, 2024).

H1a: Innovation hubs increase property values and demands by enhancing the economic growth in the urban real estate sector.

H1b: Innovation hubs cause shifts in investment patterns that promotes modern developments in the urban real estate sector.

H1c: Innovation hubs transform commercial spaces and boosts productivity in the urban real estate sector.

H1d: Innovation hubs drive job creation along with urban growth that fosters economic stability in the urban real estate sector.

1.2.2. Urban Development and Sustainability Impacts

Innovation hubs cause urban fragmentation because infrastructure development is not equally spread across city zones. These hubs drive investments in transport networks and modernised facilities, but resources are mainly concentrated in high-growth areas and other areas are underdeveloped. This differential expansion can produce disparities in access to many urban services (some districts develop while others are deprived of infrastructure and connectivity). Selected resource allocation results in imbalances in urban planning, and this, in turn, worsens economic and spatial divisions within cities (Borén, 2023).

Gentrification is the result of innovation hubs displacing poorer residents as property values and rents skyrocket. The increase of businesses along with professionals increases the demand for upscale housing along with commercial space, making affordability challenging for established communities. Established neighbourhoods are remodelled into upmarket commercialised areas, and heritage and social balance is lost. Such economic restructuring impacts the most vulnerable populations and prevents them from remaining in areas that had been accessible. The widening socio-economic divide points to the undesirable social outcomes of innovation-led urban renewal (Biswas et al., 2022).

Cost constraints and selective implementation foster sustainable development but inconsistently impact the environment. In premium districts, green building initiatives and eco-conscious urban planning are usually given much more priority than less developed areas. That means sustainability measures help high-investment zones while others suffer from old infrastructure and inefficient resource use. The dependence on expensive sustainable technologies prevents environmental progress over whole urban landscapes. Differences in sustainability efforts reveal uneven implementation of strategies for innovation-led urban development (Nenni et al., 2024).

H2a: Innovation hubs cause urban fragmentation by promoting uneven infrastructural development in the urban real estate sector.

H2b: Innovation hubs accelerate gentrification that displaces lower-income residents and alter neighbourhood demographics in the urban real estate sector.

H2c: Innovation hubs cause inconsistency in sustainable development in the urban real estate sector.

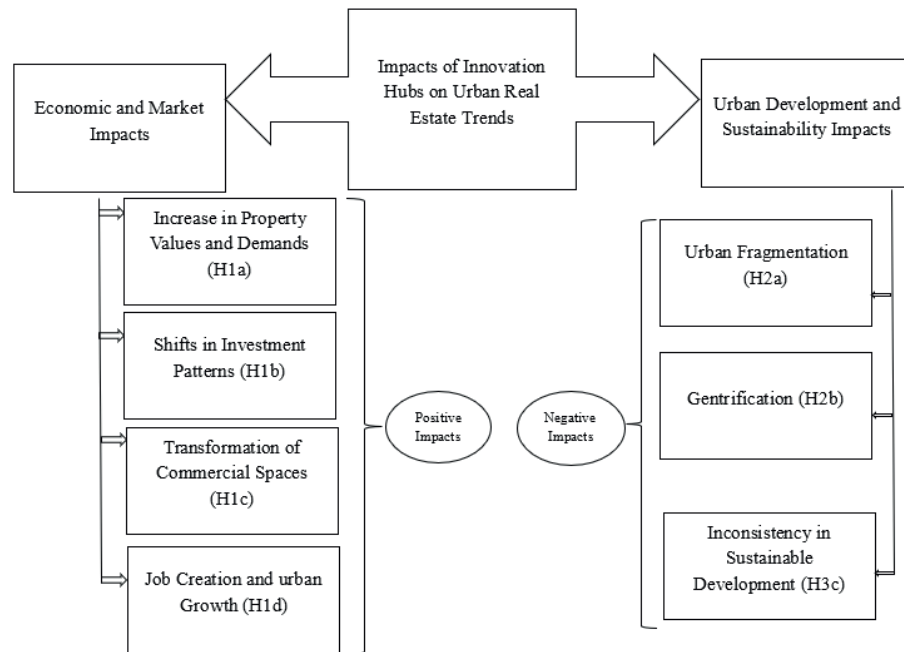


Fig. 1. Hypothesized impacts of innovation hubs on urban real estate trends (developed by the authors).

Figure 1 provides a summarised view of the impacts of innovation hubs on urban real estate trends in India.

2. RESEARCH METHODOLOGY

2.1. Measures

A quantitative approach is employed in the current study. Quantitative research explains phenomena by collecting numerical unchanging detailed data that are analysed mathematically, namely, statistics asking questions like who, what, when, where, how much, how many, and how. It is about numbers, logic, and objective stance. This type of original research is conducted where the researcher decides what to study, asks a narrow question, collects quantifiable data from participants, analyses numbers using statistics and does so objectively and unbiasedly (Mohajan, 2020). A survey is conducted in this research on relevant stakeholders from Kerala – the southernmost part of India. Of the 228 targeted stakeholders, 225 responded. This is much more than the expected sample size of the survey, and the survey data is scrutinised with the help of Microsoft Excel and SPSS 29 software (Cronbach's alpha analysis and Spearman's correlation test). Through the literature review, two major categories of impacts of innovation hubs on urban real estate trends – economic and market impacts, and urban development and sustainability impacts – are recognised. Innovation hubs drive economic growth and investment trends in urban real estate in India and modernise commercial spaces and employment opportunities (Sood et al., 2024). However, this expansion also causes problems,

including urban sprawl, gentrification, unaffordability, and uneven sustainability efforts.

The survey contains 18 questions divided into four sections where the very first section asks the consent of the participant to take part in the survey. In the following section, the demographic details of the participants are collected. In the last two sections, 5 general questions are asked regarding the innovation hubs in India and also all the impacts identified in the literature review are addressed. This structure helps in improving the understanding of the various impacts of innovation hubs on urban real estate trends in the country. The survey reliability is validated in the current study by conducting Cronbach's alpha analysis on the survey data. The Cronbach's alpha analysis is employed in research to estimate the reliability or internal consistency of an instrument or scale, and 0.70 or higher is generally desirable. Acceptable alpha values can be obtained even when measuring multiple constructs or including difficult or loosely related items, although qualitative significance varies across studies (Taber, 2018). The average alpha value here is 0.847, which ensures high internal consistency and reliability. Table 1 provides the values of individual Cronbach's alpha analysis of the survey variables.

Table 1. Reliability Analysis of Impacts in Innovation Hubs on Real Estate Trends in India (SPSS 29 Software)

Impacts	Cronbach's alpha
Increase in Property Values and Demands	0.834
Shifts in Investment Patterns	0.831
Transformation of Commercial Spaces	0.838
Job Creation and Urban Growth	0.834
Urban Fragmentation	0.842
Gentrification	0.839
Inconsistency in Sustainable Development	0.843

Here, impacts such as urban fragmentation (0.842), gentrification 0.839, and inconsistency in sustainable development (0.843) are particularly high, suggesting that the survey items measure the intended constructs. Even economic and market impacts such as increased property values and demand (0.834), shift in investment patterns (0.831), job creation and urban growth (0.834), and transformation of commercial space (0.833) are also reliable and reinforce the dataset validity. Minor differences among these values do not tarnish the survey as a whole, as all figures are within the desired range. As a result, the data could be considered reliable. Responses truly captured relationships between innovation hubs and corresponding urban real estate dynamics across India.

2.2. Research Sample and Analysis

Convenience sampling is employed in the current study. It is a non-probability sampling. Convenience sampling provides many benefits. First, researchers do not

need to spend as much time choosing participants as with various other non-random sampling methods. Second, convenience sampling requires that the researcher select participants at a low cost. Third, the researchers spend less time collecting the sample because the target population sample is readily available. This technique may give a good sample in some situations even with its shortcomings (Golzar et al., 2022). The research questions were developed in Google Forms and were distributed to relevant stakeholders through WhatsApp, Facebook, and Gmail. The targeted stakeholders here include urban planners, policymakers, real estate developers, investors, business owners, and research scholars from Kerala, the southernmost part of India. The survey was conducted in a time period of three weeks (from 1 February 2025 to 21 February 2025). A pilot study was conducted on the survey data collected from the first 15 participants by performing Cronbach's alpha analysis to make sure that the survey was suitable before carrying out further research. After doing the pilot study, necessary corrections were made to the questions before distributing them to the remaining 110 stakeholders.

The survey data were subjected to the analysis with the help of Microsoft Excel. The survey response rate was satisfactory as out of the 228 stakeholders who were approached, 225 participated. The survey data suggest an overall high level of representation of mid-career and younger professionals, with respondents aged 25–34 representing the largest age group (40 %), followed by those below 25 (27 %), and 35–44 (24 %), with relatively low levels of representation of more mature demographics. Distribution is fairly evenly divided between males and females, with 10 % choosing not to disclose. The majority hold a Bachelor's (32 %) or Master's degree (29 %), followed by a diploma in real estate management (16 %) and other professional certifications (16 %). The professional background is varied: real estate developers (23 %), policymakers (16 %), investors (24 %), business owners (16 %), urban planners (11 %), and research scholars (10 %) providing additional insights. Experience levels indicate a high proportion of early-career representation – 3–5 years (31 %), 1–3 years (30 %) are most common – and only 4 % have more than 10 years of expertise. These factors, along with the relatively young profile of the survey respondents, suggest that the survey draws primarily insights from those designing and implementing innovation hubs themselves – young professionals, policymakers, and industry stakeholders – thereby shaping perceptions about how innovation hubs influence urban real estate trends.

3. RESULT AND DISCUSSION

3.1. Data Analysis

The most critical questions for each part of the survey are chosen based on analysis of responses, as shown in Fig. 2. Prioritization was done by summing positive responses (strongly agree or agree) to identify questions to which respondents were most in agreement. Since the ranking is dependent on agreement levels, it identifies issues that matter to the majority of stakeholders. Focusing on these top priorities affords a more disciplined discussion, possibly permitting a more substantive exploration of matters of concern and their relationship to the aims of studying. This allows focused analysis of categories that remain relevant to the

main concerns of the surveyed respondent. Table 2 below provides the details of the priority assessment done on the identified impacts of innovation hubs on urban real estate trends.

Table 2. Priority Assessment of Impacts of Innovation Hubs
(developed by the authors)

Impacts	Highest priority percentage
Increase in Property Values and Demands	45
Shifts in Investment Patterns	50
Transformation of Commercial Spaces	44
Job Creation and Urban Growth	48
Urban Fragmentation	55
Gentrification	63
Inconsistency in Sustainable Development	54

The survey results show that gentrification (63 %) is the most frequently acknowledged impact of innovation hubs, with urban fragmentation (55 %) and inconsistency in sustainable development (54 %) also identified by respondents. 50 % acknowledge the shift in investment patterns and 48 % approve of job creation and urban growth. An increase in property values and demand is accepted by 45 % while the transformation of commercial spaces is accepted by 44 %. While economic impacts such as investment shifts and property value increases are generally acknowledged, sustainability and urban fragmentation, as well as gentrification, remain problematic.

The descriptive evaluation of the survey data points to a mixed yet informative profile of the participants dominated by younger, early to mid-career professionals with advanced schooling qualifications. Respondents include real estate developers, policymakers, and investors – a different mix of business insight.

Results suggest that although common acceptance of innovation hubs influences investment behaviour, property values, and sustainable development methods, there are extensive reservations about their community impacts, including job creation, gentrification, and urbanised fragmentation. Such nuanced understanding calls for healthy methods that explore financial opportunities arising through innovation hubs, but provide due consideration to issues of inclusiveness and longer-term urbanised resilience. Table 3 provides an outline of descriptive analysis.

Table 3. An Outline of Descriptive Analysis (SPSS 29 Software)

Variables	N	Mean	Standard deviation	Skewness	Kurtosis
Age	225	2.02	0.85	0.57	-0.41
Gender	225	1.55	0.63	0.81	0.33
Occupation	225	2.46	1.05	0.34	-0.89
Educational Qualification	225	2.23	0.91	0.22	-0.73
Work Experience	225	1.98	0.79	0.69	-0.25
Increase in Property Values and Demands	225	3.41	0.68	-0.16	-0.35
Shifts in Investment Patterns	225	3.53	0.72	-0.11	-0.41
Transformation of Commercial Spaces	225	3.39	0.66	-0.14	-0.29
Job Creation and Urban Growth	225	3.46	0.70	-0.19	-0.38
Urban Fragmentation	225	3.67	0.74	-0.20	-0.30
Gentrification	225	4.21	0.62	-0.52	0.10
Inconsistency in Sustainable Development	225	3.63	0.78	0.02	-0.47

The demographic profile indicates a high proportion of early to mid-career professionals with a median coded age of 2.02 and standard deviation (SD) of 0.85, indicating a youthful age group. Gender representation shows equal participation (Mean 1.55, SD 0.63) with some right skewness (0.81), because a small percentage chose not to disclose their gender. More than one-half of the participants have some form of higher education (Mean = 2.23, SD = 0.91). Occupation data (Mean = 2.46; SD = 0.10) reflect professional diversity with some right skew. Working experience is spread over 1 to 5 years (Mean = 1.98). With SD = 0.79 and moderate positive skewness (0.69), most participants were early-career professionals. Such a profile highlights young, educated actors participating in urban innovation discussions.

Findings also indicate gentrification as the top impact of innovation hubs most strongly perceived in India with 63 % of stakeholders agreeing on a mean of 4.21 with low variability (SD = 0.62). This is followed by urban fragmentation where 55 % are in agreement (Mean = 3.67, SD = 0.74), and 54 % admit to inconsistency in sustainable development (Mean = 3.63, SD = 0.78). Shifts in investment patterns (Mean = 3.53 SD = 0.72) and job creation and urban growth (Mean = 3.47 SD = 0.70) are moderately supported. Accretion of property values (Mean = 3.41, SD = 0.68) and transformation of commercial spaces (Mean = 3.39, SD = 0.66) are perceived as less favourable. Overall, urban development and sustainability impacts – notably gentrification – are perceived more strongly than economic or physical infrastructure changes.

Table 4. Spearman Correlation Analysis of Key Impacts of Innovation Hubs (SPSS 29 Software)

Variables	Spearman correlation analysis	Sig. (2-tailed) ($p < 0.05$)	Status
Increase in Property Values and Demands	0.585	<0.001	Accepted
Shifts in Investment Patterns	0.552	<0.001	Accepted
Transformation of Commercial Spaces	0.628	0.000	Accepted
Job Creation and Urban Growth	0.602	0.000	Accepted
Urban Fragmentation	0.137	0.030	Accepted (Very Weak)
Gentrification	0.666	0.000	Accepted
Inconsistency in Sustainable Development	0.084	0.220	Rejected

Table 4 gives details of the Spearman's correlation analysis performed on the survey data. The presence of innovation hubs and some urban development factors are related through Spearman's correlation analysis. Spearman's correlation coefficient (r) measures the power and direction of the association while the p -value (p) measures the statistical significance of the correlation (Rahman & Mehnaz, 2024). There is a strong correlation between innovation hubs and transformation of commercial spaces ($r = 0.628$, $p = 0.000$) indicating that innovation hubs drive major changes in real estate infrastructure as well as in business models. Similarly, job creation and urban growth are positively related ($r = 0.602$, $p = 0.000$) inferring that innovation hubs create more employment opportunities and economic activity. Investment patterns change notably with a moderate correlation ($r = 0.552$, $p < 0.001$), indicating a preference for contemporary commercial spaces. Moreover, the increased property values and demands is related to innovation hubs (with $r = 0.585$, $p < 0.001$) indicating their continuing impact on real estate markets. The statistical significance across these measures reflects their reliability and highlights the role of innovation hubs in urban economic expansion.

Also, gentrification is positively associated ($r = 0.666$, p -value 0.000), implying that these hubs can drive up property values and result in the displacement of low-income communities. Urban fragmentation, on the other hand, shows only a weak correlation ($r = 0.137$, $p = 0.030$), which reflects a relatively small effect. Strangely, inconsistency in sustainable development has a very weak correlation ($r = 0.084$, $p = 0.220$) without statistical significance, which suggests that innovation hubs may have little or no role in inconsistency in sustainable development directly. Collectively these findings have a mixed effect – although economic benefits are clear, affordability and equitable urban development remain questions.

In short, the analysis identifies the major impacts of innovation hubs on urban real estate sector. These hubs are key to growth, from transforming commercial space to changing investment patterns to altering property values. However, they also cause gentrification and in lesser measure urban fragmentation. Strategies that

balance these effects while ensuring innovation-led urban development are inclusive and sustainable. Efforts to limit displacement and promote equitable infrastructure distribution are crucial in unlocking the positive potential of innovation hubs while addressing various hurdles.

3.2. Discussion

Statistical associations between innovation hubs in India and their inferred impacts on urban real estate are discussed. Relationships of economic indicators to social consequences were determined by Spearman's rank correlation coefficient r . With each coefficient, p -values (p) establish the statistical significance of the relationships and indicate whether the correlations are likely to reflect real-world patterns or random chance. The analysis of 225 respondents provides a baseline on how innovation hubs are influencing urban India.

The resultant analysis shows that innovation hubs are positively associated with the transformation of commercial spaces ($r = 0.628$, $p = 0.000$). This points to a quick evolution in designing and usage of urban commercial spaces where demand moves towards flexible, high-tech, and multifunctional ambiances. It highlights how innovation hubs are changing the city architecture physically and functionally to accommodate the needs of a technology-based economy. This finding supports the studies conducted by Jiménez and Zheng (2021).

The analysis also shows that innovation hubs positively relate to job creation and urban growth ($r = 0.602$, $p = 0.000$). This means that they are drawing enterprises, and also creating some economic activity and some ripple effect of economic development, of talent and resources and urban development coming into those spaces as stated by Tricarico (2024). This relation reflects global observations that innovation ecosystems increase productivity and stimulate local economies. Still, more investigation is required to determine whether the employment opportunities created are not merely racialized and if they are accessible to all skill levels. The third and important finding is the moderate positive association of innovation hubs with a shift in investment patterns ($r = 0.552$, $p < 0.001$). This represents the reallocation of capital to areas of higher return via innovation-focused infrastructure and services, as validated by Tagliaro et al. (2024). A similar trend is observed in the correlation between hubs and increases in property values and demand ($r = 0.585$, $p < 0.001$), suggesting that urban property closer to innovation centres is more desirable and more expensive. These patterns support economic revitalization but also raise questions about affordability and housing accessibility for non-investor groups, as discussed by Mukund et al. (2024) in their study.

From a social perspective, gentrification is a high-risk consequence of innovation hubs, as confirmed by the strong correlation ($r = 0.666$, $p = 0.000$). The capital and development coming in may displace the communities that are already there, and change the socio-cultural complexion of neighbourhoods, which is also validated in a study conducted by Biswas et al. (2022). While urban fragmentation is only weakly related ($r = 0.137$, $p = 0.030$), which makes it very difficult to draw meaningful conclusions despite of its significance recognised by Borén (2023). This finding implies that urban fragmentation is not directly associated with innovation

hubs even though it is statistically accepted. These insights warrant policies protecting vulnerable groups while allowing innovation-driven progress. Strangely, a weak statistically insignificant correlation is also found for inconsistency in sustainable development ($r = 0.084, p = 0.220$). This showed that the mere existence of innovation hubs might not be a significant driver of environmental and sustainability issues even though Nenni et al. (2024) found out a remarkable relationship between them. The importance though is that as these hubs grow, keeping environmental harmony requires proactive governance – particularly around energy use, squander management, and carbon emissions.

Thus, the Spearman's correlation reveals a more mixed picture of the innovation hub phenomenon. Economically, they are redefining urban real estate and investment behaviour and driving employment and commercial modernisation. Conversely, they also correlate with social issues like gentrification and spatial inequalities. This weak association with sustainability issues provides an opening for integrating environmentally responsible planning from the outset. With India further promoting its innovation ecosystems, the findings all the more signal the need to follow inclusive, wholesome development strategies that capitalise on innovation's benefits yet contain the drawbacks. Therefore, the hypothesis statements H1a, H1b, H1c, H1d, and H2b are accepted whereas H2a and H2c are rejected. Figure 2 depicts a recommendation plan based on the findings of the analysis.

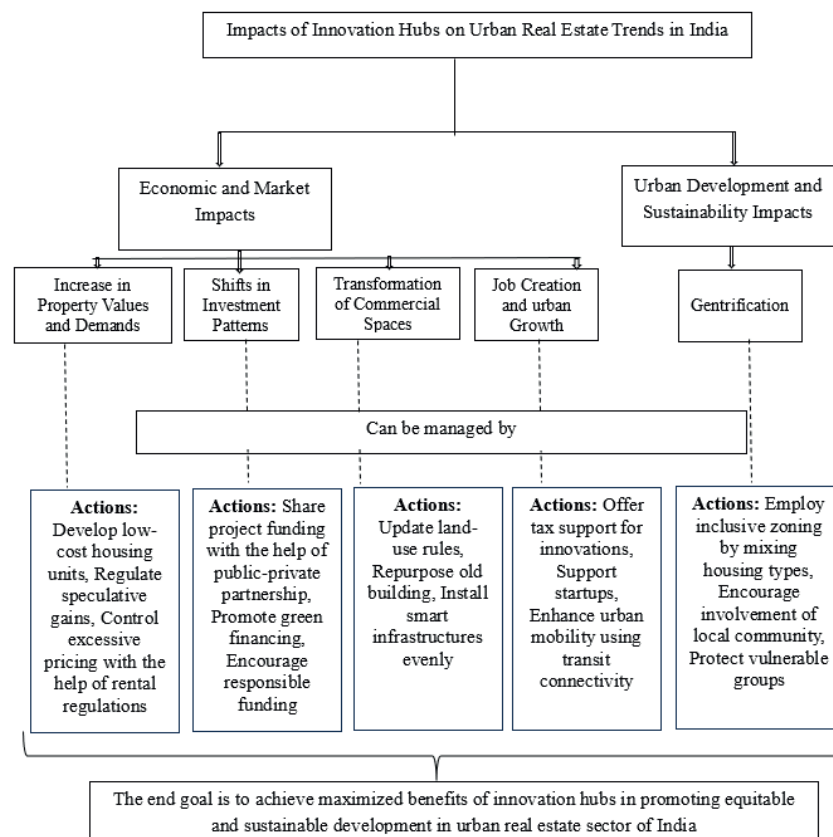


Fig. 2. Framework and recommendations for the impact of innovation hubs on urban real estate development (developed by the author).

The above given recommendation framework suggests a holistic and forward-thinking approach to managing the emergence of innovation hubs in India's urban real estate sector by balancing economic momentum of investments, property demands and commercial evolution with social hurdles like unaffordability in housing and spatial equity. Initiating strategies for affordable housing development, inclusive zoning policy, joint funding mechanisms and adaptive land use planning, the plan ensures socially responsible growth (Chava & Newman, 2016). All in all, it situates innovation hubs as drivers of inclusive and balanced urban development – economically but also in terms of smart, just, and future-proof planning.

4. PRACTICAL AND THEORETICAL IMPLICATIONS

This study offers practical and theoretical implications regarding urban planning, policymaking, and real estate investment – in particular, innovation hubs. In practice, the findings demonstrate their economic impact on commercial space transformation, job creation, and investment behaviours. Politicians can take these insights to devise strategies for sustaining urban growth while addressing affordability and gentrification issues. Such correlations with rising property values indicate that developers and investors can expect demand shifts near innovation clusters, while a weak link with sustainability issues indicates a potential to embed environmentally responsible policies early. Theoretically, this research informs urban economics and spatial transformation discussions that innovation-led development remakes city structures. Results are in accordance with agglomeration theories and knowledge-based economies: high-tech clustering increases productivity but feeds socio-economic disparities. High correlation with gentrification supports urban theories of displacement while low correlations with urban fragmentation and sustainability indicate innovation hubs are not principal agents of spatial disruption nor environmental issues. These results provide a basis for further work on urban policy, economic geography, and planning an innovation-driven city with particular emphasis on balanced governance for just and sustainable urban development.

5. LIMITATIONS

This study has tried to understand how innovation hubs shape the development of the urban real estate sector but there are some limitations. While the sample size is sufficient for correlation analysis, it may not fully represent all affected stakeholders especially those undergoing gentrification and urban fragmentation. Also, the geographical focus is on the southernmost part of India, which cannot be generalised for the entire country. Similarly, the weak relationships between innovation hubs and sustainability trade-offs indicate relatively less direct effects, while without detailed investigation the work does not fully reveal certain environmental aspects, including energy efficiency, carbon emission, or green infrastructure implementation.

6. FUTURE RESEARCH AREAS

As the present study investigated the influence of innovation hubs on urban development, future research could build on this insight to identify more mechanisms driving these correlations and their long-term implications. Whereas this study investigated how innovation hubs influenced commercial space transition, investment patterns, property values, employment creation, and gentrification, future inquiries should evaluate causal relationships among variables and control for extraneous factors, including policy regimes and economic cycles. Further research on a combination of spatial and economic modelling techniques to project innovation-led urban expansion should also be conducted to assess whether these hubs are part of balanced, environmentally responsible urban development by integrating sustainability principles and financial reports. Possible questions for future research might include: How can urban policy and governance regulate the economic and social influences of these innovation hubs? In what ways does innovation-led development contribute to long-term economic stability and fair urban growth? How should innovation hubs tame the negative effects of gentrification, without killing the positive economic momentum? Answering these questions provides insight for various stakeholders to help build more sustainable, inclusive, innovation-driven cities. By concentrating on these critical areas, upcoming research can improve approaches to take full advantage of innovation hubs and limit unwanted socio-economic effects.

CONCLUSIONS

This study has analysed the effect of innovation hubs on urban real estate trends according to Spearman's correlation analysis, in terms of several key variables. Results indicate that innovation hubs transform commercial spaces (0.628), investment behaviours (0.552), and property values and demands (0.585), with good correlations with these economic indicators. These innovation hubs also drive job creation and urban growth (0.602) and foster an innovation-led economic activity. While these hubs provide economic advantages, they also pose social barriers like gentrification (0.666). Urban fragmentation (0.137) is another less strongly related issue that may become relevant as innovation hubs expand and may produce infrastructure inequalities. Its weak correlation with inconsistency in sustainable development (0.084) indicates that innovation hubs do not necessarily disturb environmental stability but that their development does not explicitly address this gap that urban planners and policymakers must fill. These insights show that economic progress must not overshadow social equity, and that balanced urban development strategies are needed.

Based on these findings, the study concludes that a whole-system approach promotes innovation-led urban development. Equitable zoning policies, affordable housing, and sustainable infrastructure investment strategies can, for instance, reduce certain negative outcomes of gentrification and spatial fragmentation and increase the long-run viability of innovation-driven urbanisation. Similarly,

accommodating sustainability in building these hubs could strengthen environmental resilience yet support economic growth.

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