Impact of FSI Deregulation in Hyderabad

Understanding Market Responses, Planning Gaps, and the Future of Vertical Growth

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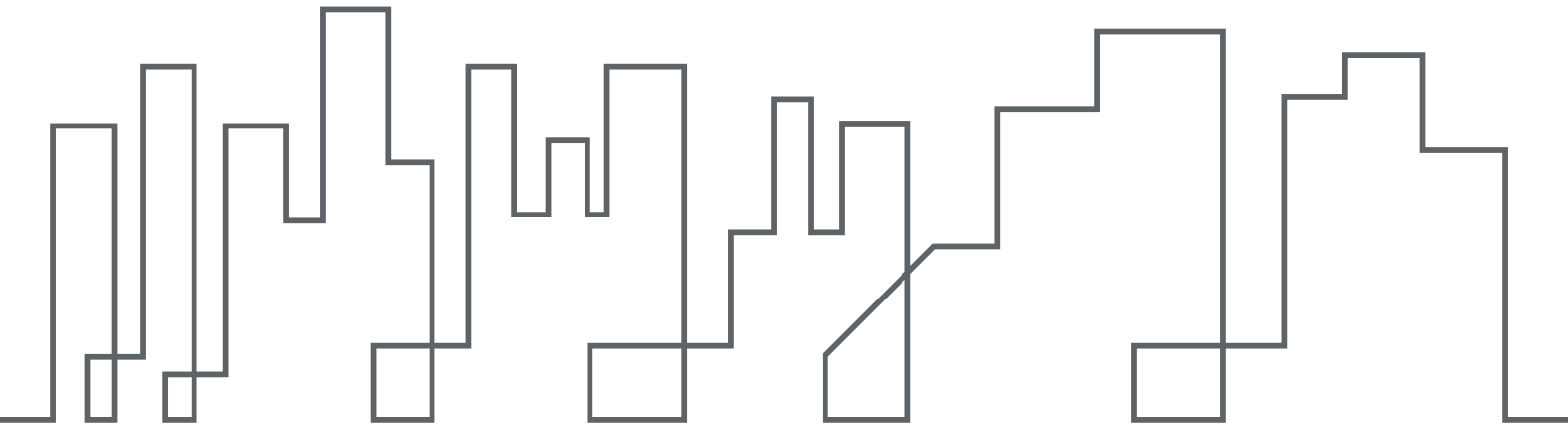

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Executive Summary

Hyderabad's experiment with deregulating Floor Space Index caps in 2006 was framed as a bold liberalisation of urban planning—a decisive move away from top-down control toward a model where the market would shape the skyline. Nearly two decades on, the results are revealing, though not in the ways policymakers might have expected. The freedom to build tall has indeed produced towers—but not a uniformly vertical city. The rise of high-rises in the western corridor, juxtaposed with a sea of mid-rise development elsewhere, underscores a paradox at the heart of deregulation: market forces, not regulatory latitude, have ultimately determined how and where Hyderabad grows.

Despite unlimited FSI, Hyderabad remains one of the shortest among its peers. Cities with stricter density regulations—Mumbai, for example—boast taller average building heights. The apparent contradiction is resolved by looking closely at market fundamentals: developers build tall where prices are high enough to absorb construction costs, and nowhere else. Vertical growth has clustered around HITEC City, where economic demand justifies high-rise investments. Beyond this zone, developers have shown little inclination to pursue height for its own sake.

The city's deregulated framework was meant to create opportunity, but it has instead illuminated structural imbalances. Data show that FSI utilisation drops sharply with distance from HITEC City, mirroring a steep fall in market prices. More tellingly, while market prices respond positively to development potential, government-set circle rates—used for tax and valuation purposes—do not. They remain largely inert to FSI, undermining value capture mechanisms that could fund the infrastructure needed to support higher density. This misalignment, persistent and measurable, leaves the public sector unable to keep pace with private development, particularly in high-growth zones.

The skyline, then, is not simply a product of planning decisions, but of economic geography. And in Hyderabad's case, the gravitational pull of the tech corridor has concentrated both investment and ambition

within a narrow band. Stakeholders from across the spectrum—developers, planners, policy officials—agree on the diagnosis: the deregulated regime has enabled growth, but it has not steered it. Their prescriptions diverge. Developers call for faster approvals and infrastructure upgrades. Bureaucrats point to the need for more concentrated development. Planners and commentators warn of disorder, pointing to missed opportunities to couple density with sustainability or affordability mandates.

What Hyderabad reveals is that density cannot be conjured by deregulation alone. Nor can it be left entirely to the invisible hand. Instead, FSI must be seen as a lever—one that, if calibrated carefully, can serve public purpose. Global examples abound: Mumbai links additional FSI to affordability quotas; Gurgaon ties density to metro corridors; Sydney aligns high-rise permissions with infrastructure capacity. These approaches suggest that the most effective models are not laissez-faire but negotiated—balancing developer incentives with social returns.

For Hyderabad, the path forward is clear. Recalibrating circle rates to reflect real market values would allow the state to finance overdue infrastructure in high-density areas. Linking FSI bonuses to affordable housing requirements could help correct the equity skew. Incentivising development in peripheral zones could relieve pressure from the west, particularly where FSI utilisation currently remains low. Each of these measures points to a more strategic approach—one that works with markets, not against them, but does not abandon the role of governance.

In the end, Hyderabad's deregulation experiment offers more than a verdict on a policy—it provides a mirror for cities navigating rapid urbanisation without strong planning institutions. It reminds policymakers that vertical growth is not simply about freedom, but about foresight. That the skyline reflects not just ambition, but alignment—between economic forces and public capacity. And that the true challenge is not building up, but building wisely.


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1 Introduction

In 2006, Hyderabad rewrote the rules of urban development. While most Indian cities remained bound by rigid building regulations, the city took an unusually bold step: it eliminated all limits on Floor Space Index (FSI). In theory, the reform gave developers a blank canvas—allowing them to build taller, denser, and potentially more affordable structures, driven by little more than market demand.

Nearly two decades later, Hyderabad presents a more complex picture. Towering developments now define parts of the city's tech corridor—from Gachibowli to the Financial District—where high-rise apartments cater to a growing white-collar population. But across much of the urban and peri-urban region, particularly in older neighbourhoods and outlying areas, low-rise forms still dominate. Despite formal freedom to build tall, developers have often chosen restraint. In many cases, demand-side economics, infrastructure capacity, and land market dynamics have proven more influential than regulation—or the absence of it.

Hyderabad's experiment offers a rare natural test of FSI deregulation, at a scale and duration that few cities have attempted. This report analyses that experiment in depth. Drawing on geospatial and market data, regression models, and comparative insights from cities like Mumbai, it assesses how FSI reform has shaped the built form, influenced property values, and interacted with policy. The evidence suggests that while regulation remains a powerful tool, it is far from the only one that matters. What gets built—where, how tall, and at what price—depends as much on market logic and public investment as on planning codes.

While FSI is often seen as a powerful lever to shape urban form and stimulate development, evidence increasingly suggests that regulatory relaxation alone does not guarantee uptake. The realization of growth depends on a convergence of factors—including market demand, infrastructure access, and economic geography. Hyderabad's 2006 deregulation offers a test case to explore how these conditions interact.

The lessons carry relevance well beyond Hyderabad. As India's cities urbanize at an extraordinary pace, the rules that govern density will influence everything from housing supply and land values to infrastructure costs and climate resilience. Whether to restrict, relax, or remove FSI limits is no longer just a technical question—it is a central debate about the future of urban India. Hyderabad's case illustrates both the promise and the limits of deregulation, offering timely guidance for policy-makers, planners, and investors alike.

1.1 Overview of FSI and Urban Development

Floor Space Index —also known as Floor Area Ratio (FAR) in other jurisdictions—is one of the most consequential yet underappreciated levers in urban development. It defines how much built-up area is permitted on a given plot of land. An FSI of 2.0, for instance, allows construction of floor space equivalent to twice the land parcel's area. By regulating vertical density, FSI serves as a proxy for the intensity of land use in cities.

Historically, FSI was introduced as a response to early 20th-century concerns about congestion, light, air, and infrastructure burden. New York's 1916 Zoning Resolution is often cited as the world's first formal adoption of FAR controls, marking a shift from regulating building shape to limiting total volume. Over the decades, FSI-based planning spread globally, adopted by cities not just to control urban form but also to manage public health, congestion, and infrastructure provision.

In India, the logic behind FSI has followed a somewhat different path. Mumbai pioneered the use of FSI caps in the 1960s, imposing unusually low limits—often below 1.5 in central areas—to curb perceived overdevelopment. Over time, similar restrictions were adopted across other Indian cities, resulting in a built environment that is paradoxically both dense and low-rise. High land prices, overcrowded housing, and unplanned sprawl coexist with formal limits that discourage vertical development.

FSI restrictions influence not just how cities grow but also who can afford to live in them. When supply is artificially constrained, land becomes more expensive, and developers either pass on the cost or opt out of marginal projects. In contrast, higher or more flexible FSI can enable denser housing, improve land productivity, and potentially lower per-unit costs—if supported by adequate infrastructure.

Yet the relationship between FSI and urban outcomes is far from linear. Excessively generous FSI in infrastructure-poor areas can lead to congestion and environmental stress. Conversely, moderate FSI tied to transit investment—as in Singapore or parts of New York—can produce compact, efficient cities. Indeed, some scholars argue that FSI is most effective not as a blunt cap, but as a calibrated incentive: cities like São Paulo, Tokyo, and Hong Kong use variable FSI to guide development where it is most sustainable and equitable.

In the Indian context, recent empirical work has added nuance to this debate. A 2023 study of Mumbai's targeted FAR relaxation found that a modest increase in FAR, linked to road width, led to a 28% increase in housing units and a 29% reduction in per-unit prices in treated areas—benefits that disproportionately accrued to lower-income buyers. These findings reinforce the argument that FSI policy, if designed well, can be a powerful tool not just for growth, but for equity.

Against this backdrop, Hyderabad's decision in 2006 to eliminate FSI caps altogether stands out. Rather than tweak limits by zone or tie them to infrastructure conditions, the city opted for a general deregulation—one of the few large cities in the world to do so.

This move has allowed vertical growth wherever the market deems viable. But it has also raised key questions: Does freedom to build tall guarantee density? Does higher density translate into affordability or value? And what other factors—besides regulation—shape urban form?

Understanding FSI's evolving role is essential not just for evaluating Hyderabad's experience but for informing the design of urban policy in cities facing similar challenges.

1.2 Research Objectives and Scope

Hyderabad's decision to remove FSI restrictions marked a radical departure from the prevailing urban development practices in India. While most metropolitan regions continue to rely on regulatory controls to manage density, Hyderabad's approach shifted the burden of shaping urban form onto market forces. Nearly two decades on, this policy offers an unusual opportunity to examine how far deregulation alone can shape the scale and pattern of city growth—where buildings rise, where values accumulate, and where change fails to materialise. The city has grown rapidly—driven by infrastructure expansion, the rise of its IT sector, and changes in planning norms. Against this backdrop, Hyderabad's deregulation of FSI presents a valuable opportunity to understand how planning freedoms interact with urban form.

This report focuses on the most direct and observable outcome of the policy: the built environment. While FSI has the potential to affect a wide range of urban outcomes—from infrastructure stress to affordability and spatial equity—many of these effects are difficult to isolate, especially in a city that has undergone significant economic and demographic change over the same period. In contrast, the physical footprint of deregulation—reflected in building heights, land use intensity, and price gradients—offers a more measurable record of how policy has shaped development choices on the ground.

The emphasis on built form is also rooted in its broader relevance. Building height, density, and land values are not merely indicators of market activity; they also influence how cities evolve. Taller buildings signal shifts in demand, changes in financial viability, and expectations about infrastructure availability. Land values reflect where growth pressures are strongest, and how policy changes are capitalised into the urban fabric. By studying these outcomes, the report aims to capture both the immediate effects of deregulation and its longer-term imprint on the city's structure.

The scope of the study is therefore intentionally focused. It does not attempt to offer a comprehensive review of Hyderabad's infrastructure adequacy, housing affordability, or governance. Instead, it aims to contribute clarity on what the deregulation of FSI has visibly altered—and where the market, rather than regulation, has taken the lead. These observations serve as a starting point for policy reflection, particularly for cities facing similar pressures to liberalise density controls while balancing infrastructure capacity and land market dynamics.

The report is guided by three specific objectives:

- To analyse the impacts of FSI deregulation in Hyderabad, with a focus on building heights, density patterns, and property values across the metropolitan area;
- To understand the effectiveness of FSI deregulation in comparison with other land value capture mechanisms, where relevant;
- To propose policy recommendations on the use of FSI deregulation in the context of metropolitan urban centres in India.

The report is less concerned with normative judgments—whether deregulation is good or bad—and more focused on understanding how policy choices materialise in the built environment. In doing so, it seeks to inform future debates on how Indian cities can use density as a tool for growth, while recognising the limits of deregulation in the absence of broader planning and infrastructure frameworks.


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2 Context and Methods

2.1 FSI Regulations in Hyderabad

The turning point in Hyderabad's approach to FSI regulation came in, when the Government of Andhra Pradesh issued *G.O. No. 86* through its Municipal Administration and Urban Development Department. This order introduced a more liberalised regulatory regime, replacing rigid FSI caps with a flexible framework in which permissible density was shaped by market demand and infrastructure capacity. While the reform expanded development rights, it retained key controls such as road width conditions, setback norms, and building permission protocols to ensure orderly growth.

However, this deregulation did not imply uniform permissiveness across the city. Several localities remained subject to categorical exclusions based on ecological, heritage, or planning considerations. For instance, the GO 111 restricted zone—established to protect the catchments of Osman Sagar and Himayat Sagar lakes—prohibited high-rise development within a 10 km radius, affecting over 80 villages. Similarly, Banjara Hills and Jubilee Hills, though located near commercial hubs, are governed by specific building rules capping height at approximately 15–18 meters (about five storeys). The Old City and central heritage precincts are also regulated by conservation-linked zoning that prohibits or limits vertical expansion.

The 2006 policy marked a transition from fixed caps to a premium-based system. Developers could build beyond base FSI limits—commonly 1.5 in core areas and 1.0 in suburban zones—by paying an impact-linked premium. In many cases, this enabled doubling the base FSI, though the extent varied by location and infrastructure parameters. These payments were intended to fund civic infrastructure, including roads, sewerage systems, and stormwater drainage. While the policy formalised developer contributions, no uniform percentage of total project cost was mandated; instead, impact fees were calibrated to built-up area and site-specific factors. This shift represented a move away from rigid numerical FSI caps, aligning with Hyderabad's broader philosophy of flexible, market-responsive urban regulation. Yet, the presence of zone-specific restrictions meant that not all areas could take advantage of this deregulation equally.

Crucially, the reform replaced discretionary FSI allocations with a rules-based process. Permissible built area became a function of location, road frontage, and fee-based

entitlements, thereby reducing regulatory friction. The resulting framework offered developers greater predictability while allowing the planning authorities to internalise infrastructure costs into the development process.

Subsequent regulations retained and refined this model. The *Hyderabad Building Rules, 2016* (G.O. No. 168) reinforced the principle of flexible density by linking maximum FSI to road width. Projects abutting roads wider than 30 metres could achieve FSI levels up to 4.0, subject to compliance with ancillary conditions such as setbacks, coverage, and parking requirements. Although nominal FSI ceilings were removed, these technical parameters continued to shape achievable built-up area on the ground. Moreover, the regulations acknowledged that not all zones were equal in terms of development potential. Restricted areas continued to be governed by height caps, irrespective of road width or market demand, ensuring that ecological and cultural sensitivities were not compromised.

In parallel, the impact fee system became institutionalised as a financial tool for moderating density and funding off-site infrastructure. The fees scale with the extent of additional construction, effectively discouraging overdevelopment in under-serviced areas while enabling density in well-connected zones. This mechanism functions in tandem with zoning exclusions, allowing high-rise construction in western growth corridors such as HITEC City and Gachibowli, while preventing it in sensitive zones.

Collectively, these regulations reflect a distinctive urban governance approach that moves beyond fixed numerical limits to a more responsive model of development control. Vertical growth in Hyderabad is not governed by citywide FSI caps, but instead enabled through a combination of impact-based premiums and infrastructure-linked entitlements. Infrastructure readiness—across multiple spatial scales, from city-level systems such as the Outer Ring Road and Metro corridors, to neighbourhood-level networks like internal roads, drainage, and water supply, and site-level services including plot access and utilities—plays a central role in determining where additional density can be absorbed. The city's use of impact fees and external development charges ties development rights to the provision and capacity of such infrastructure, aligning private construction with public service readiness.

2.2 Method

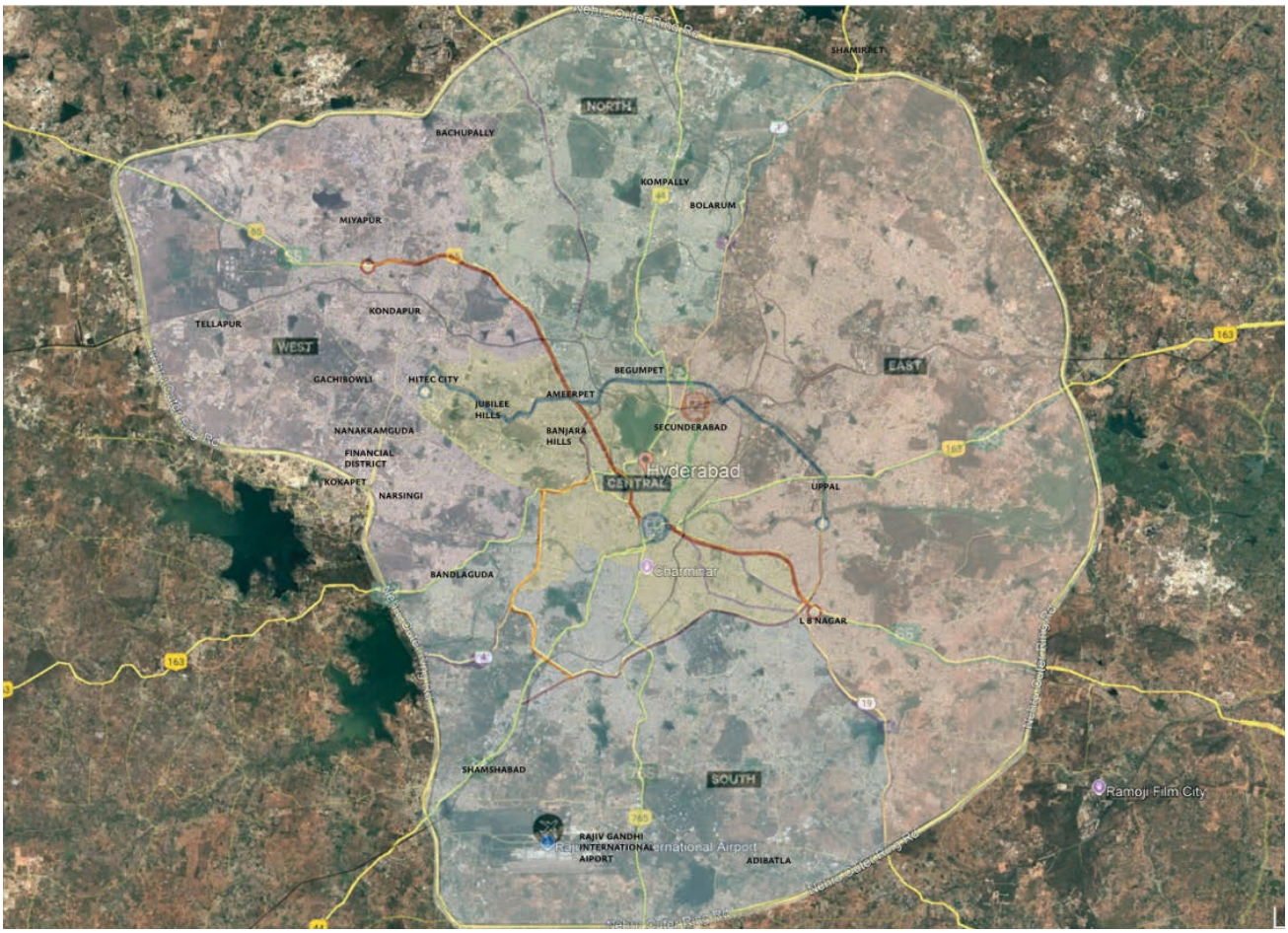
This study employs a multi-layered empirical strategy to examine the impacts of Hyderabad's FSI deregulation on urban form. The analysis focuses on three primary dimensions: vertical development, land use intensity, and property valuation. To ensure rigour, only observable and attributable indicators—such as building heights, calculated FSI, and unit prices—are included.

The analysis draws primarily on two datasets. The first is a database of residential property listings from 99acres (for Hyderabad) and Magicbricks (for Mumbai, Kolkata and Gurgaon), subsequently cleaned, which includes information on building heights (in floors), property type, and price per square foot. The second is the Telangana State Real Estate Regulatory

Authority (RERA) project registry, which contains sanctioned built-up areas and plot sizes for formally approved developments in Hyderabad. This dataset enables the calculation of FSI for each project.

A subset of approximately 2,500 properties was matched across both sources. This matched dataset formed the basis for regression analysis, as it provided data on both market pricing and physical development parameters. For city-wide summaries of FSI and development intensity, the full RERA dataset was used. Likewise, broader height distributions were drawn from the property listings dataset.

To understand the physical imprint of deregulation, building heights across cities were mapped using property listings data. Each listing was geo-referenced using latitude and longitude coordinates, allowing parcel-level spatial analysis. In Hyderabad, this geospatial dataset was cross-referenced with RERA registrations, wherever feasible, to improve accuracy and ensure coverage of both formal and emerging developments. The resulting spatial mapping revealed distinct vertical growth patterns, with high-rise clusters prominently concentrated along the West Zone tech corridors—HITEC City, Gachibowli, Financial District—and the Outer Ring Road (ORR) zone. These growth hotspots, shown in the map, reflect how regulatory deregulation interacts with market demand and infrastructure connectivity to shape the vertical morphology of the city.



Source: Adapted from Google Earth

FSI was calculated as the ratio of total sanctioned built-up area to plot area, using the full RERA dataset. This enabled an assessment of actual development intensity under the deregulated regime, highlighting the extent to which developers availed of their vertical freedom. Summary statistics were used to describe FSI distribution, supporting a granular understanding of how market responses varied by location.

Two regression models were developed to isolate the effects of regulatory and locational variables on property values. The first model uses the log of market price per unit area (from the property listings dataset) as the dependent variable. Independent variables include log-transformed FSI, floor count, property type (apartment, independent house, or residential land), and location indicators such as distance to Hitec City and location within the ORR region.

The second model uses the log of government-assessed circle rates as the dependent variable, maintaining the same set of predictors. This allows for a comparison between market-based and official land valuations. Both models use log-linear specifications to account for skewed distributions and to enable elasticity-based interpretations of coefficients.

The methodological focus remains strictly on built form. While FSI deregulation may have broader implications for the urban system—shaping infrastructure capacity, commuting patterns, or housing affordability—these dimensions are not assessed in this study. By relying on observable indicators such as price, height, and floor area, the analysis ensures that the effects identified are clearly attributable to the policy intervention under review, rather than conflated with longer-term or system-wide changes.

3 Analysis of FSI Deregulation in Hyderabad

Nearly two decades after Hyderabad implemented one of the most liberal FSI regimes in India, the physical outcomes of this policy can be observed in the city's built form. This chapter presents the empirical findings from the analysis, structured across three components. First, it compares Hyderabad's building height distribution with that of other metropolitan regions—Mumbai, Gurgaon, and Kolkata—using residential listing data. Second, it examines spatial patterns and density within Hyderabad. Finally, it draws on regression analysis to assess how built form and FSI intensity influence property valuations. The goal here is not to explain outcomes, but to lay out the evidence that informs subsequent discussion.

3.1 Building Height Distribution: A Comparative Overview

The image of the prosperous and modern city has long been linked to verticality—an aspirational skyline where height signals economic vitality and global ambition. Yet, as urban scholars observe, many of the world's most affluent and liveable cities achieve this without ubiquitous high-rise forms, relying instead on moderate building heights interspersed with selective clusters of vertical development. Against this backdrop, Hyderabad's FSI deregulation was expected to unlock a similarly modern urban form—one that would embrace vertical growth more broadly.

At first glance, a policy that removes restrictions on buildable space might be expected to result in a city that builds tall and dense. Hyderabad's FSI reform, which allowed developers to exceed previous floor area ratios through premium payments and road-width-based entitlements, offered exactly this opportunity. Yet the resulting built form tells a more cautious story.

Hyderabad, despite being the only city in this group with deregulated FSI, shows the most concentrated low-rise development profile (for example localities like Miyapur, LB Nagar are dominated by 4-5 storey typologies despite FSI flexibility). Among the 15,406 properties with valid floor data, 67.2% have five or fewer floors. This contrasts sharply with Mumbai (8.3% of 9,477 properties), and to a lesser extent with Gurgaon (38.8%) and Kolkata (52.7%).

The Table 1 below summarises key descriptive statistics across cities

Item	Hyderabad	Gurgaon	Mumbai	Kolkata
Properties (with total floor data available)	15406	10694	9477	8641
Maximum Floors	63	51	117	62
Mean Total Floors	9.2	14.8	23.8	10.1
Median Total Floors	5	14	20	5
Mode Total Floors	5	4	20	4
Standard Deviation	10.9	11.4	16.5	8.8
Bin Ranges	%	%	%	%
(0 - 5 floors)	67.2	38.8	8.3	52.7
(6-10 floors)	9.5	2.7	13.6	9.2
(11-15 floors)	6.2	15.9	13.7	14.6
(16 - 20 floors)	3.1	14.6	17.2	10.5
(21-25 floors)	2.6	8.5	12.0	7.0
(26-30 floors)	2.7	8.7	9.4	2.5
(31 - 35 floors)	3.8	6.1	5.0	2.7
(36 -40 floors)	2.6	3.3	5.5	0.2
(41 - 45 floors)	1.8	0.7	4.6	0.6
(46 - 50 floors)	0.3	0.5	2.6	0.1
(51-55 floors)	0.1	0.3	2.6	0.0
(56-60 floors)	0.1	0.0	2.1	0.0
(61-65 floors)	0.0	0.0	1.0	0.0
Above 65 floors	0.0	0.0	2.5	
Quartiles				
Q1 (25% of properties have fewer floors than)	3	4	12	4
Q3 (75% of properties have fewer floors than)	12	22	32	15
Interquartile range (IQR)	9	18	20	11
Skewness	1.73	0.69	1.27	1.38
Kurtosis	2.07	-0.41	2.26	1.52

Source: Data Collation from 99acres and Magicbricks; Authors analysis

At the upper end of the spectrum, Mumbai's verticality stands out. Nearly a quarter (23.4%) of its buildings exceed 30 floors, with the tallest rising to 117 floors. In Hyderabad, only 8.7% of buildings surpass this height, and its tallest building reaches 63 floors. Gurgaon and Kolkata fall in between, with maximum heights of 51 and 62 floors, respectively. In mid-rise (10-20 floors) and high-rise (above 20 floors) categories, Hyderabad consistently shows lower percentages than Gurgaon and Mumbai. For instance, in the 15-20 floor range, Hyderabad has 3.1% compared to Gurgaon's 14.6% and Mumbai's 17.2%. Even in taller ranges (e.g., 40-45 floors), Hyderabad's 1.8% is higher than Gurgaon's 0.7% and Kolkata's 0.6% but lower than Mumbai's 4.6%. Mumbai, with regulated FSI, stands out with a significant share of buildings above 50 floors (8.2%), while Hyderabad has only 0.2% in this range.

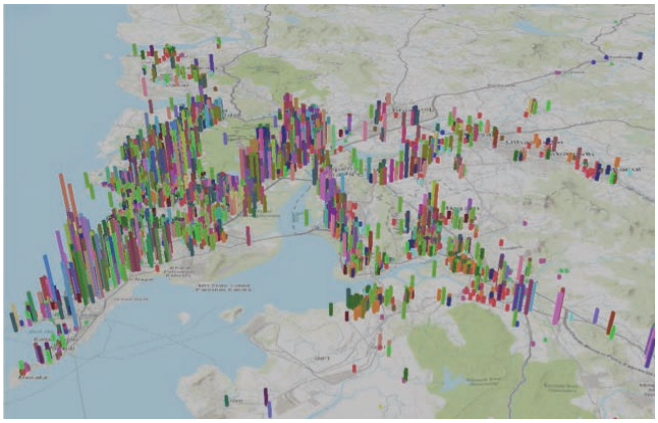
Descriptive statistics further underline the disparity. Hyderabad's mean building height is 9.2 floors, less than half of Mumbai's 23.8 and below Gurgaon's 14.8, and Kolkata's 10.1. Median values reinforce this pattern: Hyderabad and Kolkata both have a median of 5 floors, while Gurgaon and Mumbai stand at 14 and 20, respectively.

Measures of dispersion and shape also differ significantly. Hyderabad's standard deviation in floor counts is 10.9, indicating some variation but lower than Mumbai's 16.5. Hyderabad's Q1 (3) and Q3 (12) indicate that 75% of its properties have 12 or fewer floors, a tighter range compared to Gurgaon (22) and Mumbai (32), and closer to Kolkata (15). The high skewness (1.73) in Hyderabad suggests a right-skewed distribution with a long tail of taller buildings, but the low median (5) and high percentage of 0-5 floor properties (67.2%) imply that this tail is relatively sparse. Mumbai and Gurgaon, despite regulated FSI, show broader IQRs (20 and 18) and higher medians, indicating a greater concentration of mid- to high-rise buildings. Skewness (1.73) and kurtosis (2.07) confirm a strong tilt toward shorter buildings, with a concentration around the lower end of the distribution. Mumbai, by comparison, shows a wider and flatter profile (skewness 1.27, kurtosis 2.26), while Gurgaon has the least skewed and most evenly distributed height profile (skewness 0.69, kurtosis –0.41).

A bin-wise breakdown shows that only 5.9% of Hyderabad's buildings exceed 20 floors. In Mumbai, that figure is 23.8%. Gurgaon and Kolkata lie in the middle, at 13.8% and 10.4%, respectively.

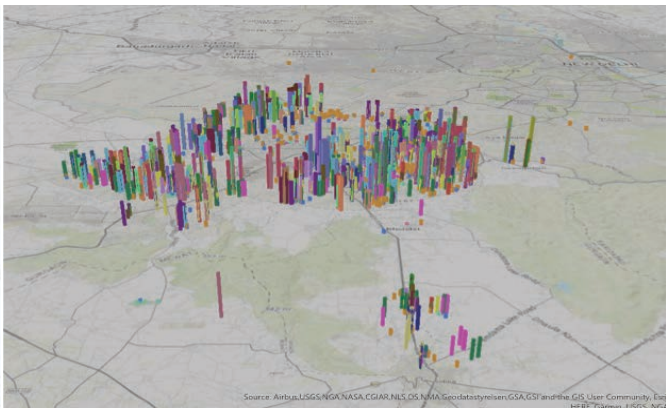
The following maps show the distribution of the overall listings in different cities.

Hyderabad



Mumbai

Kolkata



Gurgaon

3.2 Descriptive Analysis of Hyderabad's Built Form

Nearly two decades after Hyderabad's landmark deregulation of FSI, a granular look at the city's residential development patterns not indiscriminate vertical growth, but a market navigating policy freedom with strategic restraint. Despite the formal removal of FSI caps, developers have exercised this flexibility selectively, concentrating high-rise construction in a few high-demand corridors—most notably the western IT cluster near HITEC City, the Financial District, and along the ORR—while large parts of the city remain dominated by mid- and low-rise typologies. This spatial concentration underscores a pattern of calculated intensification, where developers pursue vertical growth only in zones that offer both economic viability and infrastructural support.. Drawing from 15,406 listings on 99acres, 9,249 RERA-registered projects, and a matched subset of over 2,500 records, the analysis that follows examines the spatial and temporal contours of this pattern. Rather than a simple story of liberalisation leading to uniform densification, the data points to a differentiated urban form shaped by proximity to employment nodes, timing of development, and the cost-benefit calculus of builders. Even in a deregulated environment, verticality comes at a premium: where land prices, absorption rates, and infrastructure capacity align, the economics justify high-rise formats; elsewhere, developers default to more modest typologies. The result is an uneven skyline that reflects not just policy change, but the underlying logic of market demand.

Hyderabad's property market skews young. Of the 11,576 records with age data, nearly half (48.3%) are classified as new or recently completed: 2,340 projects under construction, and a further 6,747 falling within the 0.5, 1, or 3-year age bins. In contrast, just over 21% of the listings are in the older 7- or 11-year categories. This distribution points to a relatively recent surge in supply, consistent with the timeline of deregulation and Hyderabad's westward economic expansion.

Table 2: Distribution by age of properties

Age Bin (Years)	Property Count
Under Construction (0)	2,340
0.5	1,413
1	2,771
3	2,563
7	1,220
11	1,269

Source: Listings from 99acres. Authors analysis.

Hyderabad's vertical growth displays a distinctive spatial concentration, combining nodal hubs with corridor patterns. A significant share of taller, denser projects cluster around the western IT corridor, particularly in proximity to HITEC City, which functions as a primary node. However, rather than a tight centralised core, the bulk of development fans out along a broader arc—forming a belt of intensified activity that extends from the Financial District and Kokapet to Gachibowli, Kondapur, and beyond. Projects within 5 to 10 kilometers of HITEC City represent the single largest distance band in our dataset (3,476 properties), followed by 10–15 kilometers (2,787 properties). In contrast, the innermost zone (0–2 km) accounts for just 239 listings, highlighting the limited availability of centrally located land and the preference for adjacent high-growth zones.

Table 3: Property count by distance to HITEC City

Distance to HITEC (km)	Property Count
0–2	239
2–5	1,341
5–10	3,476
10–15	2,787
15–20	1,389
20–50	2,103

Source: Listings from 99acres. Authors analysis.

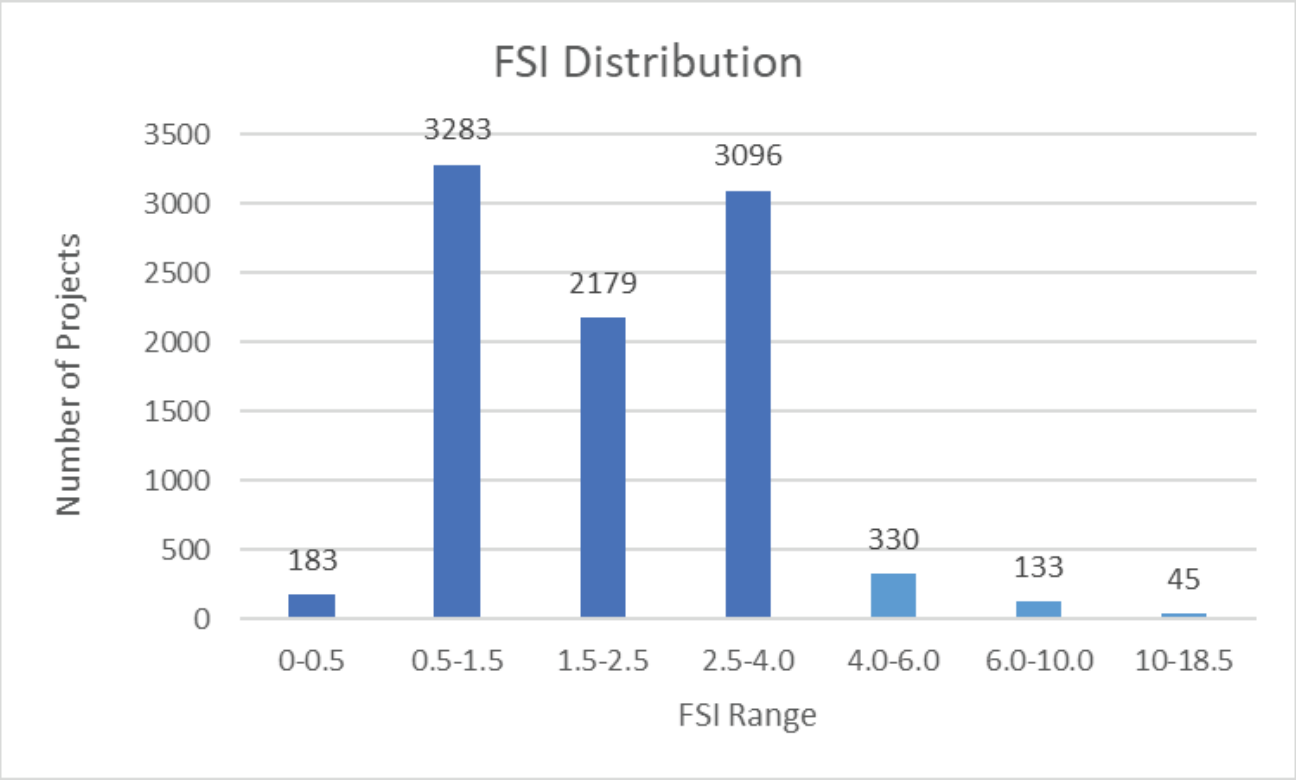
While listing data offers a market-facing snapshot, RERA filings provide a project-level view of approved development volumes. Across 9,249 projects, the average land parcel spans 22,016 sqm, with an average approved built-up area of 23,220 sqm. This translates into a citywide average FSI of 2.11—far below the theoretical ceilings enabled by deregulation. The pattern of vertical growth is not uniform, but concentrated in areas such as the western corridor near Kokapet, Nanakramguda, HITEC City, where development pressure and proximity to economic hubs likely support taller construction. The distribution is strongly skewed, with a mode of 1.00 and a long tail extending up to 18.34 in rare high-rise projects.

Despite regulatory flexibility, most projects opt for moderate intensities: the median FSI is 2.34, and 25% of projects operate below 1.4. The skewness (2.16) and kurtosis (11.24) confirm a sharp clustering around low-to-mid FSI values, punctuated by a small number of vertical outliers, as seen in the figure below.

Table 4: FSI Utilization in RERA-Registered Projects

Metric	Value
Total Land Area (sqm)	203,628,999
Approved Built-Up Area (sqm)	214,758,892
Calculated FSI	1.05
Average FSI	2.11
Median FSI	2.34
Mode FSI	1.00
Maximum FSI	18.34
Minimum FSI	0.03
Skewness (FSI)	2.16
Kurtosis (FSI)	11.24
Number of Projects	9,249

Source: Listings from 99acres. Authors analysis.



The combined 99acres–RERA subset (~2,500 properties) enables a closer look at how deregulation has translated into built form. Here, FSI patterns mirror the broader RERA sample, but with sharper geographic clarity. FSI utilisation correlates strongly with proximity to HITEC City: properties within 5–10 km average 4.89, more than triple the outer 20–50 km band (1.45). The gradient is steep and consistent—dropping from 4.68 in the 2–5 km ring to 3.19 at 10–15 km, and continuing downward beyond.

Table 5: FSI Utilization in relation to distance from HITEC City

Distance to HITEC City (km)	Average FSI
0–2	4.32
2–5	4.68
5–10	4.89
10–15	3.19
15–20	2.62
20–50	1.45

Source: Listings from 99acres. Authors analysis.

The spatial concentration of development intensity is mirrored in property values. Circle rates (government-assessed values) show a clear distance decay - —a concept from geography and urban economics that refers to the decline in land value or influence with increasing distance from a central node. In Hyderabad, properties within 2km of HITEC City command average rates of ₹27000 per square yard, dropping to just ₹4,600 for properties 20-50km away. Market prices follow a similar pattern, though with interesting variations. Properties 0.5 years old command significantly higher prices than both brand new and older properties, suggesting a premium for newly completed developments that are ready for immediate occupation.

Contrary to what might be expected, the analysis shows no significant difference in average FSI between properties near Hyderabad's Outer Ring Road (ORR) (3.70) and outside (3.65) the region. This further confirms that regulatory freedom alone does not determine development patterns—market forces and economic considerations play the decisive role.

Initial observations suggest that vertical growth is not uniformly distributed, despite regulatory openness. High-rise clusters emerge selectively in areas of strong demand, indicating that the market responds to more than just formal entitlements. This points to a broader pattern: FSI can enable development, but it is effective only when other enabling conditions—location, infrastructure, and economic incentives—are in place.

3.3 Regression Analysis: Quantifying the Effects of FSI, Location, and Typology.

The final analytical lens focuses on identifying the determinants of residential property values in Hyderabad through regression modeling. Two parallel models—one explaining market price per unit area and the other explaining government-determined circle rates—are used to compare how different segments of the property valuation ecosystem respond to spatial, regulatory, and typological variables. This dual-track analysis distinguishes between the market's revealed preferences and the government's policy-influenced valuation framework.

Analytical Framework and Variable Design

Both models adopt the natural logarithm of the dependent variable—market price per unit area (Model 1) and circle rate (Model 2)—to account for the right-skewed distribution of property values and to enable elastic interpretation of coefficients. The explanatory variables remain consistent across models to ensure comparability:

- **LnFSI:** Floor Space Index, calculated from matched 99acres and RERA data.
- **LnDistHITEC:** Log-transformed distance from HITEC City, a major employment hub.
- **LnFloors:** Log of the total number of floors, capturing vertical intensity.
- **Property Type:** Dummy variable indicating apartments (1) versus all others (0).
- **ORR Region:** Dummy variable indicating whether the project lies in the Outer Ring Road (ORR) (1) or not (0).

All variables were selected based on theoretical relevance to urban development patterns under deregulated FSI conditions.

Model 1: Market Price Determinants

The first model estimates the determinants of log-transformed market price per unit area. The adjusted R^2 is 0.354, suggesting that approximately 35.4% of the variation in property prices is explained by the selected variables. The following key results emerge:

- **Development Potential:** A 1% increase in permissible built-up area (FSI) is associated with a 0.057% increase in price, suggesting that the market assigns a modest premium to properties with higher potential for vertical expansion. Similarly, the number of floors—a proxy for constructed density—is positively correlated with value, with a 1% increase linked to a 0.144% rise in price. The coefficient magnitude of floors —more than double that of FSI—indicates that actual vertical implementation carries greater market value than theoretical development potential alone. These relationships indicate that while development rights are priced in, they do not dominate buyer preferences.

- **Distance to HITEC City:** Distance to HITEC City emerges as a major spatial determinant. The coefficient (−0.289) implies that a 1% increase in distance reduces price by nearly 0.3%, underscoring the centrality of employment cores in shaping market value. Interestingly, the other distance variable is insignificant, suggesting that network connectivity, rather than radial proximity, may matter more.
- **Property Type:** The results indicate strong price differentiation across property types. Apartment listings are associated with significantly lower prices per unit area, with a coefficient of −0.702 ($p < 0.001$), suggesting a substantial discount relative to other categories. In contrast, independent houses and residential land are priced considerably higher, with coefficients of 0.609 ($p = 0.001$) and 0.649 ($p < 0.001$), respectively. This segmentation reflects the distinct ownership structures and market positioning of each property type. Apartments, while representing the bulk of new supply, are typically built at higher densities and cater to a broader, often more price-sensitive segment. By contrast, independent houses and residential plots tend to be lower in supply, offer greater exclusivity and land control, and thus command a premium. This differentiation is particularly notable in Hyderabad, where deregulation has enabled both high-density apartment construction and the persistence of standalone housing, resulting in a dual market structure that shapes both affordability and investment patterns. The strength of these coefficients suggests a structurally distinct valuation logic.
- **ORR Region:** The ORR zone does not significantly impact prices ($B = 0.037$, $p = 0.129$), suggesting no clear market premium for policy-induced development rights. This is particularly notable given that the ORR was specifically designed as a growth corridor with special development charges, deferred development charges, and area development plans intended to capture land value increments. The absence of a market premium in this policy-designated zone underscores a key finding: that infrastructure provision and regulatory incentives alone do not automatically translate into market premiums. Instead, it is proximity to economic anchors like HITEC City ($\beta = -0.289$, $p < 0.001$) that drives property values, regardless of policy designation.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.595[a]	.354	.352	.50801

a. Predictors: (Constant), LnDistHitec, Age1, independentHouse, Lndistance, Project in ORR free FSI region (yes=1, 0=otherwise0, ResiLand, LnFSI, LnFloors, Apartment

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.861	.194		50.704	<.001
	Lndistance	-.001	.011	-.001	-.059	.953
	LnFSI	.057	.020	.075	2.899	.004
	Apartment	-.702	.181	-.430	-3.889	<.001
	independentHouse	.609	.185	.271	3.294	.001
	ResiLand	.649	.185	.298	3.504	<.001
	Age1	.006	.005	.021	1.139	.255
	Project in ORR region (yes=1, 0=otherwise0	.037	.024	.028	1.519	.129
	LnFloors	.144	.017	.231	8.235	<.001
	LnDistHitec	-.289	.022	-.309	-13.123	<.001

a. Dependent Variable: LnPrice

Model 2: Government Valuation through Circle Rates

The persistent misalignment between market prices and government-assessed circle rates reflects deeper structural features of India's valuation framework. While administrative guidelines recommend regular updates, actual implementation is highly uneven. In Telangana, for example, circle rates remained largely unchanged for nearly seven years following the state's bifurcation, despite rapid urban growth. The decision to defer revisions was shaped as much by political caution as by short-term fiscal considerations—revenue collection remained stable, reducing the perceived urgency for recalibration.

This pattern is not unique. Some states such as Maharashtra and Karnataka update circle rates on a regular cycle, while others—including parts of Uttar Pradesh and West Bengal—have experienced prolonged gaps between adjustments. The result is a valuation regime that often lags behind market dynamics, especially in rapidly transforming urban peripheries.

These delays carry important fiscal consequences. Circle rates serve as the base for stamp duty collection—typically 3–8% of transacted value—and influence property tax assessments in many Indian cities. When official rates diverge substantially from market prices, governments forgo potential revenue and weaken the integrity of land-based taxation. In Hyderabad's western growth corridors, stakeholder estimates suggest that circle rates remain 30–50% below actual transaction values. This undervaluation not only reduces fiscal yield but also enables informal cash settlements that erode transparency and compromise accurate land market data.

The second model, using log-transformed circle rates as the dependent variable, offers a markedly different profile. The model's adjusted R^2 stands at 0.806, indicating that 80.6% of the variation in circle rates is accounted for by the predictors—more than double the explanatory power of the market price model. This higher explanatory power suggests a more systematic and predictable valuation approach by government assessors, though not necessarily one that reflects real-time market dynamics. The results are summarized below:

- **FSI:** The coefficient is small and statistically insignificant (B = 0.017, p = 0.132), suggesting that official valuation norms do not price in development potential in any meaningful way. This contrasts sharply with the market model where FSI shows a significant positive effect, indicating a disconnect between how private buyers and government assessors value development potential.
- **Floors:** The number of floors is positively associated with circle rates (B = 0.059, p < 0.001), but the effect is more muted than in market valuations, At roughly 40% of the market model's coefficient magnitude, this suggests that while government valuations acknowledge building height, they may underweight its economic significance relative to actual market behavior.
- **Distance to HITEC City:** The coefficient is twice as large as in the market model (B = -0.576, p < 0.001), indicating that government valuations heavily penalize distance from the employment core. This amplified distance effect means that government assessments show a steeper spatial gradient than market prices—for every 1% increase in distance from HITEC City, circle rates decline by 0.576%, compared to the market's 0.289% decline. This suggests that official valuations may be anchored to older models of city structure where proximity to central employment was more decisive.
- **Property Type:** Apartments are undervalued by approximately 21.9% relative to other property types (B = -0.219, p < 0.001), although the magnitude is smaller than the market model's estimate. While both market and government valuations show apartments at a discount, the government's more modest differential suggests that official assessments may not fully capture the market's preference hierarchy among property types.
- **ORR Region:** Properties in the ORR region show a sharp 78.8% reduction in circle rates (B = -0.788, p < 0.001), contrasting sharply with the market's more neutral stance on location. This dramatic discount in government valuations for the ORR zone, despite policy intentions to promote development there, reveals a significant misalignment between official assessment methods and both policy goals and market realities.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.898[a]	.806	.805	.29717

a. Predictors: (Constant), LnDistHitec, Age1, independentHouse, Lndistance, Project in ORR free FSI region (yes=1, 0=otherwise0, ResiLand, LnFSI, LnFloors, Apartment

Coefficients[a]						
Model		Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	10.768	.114	94.655	<.001	
	Lndistance	.010	.007	.015	1.508	.132
	LnFSI	.017	.012	.021	1.505	.132
	Apartment	-.219	.106	-.125	-2.069	.039
	independentHouse	-.008	.108	-.003	-.074	.941
	ResiLand	-.012	.108	-.005	-.111	.912
	Age1	.001	.003	.003	.326	.744
	Project in ORR region (yes=1, 0=otherwise	-.788	.014	-.561	-55.140	<.001
	LnFloors	.059	.010	.089	5.810	<.001
	LnDistHitec	-.576	.013	-.577	-44.759	<.001

a. Dependent Variable: LnCircle

These models illustrate the divergent logic underpinning Hyderabad's real estate market and its regulatory valuation apparatus. While market prices appear responsive to both development potential and proximity to economic nodes, circle rates remain heavily influenced by location and policy design, often lagging market trends. Notably, the effects of FSI are present but modest in market prices and almost absent in circle rates, signaling a disjuncture in how value is created and captured in the deregulated environment.

4 Discussions: Implications of FSI Deregulation

Hyderabad's experiment with FSI deregulation is neither a resounding success nor an outright failure—it is a paradox. The removal of statutory caps in 2006 granted developers unprecedented freedom to build upward. Yet the city's skyline remains uneven: high-rise clusters punctuate the western corridor, while low-rise sprawl dominates elsewhere. The data tell a sharper story. Average FSI reaches 4.89 within 10 km of HITEC City but drops steeply to just 1.45 in peripheral zones beyond 20 km, underscoring that it is market demand—not regulatory latitude—that governs the verticality of urban form. In other words, simply allowing more building potential through deregulation did not automatically lead to tall buildings everywhere. Instead, developers concentrated vertical growth in areas where land values, buyer demand, and supporting infrastructure made such projects financially viable. This pattern highlights that the freedom to build tall is necessary, but not sufficient—actual development intensity is ultimately determined by where the market sees opportunity and profit, rather than by policy permission alone.

For many in the real estate sector, the policy shift enabled larger, more ambitious projects. But these opportunities translated into towers only where land values, buyer demand, and infrastructure could sustain them. Developers did not uniformly chase height; they responded selectively, prioritising profitability over permission. Meanwhile, indirect controls such as setbacks, height caps tied to road width, and aviation restrictions continued to moderate actual buildability, tempering the transformative potential of deregulation.

This section dissects the divergence between what policy allowed and what the market delivered. Drawing on empirical analysis, stakeholder insights, and comparative urban experiences, it explores how deregulation alone failed to redraw Hyderabad's urban form—and what this reveals about the deeper dynamics shaping density, value, and equity. What can the Hyderabad case teach other rapidly urbanising cities about balancing growth ambitions with grounded realities? The discussion begins with a closer look at how the market actually responded to the removal of FSI limits—and why vertical growth remained so spatially constrained.

4.1 Market Response to FSI Deregulation

Hyderabad's 2006 decision to lift FSI caps was intended to liberate urban development, granting developers the freedom to build vertically without formal constraints. But nearly two decades later, the city's skyline offers a measured response. Instead of an unbounded surge in height, vertical growth has emerged selectively—clustering in the western IT corridor and tapering off elsewhere. The pattern suggests a clear logic: developers build high only where the economics work, and regulatory freedom alone does not dictate density.

The market price regression model confirms this dynamic. Among the independent variables, FSI shows a positive and statistically significant relationship with property prices. A 1% increase in FSI is associated with a 0.057% rise in market prices ($\beta = 0.057$, $p = 0.004$). This elasticity, though modest, affirms that buyers do place value on additional development potential. Yet it is building height—proxied by number of floors—that exerts a stronger influence. A 1% increase in floors correlates with a 0.144% increase in market price ($\beta = 0.144$, $p < 0.001$), more than twice the effect of FSI. This distinction highlights that while the underlying potential for higher density (FSI) is important, what buyers actually pay a premium for are the tangible qualities of vertical living—such as better views, enhanced amenities, and the prestige associated with taller buildings. In other words, it is not just the theoretical scope to build more, but the realized, visible features of high-rise living that drive higher prices in Hyderabad's residential market. This is reinforced by developer feedback, who consistently note that upper floors and towers in sought-after areas attract a premium from buyers seeking status, exclusivity, and lifestyle advantages.

The gravitational pull of HITEC City remains the most powerful determinant of value. As distance increases, market prices fall sharply. The regression reveals that each 1% increase in distance from HITEC City corresponds to a 0.289% decline in price ($\beta = -0.289$, $p < 0.001$), holding all else constant. This is consistent with spatial patterns observed in Section 3.2, where FSI utilization peaks at 4.89 within a 5–10 km radius of the IT hub, and drops to 1.45 beyond 20 km. Approximately 72% of buildings exceeding 20 floors are concentrated in this western arc—areas where high demand and land scarcity make verticality economically viable.

The ORR zone, introduced to encourage development beyond the city core, has had limited impact on pricing. Its coefficient in the regression model is statistically insignificant ($\beta = 0.037$, $p = 0.129$), suggesting that proximity to infrastructure corridors alone does not command a market premium. Developers appear to respond more to demand concentration than to regulatory incentives, reaffirming that planning tools must align with economic geography to be effective. It appears that regulatory measures like FSI relaxation or infrastructure provision, while necessary, are not sufficient on their own to stimulate growth. For FSI to be an effective lever, it must be accompanied by strong market demand, adequate infrastructure capacity, and supportive local conditions—only then can it function as part of a broader toolkit that successfully channels urban expansion.

Property type exerts a particularly large effect. Apartments—used as the reference dummy in the model—are associated with significantly lower per square foot prices than other residential categories. The coefficient of -0.702 ($p < 0.001$) implies that apartments are priced nearly 70% lower than independent houses, controlling for location and height. While this likely reflects differences in unit size and tenure form, it also reveals a market segmentation that has implications for how FSI gains are translated into affordability or luxury.

Despite the model's clarity, its limitations are equally instructive. The adjusted R^2 of 0.354 suggests that only about one-third of the variation in market prices is explained by FSI, location, property type, and height. This leaves significant room for unobserved variables such as brand reputation, design quality, financing terms, or local amenities—factors that are harder to quantify but nonetheless shape buyer preferences.

Together, these findings underscore a central truth: while FSI deregulation has removed formal barriers to vertical growth, it is the intersection of economic return, spatial desirability, and project feasibility that ultimately determines development intensity. In Hyderabad, high-rise construction has flourished where market conditions support it—around HITEC City and the Financial District—but remains limited elsewhere. The policy has provided latitude, but the market has drawn the boundaries.

This selective verticality diverges from the more structured approaches observed elsewhere. Mumbai's fungible FSI system links density bonuses to affordability mandates, while Gurgaon's transit-oriented development policy incentivizes height within defined infrastructure envelopes. In Sydney, FSI bonuses are tied explicitly to proximity to metro stations, aligning vertical growth with transit capacity. Hyderabad's deregulated model lacks such coordination, allowing market forces to shape density without directional policy cues. As the next section shows, even the state's own valuation mechanisms—its circle rates—have not kept pace with this market-led transformation.

4.2 The Circle Rate Conundrum: Policy Blind Spots

Hyderabad's policy experiment with FSI deregulation has had asymmetrical effects across the urban development equation. While developers responded selectively to deregulated building norms, the government's valuation framework—notably circle rates—remains governed by a narrower logic. Regression analysis indicates a limited responsiveness of circle rates to market-relevant variables, notably FSI, building height, and project age. The outcome is a valuation structure that lags behind spatial and economic shifts in the city's property market.

The regression model of circle rates reveals that FSI—a core lever of real estate potential—exerts no statistically significant influence on government-assessed land values ($\beta = 0.017$, $p = 0.132$). This finding stands in contrast to the market price model, where FSI

emerges as a meaningful driver ($\beta = 0.057$, $p = 0.004$). While the private market appears to price in development capacity, the official valuation system does not. This divergence is most visible in Hyderabad's ORR zone, where circle rates remain more than 75% lower than comparable areas, despite similar or greater development intensity. In the market model, ORR location shows no statistically significant impact on price ($\beta = 0.037$, $p = 0.129$), reinforcing the notion that circle rate differentials are out of step with market dynamics.

Location, measured by distance from HITEC City, exerts a strong influence in both models, but with notable differences in magnitude. In the circle rate model, each 1% increase in distance corresponds to a 0.576% reduction in assessed value ($p < 0.001$)—twice the effect observed in market prices ($\beta = -0.289$, $p < 0.001$). This suggests that while proximity to employment nodes rightly influences valuations, government rates may overweight this factor relative to other property characteristics.

Building height, captured by the logarithm of the number of floors, is positively associated with circle rates ($\beta = 0.059$, $p < 0.001$), yet the effect is modest compared to its impact on market prices ($\beta = 0.144$, $p < 0.001$). Similarly, the effect of property type is more subdued: apartments are valued 21.9% lower in the circle rate model ($p = 0.039$), whereas market data show a sharper 70.2% discount relative to independent houses. These differences point to a valuation mechanism that captures form but not necessarily function—that is, that is, the government's assessment system recognizes the presence of taller or denser structures, but does not fully account for the economic utility, desirability, or premium that buyers attach to features such as views, amenities, or location within a high-rise. In effect, while circle rates register the physical attributes of a building, they tend to overlook the market's nuanced preferences for how these features enhance actual living experience and value. This gap helps explain why official valuations often lag behind and understate the real premiums observed in the private market.

One of the most striking differences between the two models lies in their explanatory power. The circle rate model yields an R^2 of 0.806, indicating a tight fit around a relatively rigid valuation schema. In contrast, the market price model achieves an R^2 of 0.354, suggesting greater dispersion—reflecting the heterogeneity of buyer preferences, development quality, and amenity offerings. The government's model is more predictable but also less adaptive, reflecting policy priorities rather than real-time dynamics.

The implications of this valuation misalignment are not merely technical—they have material consequences for urban finance and densification policy. In India, stamp duties and registration fees are tied to circle rates, which act as the official minimum transaction value. When these benchmarks fall substantially below prevailing market prices—as consistently observed in Hyderabad and other major cities—the government collects fees on only a fraction of the actual transaction value. For instance, if a property transacts at ₹10,000 per square foot but the notified circle rate is ₹6,000, stamp duty is assessed on just 60% of the asset's worth. In high-growth corridors like HITEC City and Gachibowli, where thousands of units change hands annually, this translates into significant revenue foregone—funds that could otherwise support roads, transit, drainage, and other essential infrastructure for dense urban development.

Second, this misalignment weakens the fiscal yield of land-based value capture instruments. Tools such as betterment levies and impact fees depend on assessed land values to determine contribution levels. When valuations are outdated or politically constrained, these tools generate only modest returns, failing to recover the costs of infrastructure that justify their imposition. Moreover, land acquisition becomes contentious and fiscally inefficient: low circle rates lead to judicial escalation, delays, and inflated final compensation, particularly in urban expansion areas where land values have surged ahead of official registers.

Third, the disconnect constrains newer value capture approaches that depend on calibrated valuation. Transit-oriented development, density bonuses, and premium FSI models all require reliable benchmarks to determine developer contributions. When circle rates remain artificially low, charges based on them are either too minimal to fund public goods or too arbitrary to withstand political scrutiny. This erodes the logic of densification finance—where the additional private value unlocked by infrastructure is intended to contribute to its cost.

The net effect is a structural under-financing of urban transformation. Infrastructure gaps persist in newly developing areas, limiting the spatial reach of high-rise construction even in a deregulated environment. This reinforces the finding that regulatory latitude alone is insufficient; without supportive fiscal and institutional frameworks—including credible, responsive valuation systems—the ambition of compact, efficient cities remains elusive.

Conversely, genuine high-density developments in newer corridors may remain underfunded, as stamp duty collections underrepresent their real economic footprint. This pattern is particularly evident in the western growth arc encompassing Kokapet, Narsingi, Kondapur, and parts of Gachibowli—areas that have witnessed a surge in 20–40 storey projects. While land and construction activity have intensified around these nodes, fiscal contributions have not kept pace, owing to the persistent undervaluation embedded in circle rates.

Moreover, undervaluation may create perverse incentives that affect both revenue collection and data reliability. Buyers and sellers often register transactions at circle rate values—particularly in locations like Financial District, Tellapur, or Nanakramguda—while settling the difference off the books. This not only undermines the integrity of official transaction data but also weakens the transparency required for effective planning and land-based financing. In contrast, lower-density zones such as Bachupally or Bandlaguda may see more alignment between market and circle rates, yet contribute far less in absolute terms. These spatial mismatches further complicate attempts to finance citywide infrastructure or introduce value capture instruments in a consistent and equitable manner.

The analysis does not suggest that circle rates must mimic market prices. However, the absence of any responsiveness to FSI or new construction, in a city that has deregulated both, points to a missed opportunity. More frequent and geographically differentiated updates to circle rates—based on verifiable market signals—could enhance both revenue performance and alignment with planning goals.

In sum, Hyderabad's valuation framework has yet to adapt to the developmental transformations unleashed by FSI deregulation. As the next section explores, these tensions become clearer when viewed through the lens of spatial and temporal development patterns, which illustrate where, when, and why vertical growth has occurred—and where the current policy structure may fall short in supporting it.

4.3 Spatial and Temporal Aspects of Development

Hyderabad's vertical expansion is not simply a function of deregulated entitlements; it is shaped by where and when developers perceive value. The city's growth patterns—mapped through project location and age—reveal a clear logic: proximity to economic anchors and recency of construction remain the most reliable predictors of development intensity and pricing. Far from triggering uniform transformation, deregulation has intensified market-led differentiation, producing growth that is as patterned as it is uneven.

The spatial distribution of FSI confirms this hierarchy. The data indicates that average FSI peaks at 4.89 in the 5–10 km band around HITEC City, then declines sharply to 1.45 beyond the 20 km mark. This descent is steepest between 10 and 15 km, where the regression coefficient for distance registers at $\beta = -0.42$ ($p < 0.01$), suggesting a 4.2% drop in FSI per kilometre. The market's logic is clear: density clusters where land prices, infrastructure, and employment nodes intersect, and it tapers quickly where returns diminish.

This spatial gradient is mirrored in pricing. Market listings show that average price per square metre within the 0.5-year age cohort—overwhelmingly concentrated near HITEC City—peaks. In contrast, 11-year-old projects, typically located beyond 15 km, fare low. The regression coefficient for age, $\beta = -0.15$ ($p < 0.01$), indicates a 1.5% price drop for each additional age bin, reinforcing the preference for newer developments. Taken together, distance and recency explain a substantial share of price variation—underscoring that buyers are not merely responding to built form, but to its location and timing.

What these patterns suggest is that vertical growth in Hyderabad is not a spontaneous outcome of deregulation, but a calculated response to spatial and temporal opportunity. The city's most intense development is occurring not where policy encourages it (e.g., the ORR zone), but where proximity and premium pricing converge. This has two consequences. First, it exacerbates pressure on the western corridor, where the peak in FSI and new construction coincides with infrastructure lag, for example areas such as Tellapur and Narsingi witnessed rapid growth but have strained trunk infrastructure. As noted in Section 4.1, deregulation did not provide the financial mechanisms to support this growth, and the valuation misalignments in Section 4.2 further weaken the city's ability to respond. Second, the rapid fall-off in both FSI and pricing beyond 15 km reflects a missed opportunity for balanced growth. Without complementary instruments—such as transit-linked density bonuses or targeted incentives—deregulation alone has proven insufficient to activate development in peripheral zones.

In effect, Hyderabad's spatial and temporal logics offer a cautionary tale. Where policy sought uniform freedom, the market imposed selective ambition. And where opportunity was unlocked on paper, real growth adhered to older geographies of value. The implications of this dynamic extend beyond density and pricing; they shape where infrastructure is strained, where investment is viable, and where inequality is likely to deepen. The next section turns to how stakeholders—developers, planners, and officials—interpret and respond to these evolving urban realities.

4.4 Stakeholder Perspectives: Consensus and Contradictions

Hyderabad's trajectory under a deregulated FSI regime has been shaped less by formal policy and more by the market's gravitational logic. Stakeholders across the urban landscape—developers, policymakers, planners, and public commentators—recognize that the freedom to build vertically has produced selective intensification rather than a uniform transformation. While there is broad agreement on the symptoms—market-driven clustering, lagging infrastructure, valuation mismatches—their interpretations and prescriptions often diverge.

Developers, for whom deregulation opened the gates to scale, largely view the reform as a success—up to a point. Several noted that projects once limited to 200 units could now scale to 1,000 or more, catalyzing entry from national and global firms in the western corridor. Yet this growth has remained geographically narrow. As many developers point out, construction costs double between mid-rise and high-rise buildings, with towers exceeding 40 floors viable only in micro-markets where sales prices are substantially higher, such as Kokapet (such projects are rare in areas such as Uppal). This economic logic aligns closely with Section 3's findings: over 70% of buildings exceeding 20 floors lie within 10–15 km of HITEC City, where both FSI utilisation and price appreciation peak. Outside these zones, vertical development is rare—not due to policy restrictions, but because the economics do not work. Developers express concern that without targeted infrastructure investment and faster approvals, vertical growth will continue to be constrained to a narrow band of high-demand neighbourhoods, such as Kokapet, Narsingi, Kondapur, Financial District and Nanakramguda.

Policymakers acknowledge this imbalance, though their concerns are shaped as much by politics as by planning. Several officials support the idea of concentrated development to facilitate service delivery, noting that low-density sprawl imposes greater fiscal burdens on cities. Yet they also cite limited political space to recalibrate valuation tools such as circle rates, anticipating opposition from homebuyers and the real estate lobby. Government-set rates remain below market values in high-growth corridors, despite evidence that development intensity and property values are rising rapidly. While there is appetite within parts of the administration to explore value capture strategies, institutional inertia and political caution have so far hindered implementation.

Urban planners and local experts express sharper concerns. In their view, deregulation without zoning overlays or density caps risks undermining urban safety and liveability. They cite examples of buildings rising to 50 or more floors with little regard for structural harmony, warning that uncoordinated vertical growth may lead to long-term risks—particularly in the absence of corresponding upgrades to roads, sewers, and civic infrastructure. Their call is not for a return to rigid FSI ceilings, but for planning tools that shape verticality rather than simply permitting it. Their views echoes global experiences, such as Tokyo's district-based FSI auctions or Singapore's sustainability-linked density incentives—none of which are currently embedded in Hyderabad's regulatory design.

Community voices, drawn from online commentary and public forums, highlight the downstream effects of unbalanced growth. While high-rises in the west are often viewed as aspirational, their exclusivity and detachment from the rest of the city raise concerns about social stratification. Public infrastructure in these areas—already strained by high density—has not expanded at a pace commensurate with demand. Many residents see a gap between private luxury and public neglect, a disjunction not easily resolved by deregulation alone.

Taken together, these perspectives coalesce around a central truth: while deregulation has allowed the market to move, it has not guided that movement toward shared goals. Developers focus on viability and approvals; policymakers worry about revenue and feasibility; experts stress coordination and planning; and citizens want growth that is inclusive and serviceable. There is consensus on the problem—market-led growth that outpaces planning—but contradiction in how each actor defines the solution. As Hyderabad navigates the next phase of urban expansion, reconciling these competing perspectives will be essential for designing a regulatory framework that balances economic efficiency with social and spatial equity.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5 Conclusions

Hyderabad's experiment with FSI deregulation offers a compelling insight into how cities grow when formal constraints are lifted but coordination lags behind. Intended as a tool to liberate urban form, the policy enabled significant vertical development in high-demand corridors, particularly around HITEC City. Yet the broader outcome has been one of selective intensification rather than uniform transformation. The city's skyline, with its dense western clusters and largely untouched peripheries, stands as a reflection of market logic outpacing planning frameworks.

The evidence is consistent: developers responded not to regulatory permission, but to economic signals. Projects scaled where demand and prices justified the cost of vertical construction, with average FSI peaking at 4.89 near HITEC City but dropping to 1.45 beyond 20 kilometres. Regression analysis confirmed that FSI was positively associated with market prices, but had no significant influence on government valuations—a divergence most stark in the ORR zone. This misalignment not only distorts the property tax base but weakens the fiscal foundation for infrastructure investment in high-density zones.

Stakeholders from across the urban development spectrum recognise this pattern, even if their responses diverge. Developers emphasise the need for expedited approvals and infrastructure investment; policymakers highlight the risks of spatial sprawl and revenue leakage; local experts warn of planning deficits and environmental externalities. Their consensus is quiet but unmistakable: deregulation alone is not enough.

The implications for policy are clear. First, **valuation systems must evolve**. Recalibrating circle rates to reflect FSI-linked value, as the regression results suggest, could unlock much-needed revenue for public investment—particularly in the west, where majority of 20+ floor buildings now cluster. Second, **FSI-linked incentives must go beyond blanket deregulation**. Targeted measures—such as affordability-linked density bonuses or transit-proximate FSI increases—could guide growth more equitably. Third, **spatial rebalancing is essential**. Incentivising development along the ORR or in secondary hubs could ease the burden on HITEC City and promote more balanced urban expansion.

These suggestions do not call for a return to rigid control. Rather, they propose a hybrid model—**a strategic alignment of market forces with public goals**. FSI, in this model, is not merely a constraint lifted, but an instrument calibrated to deliver infrastructure, affordability, and sustainability.

Naturally, the analysis has limitations. While the regression models offer robust spatial and temporal insights, they rely on available listings and RERA filings, which may undercount informal or smaller-scale developments. The stakeholder interviews, though wide-ranging, reflect a particular cross-section of the urban ecosystem and may not capture all lived experiences. These limitations, while modest, suggest that policy interpretation should remain context-sensitive and iterative.

There is also scope for further inquiry. A more granular study of FSI's impact on informal housing, especially in peripheral or low-income zones, would deepen understanding of equity impacts. Equally important is the need for longitudinal analysis—tracking changes in land values and property prices over time in relation to public infrastructure investments. Such analysis would allow researchers to assess whether, and to what extent, new roads, transit lines, or sewer upgrades result in measurable appreciation. This, in turn, would help evaluate whether infrastructure-led value capture mechanisms are feasible, especially in areas where circle rates remain decoupled from market signals. Comparative work across other deregulating cities—such as Pune, Bengaluru, or international cases like Jakarta and Bogotá—could situate Hyderabad's trajectory within a broader typology of Global South urbanisation.

Hyderabad's story is of ambition advanced by the market, but unmet by institutions. The deregulated skyline is an outcome; whether it becomes a success story depends on what follows. If future reforms can convert land value into public value, and if density can be made to serve both growth and equity, Hyderabad may yet become a model—not of deregulation alone, but of strategic urbanism fit for a rapidly urbanising world.