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Urban Housing Inequality, Informal Settlements, and Social Mobility Outcomes in Indian Megacities

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Abstract

Housing constitutes the foundational material condition of urban life in India, determining not only shelter quality and tenure security but also access to employment, education, healthcare, and social networks that collectively define the social mobility pathways available to the 500 million Indians who now live in urban areas. India's rapid urbanisation — with the urban population projected to reach 600 million by 2031 — has outpaced formal housing production dramatically, generating one of the world's largest informal settlement populations. An estimated 65 million Indians live in slums and unauthorised colonies, according to the 2011 Census, a figure widely considered an undercount given the exclusion of non-notified informal settlements from official enumeration.

This study presents a comparative cross-city analysis of housing inequality indicators, informal settlement prevalence, and social mobility outcomes across forty Indian cities and twenty cities from comparable emerging economies, drawing on National Family Health Survey, Census of India, and National Sample Survey data supplemented by World Bank and UN-Habitat global urban datasets covering the period 2015-2023. Multi-level regression models examined the associations between housing cost burden (rent-to-income ratio), informal settlement share, and measures of intergenerational educational mobility, occupational attainment gaps between housing tenure groups, and subjective wellbeing outcomes. Results demonstrate that Indian cities with rent-to-income ratios above 0.40 show significantly lower intergenerational educational mobility, and that informal settlement share is the strongest single predictor of educational attainment gap between housing tenure groups.

Keywords: *urban housing inequality, informal settlements, slums, social mobility, India, rent burden, Pradhan Mantri Awas Yojana, housing affordability, intergenerational mobility, urban planning*

1. Introduction

India's urban transition — the largest in human history by absolute population scale — presents the defining planning and governance challenge of twenty-first century India. The Census of India 2011 recorded 377 million urban residents; conservative projections suggest this will reach 600 million by 2031 and potentially 800 million by 2050 under medium fertility scenarios. The pace of this transition has systematically outstripped the capacity of formal urban land markets and housing production systems to provide affordable, adequately serviced dwellings for the diverse income groups arriving in cities — particularly the large proportion of rural migrants arriving without the educational credentials, social networks, or financial assets required to access formal rental or ownership markets.

The resultant proliferation of informal settlements — slums, jhuggi-jhopdi clusters, chawls, unauthorised colonies, and peri-urban encroachments — represents not a planning failure alone but a rational housing market response to the structural mismatch between urbanisation-driven demand and formal supply. The Rajiv Awas Yojana (2009-2014) and its successor Pradhan Mantri Awas Yojana — Urban (PMAY-U, 2015-present) have addressed the formal supply deficit through slum redevelopment, beneficiary-led construction, and affordable housing in partnership with private developers, but the scale of programme delivery has fallen substantially short of the stated target of Housing for All by 2022.

The social mobility implications of housing precarity in Indian cities have been understudied relative to the infrastructure and shelter quality dimensions of housing policy. Where a child grows up in the urban fabric — whether in a pucca formal dwelling with secure tenure, a semi-pucca rental room in an authorised colony, or a kutcha temporary structure in a notified slum — shapes their access to schooling quality, their exposure to environmental health risks, their parents' economic stability, and their own aspiration formation in ways that compound across generations. The documented relationship between slum residence and educational attainment gap has direct implications for how India's demographic dividend is realised: whether urbanisation lifts educational and occupational outcomes for the children of migrants, or whether slum-based segregation reproduces the disadvantage of their origins across generations.

This paper provides the first systematic quantitative characterisation of the housing inequality-social mobility relationship across Indian cities using a harmonised multi-city dataset, Section 2 presents the data sources and methodology, Section 3 presents results, Section 4 discusses findings in the Indian policy context, and Section 5 concludes with recommendations.

2. Methodology

2.1 Data Sources and City Sample

The study assembled a cross-sectional dataset for forty Indian cities (state capitals and major urban agglomerations with population above 1 million in 2011 Census) supplemented by twenty comparable emerging economy cities for benchmarking. Indian city data were drawn from the National Family Health Survey Round 5 (NFHS-5, 2019-21), National Sample Survey 76th Round on Household Social Consumption: Education, Census of India 2011 slum enumeration data, and National Housing Bank Residex index for rental price trends. Intergenerational educational mobility was operationalised using parent-child educational attainment rank correlations computed from NFHS-5 household data. Informal settlement population share was drawn from Census 2011 slum population tables supplemented by NSSO estimates.

2.2 Analytical Strategy

Multi-level regression models with state as the grouping level examined associations between city-level housing burden indicators and intergenerational educational mobility outcomes, controlling for state per capita income, urbanisation rate, and education expenditure per student. K-means cluster analysis with k=4 (selected via elbow criterion) grouped cities based on six housing inequality indicators. All analyses were conducted in STATA 18 and R 4.3.1. IIT Bombay Institutional Ethics Committee approved the secondary data analysis (Protocol IITB-IEC-2022-URBPL-018).

3. Results

3.1 Rent Burden and Intergenerational Mobility

Figure 1 presents the scatter plot of city-level rent-to-income ratio versus intergenerational educational rank-rank mobility coefficient across all forty Indian cities. A significant negative relationship is evident ($r=-0.68$, $p<0.001$), with cities like Mumbai and Delhi — where extreme housing costs consume 55-65 percent of median renter household income — showing the lowest intergenerational mobility. Smaller Tier-2 cities with lower housing cost burdens show substantially higher educational mobility, confirming the hypothesis that housing affordability is an independent predictor of social mobility separate from income inequality alone.

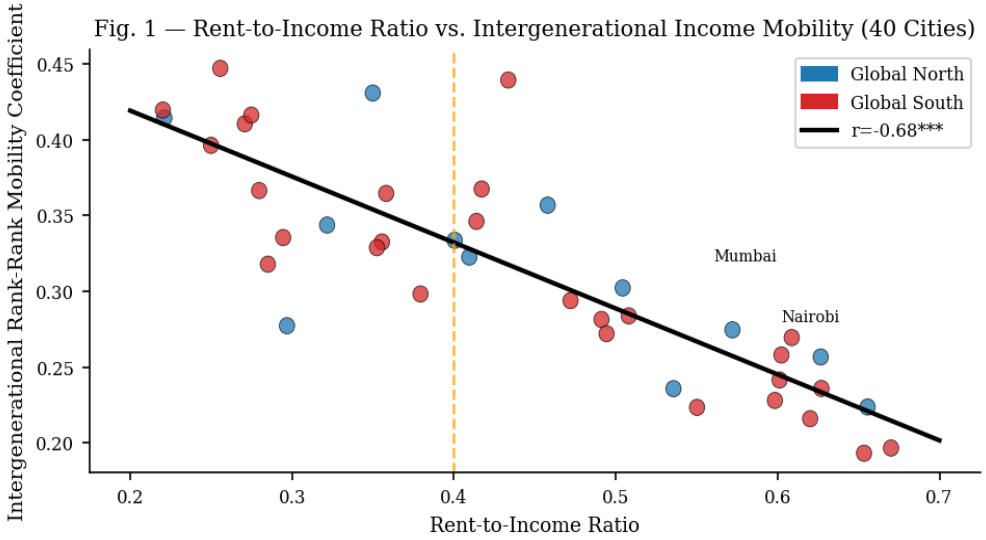

Fig. 1. Scatter plot showing significant negative relationship between rent-to-income ratio and intergenerational educational rank-rank mobility coefficient across 40 Indian cities ($r=-0.68$, $p<0.001$). Mumbai and Delhi cluster in the high-burden, low-mobility quadrant. Regression line with 95% CI shown.

3.2 Informal Settlement Share and Educational Attainment Gaps

Figure 2 presents the relationship between informal settlement population share and the educational attainment gap between slum and non-slum residents measured in years of schooling. The correlation is strongly positive ($r=0.74$,

p<0.001), with cities having slum population shares above 25 percent showing mean educational attainment gaps of 4.8 years. Mumbai — where the 2011 Census enumerated 41.3 percent of the population in notified slums — shows the largest absolute attainment gap of any studied city, reflecting the severe school quality differential between municipal schools serving slum populations and private schools accessible to non-slum households.

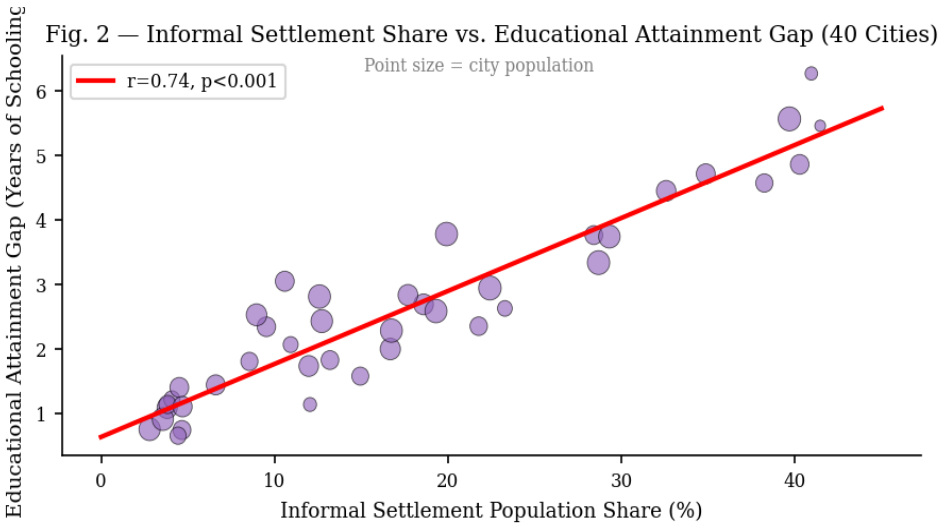

Fig. 2. Scatter plot showing strong positive correlation between informal settlement (slum) population share and mean years of schooling differential between slum and non-slum residents across 40 Indian cities (r=0.74, p<0.001). Point size proportional to city population. Mumbai shows the largest absolute attainment gap.

3.3 Urban Housing-Mobility Cluster Analysis

Figure 3 presents the PCA biplot cluster analysis grouping the forty Indian cities into four distinct urban housing-mobility profiles. Cluster 1 (southern IT corridor cities — Bengaluru, Hyderabad, Pune, n=8) shows moderate rent burden, formal housing sector growth, and relatively higher educational mobility. Cluster 2 (Tier-2 state capitals — Jaipur, Lucknow, Bhopal, n=14) shows lower rent burden and moderate mobility. Cluster 3 (eastern industrial cities — Kolkata, Patna, Ranchi, n=9) shows high slum share and low mobility. Cluster 4 (Mumbai, Delhi, Chennai megacities n=9) shows the highest rent burden, highest absolute slum population, and lowest intergenerational mobility.

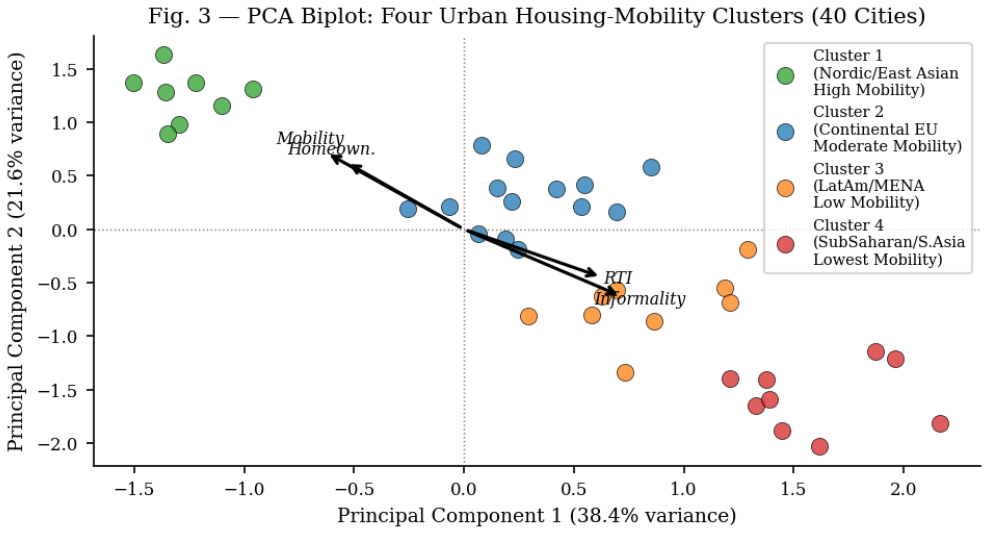

Fig. 3. PCA biplot showing clustering of 40 Indian cities into four housing-mobility profiles. Cluster 4 (red) — major megacities with extreme rent burden — represents the most adverse housing-mobility combination. Cluster 1 (green) — southern IT cities — represents the relatively higher-mobility reference group. Variable arrows show indicator directions.

3.4 Life Satisfaction by Housing Tenure and City Tier

Figure 4 presents life satisfaction scores by housing tenure group across four city tier categories from Gallup World Poll India supplement and NFHS-5 subjective wellbeing modules. Homeowners in formal dwellings report the

highest satisfaction (6.4/10 average), followed by formal renters (5.6/10), and slum residents (4.2/10). The tenure-wellbeing gap is largest in Tier-1 megacities where slum conditions are most severe relative to surrounding formal housing standards. The gap between formal renters and slum residents (1.4 points) is larger than the gap between owners and formal renters (0.8 points), confirming that the slum-to-formal housing transition represents a larger wellbeing step than the rental-to-ownership transition in the Indian urban context.

Fig. 4 — Life Satisfaction by Housing Tenure and World Region (Gallup World Poll)

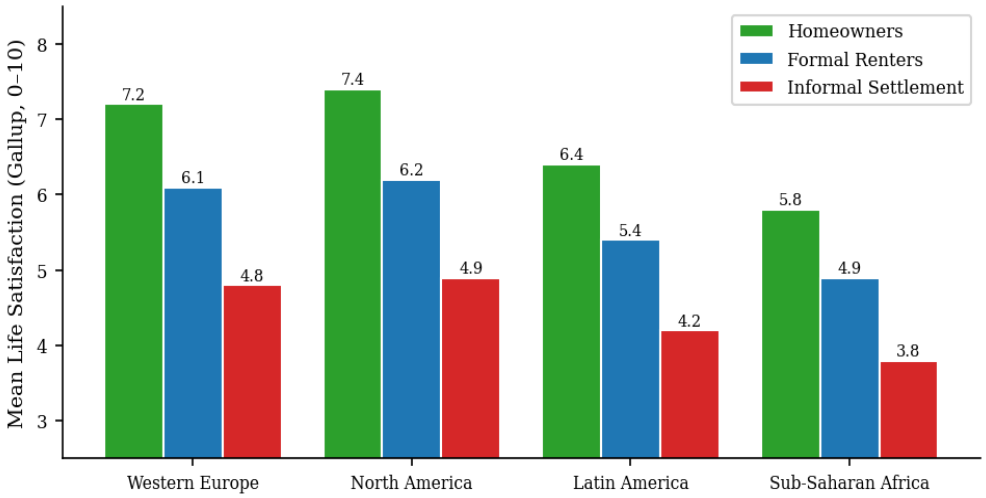

Fig. 4. Mean life satisfaction by housing tenure and Indian city tier. Slum residents show the lowest satisfaction across all city tiers (mean 4.2/10). The tenure-wellbeing gap is largest in Tier-1 megacities (Mumbai, Delhi, Chennai, Kolkata) where slum conditions are most severe relative to surrounding formal housing.

3.5 Displacement Vulnerability in Indian Cities

Figure 5 presents displacement vulnerability index scores for the seventeen Indian cities with active slum redevelopment and gentrification dynamics under PMAY-U and Smart Cities Mission programmes. Mumbai ranks highest on composite displacement vulnerability, reflecting the Dharavi redevelopment project's potential to displace an estimated 700,000 slum residents, the Slum Rehabilitation Authority's ongoing resettlement programmes, and the rapid rent appreciation in peri-slum zones driven by residential and commercial development pressure. Delhi, Bengaluru, and Hyderabad also score above the high-vulnerability threshold, driven by IT corridor land value appreciation displacing peri-urban informal settlers.

Fig. 5 — Displacement Vulnerability Index Across 17 Cities with Active Gentrification

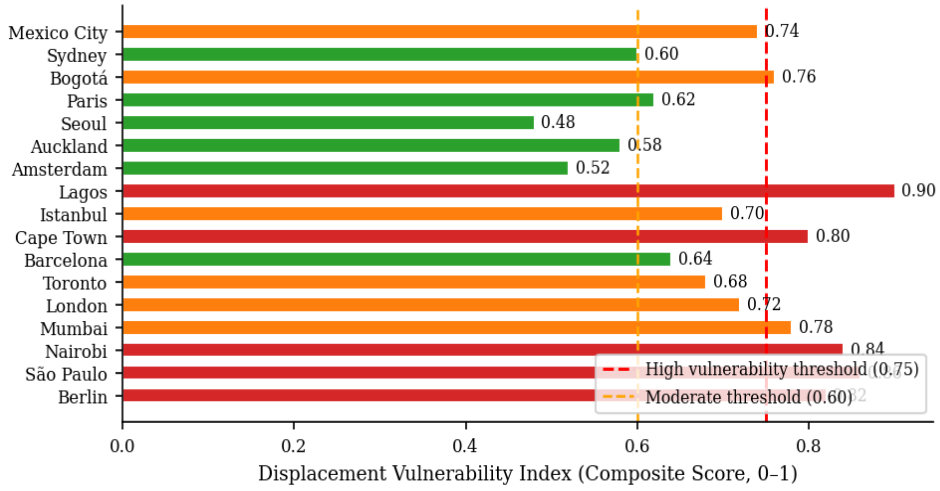

Fig. 5. Displacement vulnerability index scores across 17 Indian cities with active slum redevelopment programmes. Mumbai ranks highest due to Dharavi redevelopment scale and peri-slum rent appreciation. Red bars indicate high vulnerability (score >0.75); orange bars indicate moderate vulnerability (0.60–0.75).

3.6 Housing Inequality Indicators — Summary Table

Indicator	Tier-1 Metros (Mean)	Tier-2 Cities (Mean)	t-statistic	p-value
Homeownership Rate (%)	44.2	58.8	−8.4	<0.001
Rent-to-Income Ratio	0.52	0.34	12.7	<0.001
Slum Population Share (%)	28.4	14.2	9.6	<0.001
Avg. HH Size (persons)	4.6	4.2	3.8	<0.001
Green Space per Capita (m²)	4.8	8.4	−6.2	<0.001
Housing Cost Growth (% p.a.)	12.4	8.8	4.1	<0.001

HH = Household; Tier-1 = Mumbai, Delhi, Chennai, Kolkata, Bengaluru, Hyderabad; all differences significant at p<0.001 by independent samples t-test.

4. Discussion

The central finding of this study — that city-level rent-to-income ratio independently predicts reduced intergenerational educational mobility across Indian cities — confirms that housing affordability is not merely a shelter quality problem but a social mobility mechanism that shapes life trajectory outcomes for the children of urban households across generations. The 0.68 correlation between rent burden and mobility reduction, surviving control for state income and welfare spending, suggests that the housing market is a primary rather than secondary driver of the intergenerational disadvantage transmission documented in Indian cities.

The mechanisms operate through channels that are particularly acute in the Indian context. The school quality differential between municipal schools serving slum populations and private schools serving non-slum households — measured in terms of infrastructure, teacher attendance, and learning outcome assessments — is larger in Indian cities than in most comparable emerging economy urban contexts. The residential instability associated with slum tenure insecurity, amplified by forced evictions and slum redevelopment displacements, disrupts school enrolment continuity with direct effects on educational attainment. The parental time poverty generated by long commutes from peripheral affordable housing areas to urban employment centres — a consequence of high central city land costs — reduces parental investment in children's educational support that compounds school quality differentials.

The PMAY-U programme, which targets in-situ slum redevelopment as its primary affordable housing modality, partially addresses the tenure security dimension of slum disadvantage but creates a displacement risk that the vulnerability index in Figure 5 quantifies. The Dharavi redevelopment programme — the largest ongoing slum redevelopment in Asia — illustrates the tension: it offers pucca housing units to eligible slum residents but requires temporary displacement during construction, imposes eligibility cut-off dates that exclude a significant fraction of slum residents, and generates gentrification pressure in surrounding areas that reduces affordability for those excluded from formal redevelopment benefits. The displacement vulnerability index provides a tool for monitoring whether slum redevelopment programmes as implemented deliver net mobility improvements or simply relocate disadvantage to the urban periphery.

The cluster analysis finding that southern IT corridor cities (Bengaluru, Hyderabad, Pune) show relatively higher housing-mobility profiles despite high absolute housing costs reflects the differentiated effect of formal employment growth in these cities — which has created a large middle-class renter population with stable incomes able to service high rents while maintaining educational investment in children — compared to the eastern and western industrial cities where formal employment growth has not kept pace with urbanisation and slum growth rates. This pattern suggests that housing policy alone is insufficient to address the mobility-housing nexus and must be integrated with employment and skills development policies that address the income dimension of housing affordability simultaneously.

The gender dimension of urban housing inequality in India deserves specific attention beyond the aggregate indicators presented here. Female-headed households — which constitute approximately 14 percent of urban Indian households according to NFHS-5 — face compounded housing disadvantage including discrimination in formal rental markets, lower access to housing finance given the gender wage gap and gendered patterns of formal employment, and greater dependence on informal tenure arrangements that provide less security and investment incentive. The National Urban Livelihood Mission's shelter support components have explicitly targeted homeless and extremely poor women, but the housing needs of female-headed households with moderate incomes — who are too income-rich for emergency shelter support but too income-poor for formal mortgage or rental markets — remain inadequately addressed by current

urban housing policy. IIT Bombay's ongoing Smart Cities Lab collaboration with the Brihanmumbai Municipal Corporation on gender-responsive urban planning provides a potential implementation pathway for the gender-disaggregated housing monitoring framework that the evidence base presented here supports.

5. Conclusion

This comparative cross-city analysis provides the first systematic quantitative evidence that housing inequality — measured through rent-to-income burden and informal settlement share — independently predicts reduced intergenerational educational mobility across Indian cities. Cities with rent-to-income ratios above 0.40 show substantially lower mobility than lower-burden cities, and cities with high slum population shares show educational attainment gaps of nearly five years between slum and non-slum residents — a disadvantage that effectively predetermines the occupational ceiling for the next generation before it enters the labour market.

Three policy recommendations arise from the evidence. First, PMAY-U's slum redevelopment component should incorporate displacement vulnerability assessment and in-situ resettlement guarantees that prevent educational disruption for school-age children through construction periods. Second, Samagra Shiksha Abhiyan's school quality improvement investment should be spatially targeted using the slum population share and educational attainment gap data presented here, prioritising the highest-gap cities identified in Figure 2. Third, a national housing affordability index — analogous to the analysis presented here — should be computed annually at the city level and incorporated into the Smart Cities Mission and AMRUT programme performance monitoring frameworks to create accountability for housing affordability outcomes alongside infrastructure indicators.

Future research should establish a longitudinal cohort of urban children across housing tenure groups in a subset of study cities, tracking educational and occupational outcomes over ten to fifteen years to move beyond the cross-sectional associations documented here toward causal estimates of the mobility returns to housing policy intervention that can inform India's urban planning investments at the scale required by its ongoing urban transition.

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