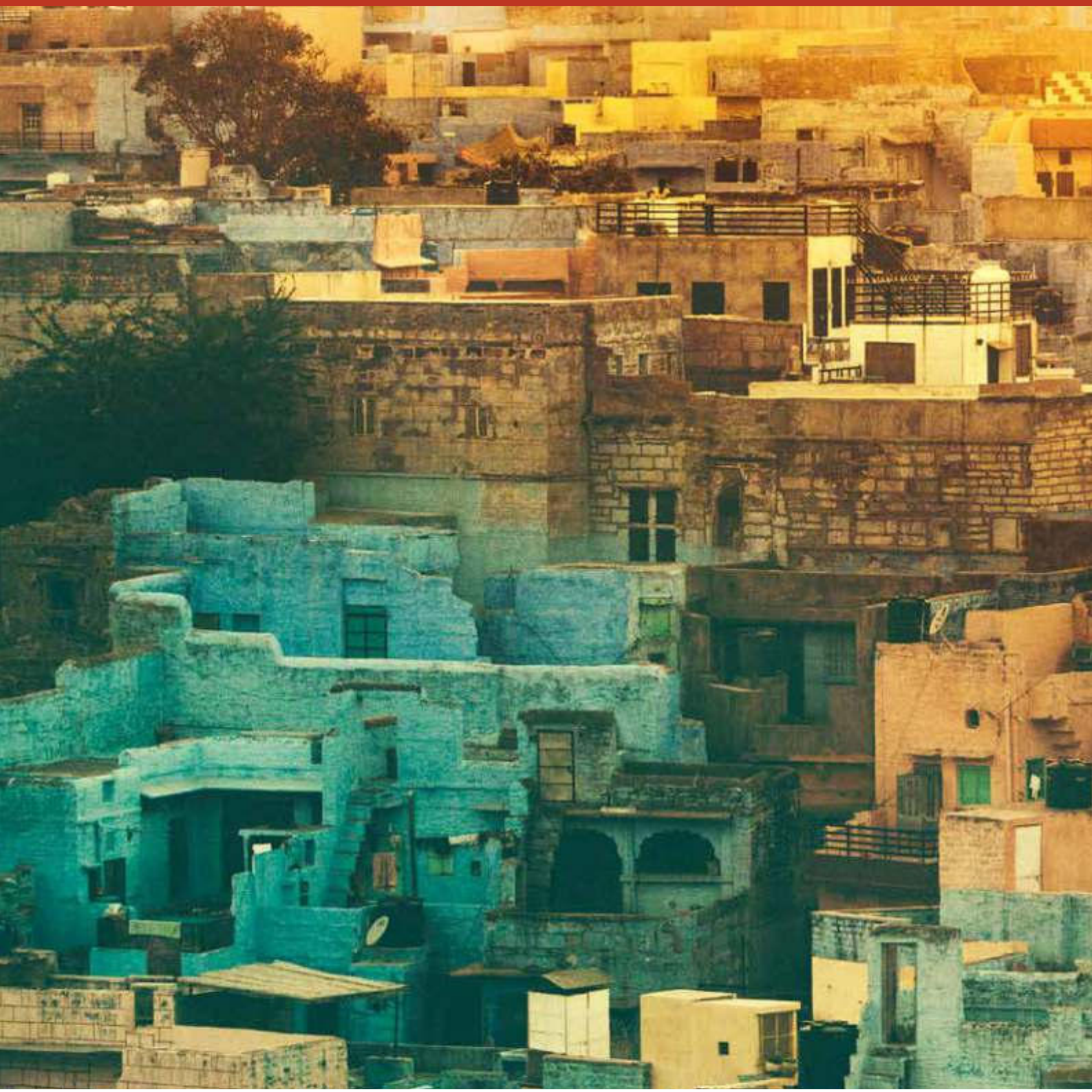
THE INDIA INFRASTRUCTURE REPORT 2018:

Making Housing Affordable focuses on key supply-side constraints in the housing market in urban India.



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India Infrastructure Report 2018

Making Housing Affordable

A Supply-side Reform Agenda for Urban India

About Us

IDFC Institute has been set up as a research-focused think / do tank by IDFC Ltd. to investigate the political, economic and spatial dimensions of India's ongoing transition from a low-income, state-led country to a prosperous market-based economy. Broadly, we support the notion of well–regulated free markets, and inquiry into practices that result in greater, more efficient and equitable development. We strive to provide in-depth, actionable research and recommendations, with a current focus on urbanisation, affordable housing, job creation and state capacity. We also host events to foster cutting-edge and innovative thinking on development issues through informed, candid and substantive conversation.

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Dr Reuben Abraham, CEO and Senior Fellow at IDFC Institute, has not participated in the drafting of this report as he serves on the Board of Directors of an affordable housing provider in India.

Foreword

Government regulations can be justified when there are market failures. Since regulations act as constraints on action, state interventions in situations where there are no market failures create distortions. The impact of regulations has been well understood and examined in economics. They shape the rules of the game and thus incentives of actors. In a complex and interconnected system, this could lead to the desired outcomes for which they were planned for or have unintended consequences. Ronald Coase once said: "I don't reject any policy without considering what its results are. If someone says there's going to be regulation, I don't say that regulation will be bad […] What we discover is that most regulation does produce, or has produced in recent times, a worse result."

Land and real estate markets in Indian cities have been overly regulated for a long time. Builders in India today are merely responding to incentives created by the current regulatory framework. The outcomes of these regulations are a severe housing shortage in most cities and rising unaffordability as measured by the ratio of house prices to median incomes. This has crowded out not only the poor but also the middle-class households from housing markets in Indian cities. Addressing this situation is a vexing policy challenge for centre and state governments. There is growing acceptance in the policy discourse that government programmes in the form of housing schemes and direct provision alone may not be sufficient given the magnitude of the problem.

Housing is essentially a private good and therefore requires policy interventions by governments both at the centre and the state in order to enable the market to reach greater number of households. In other words, to change outcomes, existing regulations need to be altered through policy interventions. Interventions should be designed with the aim of reshaping incentives while being cognizant of the limits to state capacity and resources in implementing any reforms. The politics of the housing situation for the very poor would nevertheless dictate a direct role of the government- either as a provider or a facilitator, which must be initiated only after removing most distortions from the sector. The Real Estate (Regulation and Development) Act, 2016 (RERA) and the Goods and Services Tax (GST) will most definitely ease the situation by bringing in accountability and transparency in the sector.

A prerequisite to designing policy interventions that have a chance to succeed is to go beyond symptoms and understand root causes of the problem. This report provides a diagnostic of the causes of distortions in the housing market and their impact on housing provision. In particular, it highlights the role played by existing regulations and processes– both formal and informal– in increasing the cost of housing provision by the private sector. A well-known culprit is restricting Floor-Space Index (FSI) in many Indian cities. The report estimates the regulatory burden of FSI and finds that restricting FSI imposes around 300% tax on houses in Mumbai. Building permits and approvals required from various authorities at the centre, state, and local body level not only lead to delays in project completion but also results in cost escalations – estimated by a few builders to be around 25-30% of the total project costs.

The World Bank's Ease of Doing Business report 2017 ranks India 181 out of 190 countries on the parameter of obtaining construction permits. Price distortions also arise due to high stamp duty rates and registration fees levied on property transactions in many states. Finally, existing housing stock is not put to efficient use since investors who purchase property for capital appreciation have no incentive to rent out houses due to low rental yields. Stringent rent control laws make it difficult to evict tenants or raise rents above the set levels. Therefore, we not only see reduced investments in rental housing but also an increasing vacant housing stock.

The policy recommendations put forth in this report focus on 3 aspects: removing regulatory constraints, limiting the role of the state to functions such as investing in mass rapid public transit, opening up access to land, planning ahead for urban expansion and providing housing for the very poor, and tracking the health of the housing sector by improving data collection on crucial parameters.

The report is timely and makes a critical contribution to not only policy thinking on housing in India but also to the broad literature on regulatory governance.

Vijay Kelkar
Chairman, Thirteenth Finance Commission

Preface

Over the last decade, the unavailability of affordable housing has emerged as a key policy concern. Several affordable housing schemes have been launched by central and state governments, but have had limited success. Recognising the magnitude of the problem, the current government has made a big push to provide formal housing for all, with uninterrupted access to water, electricity and sanitation by 2022, the 75th anniversary of India's independence. The central government launched the Pradhan Mantri Awas Yojana in 2015 to meet this target. Yet, despite a sustained political push, progress on the ground has been slow, which is indicative of regulatory constraints as well as distortions in the housing market.

This report, which marks the re-launch of our India Infrastructure Report (IIR) series, examines the supply-side constraints to creating a stock of affordable housing. While there has been a fair amount of research on demand-side interventions to lower the cost of housing, there is limited research on supply-side measures. In keeping with previous IIRs, the idea is to investigate a critical and contemporary development challenge, in order to generate well-informed public discussions. This report is informed by extensive research, including interviews with experts, academics and practitioners. We hope our analysis is a useful contribution to the debate on how to achieve the government's goal of 'Housing for All'.

I would like to thank the authors, editors and all others who have contributed to this report.

Rajiv Lall
MD and CEO, IDFC Bank

Acknowledgments

The IDFC Institute India Infrastructure Report 2018 has been a collaborative effort. This report is a product of the hard work of several people who gave us insights, feedback, data and research support.

We are thankful to Gyanendra Badgaiyan, Shirley Ballaney, Praveen Chakravarty, Shubhankar Dongre, Sandeep Dutta, Swastik Harish, Komal Hiranandani, Sriram Kalyanaraman, Pankaj Kapoor, Parth Khare, Rajesh Krishnan, C. V. Madhukar, Santhosh Mathew, Madhusudhan Menon, Govind Mohan, Gulzar Natarajan, Venkatesh Panchapagesan, Bimal Patel, Shirish Patel, Abhay Pethe, Vidyadhar Phatak, Hardeep Singh Puri, V. Rajan, Manish Sabharwal, Anand Sahasranaman, Sanjeev Sanyal, Jessica Seddon, Ajay Shah, Charan Singh, Shubh Soni, Arvind Subramanian, Alex Tabarrok and Shashi Valiathan for their vital feedback and reviews of the draft versions of the report.

To ensure the report is an accurate representation of the ground realities of the housing market in India, we interviewed architects, bankers, contractors, builders, lawyers, lenders, and real estate experts. We owe much of our understanding of the functioning of housing market to their valuable insights and thank them wholeheartedly for their time and support.

We would like to thank our colleagues Prakhar Misra, Tinaz Mistry, Kadambari Shah, and Sharmadha Srinivasan for their feedback and inputs. We are indebted to all IDFC Institute interns who worked on this report for their excellent research support. We would like to thank Linda Bedenik, Pallavi Bichu, Anant Garg, Tushar Kanade, Jasleen Kaur, Akshaya Krishnan, Reshu Natani, Harsh Vardhan Pachisia, Adheip Rashada, Ritika Rastogi, Aarti Seksaria, Yash Sharma, Shivam Shourya, Raadhika Vishvesh, and Neeti Yellurkar. We are grateful to How India Lives for design and data visualisation, and the Urban Expansion Observatory at the Mahatma Education Society for creating the maps used in this report.

Last but not the least, we are thankful to IDFC Foundation for their support throughout the research and writing process.

Team

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Abbreviations

AAI	Airports Authority of India
BBMP	Bruhat Bengaluru Mahanagara Palike
BCCI	Bihar Chamber of Commerce and Industries
BDABBSR	Bhubaneswar Development Authority (Planning and Building Standards) Regulations
BPL	Below Poverty Line
BSUP	Basic Services for Urban Poor
CBD	Central Business District
CCMC	Coimbatore City Municipal Corporation
CG	Central Government
CMDA	Chennai Metropolitan Development Authority
CREDAI	Confederation of Real Estate Developers' Associations of India
DCR	Development Control Rules
DDA	Delhi Development Authority
DILRMP	Digital India Land Records Modernisation Programme
DU	Dwelling Units
ECS	Equivalent Car Space
EDB	Ease of Doing Business
Env.	Environment
EWS	Economically Weaker Section
FAR	Floor Area Ratio
FCFSI	Fungible Compensatory Floor Space Index
FICCI	Federation of Indian Chambers of Commerce and Industry
FSI	Floor Space Index
ft	Foot/Feet
GDCR	Gujarat Development Control Rules
GF	Ground Floor
GHMC	Greater Hyderabad Municipal Corporation
GHSL	Global Human Settlement Layer
GMDA	Guwahati Metropolitan Development Authority
GPR	Gross Plot Ratio
GST	Goods and Services Tax
HDFC	Housing Development Finance Corporation
HFA	Housing For All
HFC	Housing Finance Company
HMDA	Hyderabad Metropolitan Development Authority
HUDA	Haryana Urban Development Authority
IGR	Inspector General of Registration
IHSDP	Integrated Housing and Slum Development Programme
IT	Information Technology
ITDP	Institute for Transportation and Development Policy
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
KDA	Kanpur Development Authority
km	Kilometre(s)
KMBR	Kerala Municipal Building Rules
KMC	Kolkata Municipal Corporation
LIG	Lower-Income Group
m	Metre(s)
MCGM	Municipal Corporation of Greater Mumbai
MGI	McKinsey Global Institute

MHUPA	Ministry of Housing and Urban Poverty Alleviation
MLIT	Ministry of Land, Infrastructure, Transport and Tourism
MMR	Mumbai Metropolitan Region
MMRDA	Mumbai Metropolitan Regional Development Authority
MoHUA	Ministry of Housing and Urban Affairs
MoRD	Ministry of Rural Development
NAREDCO	National Real Estate Development Council
NBA	Nirmal Bharat Abhiyan
NBC	National Building Code
NCR	National Capital Region
NCT	National Capital Territory
NDA	National Democratic Alliance
NHB	National Housing Bank
NIT	Nagpur Improvement Trust
NITI	National Institution for Transforming India
NPA	Non Performing Assets
NSSO	National Sample Survey Office
NUTP	National Urban Transport Policy
NYC	New York City
NYU	New York University
OECD	Organisation for Economic Co-operation and Development
PEATA	Practising Engineers Architects and Town Planners Association
PG	Paying Guests
PMAY-U	Pradhan Mantri Awas Yojana-Urban
PSU	Public Sector Unit
RAY	Rajiv Awas Yojana
RBI	Reserve Bank of India
RCA	Rent Control Act
RCC	Reinforced Cement Concrete
RERA	Real Estate (Regulation and Development) Act
RRY	Rajiv Rinn Yojana
S&P	Standard and Poor
SAR	Special Administrative Region
SC	Scheduled Caste
Sq ft	Square Foot/Feet
Sq km	Square Kilometre(s)
Sq m	Square Metre(s)
ST	Scheduled Tribes
TDR	Transferrable Development Rights
UDA	Urban Development Authority
UDD	Urban Development Department
UIRF	Urban India Reform Facilities
ULCRA	Urban Land Ceiling and Regulation Act
URA	Urban Redevelopment Authority
USA	United States of America
VAMBAY	Valmiki Ambedkar Awas Yojana
VAT	Value Added Tax
WB	West Bengal
YOY	Year Over Year

Executive Summary

The complexity of the housing challenge in India can be gauged from three compelling statistics. Around 18.8 million urban households face a housing shortage[1], while 11.1 million houses lie vacant in cities, and central government schemes have managed to construct less than 1.8 million houses. The shortage, high vacancy rate and the government's limited capacity to build enough new housing, are a consequence of multiple, interconnected issues.

From the acquisition of land, getting the requisite approvals for construction, to incentivising landlords to rent out property, every step of the housing supply chain is fraught with challenges. This report is an attempt to unpack these issues and spur a debate on what the way forward should be.

The housing shortage is in part a consequence of an effort by cities to restrict population density in urban areas through land-use regulations. Indian cities have some of the lowest Floor Space Index (FSI) ceilings in the world (Chapter 2). This index determines the amount of built-up space allowed on a plot of land; the higher the FSI, the more a builder can construct. Some Indian cities also have restrictions on how tall a building can be. For example, a residential building in most areas of New Delhi cannot be taller than 15 metres, effectively less than four floors. These regulations have multiple consequences. Lesser space for construction or restrictions on height translate into limited housing supply, lesser inhabitable space available per person and higher prices for available housing.

As a result, there is simply not enough housing stock to meet the population's growing demand. This report emphasises that the government should ease the supply-side constraints in the housing market.

The first step in this process would be allowing builders to borrow from formal banking institutions to acquire land for housing projects (Chapter 3). Currently, RBI restricts formal lending as it is concerned that this might exacerbate the NPA problem of banks. Inaccurate land records and presumptive land titling not only make acquisition tedious but also leave ample room for legal disputes. If and when land is obtained for residential projects, new construction cannot begin without getting multiple approvals and permits from government bodies. The time taken to get approvals is typically 12-18 months in the major cities. The official and unofficial costs of getting them account for around 30% of the overall project cost.

Once a house has been constructed, inordinately high registration fees and stamp duties add to the cost of property transactions in India (Chapter 4). These fees discourage buyers from declaring the true value of the property while reporting a transaction. According to the World Bank's Ease of Doing Business Report 2018, the cost to register a property is around 9.1% of the property value in New Delhi and 7.6% in Mumbai. The stamp duty rate in urban areas of Punjab is 9% and for municipal corporations in Maharashtra it is 5%. In contrast, in China the stamp duty rate is 0.05%, in Spain it ranges between 0.5 and 2% and in New Zealand, stamp duties have been abolished entirely.

The next challenge in the housing conundrum is that of getting landlords to rent out their (already built) unused properties (Chapter 5). Pro-tenancy laws, such as the Rent Control Acts (RCAs), have frozen rents and made eviction difficult. Capped rents mean that landlords have no incentive to maintain their properties and allow them to deteriorate. Almost half of all rental units in Mumbai are now either condemned or beyond repair. Since evictions can only be made under specific conditions outlined in the Act, house-owners decide that the return they would receive from renting out property is not sufficient to outweigh the risk of potentially long-drawn and costly court battles over tenancy. It is therefore not surprising that the share of rental housing in Indian cities has seen a considerable fall from 54% in 1961 to 28% in 2011.

Another challenge related to housing, but usually absent from policy discussions, is transportation (Chapter 6). As labour moves from rural to urban areas for economic and social mobility, it will be hard-pressed to find affordable housing closer to places of work, thus necessitating the need for cost- and time-effective transportation. A transit

[1] The Minister of Housing and Urban Affairs, Hardeep Singh Puri, said in Lok Sabha that the urban housing shortage figure has been revised down to "11 million units", but no official report has been released by the government to verify this calculation (The Economic Times, 2018).

system that is reliable, accessible and rapid, improves housing affordability either directly (lesser dependence on cars would remove the need for parking spots and eventually lower the cost of construction) or indirectly (by lowering commuting costs for households). As the only entity that can develop such large-scale public infrastructure, the State's intervention in this respect will be most relevant. We argue that if restrictions on the smooth functioning of the housing market are removed in conjunction with developing a reliable mass transit system, the cause of affordable housing for all will benefit significantly.

Just the spectrum of policies that need to be reassessed to make housing for all a reality is a testament to the scale of this task. We are also cognizant of the contentious political economy challenges that each of the issues highlighted above represent. We therefore recommend a gradual, incremental approach for reforming land-use regulations and the rental market (Chapter 7). In addition, we propose a possible path towards reducing the costs of construction and carrying out property transactions so as to make housing more affordable in Indian cities. We also make the case that the efficacy of these policy reforms will be predicated upon the availability of quality data and information.

In sum, we hope that this report is a constructive analysis of the urban housing challenge in India and provokes an informed debate around it.

CHAPTER

1

Introduction

1.1. Context

The Government of India estimated that nearly 18.8 million urban households, i.e. 23% of all households in cities, faced a housing shortage in 2012[2]. Approximately 95% of this shortage was among the Economically Weaker Sections (EWS) and Lower-Income Groups (LIG).[3] This scarcity has resulted in unaffordable housing in most Indian cities.

One measure of unaffordability is the price-to-income ratio, which is the ratio of median apartment prices to median household disposable income in a city. This ratio is expressed as the years of income it would take a median household to purchase a median-priced house in that city.[4] Indian cities have higher price-to-income ratios relative to cities across the world (see Figure 1.1)[5].

The unaffordability of housing is increasingly pushing households into either:

a) Informal housing or slums (more on this in section 1.2.a)

b) Smaller quarters: the 63rd National Sample Survey in 2006 found that in urban India, the average residential living space was 117 sq ft per person[6]. In 2012, *The Economist* reported that the average living space in Mumbai was a mere 48 sq ft per person, compared to 366 sq ft per person in Shanghai.[7]

c) Remote suburbs further away from city centres: the 2011 Census found that close to half of the residents of Vasai-Virar, a Mumbai suburb, travel an average distance of 20km each way for work in the central business district.[8]

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[2] National Buildings Organisation: Report on the Technical Group on Urban Housing Shortage 2012. The shortage is calculated by taking estimates of the number of households living in non-serviceable kutcha houses, obsolescent houses, congested houses and homeless households. Note that the estimated number of urban households for 2012 was around 81 million.

[3] National Buildings Organisation, 2012. The McKinsey Global Institute also estimated that 28 million households were living in 'substandard' housing in 2014 (McKinsey Global Institute, 2014). The World Bank (2013) reported that the housing shortage in urban India shot up from 3 million units in 1971 to 24.7 million in 2007, and that urban areas require an additional 1.8 million units annually to accommodate new households.

[4] The price-to-income ratio is a better metric than house prices to compare housing affordability since it takes into account the relative differences in incomes across cities.

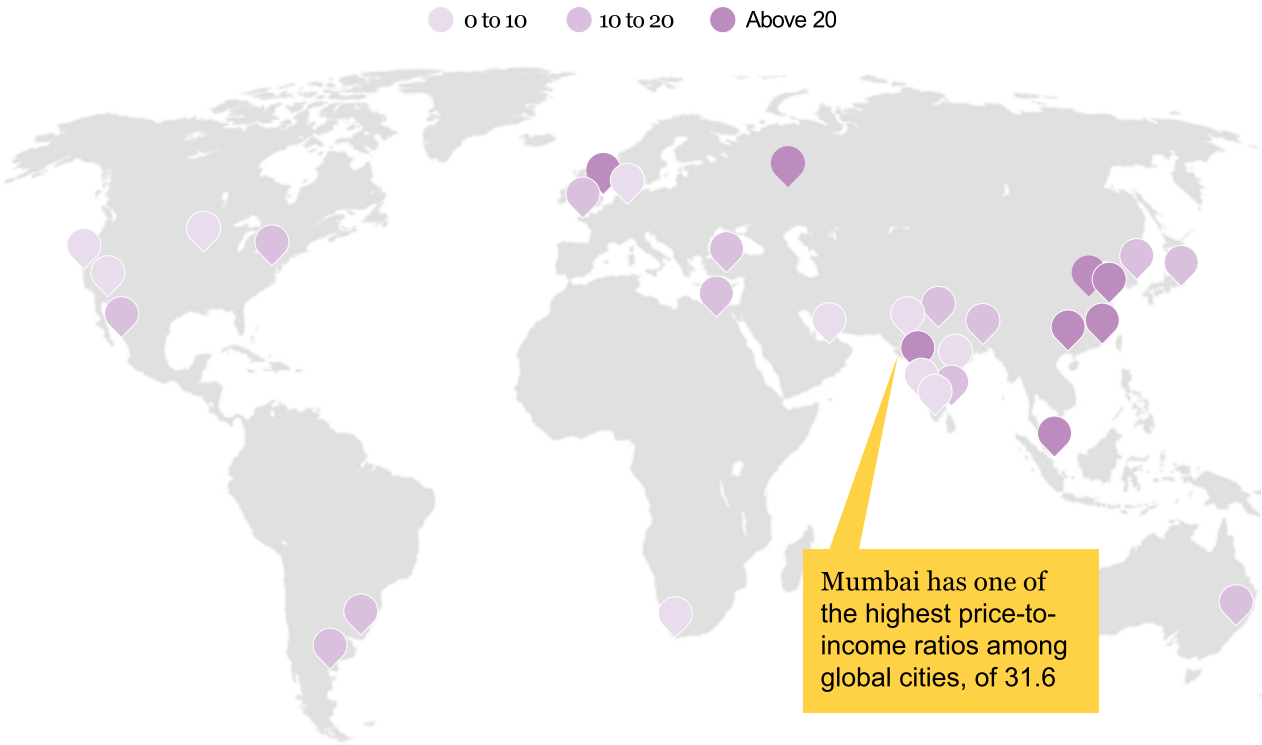
[5] Refer to Appendix 1.3 for the methodology to select global cities to compare to Indian cities. This set of cities is consistent for similar comparisons throughout the report.

[6] National Sample Survey 63rd Round (2006). Household Consumer Expenditure in India (Report no. 527). The report provides the covered area of the households in urban India, which is 46.82 sq m. The urban household size is 4.3 as per the same report.

[7] The Economist (2012).

[8] Based on Census 2011 (see Livemint, 2015). The location decisions of firms are also influenced by the cost of commercial rents. In such cases, firms will locate to areas where it is cheaper to rent and where there is a catchment of labour. This is already happening to some extent in India, as shown in World Bank (2013). It notes that metropolitan 'suburbanisation' in Indian metropolitan regions is due to faulty land management policies that have increased costs of locating in metropolitan cores.

Figure 1.1: House price-to-income ratios in Indian cities vs global cities (2017)



	City	Price-to-Income Ratio 2017
1	Shenzhen	39.76
2	Hong Kong	38.61
3	Beijing	37.80
4	Shanghai	36.91
5	**Mumbai**	**31.58**
6	London	24.16
7	Singapore	22.18
8	Moscow	20.47
9	Sao Paulo	19.40
10	Seoul	19.17
11	Tokyo	17.49
12	Paris	16.44
13	**Delhi**	**15.07**
14	**Kolkata**	**13.28**
15	Buenos Aires	13.14
16	Istanbul	12.35

	City	Price-to-Income Ratio 2017
17	Sydney	11.95
18	**Chennai**	**11.92**
19	Cairo	11.21
20	New York	10.32
21	Mexico City	10.14
22	San Francisco	9.53
23	Frankfurt	9.13
24	**Pune**	**8.47**
25	**Ahmedabad**	**8.13**
26	**Bengaluru**	**7.96**
27	**Hyderabad**	**7.17**
28	Cape Town	6.92
29	Los Angeles	5.77
30	Dubai	5.40
31	Chicago	3.38

Source: Numbeo 2017
Notes:
1. Numbeo is a crowdsourced database of the cost of living in cities around the world.
2. The raw datasets used in the report are available for download at https://github.com/IDFCInstitute/housing .

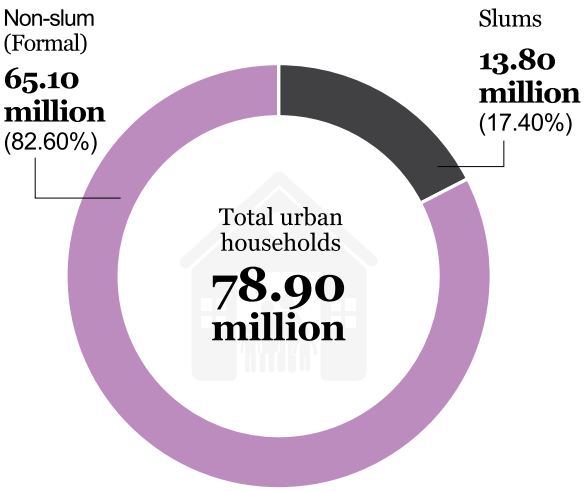
Cities efficiently match firms requiring labour to households that need jobs. The unavailability of affordable housing restricts access to economic opportunities that only cities can provide. The efficiency of labour markets is thus inextricably linked to well-functioning housing and real estate markets.

1.2. India's urban housing sector: Some stylised facts

a. Informal housing or slums

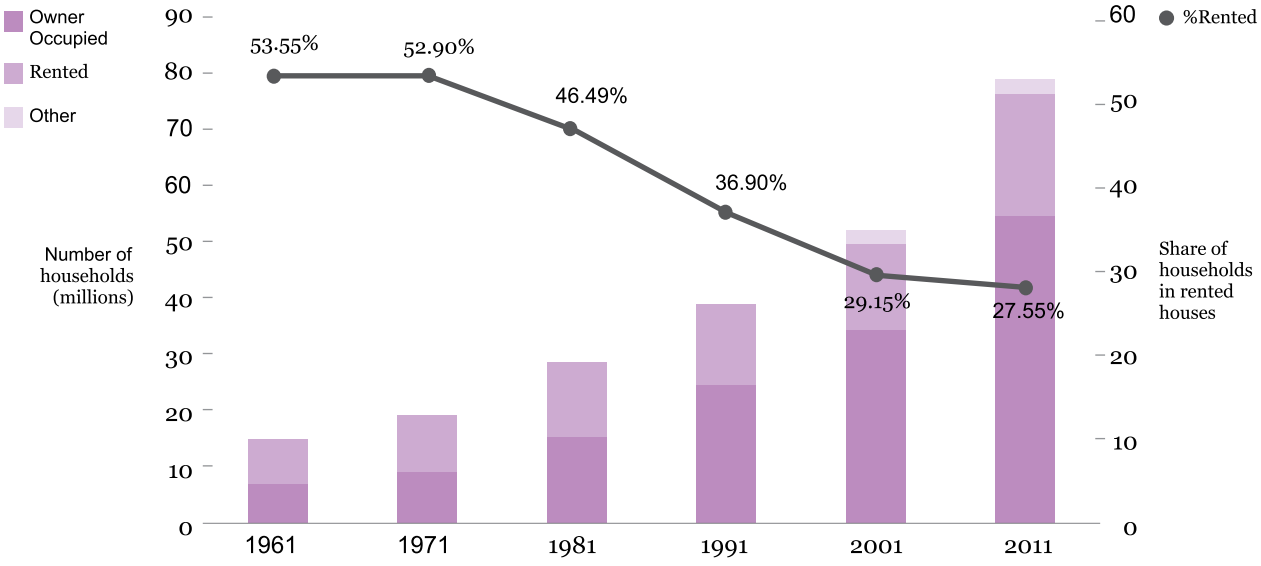
Slums have become an almost permanent part of the landscape of many Indian cities. According to the 2011 Census, 13.8 million households, or 17% of all urban households lived in slums (see Figure 1.2). Given that the Census only counts 'Identified Slums', the true extent of informal housing in urban India may be even higher.[9] In addition, the 2011 Census only counts slum households in statutory towns and not Census towns.[10] Furthermore, between 2001 and 2011, the number of slum households rose from 10.2 million to 13.8 million.[11]

Figure 1.2: Urban households living in slums vs formal housing in 2011



Source: Census of India (2011)
Note: The 2011 Census only identified slum households in statutory towns and not Census towns.

Figure 1.3: Share of urban households living in owned vs rented houses



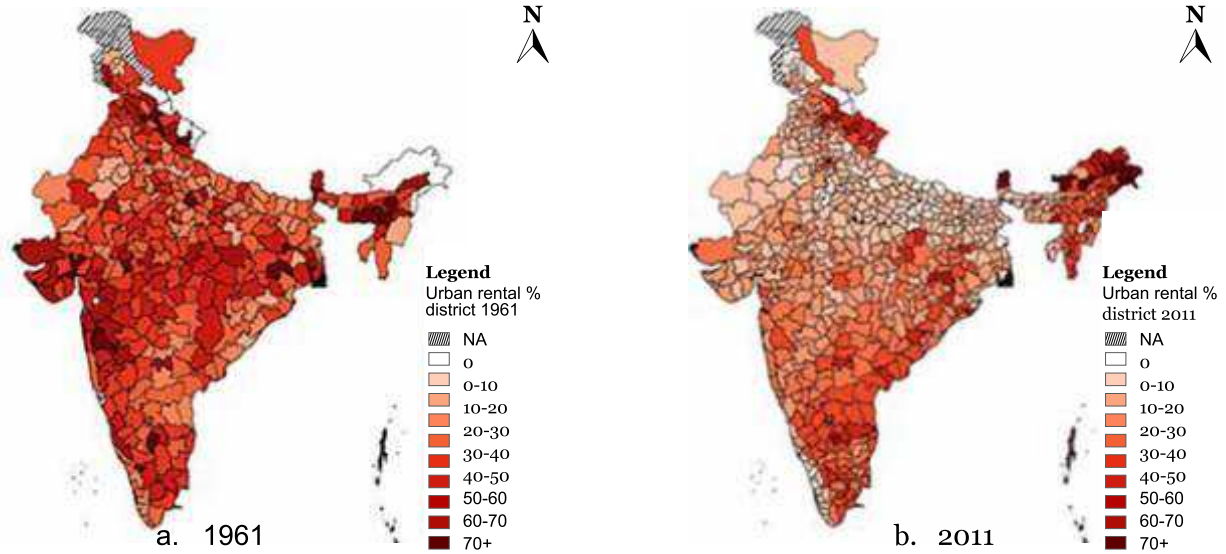
Source: Harish (2015) and Census of India (1961-2011)
Notes:
1. For 1961 and 1971, 'Owned' Census figures have been used for the 'Owner occupied' houses category.
2. 'Other' was a category introduced in 2001, and includes rent-free accommodation provided by employers, and houses where the household neither owns the structure nor pays rent, such as in unauthorised slums/construction.
3. Further, the 1961 Census is based on a 20% sample and numbers reported here are population estimates of the sample.

[9] The Census defines Identified Slums as, 'A compact area of at least 300 population or about 60-70 households or poorly built congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities. Such areas should be identified personally by the Charge Officer and also inspected by an officer nominated by Directorate of Census Operations. This fact must be duly recorded in the charge register'.

[10] Hiranandani, 2018; Census of India, 2011. Primary Census Abstract for Slum. The Census refers to urban settlements administered by an Urban Local Body as 'statutory towns', whereas 'Census towns' are towns that the Census classifies as 'urban' but are administered by a Rural Local Body.

[11] Census of India, 2001 and 2011. Primary Census Abstract for Slum.

Figure 1.4: Comparison of rental housing in urban India in 1961 vs 2011



Source: Tandel et al. (2016)

b. The decline of rental housing

Rental housing is a critical component of the housing market in cities since renting is easier than buying for new migrants. Rental housing also affords greater mobility across and within cities. However, the share of rental housing in Indian cities has been steadily declining from 54% in 1961 to 28% in 2011 (see Figure 1.3). Although the stock of rental housing did grow by 44% between 2001 and 2011, owner-occupied housing grew even more rapidly, by 59% in the same period.

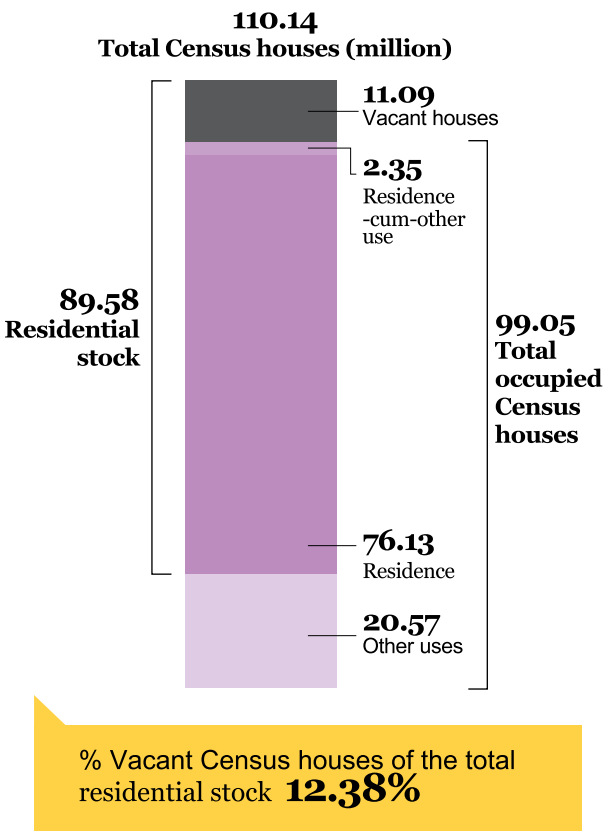
Figure 1.4 provides a comparison of share of urban rental houses at the district level between 1961 and 2011.

The maps show that the fall in rental housing is not uniform across India; some districts have seen a significantly sharper decline in rental housing as compared to others.

c. Vacant housing

Along with the decline in the share of rental housing, another noticeable trend in urban India is the increase in houses left vacant, from 6.5 million in 2001 to 11.1 million in 2011.[12] Vacant houses now constitute around 12% of the share of the total urban housing stock (see Figure 1.5).[13]

Figure 1.5: Break-up of Census houses and vacant houses in urban India

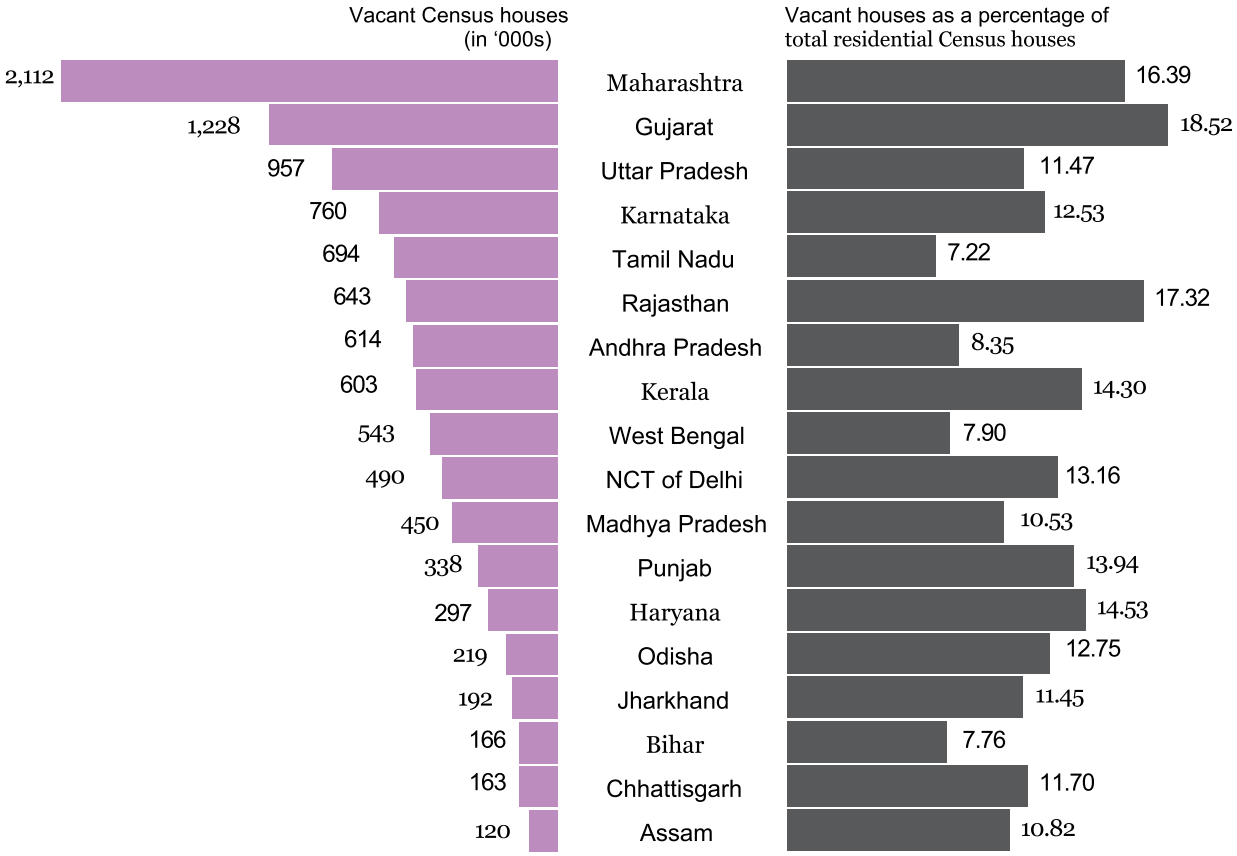


Source: Census of India (2011)
Note: Census houses have different uses such as for residential, schools, hospitals etc. All vacant Census houses are for residential use.

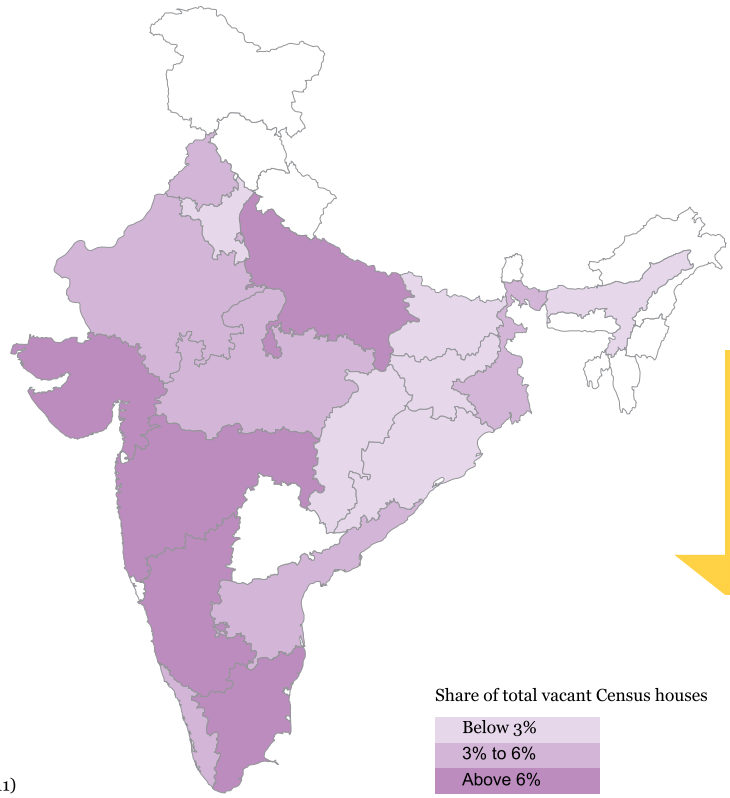
[12] Census 2001 and 2011.

[13] In the instruction manual for the Census House listing, the instructions for categorising vacant housing are, "If a Census house is found vacant at the time of House listing i.e. no person is living in it and it is not being used for any other non-residential purpose(s) write 'Vacant'". (Instruction Manual for Houselisting and Housing Census, Census of India 2011). Also note that the comparable figure for vacant housing in the US is less than 3% (US Census Bureau 2016).

Figure 1.6 State-wise vacant Census houses in urban India (2011)



State-wise distribution of vacant Census houses in urban India



Five states, led by Maharashtra and Gujarat, account of 51.8% of vacant Census houses in urban India.

Source: Census of India (2011)

These 18 states (shown in Figure 1.6) account for around 95% of the total vacant houses in urban India.

The total residential stock includes Census houses used as residences, mixed-use houses, and vacant Census houses. Maharashtra has the highest number of vacant houses (slightly greater than 2 million) followed by Gujarat (around 1.2 million). Gujarat has the highest share of vacant houses as a percentage of the total residential stock (18.5%), followed by Rajasthan (17.3%) and Maharashtra (16.39%).

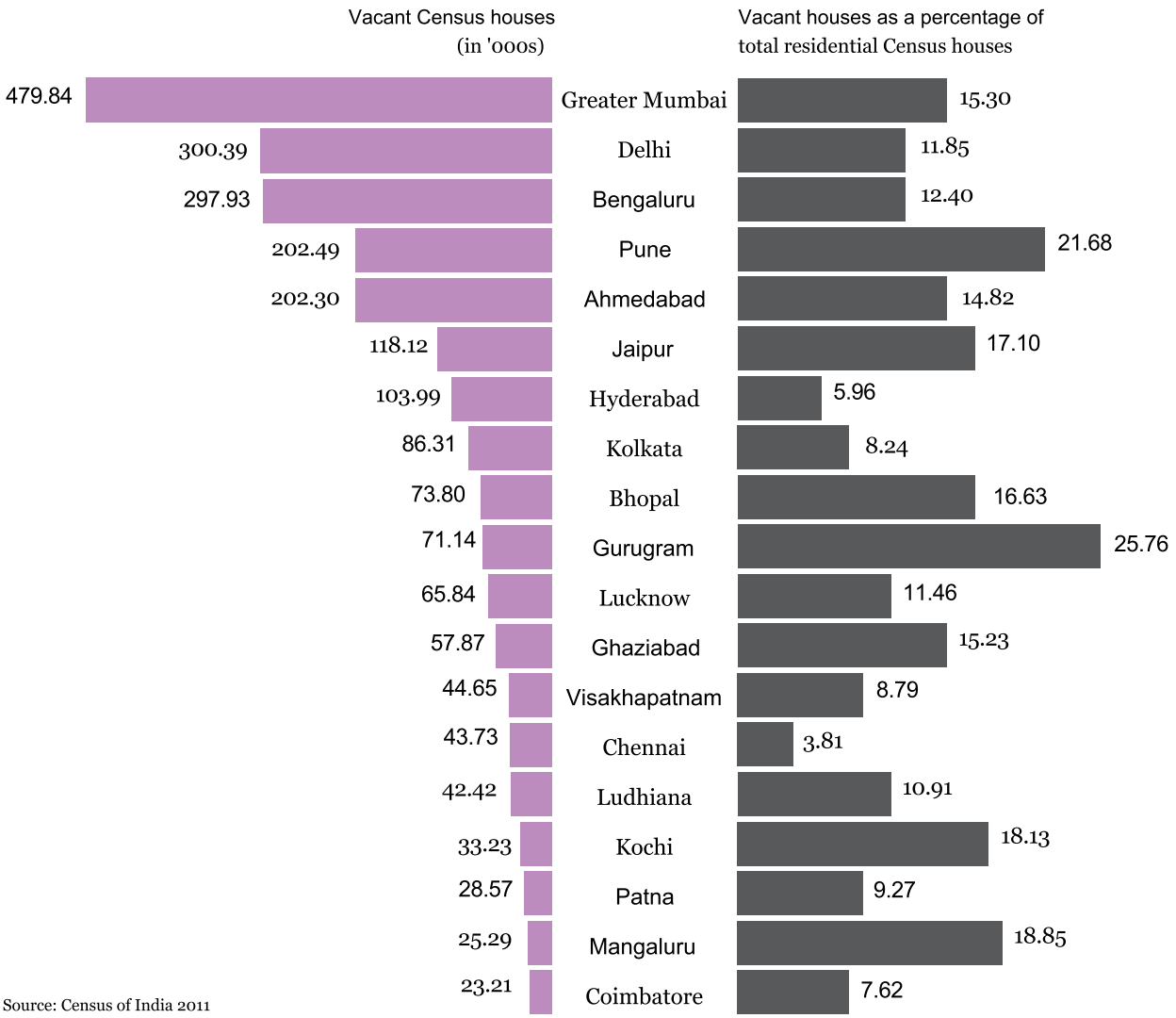
Figure 1.7 shows the number and share of vacant Census houses for 19 major cities in India. Of these cities, Mumbai has the highest number of vacant houses (0.48 million), followed by New Delhi (0.3 million) and Bengaluru (around 0.3 million). In terms of the share of vacant houses as a percentage of the total residential stock, Gurugram ranks the highest (26%).

Within metropolitan areas, the vacancy rate rises as the distance from the city centre increases. For instance, in the Mumbai Metropolitan Area, the vacancy rate is substantially higher in the districts further away from the city centre than those close to it (see Figure 5.7 in Chapter 5).

d. Housing as an investment

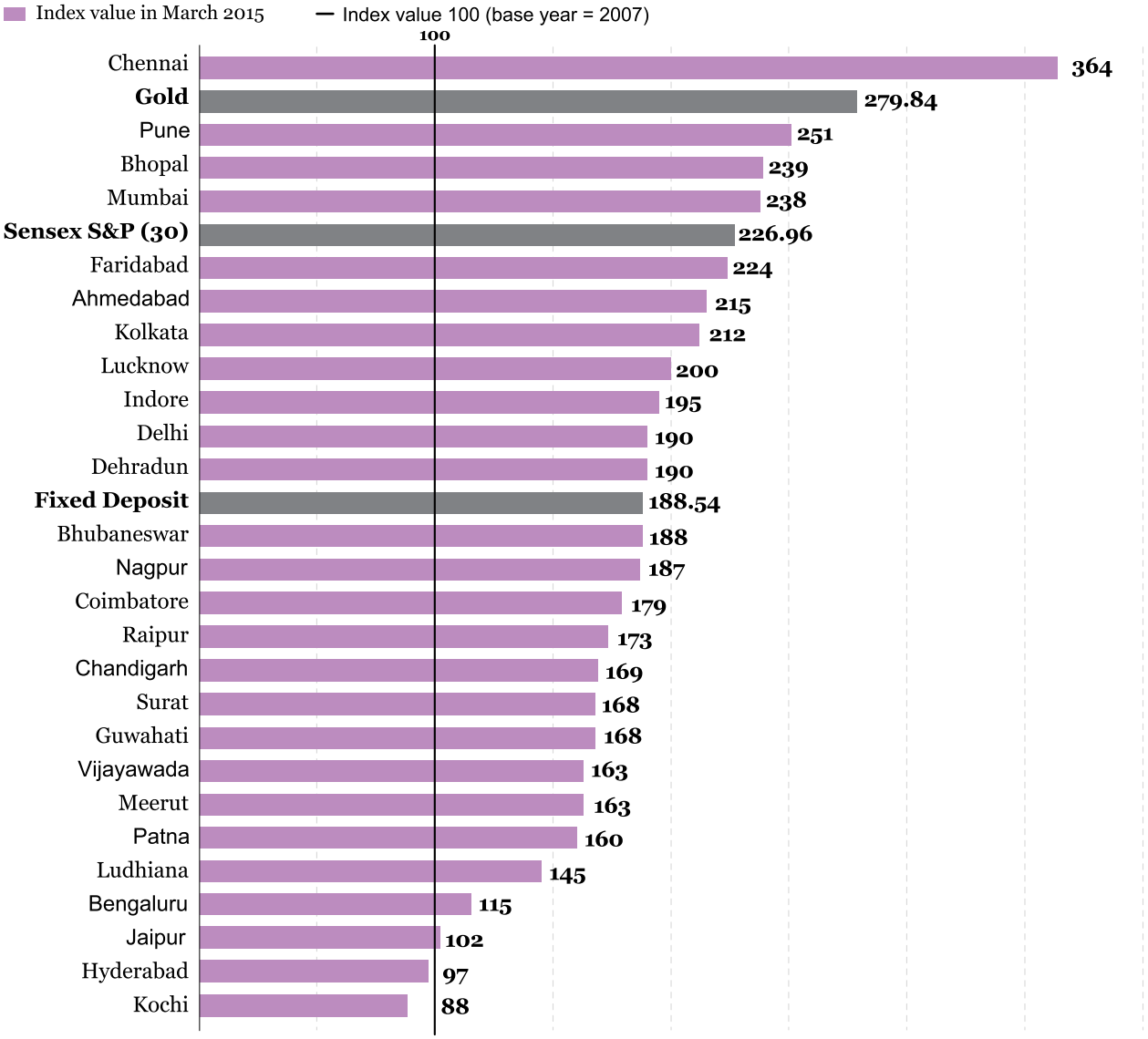
Buying property is one of the biggest investment decisions a household takes. Besides the social and cultural reasons that drive home-ownership, one of the key economic reasons for buying a house is the potential for increase in the value of the asset.

Figure 1.7: Vacant Census houses in major Indian cities, 2011 (Urban)



Source: Census of India 2011

Figure 1.8: Increase in house prices in Indian cities vs alternative investments (March 2007 to March 2015)



Sources: Gold - Database on Indian economy, RBI warehouse; Sensex S&P (30) - Bombay Stock Exchange, Fixed Deposit - State Bank of India; Residex - National Housing Bank[14]

Notes:

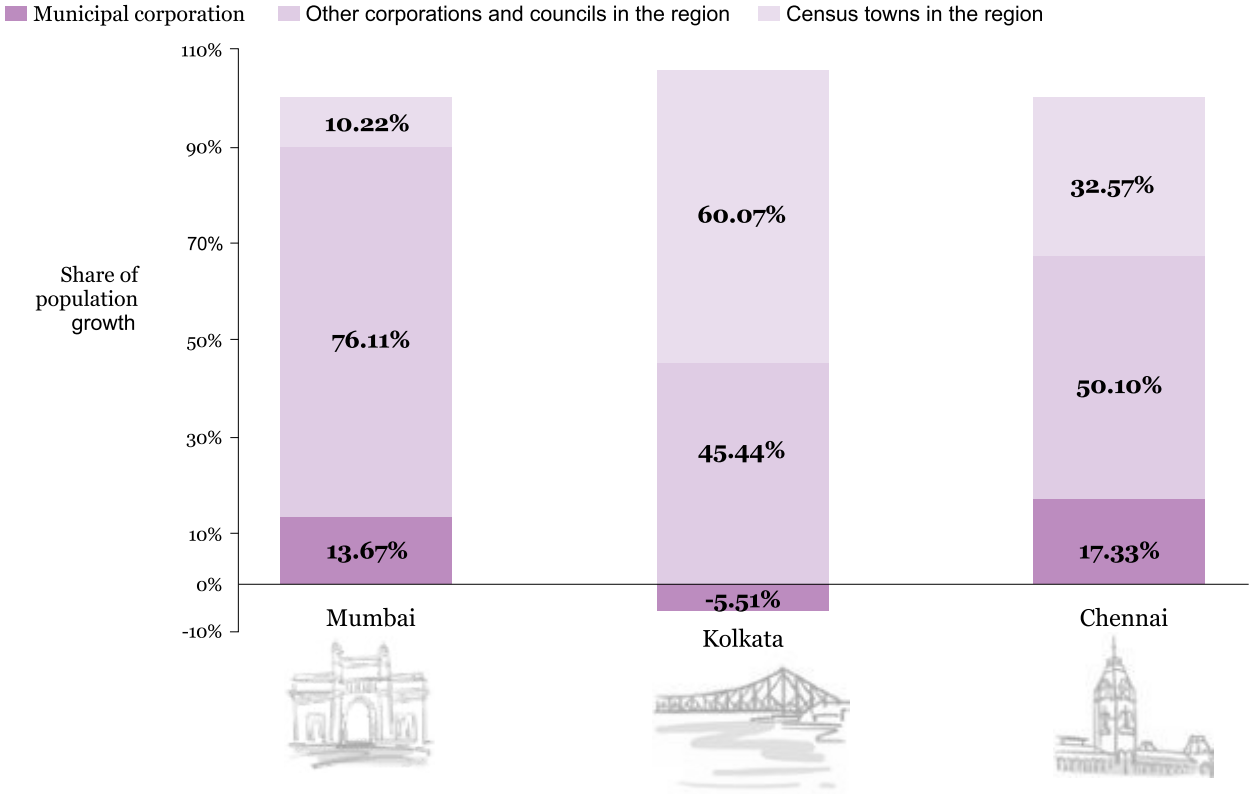
1. Refer to Appendix 1.1 for details on the calculation.
2. Growth in gold and Sensex S&P is based on actual growth of gold prices and Sensex index. For fixed deposit, we have taken rates for deposits for duration of 5 years and above as of January 2007. Gold prices increased from Rs 9,370 to Rs 26,168 between March 2007 and March 2015. Sensex for 14th Mar 2007 was 12,529 and for 16th Mar 2015 was 28,437. Fixed deposit rate as on 22nd January 2007 was 8.25%.

To examine this increase, we look at residential property price trends across 26 Indian cities from 2007 to 2015 using data from the Residex, a residential property price index developed by the National Housing Bank (NHB). We find that overall, reported property prices have increased from 2007 to 2015 for all the cities covered in the study except Hyderabad and Kochi (see Figure 1.8). The year-on-year (YoY) growth, however, varies across cities. For Chennai it is 17.5%, for Pune 12.2%, while Ahmedabad and Nagpur have a YoY growth of 10% and 8%, respectively.

The Residex for a city is an average and there are likely to be variations in the index for different localities within any city. For Chennai, the YoY growth within the city varies quite significantly. For instance, one of the zones

[14] National Housing Bank (2015). City Wise Housing Price Index for the Quarter January-March 2015.

Figure 1.9: Population growth in metropolitan regions (2001-2011)



Source: Centre for Policy Research (2013). Also refer to Appendix 1.2

in Chennai (Zone 4: Ayanavaram, Purasawalkam and Kolathur) has a YoY growth of 29%, while for another zone (Zone 7: Chetpet and Egmore) it is 6%. We mention these variations to highlight that the growth in the value of properties in different areas within the city may vary substantially, relative to the city's overall Residex growth.

Next, we compare these growth rates to other investment avenues to see the opportunity cost of investing in housing (see Figure 1.8). We see that only Chennai had a Residex higher than the value of gold in March 2015.[15] Similarly, the appreciation in the Residex values of Mumbai, Bhopal and Pune were higher than the Sensex but not more than gold. Thus, investments in housing in most cities are often not as lucrative as other investments.

For properties that are rented out, the net returns are higher as the rent collected is added to the appreciated value of the house. Rental yields in Indian cities are between 2-4% (of the current property value) on average, substantially lower than cities around the world.[16] Given the prevalence of pro-tenant laws and inefficient dispute resolution mechanisms in India, the costs and risks associated with renting out a house are often higher than the rent collected. Low rental yields along with these high costs are a potential explanation for the large number of vacant houses in urban India. See Chapter 5 for a more detailed explanation of the relationship between low rental yields and vacant houses.

e. Urban expansion

Most of the population growth in metropolitan regions has been taking place outside their municipal boundaries. Figure 1.9 shows that 86% of Mumbai's growth, the entirety of Kolkata's growth and 82% of Chennai's growth is taking place in other municipal corporations, municipal councils, and Census towns.[17] This trend of changing spatial dynamics of metropolitan regions necessitates that metropolitan transport be planned in a way that it improves connectivity between households and employment centres. Investments in infrastructure that improve connectivity in metropolitan regions will also increase the overall supply of developable land and

[15] As noted earlier, due to intra city variation in the Residex, the actual return will depend on the locality of the housing unit.

[16] Estimates of rental yields vary, from 2-3% in Mumbai and New Delhi to up to 4% in Bengaluru. Global Property Guide (2017), Raj (2015) JLL and Numbeo. Asia: Property Prices Index 2017.

[17] Between 2001 and 2011 Mumbai and Chennai region's area remained the same whereas Kolkata's region's area increased marginally (Centre for Policy Research, 2013).

access to more affordable housing. See Chapter 6 for a more detailed explanation.

1.3. Government interventions for housing in India

a. History of housing policies in India[18]

In the years immediately following independence, housing programmes focused on the direct provision of housing and housing subsidies. The first five-year plan implemented programmes such as the Subsidised Housing Scheme for Industrial Workers, as well as EWS and LIG housing schemes. The 1950s and 60s saw housing provision as a top-down centralised activity, mainly targeting LIGs. During the 60s, state housing boards were created for building and allocating housing. However, these programmes did not realise their intended outcomes.

In the 1970s and 80s, the Government of India introduced schemes such as Environmental Improvement of Urban Slums scheme (1972) and Sites and Services scheme (1980). These schemes marked a shift in the State's role from a direct provider of housing to a partner and enabler by securing infrastructure and tenure for the poor. Housing finance too was given an impetus with the setting up of the Housing and Urban Development Corporation in 1970 and the Housing Development Finance Corporation in 1977.

The Seventh Plan (1985-90) saw a change in the role and responsibility of the government in the housing sector with the launch of the NHB in 1987. The focus of the government now shifted to mobilising resources for housing, acquiring and developing land and providing subsidised housing for the poor.[19] In 1988, the government launched the first comprehensive National Housing Policy and it championed the government's role as an enabler in encouraging private sector participation for provision of housing. In the post liberalisation period, the government has acted as a facilitator that provides the necessary legislative and financial framework for private participation.

Subsequently, the Ninth Plan (1992-97) continued to emphasise direct interventions and provision of subsidies to low-income and vulnerable groups (such as BPL households, female headed households, and SC/ST groups). In 2001, the Valmiki Ambedkar Awas Yojana was introduced in order to provide housing for BPL households. In 2005, the Union government launched the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), the largest central government scheme focusing on urban infrastructure. Besides addressing housing directly through targeted interventions for low-income households in cities, through its Basic Services to Urban Poor scheme, the Mission also sought to correct distortions in the housing and land markets through the amendment or repeal of detrimental laws such as the Urban Land Ceiling and Regulation Act, 1976 (ULCRA)[20]. Similarly, under JNNURM, the Rajiv Awas Yojana (RAY) was introduced in 2013 by the Ministry of Housing and Urban Poverty Alleviation, Government of India (MHUPA). This scheme aimed to provide amenities and infrastructure to slums, undertaking slum rehabilitation, and implementing mechanisms for creation of affordable housing to prevent the growth of slums.

b. Distortionary legislations

The central and state governments have in the past implemented several housing policies that have ended up hurting the poor rather than helping them.

The Bombay Rent Control Act, 1947 froze rents for current and future tenants at a specific level while also making eviction extremely difficult across Mumbai. The adverse effects of this Act can be felt even today. One of its consequences has been the dilapidation of rent-controlled buildings as landlords have had no incentive to maintain them. In addition, the imposition of the Act has frozen the rental housing stock. Similar Acts have been implemented in other cities across the country as well.

In 1976, the ULCRA was passed by the Indian parliament to prevent concentration of private land ownership in congested cities. Under the Act, exemptions were granted to landowners if they declared that the land would be used to create housing for LIGs. However, for the time that the

[18] This subsection is based on Tiwari and Rao (2016) and Hingorani (2011).

[19] Sahu et al., 2009

[20] Urban Land Ceiling and Regulation Act (ULCRA) was a legislation promulgated in 1976 that capped the amount of land that could be held by individuals. It was intended as a measure to prevent "the concentration of urban land in the hands of a few persons […] with a view to bringing about an equitable distribution of land in urban agglomerations".

Act was in effect, its objective of providing affordable housing remained largely unrealised.[21] Instead, the Act led to constraining the supply of land because of legal disputes between the government and landowners, as well as encroachment by squatters.[22] The Act was ultimately repealed by all state governments so as to increase the supply of land in cities and in hope that this would lower prices and improve affordability for the urban poor. One housing expert noted,

> "ULCRA is possibly the only Act that was passed in the name of the poor and repealed in the name of the poor."

c. Recent policies

The National Democratic Alliance (NDA) government that came into power in 2014, launched the Housing for All mission with the aim of providing housing to the urban population by 2022.[23] In 2016-17, the budget allocation for this mission, now known as the Pradhan Mantri Awas Yojana-Urban (PMAY-U), was Rs 60,428 million. [24] If we consider a housing shortage of 18.8 million houses, the per-household allocation works out to be only Rs 3,214. As the government moves closer to the target completion year, 2022, this allocation may increase (see Table 1.1 and Figure 1.10).

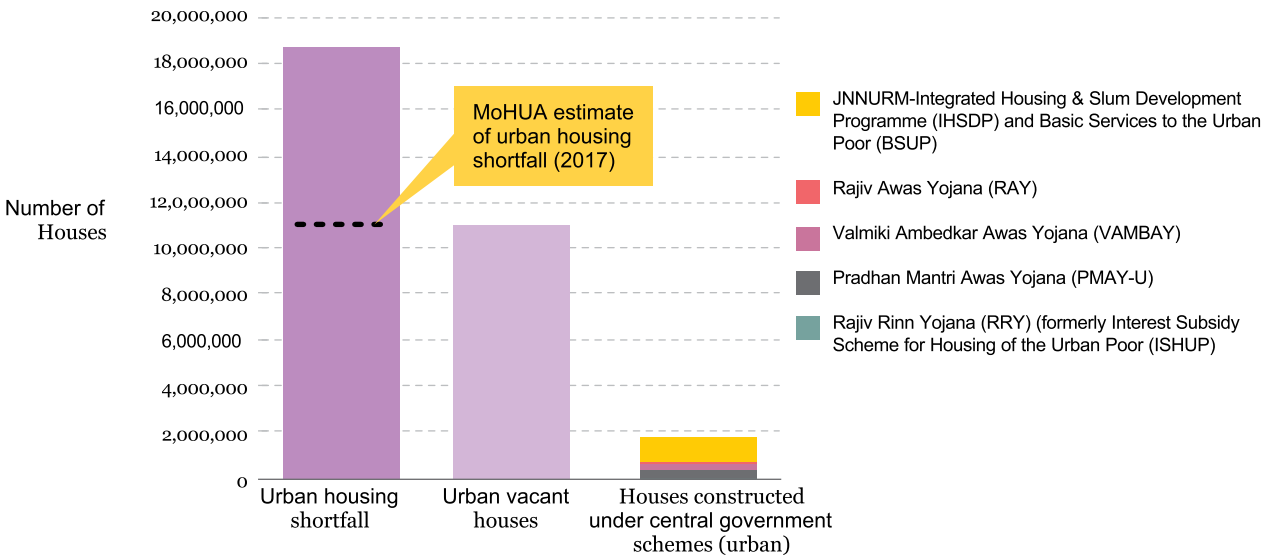
Occupancy rates in government-built housing have in general been low as they are typically located at a distance from city centres. For instance, centrally-sponsored housing built under JNNURM, RAY and PMAY(U) in urban India had a vacancy rate of 17% as of March 2017.[25]

Since land is a state subject, central schemes alone will not suffice as many of the policy levers lie with the state governments. In many cases, states also frame and implement housing policies for the poor and often provide public housing through parastatals. The extent to which states succeed in directly providing housing to LIGs varies considerably. Besides direct provision, reforms by states governments are equally, if not more, critical towards addressing the housing shortfall. It is imperative that state governments remove distortions in housing markets to enable more private sector participation.

1.4. Role of government and markets

Policies that mitigate demand and supply distortions to create well-functioning markets are vital in keeping home prices affordable. The government's efforts to meet

Figure 1.10: Major central government urban housing schemes



Source: Ministry of Housing and Urban Affairs. Refer to Appendix 1.4 for the entire list of sources.
Note: The Minister of Housing and Urban Affairs, Hardeep Singh Puri, said in Lok Sabha that the urban housing shortage figure has been revised down to "11 million units", but no official report has been released by the government to verify this calculation (The Economic Times, 2018).

[21] Tiwari et al., 2016

[22] Pethe et al., 2014. The dynamics of urban governance in India.

[23] Since November 2016, this scheme has been extended to rural areas.

[24] Ministry of Housing and Urban Poverty Alleviation, Government of India. (2016). Demand No. 50, Notes on Demands for Grants, Union Budget 2016-17.

[25] Lok Sabha Starred Question No. 256 Answered on May 11, 2016; Rajya Sabha Unstarred Question. No. 991 Answered on March 9, 2017.

Table 1.1: Major central government urban housing schemes: Proposed objectives vs achievements

Scheme	Time period	Proposed fiscal outlay (central) (in Rs. crores)	Funds disbursed by central government (in Rs. crores)	Stated Objectives	Number of houses		
					Approved	Completed	Occupied
Pradhan Mantri Awas Yojana (PMAY-U)	2015-2022	2,03,752	5,205	Construction of houses with basic amenities to meet the housing shortage among the urban poor. Components of the scheme include In-Situ Slum Redevelopment, Affordable Housing through Credit Linked Subsidy, Affordable Housing Partnership, Subsidy for beneficiary-led construction or enhancement.	16,68,545	3,19,397	2,78,023
Rajiv Awas Yojana (RAY) (subsumed under PMAY-U from 2016)	2011-2016	10,334	2,269	Providing financial support to implementing agencies (States/UTs/Urban Local Bodies/Central Government Agencies), for building housing, improvement of basic civic infrastructure and social amenities in selected slums. RAY covered all cities and UAs of the country, but prioritised cities with a large proportion of slum dwellers. RAY also extended financial support to States for the creation of affordable housing stock through public-private partnerships under the Affordable Housing in Partnership (AHP) component of the scheme.	1,41,848	67,579	42,231
JNNURM – Integrated Housing & Slum Development Programme (IHSDP)	2005-2017	9,591	17,907	Assist State Governments in providing housing and basic services to the urban poor/ slum dwellers in cities other than BSUP cities. Aim- 1030 projects in 877 cities to construct 4,51,951 dwelling units	12,40,904	10,76,066	9,26,910
JNNURM – Basic Services to the Urban Poor (BSUP)		23,129		Assist State Governments in providing housing and basic services to the urban poor/slum dwellers in select cities. Aim- 477 projects in 62 specific cities to construct 7,88,953 dwelling units			
Valmiki Ambedkar Awas Yojana (VAMBAY) (revamped as IHSDP in 2008)	2001-2007	1,100	970	Provide shelter or upgrade the existing shelter for people living Below Poverty Line in Urban Slums, for 4,17,602 dwellings with a view to achieve the goal of 'Shelter for All'.	4,57,465	3,18,930	Not available
Rajiv Rinn Yojana (RRY)	2013-2016	1,054	50	Enhancing credit flow and channelling institutional credit for the EWS/LIG segments in urban areas to increase home-ownership in the country. RRY provided an interest subsidy of 5% (500 basis points) on loans granted to EWS and LIG categories to construct their houses or extend the existing ones. Loan upper limit Rs 5 lakh for EWS and 8 lakh for LIG; interest subsidy would, however, be limited to the first Rs 5 lakh of the loan amount, in case the loan exceeds this amount. The overall target for the 12th Plan period for RRY was 1 million dwellings across the country including both slum and non-slum dwellers.	17,113 beneficiaries living in slum dwellings that received aid (Rs 17.86 crores of subsidies given) between 2009-2014.		
Interest Subsidy Scheme for Housing the Urban Poor (ISHUP) (revamped as RRY from 2013)	2008-2013	591	54	Provision of interest subsidy to EWS and LIG segments to enable them to buy or construct houses.			

Source: Refer to Appendix 1.4 for sources related to central government housing schemes.
Notes: 1. PMAY-U figures as of January 2018; 2. RAY was subsumed under PMAY-U in 2016.; 3. BSUP expenditure and proposed expenditure includes expenditure incurred on amenities, health & education schemes, community construction etc.; 4. VAMBAY central government expenditure includes expenditure incurred on houses as well as toilet seats under Nirmal Bharat Abhiyan (NBA). Proposed fiscal outlay and disbursement figures for VAMBAY are for 2002-07.; 5. RRY proposed fiscal outlay and disbursement figures are for 2014-16.; 6. ISHUP was revamped as RRY from 2014. The figures for proposed fiscal outlay and disbursement for ISHUP here are for 2008-2014. ; 7. Note that due to the lack of availability of disaggregated figures, the combined outlay and disbursement for RRY and IHSUP is added twice for 2014 in order to provide a conservative estimate.

the housing needs of low-income households without enabling well-functioning markets has not only been ineffective but often also detrimental. There is not enough housing stock to meet the growing demand in cities, and any new stock created by the government is typically captured by the elite.

With new housing development and population growth taking place in urban peripheries, improving connectivity is essential for well-functioning labour markets. A transit system that is reliable, accessible, and rapid improves housing affordability either directly (by lowering cost of constructing homes) or indirectly (by lowering commuting costs for households). In addition to allowing a well-functioning housing market to thrive, the government should provide the necessary infrastructure to open up more land for development.

1.5. Questions addressed by the report

Considering the scale of the problem of affordable housing in urban India, as well as the prior policy attempts by the central and state governments to address some of the binding constraints, the report focuses on the following questions:

a. To what extent do land-use regulations limit the supply of housing?

b. How do financial regulations affect access to affordable housing?

c. Why are the costs of transacting homes so high?

d. What policy reforms are required to encourage construction for rental housing?

e. How can existing housing stock be more responsive to demand and thus impact affordability?

f. How can urban mass transport help in addressing the problem of affordable housing?

CHAPTER

2

Land-use Regulations and their Impact on Housing Markets

2.1. Introduction

Access to adequate, affordable housing in cities requires well-functioning markets that respond to demand and allocate land efficiently. Housing policies and regulations in India have not only been inadequate in correcting market failures but have also created additional problems. This is in part a consequence of an antiquated urban planning framework, which attempts to control population growth and impose order in cities through restrictive land-use policies. The consequent distortions in urban land markets have adversely affected housing allocation. The aim of this chapter is to unpack the impact of such land-use policies on housing supply and affordability.

> "Government interventions affect land use outcomes in cities around the world. These interventions are often well meaning, being designed to achieve ends that are thought to be socially desirable. However, since urban real estate markets are complex systems, land use interventions often generate subsidiary effects that are unanticipated by policymakers. These effects can be undesirable, offsetting the benefits that the interventions were intended to capture. The result can then be a net social loss, so that the land use intervention leaves the urban economy in a worse position than where it started."
>
> *Jan Brueckner, Professor of Economics, University of California, Irvine* [26]

2.2. Floor Space Index (FSI)

One of the most common land-use regulations cities enforce is restriction on the Floor Space Index (FSI), also known as the Floor Area Ratio (FAR). FSI rules are implemented to limit the amount of floor area that can be built on a given plot of land. For instance, say an FSI of 1 allows one floor of 100 sq ft to be built on a 100 sq ft plot of land, or two floors of 50 sq ft each on that same land. An FSI of 2 allows 2 floors of 100 sq ft on the 100 sq ft of land, or 4 floors of 50 sq ft on that same land. In both cases, a builder can choose to build taller, but has to ensure that

[26] Brueckner, 2009

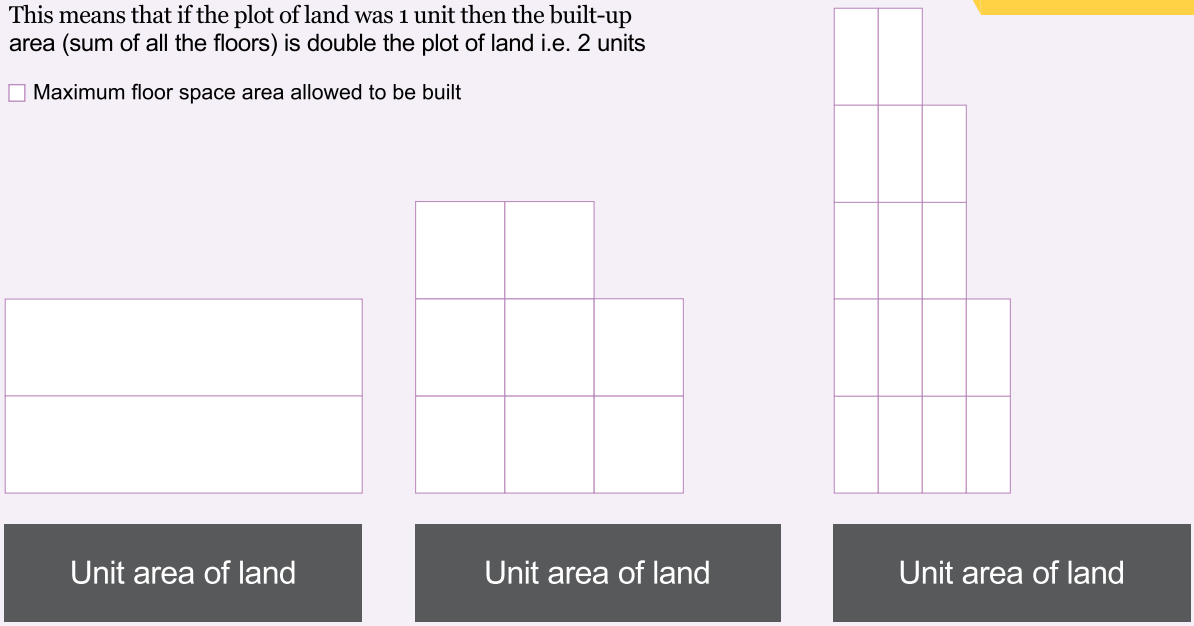
Box 2.1: A guide to FSI

FSI = 2

In all these examples, the Floor Space Index (FSI) = 2

This means that if the plot of land was 1 unit then the built-up area (sum of all the floors) is double the plot of land i.e. 2 units

Maximum floor space area allowed to be built



the total floor area of the building does not exceed the FSI limit for the given parcel of land. FSI rules are meant to restrict population density in cities by limiting how much floor area can be built.

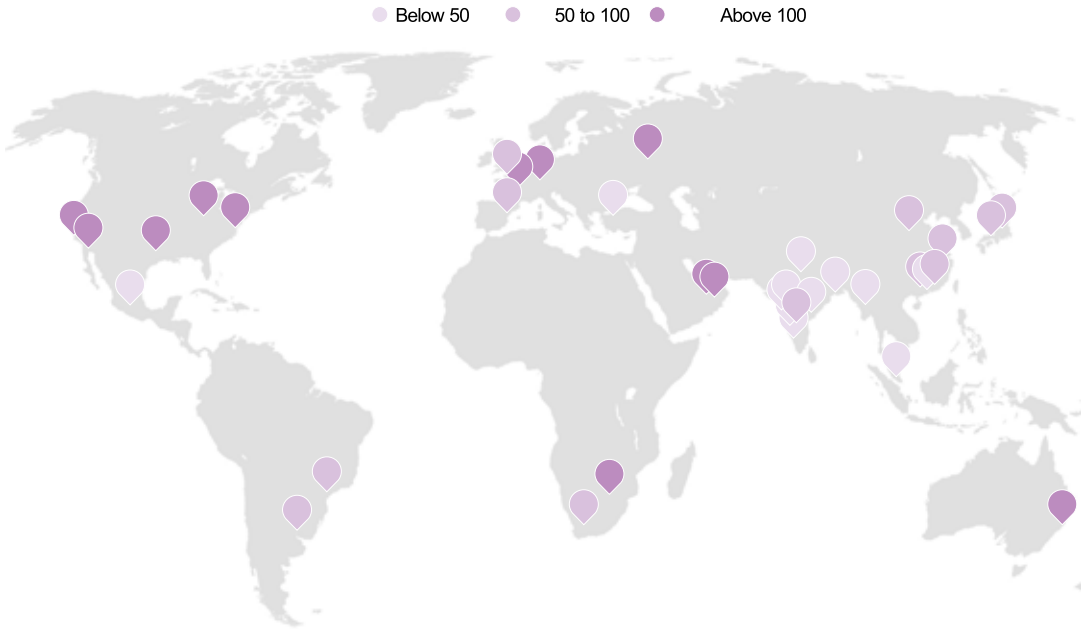
In India, one of the primary arguments against relaxing FSI restrictions is that this would lead to an increase in the city's population, which would put additional pressure on already stressed urban infrastructure, such as roads, water supply, sanitation, waste disposal and public spaces.[27] However, it is assumed that limiting available floor space (by restricting FSI) will limit population density. Alain Bertaud, noted urban planner and scholar, has argued that restrictive FSI only limits available living space per person and not the total number of people in the city:[28]

> "Mumbai's fixed FSI has created the conditions of a zero sum game for the consumption of floor space. Poor households have to face a constant reduction of their consumption of floor space because they cannot compete with the increased consumption of more affluent households. The poor, therefore, are progressively pushed out of formal housing into slums or are reduced to build shacks on sidewalks. Under the present regulatory limits on FSI, the only possible addition to the total floor space of Mumbai is through densifications of slums, which fortunately escape the FSI regulations as long as the construction stays informal."
>
> *Alain Bertaud, Urban Planner and Scholar*

[27] Shirgaokar, 2013; Patel, 2013

[28] Bertaud 2011

Figure 2.1: Per capita land consumption in Indian cities vs global cities (2017)



	City	Land area per person (sq m)
1	Dallas	318.15
2	Chicago	288.19
3	New York	217.31
4	Sydney	193.12
5	Abu Dhabi	182.89
6	San Francisco	181.36
7	Los Angeles	160.69
8	Dubai	159.78
9	Frankfurt	129.53
10	Moscow	123.72
11	Johannesburg	115.54
12	Paris	101.01
13	Barcelona	87.55
14	Tokyo	87.42
15	Cape Town	81.50
16	Guangzhou	78.62
17	Beijing	74.55
18	Osaka	73.01

	City	Land area per person (sq m)
19	Buenos Aires	72.48
20	Shanghai	66.12
21	London	64.83
22	**Hyderabad**	**61.29**
23	Shenzen	55.15
24	Sao Paulo	50.72
25	**Bengaluru**	**44.27**
26	Seoul	42.42
27	Mexico City	39.55
28	Istanbul	38.83
29	**Chennai**	**37.56**
30	Singapore	34.93
31	**New Delhi**	**32.45**
32	**Pune**	**31.98**
33	**Kolkata**	**31.40**
34	**Ahmedabad**	**18.22**
35	Hong Kong	15.11
36	**Mumbai**	**14.86**

Source: Demographia (2017)

The failure of FSI as a tool for limiting density is evident across Indian cities, where the population pressure has not necessarily decreased (see Figure 2.1), but people have chosen to live in smaller accommodations.

This is to be expected as the primary allure of cities is greater jobs and social mobility compared to villages. As long as cities maintain this economic advantage, people will continue to migrate to them. Therefore, FSI restrictions have not only failed to achieve their purpose of reducing the burden on existing infrastructure but have also contributed to raising the price (per-unit area) of housing in cities where they are binding.[29]

[29] Dr Bimal Patel, noted urban planner and President of CEPT University Ahmedabad, has similarly argued that in the long run, relaxing FSI in the city leads to a more efficient use of land and higher living space per person (Patel, 2015).

> Can restricting FSI control congestion? Many people confuse and conflate the 'density of buildings' – which is the amount of floor space in an area – with the 'density of people' – which is the number of people in an area. But note, the two are not the same. Any link between the two it is incidental and weak. […] a policy that restricts how much floor space can be built in an area […] does not restrict the number of people living in the area. If the demand to live in the area is low, the density of people in the area and the attendant congestion will be low. With increasing demand more people will crowd into the area. This will, both, drive up the price of floor space in the area, and increase congestion. […] When demand mounts significantly, it is simply not possible to control congestion by using FSI restrictions.
>
> *Bimal Patel, President, CEPT University*

Table 2.1: Predicted impact of restricted FSI on cities[33]

Housing supply	**Decreases**
House prices	**Increase**
Dwelling sizes	**Decrease**
Land prices	**Increase**
Utilised FSI in non-binding areas	**Increases**
Edge of the city	**Pushed further away from CBD, causing sprawl**

a. Impacts of FSI restrictions

FSI limits prescribe a ceiling on the total floor area permitted to be built in a city. But given that the amount of land available is finite and population pressure on cities continues to rise, rigid FSI rules increase the price of floor area. This has two effects: people are either forced to live away from the central business district where land prices are lower, or occupy smaller spaces in the core city as house prices go up.[30]

Empirical evidence shows that FSI restrictions lead to cities expanding spatially and result in a net welfare loss.[31] Bertaud and Brueckner (2005) evaluated the role of FSI restrictions in Bengaluru and estimated that the city was 32 sq km larger in area as a result of the restrictions. They estimated the welfare loss from FSI restrictions to be between 3% to 6% of household consumption.

Brueckner and Sridhar (2012) estimate the welfare gains from relaxing FSI for a cross-section of Indian cities.[32] They calculate this based on the annual savings in commuting costs for the marginal household living on the edge of the city. The results show that a unitary increase in FSI translates into a gain of Rs 106 million for consumers in an average city.

FSI limits have thus increased urban sprawl (horizontal growth) instead of making cities taller (vertical growth). This has tangible and intangible costs. It increases travel time which also has negative consequences on the environment in terms of greater vehicular emissions. Over the long-run, greater sprawl reduces the benefits that dense cities provide through knowledge spillovers, economies of scale and social interactions.

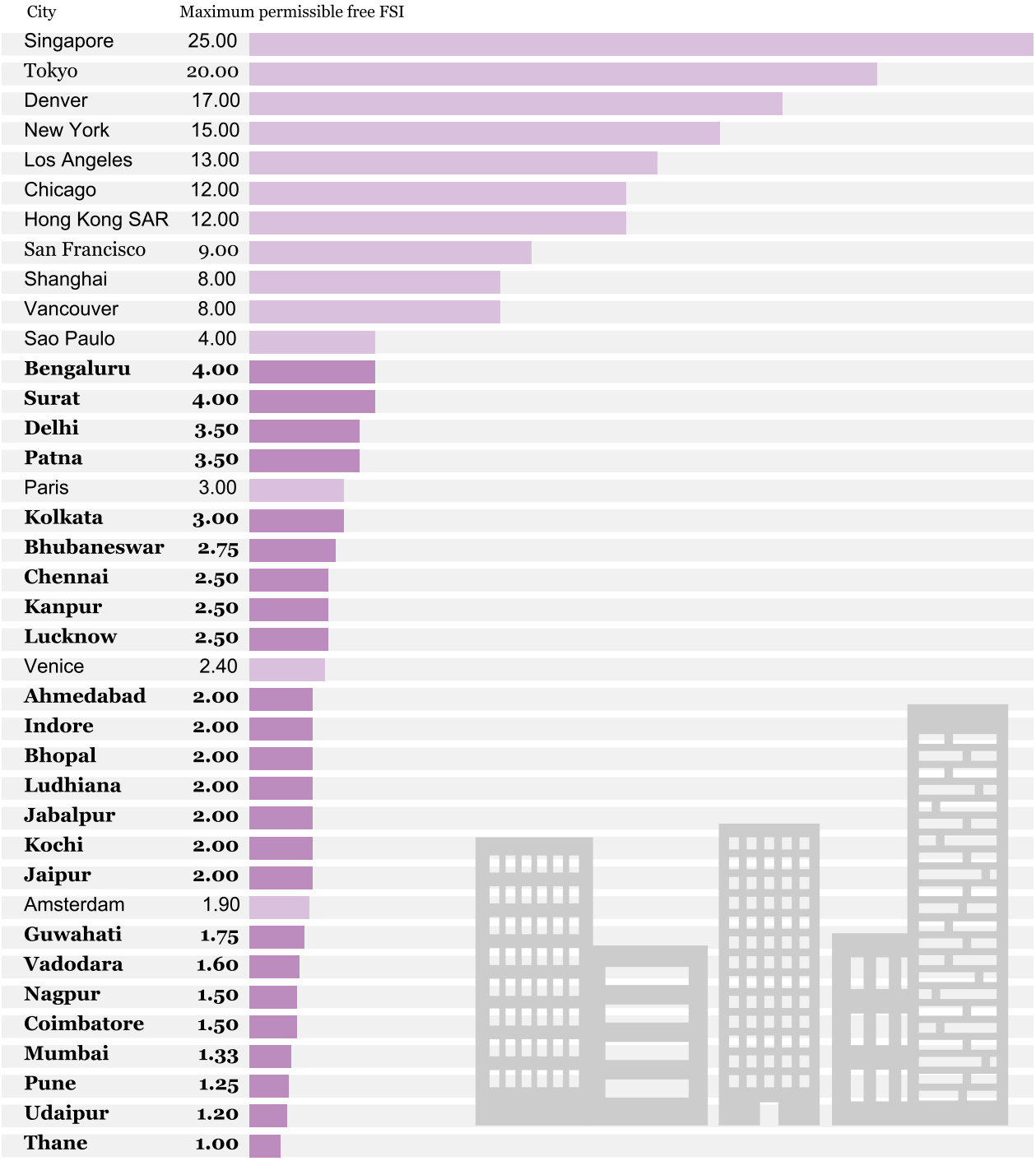
[30] Bertaud and Brueckner, 2005

[31] Bertaud and Brueckner, 2005; Singh and Yadav, 2012

[32] Brueckner and Sridhar, 2012

[33] Brueckner, 2009

Figure 2.2: Maximum free FSI permissible for Indian cities vs global cities



Source: Development Control Regulations for different cities. Refer to Chapter 2 of References and Appendix 2.1 for a detailed list of sources.

b. FSI in India

Indian cities have some of the most restrictive FSI regimes in the world. For instance, Mumbai has a maximum free FSI of 1.33 in most of the island city, Chennai has a maximum free FSI of 1.5 and Bengaluru 3.25.[34] By contrast, Hong Kong and New York City have a maximum free FSI of 12 and 15 respectively in their central business districts. Figure 2.2 provides a comparison of the maximum free FSI permissible in the residential districts

[34] Note that municipalities have made provisions for builders to purchase additional FSI in specific cases, through instruments such as Transferable Development Rights (TDRs), pre mium purchasable FSI or fungible compensatory FSI. However, these instruments impose additional costs on construction that increase house prices, and in a manner not always in accordance with the development plan for the city. The use of FSI as a revenue tool for municipalities is discussed in the next section.

Table 2.2: FSI calculations for Mumbai (MCGM jurisdiction)

Area in Mumbai	Free Basic FSI [1]	TDR [2]	Additional FSI [3]	Total [1]+[2]+[3] =[4]	FCFSI (35%) 0.35x[4] =[5]	Effective Total FSI [4]+[5] =[6]	Purchasable FSI of Total Effective FSI ([2]+[3]+[5]) /[6]
Island city	1.33	NA	NA	1.33	0.4655	1.7955	26%
Suburbs	1	0.5	0.5	2	0.7	2.7	63%

Source: Development Control Regulations for Mumbai (1991)
Note: These numbers may change if the Government of Maharashtra approves changes to the Development Control Regulations.

of major cities across the world.

c. FSI as a revenue tool

Greater Mumbai has a basic FSI of 1.33 in the island city and 1 in most of the suburbs. In some cases, the Municipal Corporation of Greater Mumbai (MCGM) also provides an 'incentive FSI' to builders for undertaking certain activities such as slum redevelopment, road widening, construction of new roads, public amenities and utilities.

The restriction on FSI and rising demand for more built-up space in the city has been used by the MCGM to raise revenues through instruments that grant additional construction rights for a fee. These instruments are called 'additional FSI', 'fungible compensatory FSI (FCFSI)' and 'Transferable Development Rights (TDR)'. This is transferable to plots in other parts of the city subject to certain conditions. Currently, 26% and 63% of the total FSI in the island city and suburban Mumbai, respectively, is purchasable or can be allotted as an incentive FSI (see Table 2.2).

Thus, MCGM raises resources by charging builders for 1) additional FSI; or 2) Fungible compensatory FSI, for up to 35% of the total permissible FSI; or 3) TDR. Builders have to pay 60% of the Ready Reckoner residential rates for purchasing more FSI. The revenues collected from these are to be shared with the state government. Table 2.3 shows the estimated revenues from MCGM under the two budget heads for 2015-16 and 2016-17 as a proportion of the property tax (without water and sewerage taxes).

Given the magnitude of revenues generated by MCGM through sale of additional FSI, there is strong incentive to maintain the low limits on free FSI available in the city. Further, with abolition of octroi under the new Goods and Services Tax (GST) regime, the municipality and state government will be even more reluctant to forego these revenue handles.[35]

These provisions to either purchase additional FSI, FCFSI or TDR from the MCGM, escalate the overall cost of housing projects. The incidence of these charges falls on homebuyers through an increase in house prices. The costs of housing would be lower if the permissible free FSI was higher.

d. Regulatory tax in Mumbai

Most theoretical models in urban economics that explain the impact of FSI on housing markets start by assuming a monocentric city, i.e. with one central business district

Table 2.3: Revenues raised by MCGM from the sale of FSI

Budget heads as per MCGM budget	Budgeted Expenditure (Rs Crore) 2015-16	2016-17
Fungible Compensatory FSI [1]	2,480	2,111
Additional 0.50 FSI [2]	350	1,241
Property Tax (without water and sewerage taxes) [3]	2,500	2,739
Revenues from sale of FSI as a % of Property Tax revenues { ([1] + [2]) ÷ [3] } × 100	113.2	122.4

Source: Gandhi and Tandel (2016)

[35] Gandhi and Tandel, 2016

(CBD).[36] FSI restrictions are binding in such a city till distance x from the CBD. Till x, builders are not allowed to construct above the prescribed FSI limit. There is thus a fall in supply of built-up space and in the supply of housing till x. After distance x the restricted FSI is not binding.

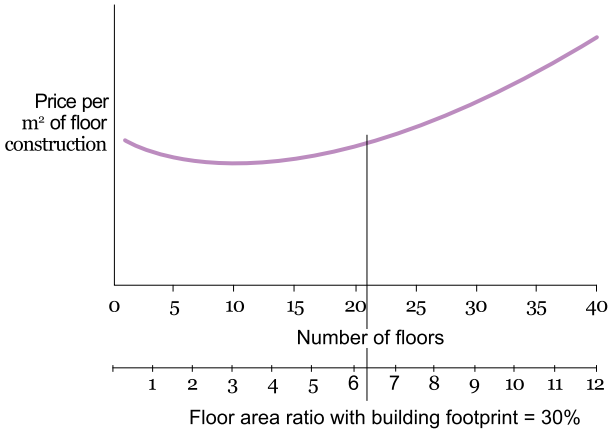
To estimate the impact of FSI regulations on house prices in Mumbai, we use a concept called the 'Regulatory Tax', based on Glaeser, Gyourko and Saks (2005). This metric measures the difference between the market price of an additional floor and the marginal cost to construct that floor.[37]

$$\textit{Regulatory Tax} = \frac{\textit{Market price of additional floor space} - \textit{Marginal cost of building that additional floor space (absent government barriers)}}{\textit{Marginal cost}}$$

Given the technology involved in real estate construction, the cost to add an additional floor (marginal cost) increases with the number of floors (see Figure 2.3).

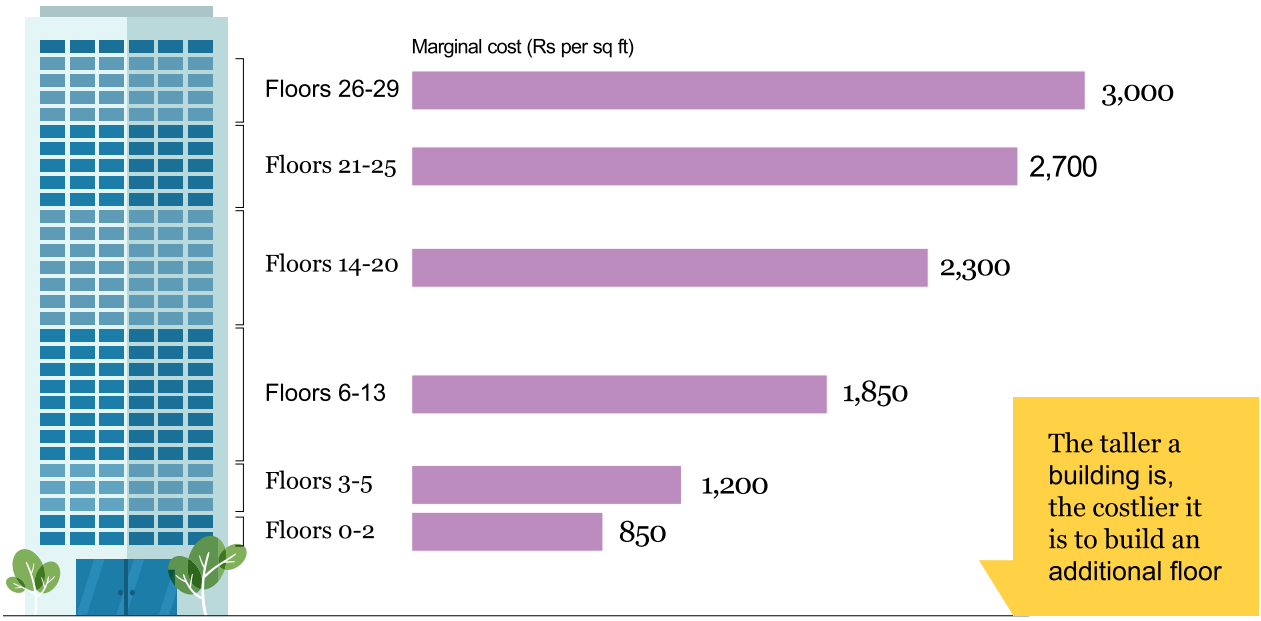
For example, the cost to construct above the 30th floor of a building is greater than the cost to construct above the 5th floor. This is because of the grade of concrete required, steel consumption per sq ft, costs of plumbing, mechanical work (example, additional elevators) and electrical work. If the market selling price to construct that additional floor is more than the cost to build it, then a rational builder will go ahead with the construction. The builder will continue to construct till the cost of more floor space is approximately equal to the market price of the additional floor space.[38] According to this model, for a competitive market in equilibrium, if the market price of an additional floor is greater than the cost to construct that additional floor, then the difference is attributed to

Figure 2.3: Variation of construction price with number of floors



Source: Bertaud (2010)

Figure 2.4: Incremental cost per sq ft for every additional floor built (Mumbai, 2016-2017)



Source: Interviews with builders in Mumbai (2016-2017)

[36] This theory is largely developed by Brueckner (2009) and Bertaud and Brueckner (2005).

[37] The methodology used here and the concept of regulatory tax was introduced in Glaeser, Gyourko and Saks (2005).

[38] Market price in a competitive market equals the total average cost (total cost of land and construction, divided by the total area).

land-use regulations that restrict how much can be built. [39] This difference is called the 'regulatory tax'.

To obtain a rough estimate of the regulatory tax in urban areas, we collected data on market prices and the labour and material costs to construct multi-storeyed residential projects in Mumbai. Figure 2.4 gives us the marginal costs of building additional floor space for a Reinforced Cement Concrete (RCC) building. These include the costs for the carpet area and an additional 38% for walls, elevators and staircases.[40]

Figure 2.4 illustrates that the taller a building is, the costlier it is to build an additional floor. These costs do not include the cost for land, purchasing FSI from the MCGM and other approvals from government agencies. The marginal cost curve is not smooth due to jumps in costs for building taller beyond a certain point. For example, the cost for building an additional floor above 5 floors is higher due to the requirement of an elevator and higher-grade concrete. Costs for building above 13 floors are further increased due to higher mechanical, electrical, and plumbing costs.

Table 2.4 illustrates what a calculation of the regulatory tax would possibly look like in practice. We collated data for two construction projects in Mumbai, both 1-bedroom hall kitchen apartments with a carpet area of around 360 sq ft. The market price of these units ranges from around Rs 5.6 million (north eastern suburbs) to Rs 6.1 million (north western suburbs).[41] The project in the western suburbs has 23 floors and the one in eastern suburbs has 19 floors. The marginal cost to construct built-up space above the 23rd floor is Rs 2,700 and to construct above the 19th floor is Rs 2,300.

The market price for these units are 355% and 394% more than the marginal costs to build each project, respectively. Similar data is required on a large-scale to calculate an unbiased estimate of the regulatory burden imposed due to land-use restriction in Mumbai. Given the obfuscation of information in the real estate sector, we were unable to collect such representative data to provide a reliable estimate of the regulatory tax for Indian cities.

Table 2.4: Illustrative calculations for regulatory tax in Mumbai

Project details	Project 1	Project 2
Floors	23	19
Size of the smallest unit (sq ft of carpet area)	360[42]	357[43]
Property Price of the unit (Rs)	6.1 Million	5.6 Million
Price (Rs per sq ft of carpet area)	16,944	15,686[44]
Price (Rs per sq ft of carpet area + 38%)	12,278	11,366
Marginal cost to build an additional floor above the existing highest floor of the project (Rs)	2,700	2,300
Regulatory tax (ratio)	3·55	3·94

Sources: Interviews with builders (2016-2017), Magicbricks (2016), Housing.com (2017)

Note that if FSI constraints were removed entirely, builders would not necessarily construct high-rises indiscriminately. For instance, builders in Indian cities where FSI norms are more liberal indicated that they rarely exhaust their permitted FSI when the demand does not justify the costs of construction.

[39] There is limited data available on the degree of competition in the construction sector for residential housing in Indian cities. While we know that certain local geographies may exhibit oligopolistic behaviour by builders in specific market segments, reliable evidence of systematic anti-competitive practices in the housing sector has been absent. Of all the cases that were brought before the Competition Commission of India between 2014-16, 61 cases were by home-buyers against builders arguing abuse of market dominance. All of these cases were rejected by the Commission on grounds of insufficient evidence of monopolistic behaviour by builders.

[40] This is calculated as 15% of carpet area for walls and then additional 20% for lift, staircase etc. The builders we spoke with for verifying marginal costs raised the point that the loading factor (i.e. other built-up space as a percentage of carpet area) increases as number of floors increase (implicit in this is an increase in carpet area and number of flats). S0me of these increases in loading factor are due to regulations. For example, as carpet area increases the builder might need to provide more parking space as per development regulations. Addi tional factors related to construction costs, such as additional costs of providing an elevator for a 5-floor vs a 10-floor building are not considered in the model.

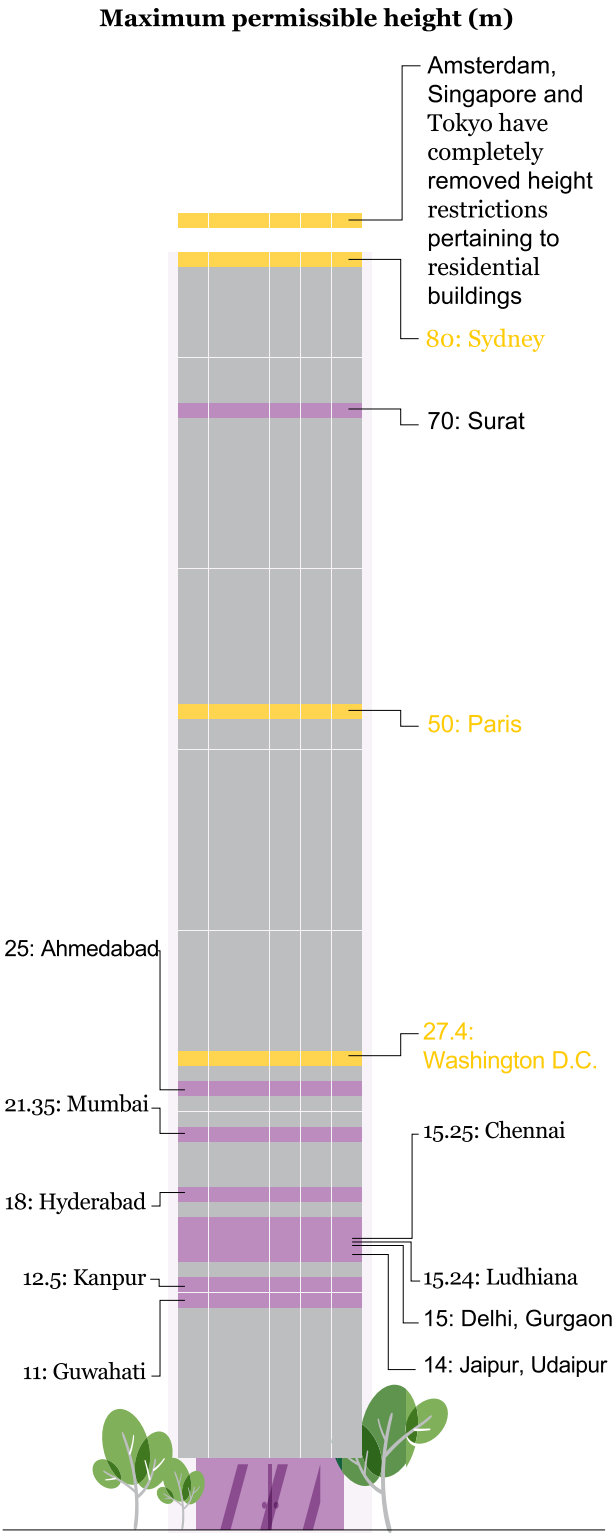
[41] The per sq ft current market price of these units when considering the proposed carpet area and an additional 38% area for basic structure such as walls, lift etc., works out to be approximately Rs 12,300 and Rs 11,400 for the project in western and eastern suburbs, respectively. The listing price data was obtained from Magicbricks.com and Housing.com, two real estate portals.

[42] Magicbricks.com See https://goo.gl/H8MRW1 (accessed on 30 December 2016).

[43] Magicbricks.com, Saleable area 571 sq ft converts to a carpet area of 357 sq ft

[44] Housing.com. See https://goo.gl/qZ1kgw (accessed on 23 February 2017).

Figure 2.5: Residential building height restrictions in Indian cities vs global cities



Source: Refer to appendices 2.1 and 2.2.

2.3. Other distortionary land-use regulations

a. Height restrictions

In addition to strict FSI limits, the government also restricts the maximum height of buildings in different areas within cities. While civil aviation or defence requirements dictate how tall buildings can be, cities also impose additional height restrictions to limit built-up density (see Figure 2.5).

Over time, cities around the world have been easing these height restrictions or removing them entirely in order to ease the pressure on housing markets. Amsterdam and Tokyo have completely removed height restrictions pertaining to residential buildings. On the other hand, Indian cities such as New Delhi, Chennai, Bengaluru and Hyderabad continue to have strict height restrictions.

The Airports Authority of India (AAI) limits the heights of buildings within a 20km-radius around any domestic or international airport to avoid interference with air traffic management. Figure 2.6 illustrates how the permissible height of buildings increases as the distance from the Chhatrapati Shivaji International Airport, Mumbai increases. Note that the colours of the concentric circles correspond to the respective height restrictions as shown in the index (Also refer to Appendix 2.3). Municipalities often have additional rules that mandate buildings to be less taller than what the AAI rules permit.

b. Zoning

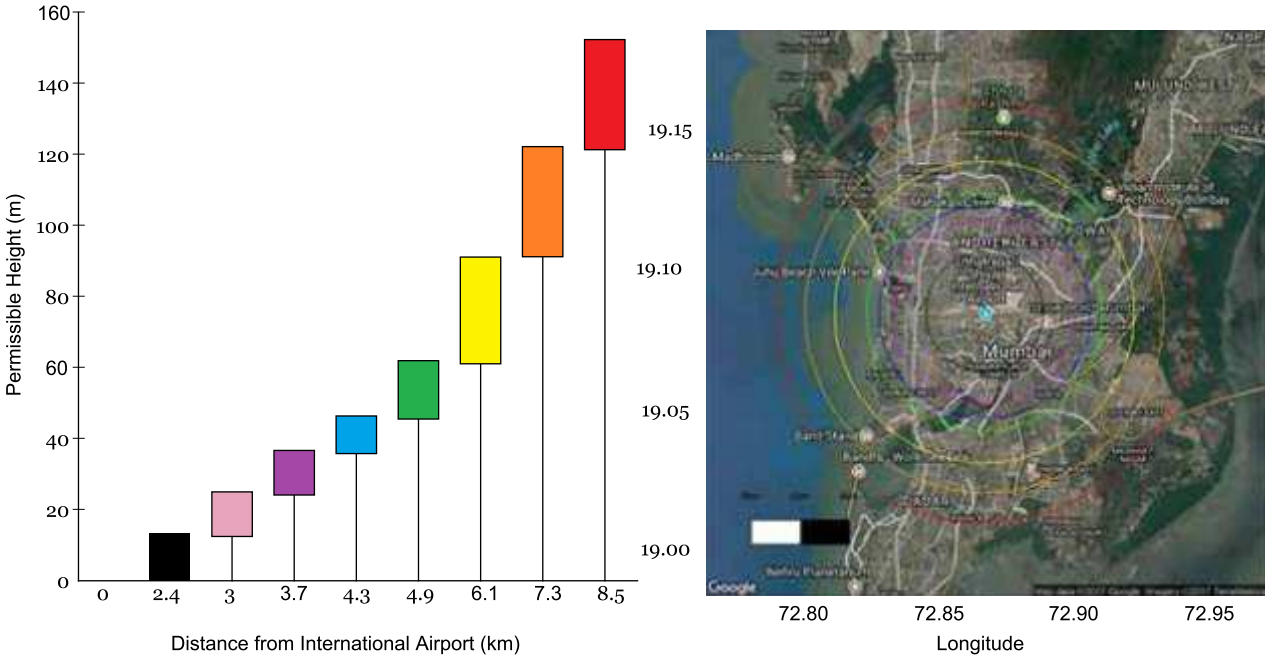
State governments mandate urban local bodies to prepare land-use plans for cities. These master plans or development plans demarcate areas for specific uses such as residential, commercial, or industrial. This form of zoning is common across most Indian cities. For instance, Mumbai's development plan of 1991 did not allow for any mixed land-use, with the intention of preventing unwanted commercialisation of residential areas. If builders want to deviate from the original use for which land was designated, they are required to apply to the Municipal Corporation.[45]

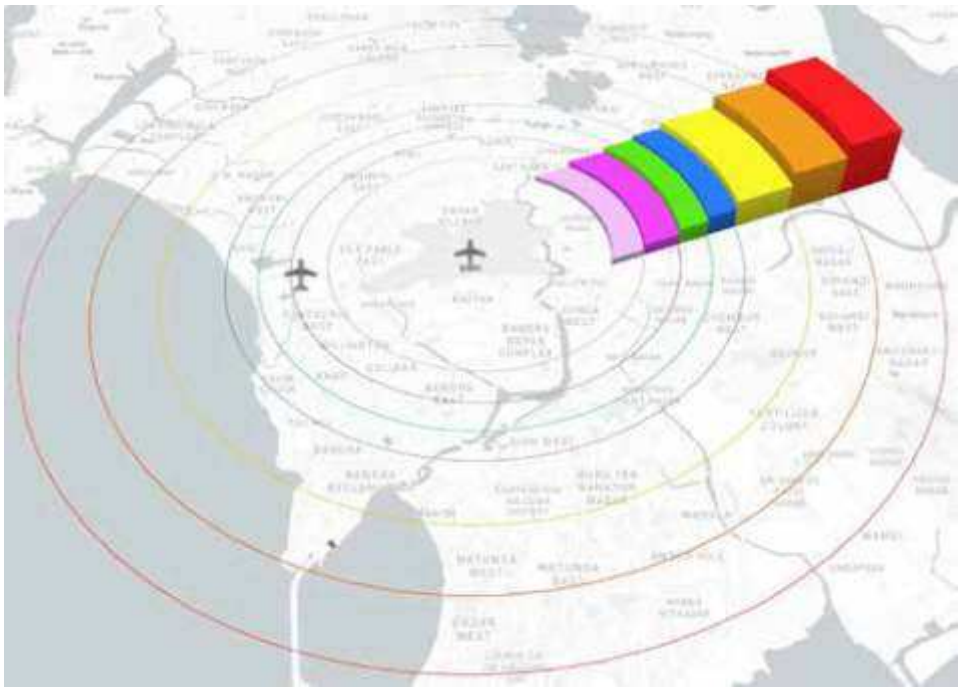
In contrast, the more recent 2021 Master Plan of Delhi recognized that there has been an increase in the number of unauthorised mixed land-use streets, and thus allows for the mixed use of land in several areas of the city.[46]

[45] Pethe et al., 2014. Re-thinking urban planning in India: learning from the wedge between the de jure and de facto development in Mumbai.

[46] Delhi Development Authority (2007). Master Plan of Delhi 2021: Mixed Land Use.

Figure 2.6: Variation in permissible maximum height of buildings by distance from Mumbai International Airport





Source: Development Control Regulations for Greater Bombay (1991), Map data: 2017 Google Imagery, 2017 Terra Metrics and 2018 Mapbox. To explore this data in more detail, see the web-version https://goo.gl/Zg5w2N
Note: The Airports Authority of India restricts height for buildings around international and domestic airports in all states across the country. While obtaining height approval from the AAI, all decisions are made on a case-by-case basis. Several other factors such as the direction of the runways and the pre-established paths for the ascending and descending paths of flights play a vital role in providing additional height relaxation or restriction for individual projects.

c. Urban growth boundaries

Urban growth boundaries (or green belts) are intended to contain the city spatially. They restrict rural to urban land-use conversions, effectively limiting the space available for urban growth. This policy was originally designed to prevent urban sprawl as there was a perception that urbanisation encroaches on rural land. This thinking continues to influence planning till date, and as a result land-conversion policies have not kept pace with rapid urban expansion. Restrictions on using land, previously on the outskirts of cities but now closer to the urban core,

limit the area available for housing development, thus exacerbating the supply problem. Table 2.5 summarises some of land-use regulations that affect the efficient functioning of urban land markets in Indian cities.

Table 2.5: Land-use regulations in Indian cities

Floor Space Index

Mumbai

In Mumbai, the Development Control regulations have restricted FSI to 1.33 in the Island City and 1 in the Suburbs. However, builders can purchase additional FSI, Fungible Compensatory FSI and TDR up to a maximum total allowed value of 2.5, subject to conditions such as road widths.

Bengaluru

Permissible FSI ranges from 1.75 to 4 depending upon the road width, plot size and proximity to metro terminals. [47]

Zoning

Mumbai

The master land-use plan does not allow for mixed land-use. The development rules only allow changes that have gone through the land-use permission process.

New Delhi

The master plan allows for mixed land-use but is only allowed on stretches notified by the Delhi Development Authority.

Urban growth boundaries

Chandigarh

The Punjab New Capital (Periphery) Control Act, 1952 prohibits any construction activity not related to agriculture in land 16km outside Chandigarh's boundary. This limit was initially 8km but was extended to 16km in 1962.

Bengaluru

In Bengaluru, the Outline Development Plan by the Bengaluru Metropolitan Planning Board, for the period 1961-76 reserved 280 sq km of the 500 sq km planning area as green belt. The Bengaluru Development Authority's Bengaluru Master Plan 2015 also has a green belt and agricultural zones of 455 sq km.

Sources: Delhi Development Authority (2007), Brueckner and Sridhar (2012), Centre for Policy Research (2013), Indian Express (2016), Punjab New Capital (Periphery) Control Act 1952. See table of sources in References: Chapter 2 and Appendix 2.1.

2.4: Literature review

	Estimate
 Floor Space Index or Floor Area Ratio	China mandates each parcel of land that is allotted building rights in urban areas have a regulatory Floor Area Ratio. If regulatory FAR is below the optimal desired FAR on that plot, builders can apply for an increase of FAR. It has been found that many developments across 30 cities in China applied for such readjustments, which could be costly depending on the authorities involved. - *Cai et al. (2016)*
 Height restrictions	In Beijing, constraints on building heights in inner cities result in 20% increase in house prices and 12% expansion of the city's boundaries. - *Ding (2013)*
 Building by-laws	Strict building codes in American cities were responsible for increasing house prices by about $1,000 in 1970. - *Noam (1983)*
 Urban growth boundaries	Melbourne enacted the Urban Growth Boundary in 2003. It led to an 89% increase in land values over a five-year period within the boundary but not outside the boundary. - *Ball et al. (2014)*
 Overall regulation	Due to various regulations in Manhattan, condominium prices in the early 2000s were at least 50% higher than it would have been without any regulations. - *Glaeser, Gyourko and Saks (2005)* Cities in the state of California have 4.5% higher prices for owner-occupied houses with the adoption of an additional regulatory measure. - *Quigley and Raphael (2005)*

[47] A study by Brueckner and Sridhar (2012) estimated the welfare loss incurred in Bengaluru due to higher transportation cost, as a consequence of spatial expansion caused by restrictive FSI, to be around 100 million rupees.

CHAPTER

3

Constraints to Building New Housing Stock

3.1. Introduction

In the process of building residential housing stock, from the purchase of land to the various approvals required to build and sell, builders incur multiple costs because of government rules. The costs resulting from complying with such procedures are passed onto buyers in the form of higher housing prices.

Due to limited data on India's real estate sector, IDFC Institute conducted interviews with builders, housing finance professionals, architect, real estate lawyers and other experts familiar with construction costs.[48] The exact figures from these interviews are not meant to be statistically representative, but broadly suggestive. We have tried to distil some general trends from the interviews, as well as other available data.

3.2. Financing new residential projects

According to interview respondents, the overall financing costs for residential projects increases primarily due to two main reasons:

(a) Lack of formal financing for land purchases; and

(b) Uncertainty around land titles, dispute resolution, obtaining building approvals, permits and clearances

The price of land is the biggest component of the housing cost in most major cities (see Figure 3.1). The Reserve Bank of India (RBI) explicitly prohibits financing for purchasing land in order to discourage land speculation.[49] Therefore, builders have to rely on alternative, costlier means of financing. Home-buyers usually provide an advance to the builder when they 'book' a property, often even before the foundation stone is laid for the project. Typically, this money is paid several months, at times years, before the project is expected to be completed. There have also been reports of builders relying on illicit sources of finance.[50]

Irrespective of the means, builders incur a substantially higher cost to finance land acquisition compared to the

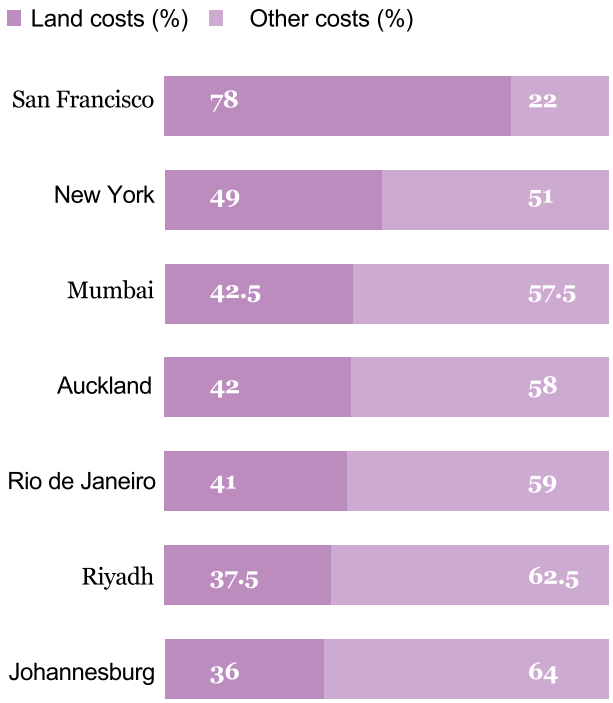
[48] Questionnaire for the interviews: https://goo.gl/YMXYbD

[49] RBI Notification (2015)

[50] Kapur and Vaishnav, 2013. Due to these issues of land acquisition and related approvals, builders are increasingly relying on the model of Joint Development (JD). In the JD model, landowner(s) get a fraction of the final completed project, which could be up to 30-40% of the overall project value. In some premium areas, builders were left with less than 30% of the area of land for the Joint Venture (IDFC Institute interviews, 2017).

> "In 2006, the regulators prohibited banks and HFCs [Housing Finance Companies] from funding land transactions. Such actions may be justifiable when there are fears of asset price bubbles. Over two years ago, the regulators reduced risk weights on exposures to commercial real estate and residential housing. This signalled that there were no fears of any speculative bubble. Then logically, the regulators now need to relax this near decade-old restriction. This is a simple, doable solution. It will bring residential prices down, increase the stock of affordable housing and fulfil the aspirations of more Indians becoming homeowners."
>
> *Deepak Parekh, Chairman, HDFC Bank* [52]

Figure 3.1: Share of land costs in house prices



Sources: McKinsey Global Institute (2014), Land and property values in the US, Lincoln Institute of Land Policy; Guanyu Zheng, The effects of Auckland's metropolitan urban limit on land prices, New Zealand Productivity Commission, March 2013; TOKI website; expert interviews; ABSA Report; Mumbaipropertyexchange.com; Sulekha.com

Notes:

1. New York and San Francisco figures represent 'land value share of home value'.
2. For Mumbai, range estimated from average property price and sample land transaction in Goregaon, Malad, Chembur, and Mulund, where land transaction data were available. Assumed floor-area ratio =1.33 as average of Mumbai city.
3. For the sake of simplicity, the values in Land Costs and Other Costs for Mumbai and Riyadh are averages of the range.
   Mumbai (Land Costs =25-60 and Other Costs=40-75)
   Riyadh (Land Costs=25-50 and Other Costs=50-75)

rest of the construction process (see Table 3.1).[51] Since land costs can constitute up to 60% of the total project cost in the major metros, the restriction on financing increases the overall cost of the project.

Builders also have to grapple with an unclear land titling system and uncertainty over obtaining multiple approvals required for undertaking construction. The risk associated with obtaining these clearances increases the cost of capital for housing projects.

As of 2014, direct institutional support to the real estate sector from banks, housing finance companies, private equity and other formal sources, accounted for only about 22% of the total investment flow into the sector.[53] The real estate sector as a whole only raised $3.2 billion from equity markets between 2008 and 2014, much lower than the estimated $2 trillion required to meet the total housing shortage (i.e. $260 billion annually to achieve 'Housing for All' by 2022).[54]

While residential housing projects typically take seven to eight years from planning to sale, most funding options have a maturity period of less than five years.[55] Therefore, builders raise financing at multiple points during the development of the project, including from buyers who pay advances in slabs based on completion of goals. In some cases, builders prefer slower construction so as to have enough time to raise financing for later stages of the project.[56] This further delays completion and fuels a vicious cycle that results in a large number of stalled projects and long-drawn legal disputes.

One of RBI's main concerns in allowing builders to borrow directly from formal banking institutions for land

[51] IDFC Institute interviews
[52] Rebello, 2015
[53] KPMG-NAREDCO, 2014
[54] Ibid
[55] Ibid
[56] IDFC Interviews

Table 3.1: Financing residential housing projects in major Indian cities

	Land Acquisition	Construction	Sale
Sources of Financing	Own capital, borrowing from informal sources, Non-Banking Financial Companies (NBFCs), Joint Development agreement model, cash advances from buyers	Private equity, institutional finance	
Cost of Financing	22-30% per annum	16-18% per annum	
Time Taken	Depends on many factors — typically between 12-48 months, but in some cases, builders reported it took more than 10-15 years due to pending litigation and approvals.	3-5 years, of which it takes up to 1 year just to obtain all the necessary approvals.	Can sometimes take 4-6 months to obtain an Occupancy Certificate and up to another 6 months for the final sale.
Procedure	Clearing encumbrances, transfer of title, legal disputes	Environmental and building approvals, permits (in some cases buyers have to get more than 60 approvals for a project)	Occupancy certificate
% of Project Cost			
Tier 1 cities	50-60%	30-40%	5-10%
Tier 2 & 3 cities	40-50%	35-45%	2-7%

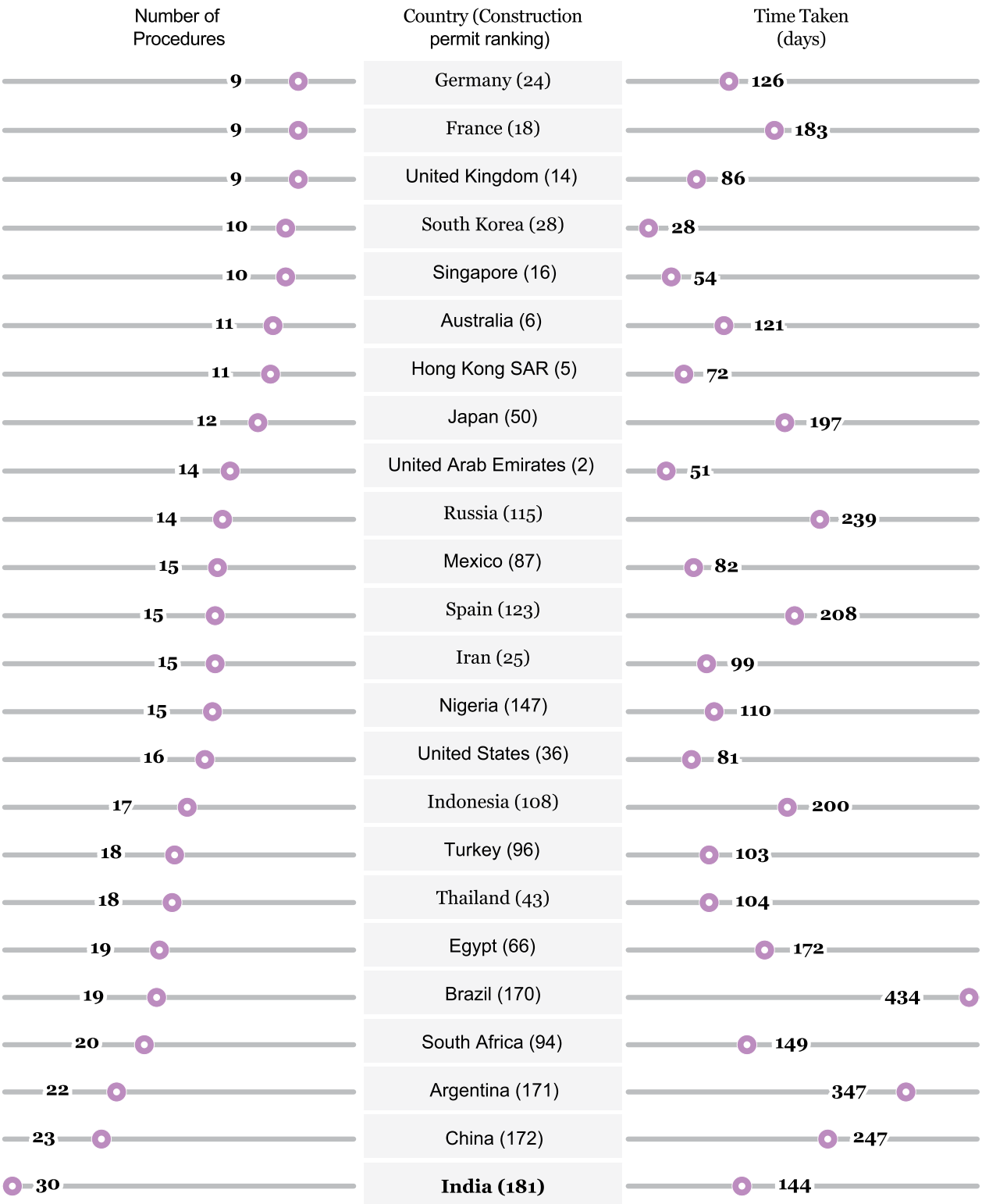
Source: Interviews with builders, housing finance professionals, architects, real estate lawyers and other real estate experts (2016-2017).
Note: Representative data for these financing costs is not available in India. We have compiled these ranges of costs from anonymous surveys of builders, architects, real estate financiers and others in the sector. These figures are not meant to be representative of all residential construction in Indian cities, but suggestive ranges that provide a rough estimate of the magnitudes of the financing costs for residential construction.

acquisition is that this might add to the bad loans on banks' balance sheets. As a result, the existing Non-Performing Assets (NPAs) in the housing sector in India are low (1.47%) compared to other sectors in the economy (5%).[57] Given that majority of the banking sector comprises of Public Sector Undertakings (PSUs), and even private-lending can be heavily influenced by the government, RBI is erring on the side of caution by prohibiting such lending altogether. However, these constraints impose significant costs on home-buyers, that are currently not accounted for in RBI's approach.

The central bank needs to revisit this policy to ensure adequate credit to the housing sector, while putting in place safeguards to prevent worsening of the NPA problem. The RBI should recognise that the easier approach of banning lending for land for housing projects outright, contributes to lower affordability of housing for everyone. Instead, what is needed is a more sophisticated regulatory framework that accounts for the full costs and benefits of financing for housing development projects.

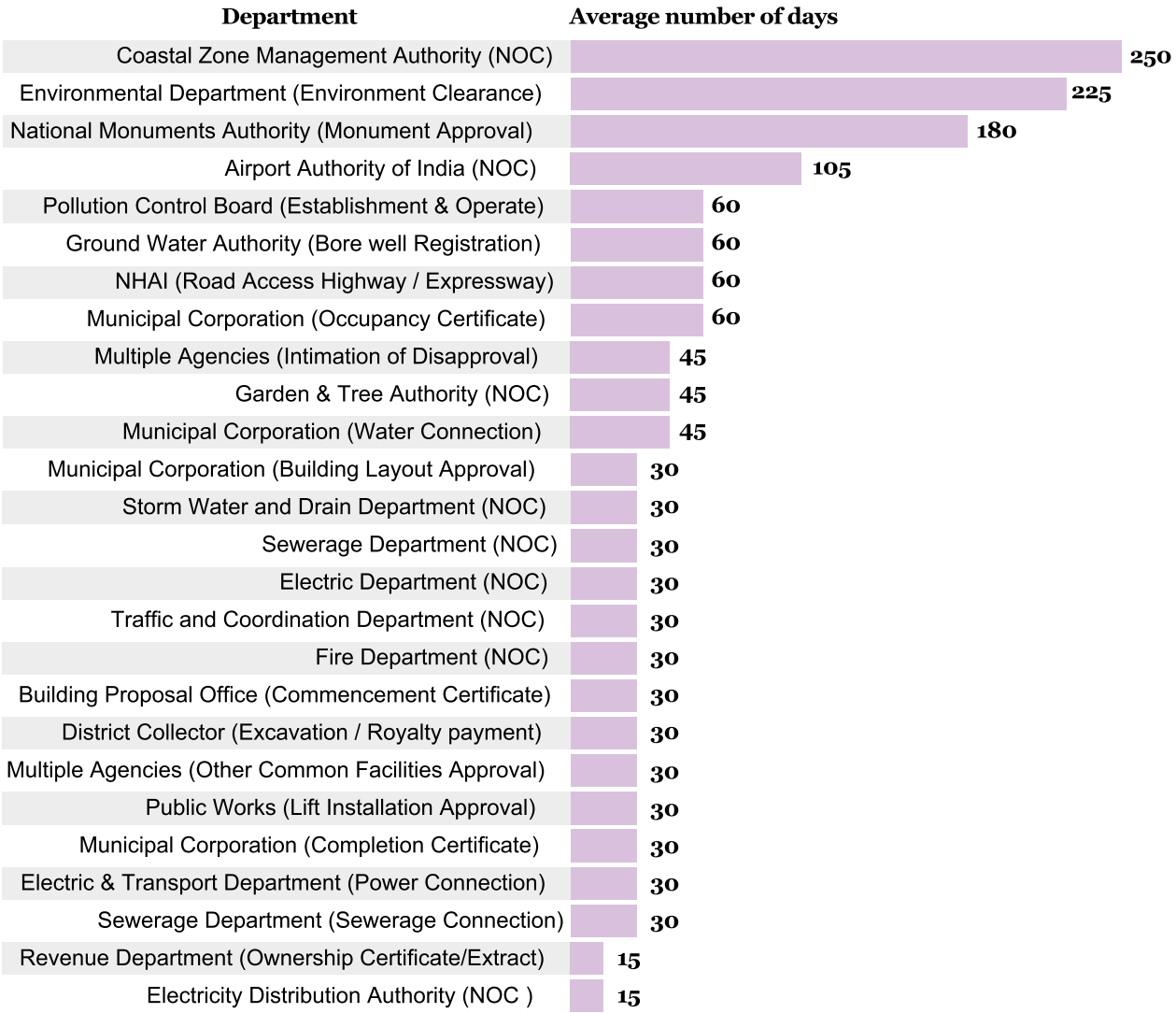
[57] Singh et al., 2014

Figure 3.2: Time taken and number of procedures required to obtain a construction permit for a business (2018)



Source: World Bank Ease of Doing Business (2018)

Figure 3.3: Approvals for constructing residential housing (Maharashtra, Odisha, Tamil Nadu, Gujarat and Haryana)



Sources: FICCI, NAREDCO (2012)
Note: The FICCI Report provides the time of approval for individual permits in the form of a range. These ranges vary for the same department and for the same permit across the states of Maharashtra, Odisha, Tamil Nadu, Gujarat and Haryana. We have taken the mid-point of these time-ranges to calculate the average time taken by agencies for clearing their respective construction permits. The data presented in the above graph provides the average for all five states.

3.3. Land records and transfer of title

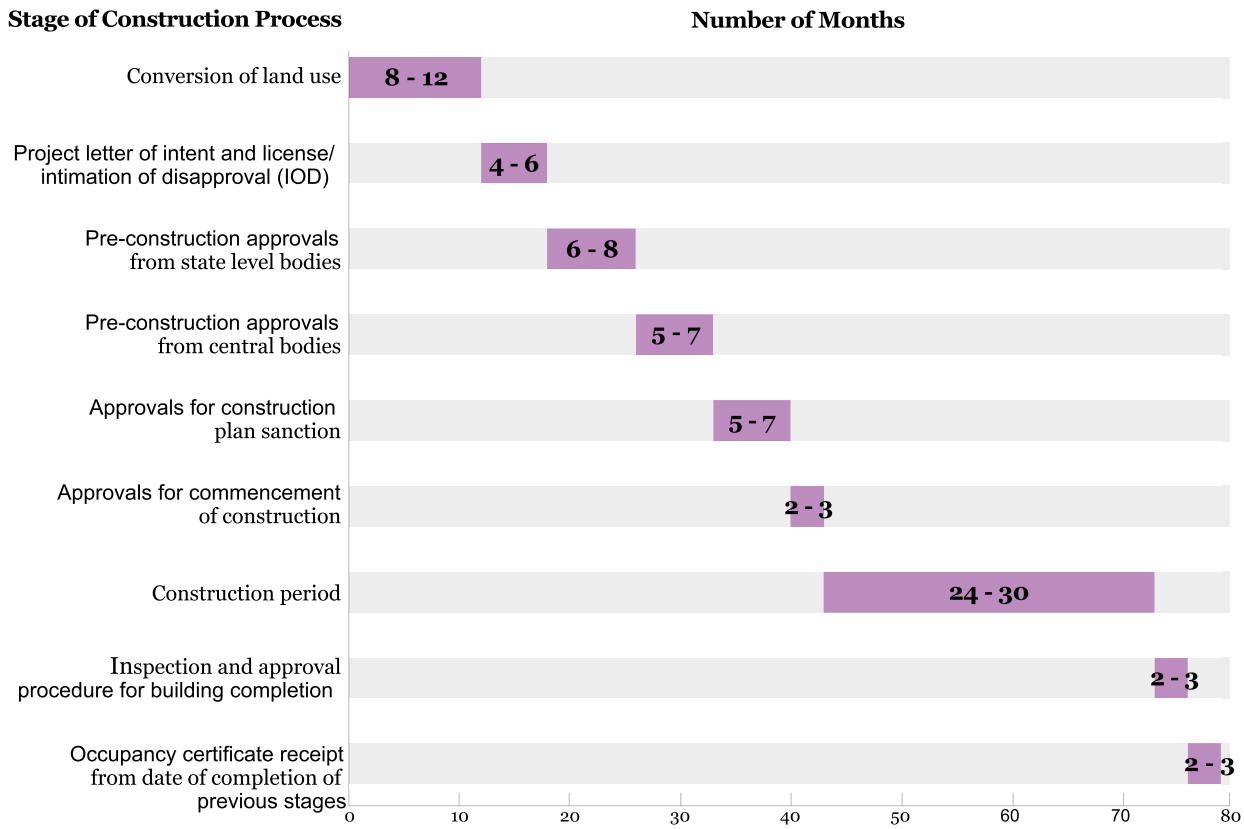
More than 65% of all pending civil cases[58] in India are related to land disputes. The transfer of land titles is a systemic problem that also significantly restricts the supply of residential housing in the country. Based on interviews with multiple builders, we imputed the costs of legal disputes to be almost 30-50% (depending on the degree of legalities involved) of the value of the land for residential projects.[59]

In India, the registration of the property transaction (a record of the agreement between a buyer and seller) is by itself not a guarantee of ownership. The ownership of the property can be challenged by anyone who has a better claim. Presumptive titling contributes significantly towards costlier land transactions. Land records are often scattered across multiple offices at the local or state level. But these records are typically maintained poorly and the lack of coordination between different offices where previous transactions are registered, increases the probability of legal disputes over ownership.

[58] Narasappa et al., 2016

[59] We asked builders for the market prices of land that was unencumbered vs. land with encumbrances. These figures were also validated by recording the fees charged by lawyers and middlemen who purchase disputed land and resell it at a higher fee after clearing the disputes, which was similarly around 30% for the value of the land.

Figure 3.4: Timeline of approvals required after land acquisition and before commencement of construction



Source: CREDAI - Jones Lang LaSalle Real Estate Transparency Survey (2011)
Note: The stages – Pre-construction approvals from state level bodies and central bodies can happen simultaneously.

In addition, inheritance laws and increasingly fragmented land-holdings have led to diffused ownership and holdout problems. In many cases, builders have to negotiate with multiple land-owners for even relatively small plots. The high bargaining costs of such negotiations lead to a market failure and restrict the supply of land for constructing residential housing.

Moreover, if the land in question is not designated for residential use, i.e. is zoned as agricultural or industrial land, multiple separate permits are required to re-designate it for residential use. According to the World Bank's Ease of Doing Business Indicators, India has some of the most exacting procedures to register and enforce the legal rights to a property.

3.4. Building permits and approvals

In the World Bank's Ease of Doing Business Indicators, 2018, India ranks 181 out of 190 countries for the number of procedures required to obtain construction permits (see Figure 3.2). While these procedures are for the construction required to build a warehouse for a business, there is overlap in many of the processes for construction of residential real estate as well. In terms of the total number of days required to receive construction permits, India is the worst performer among all countries ranked in the survey.[60]

Figure 3.3 provides a list of the permits required for construction activities and the average number of days it takes to receive them from local, state and central authorities. Rules can also change during the construction process, sometimes causing heavy losses on investments.[61]

As a result of these procedures, it takes nearly two to three years for a builder to start construction after entering into an agreement for land purchase (see Figure 3.4).[62]

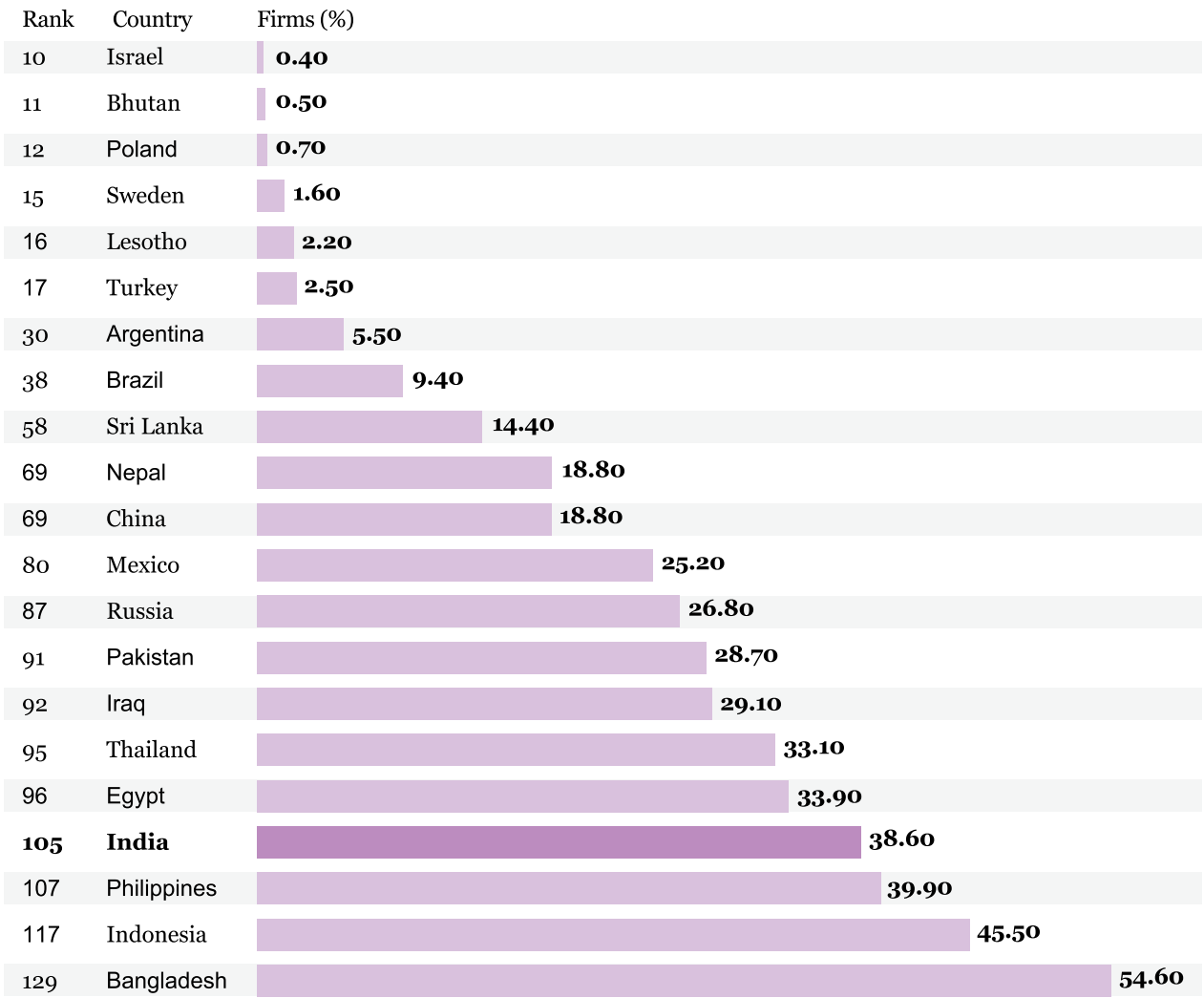
The political economy of such a labyrinthine approvals

[60] World Bank, Dealing with Construction-permits (Mumbai). Available at:http://www.doingbusiness.org/data/exploreeconomies/india#dealing-with-construction-permits#mumbai

[61] IDFC Institute interviews

[62] IDFC Institute interviews; KPMG, 2014

Figure 3.5: Country rankings: Firms expected to give gifts to obtain construction permits (2010-2016)



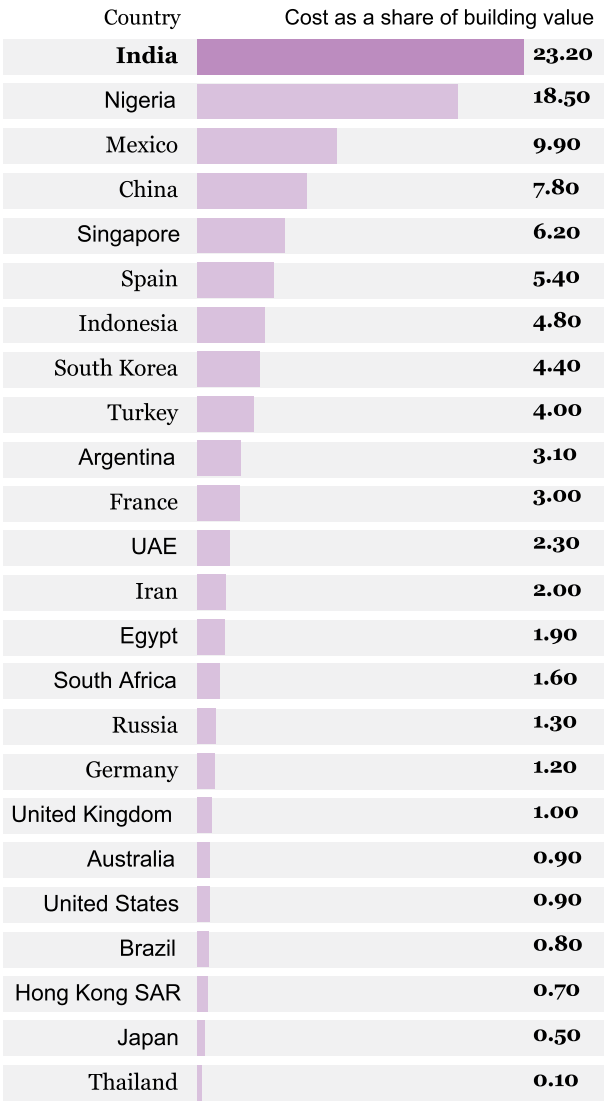
Source: World Bank Enterprise Surveys (2010-2016)

process has created multiple perverse incentives in the system. Officials from different departments can hold out for larger payments, knowing the significant fixed cost builders have already incurred for a project. According to interviews with builders, delays in project approvals could add 25-30% to the project cost.[63] To circumvent these problems, builders are expected to pay 'speed money'.[64] The World Bank's Enterprise Surveys ask manufacturing firms whether they are expected to give 'gifts' to obtain construction permits. In India, around 39% of firms reported that they were expected to give gifts.[65] On this parameter, India ranked 105 out of 137 countries.[66] Figure 3.5 provides the global ranking of select countries in terms of the percentage share of firms reporting that they were expected to give gifts to obtain construction permits.

The process of obtaining these various approvals is inefficient, costly and captured by rent-seeking officials and middlemen. The official and unofficial payments to get these approvals constitute around 20-30% of the overall project cost. This cost is eventually passed on to buyers (see Figure 3.6).[67] There is often a separate liaison department in the major real estate firms, focused mainly on obtaining official approvals. Moreover, the costlier

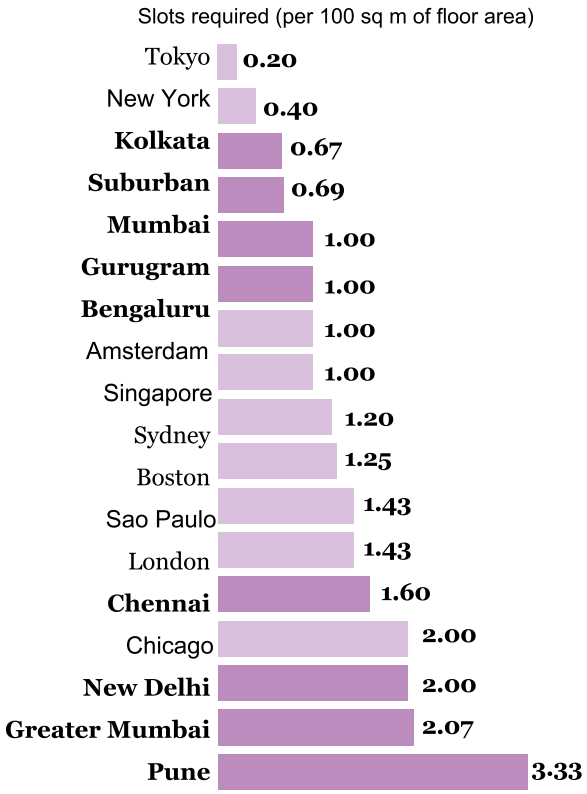
[63] IDFC Institute interviews
[64] Ibid
[65] World Bank, 2014
[66] Ibid
[67] IDFC Institute interviews

Figure 3.6: Cost of construction permits across countries (2018)



Source: World Bank Ease of Doing Business (2018)

Figure 3.7: Parking slots required to be built in residential buildings



Sources: Refer to Appendix 3.1 for a full list of sources.
Note: This data has been collated through multiple regional reports published by the relevant local authorities (see Appendix 3.3 for sources). However, every local authority uses its own unit of measurement in order to quantify parking obligations. For example, in Mumbai, parking obligations have been described using the unit parking space per tenement. On the other hand, Hyderabad dictates the minimum number of parking slots within a residential complex. New York has a mandate that every residential building should cover minimum 40% of its dwelling units. Due to these inconsistencies, we found it important to convert all parking obligation data under a common unit of measurement. The Municipal Administration and Urban Development report provides the parking obligations that pertain to residential buildings in the city. They were however not included in the graph since the obligations were mentioned in the form of parking obligation per residential complex. Refer Appendix 3.1 for data related to Hyderabad parking obligations; and Appendix 3.2 for methodology.

and more arduous the approvals process is, the higher the likelihood of builders shirking responsibility on more important matters such as public safety and structural quality.

3.5. Parking minimums

Among the various regulations imposed on housing construction in Indian cities, one of the more gratuitous requirements are those related to building minimum parking slots. By requiring builders to include parking spaces with every house constructed, the government is subsidising car owners at the expense of homeowners who rely on public transport. This also creates negative externalities in the form of more congestion, pollution and sprawling cities.

Many cities require builders to add a car park for each apartment, regardless of whether the occupant can afford a car, or if the building is situated near mass transit (see Appendices 3.1 and 3.3). The mandatory parking minimums increase the overall cost of building houses, and often remain empty in the case of lower-income housing projects. Parking takes up precious space in dense urban areas, and often also requires operational expenditures related to maintenance, security, electricity and labour. Figure 3.7 illustrates the minimum parking requirements for residential buildings in cities in India

compared to those around the world.

These minimum parking requirements add significant cost and time to construction, especially for affordable housing projects.[68] A builder we interviewed stated that providing car parking takes approximately 30-40% of the construction cost in Mumbai. According to one estimate based on cost of constructing affordable housing in Canada, a requirement of one parking spot per housing unit will increase cost by around 12.5% while two spots will drive up cost by around 25%.[69] Another study in San Francisco found that off-street parking pushed prices of single-family homes and condominiums up by 10%.[70]

In the last few decades, there has been a shift in the policy thinking about public parking. This is predominantly visible in Europe and North America where there have been movements to reclaim public spaces and footpaths from surface parking.[71] American transportation policy is becoming increasingly responsive to the detrimental effects of free parking on congestion, air quality, economic development and pedestrian rights.[72] In India, the National Urban Transport Policy (NUTP) of 2006 was an attempt by the central government to question the underlying principles behind parking policies.[73] In order to discourage cities from treating parking provisions as a public good, NUTP recommended charging higher parking fees. Most parking policies in Indian cities, however, continue to increase minimum parking requirements as a response to higher car ownership rates.

Box 3.1: The Real Estate (Regulation and Development) Act (RERA)

The Real Estate (Regulation and Development) Act was promulgated in May 2016 as a buyer-friendly legislation intended to protect the interests of purchasers in dealing with builders.[74] The legislation aims to promote an environment of transparency in the real estate sector.[75] To fulfil this objective, the Act envisages the creation of a Real Estate Regulatory Authority by state governments to prescribe rules and standards. The Act also mandates the creation of an Appellate Tribunal which functions as an adjudicating platform for speedy redressal of sector-specific disputes.[76]

The Act itself provides the general outline of guidelines aimed at increasing the accountability of builders.[77] State governments have been empowered to frame and enforce relevant procedural rules and regulations. As RERA promises to address consumer concerns, there are several new compliance burdens that the law imposes on builders of housing projects. Some of these include:[78]

- Compulsory registration of projects developed on land exceeding 500 sq m or constructing more than eight apartments. If a project is divided into phases, each individual phase of the project must be registered independently with the Authority.

- A new directive on calculating the selling price based exclusively on the definition of carpet area defined as the 'net usable floor area of an apartment, excluding the area covered by external walls, areas under service shafts, exclusive balcony and exclusive open terrace area, but includes the area covered by the internal partition wall of the apartment'.[79]

[68] IDFC Institute Interviews

[69] Litman, 2016

[70] Jia and Wachs, 1998

[71] Kodransky and Hermann, 2011

[72] Weinberger et all (2010), Institute of Transportation and Development Policy

[73] National Urban Transport Policy (2006).

[74] Press Information Bureau, 2017

[75] Ibid

[76] Ibid

[77] See Appendix 3.4 for sources of RERA notifications and rules.

[78] Ministry of Law and Justice, 2016.

[79] Earlier the calculation of the selling price was based on the total area.

- Mandatory establishment of an escrow account to hold 70% of the funds obtained which shall be utilised for the implementation of the project, specifically to cover the cost of construction and land cost. The amount should be withdrawn as each stage of the project is completed.

- The agreement to sell should specify the time period for the completion of projects.

- Mandatory auditing of all accounts of the promoter within six months of the end of a financial year to verify that the amounts collected have been utilised for the project, and withdrawal of funds is in accordance with the provisions of the Act and Rules.

- In case of default or delay in timely possession of the property, the buyer can claim refund of the entire paid amount along with interest. [80]

- Compulsory registration of all real estate agents.

The Authority would be responsible for governing the real estate sector in respective states, and all disputes arising from any order or direction given by it shall be adjudicated by the Tribunal. RERA requires both the Authority and the Appellate Tribunal to complete each proceeding within a period of 60 days from the date of receipt of complaint or appeal.[81]

RERA, however, is unable to compel governmental authorities at different levels to abide by a specific timeline to provide clearances. If builders are unable to meet the timelines agreed to with buyers due to delays in obtaining these clearances, they still have to bear the burden of penalties, refund and interest payments.[82] The 70% escrow account requirement may also restrict working capital for builders and add to overall project costs.[83]

The additional regulatory costs to comply with the provisions, rules and regulations of RERA may lead to a consolidation in the market as smaller builders get bought out by larger players or become unprofitable. [84] As a result, small builders who provide a necessary service to the low-income segment of the housing market, may cease to exist. This could have a detrimental effect on consumers as the resultant decrease in competition may eventually increase prices.[85]

[80] State Bank of India highest Marginal Cost of Funds Based Lending Rate plus 2%.

[81] Ministry of Law and Justice, 2016

[82] Ibid

[83] Khaitan and Co. and Knight Frank, 2017

[84] Conversation with Saroj Jha, Founding Partner SRGR Law offices.

[85] Ibid

CHAPTER

4

Transaction Costs for Housing

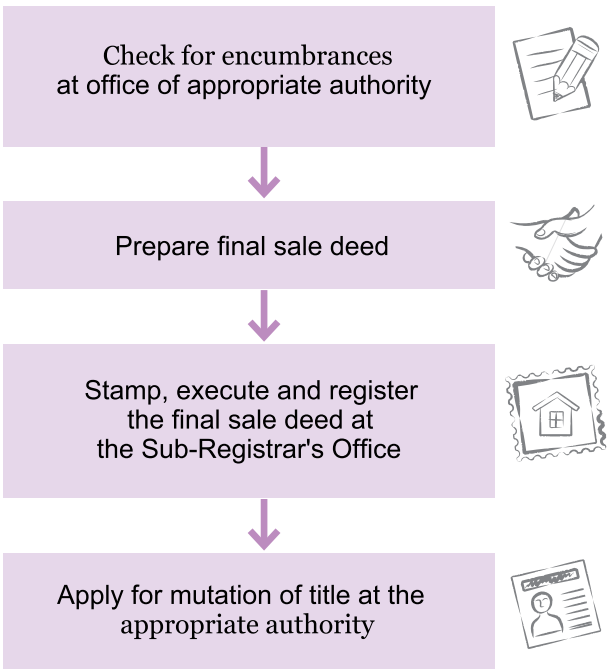
4.1. Introduction

The procedures to register a property in India are complicated, inefficient and costly. According to the World Bank's Ease of Doing Business Report 2018, the cost to register a property in New Delhi is around 9.1% of the property value, and 7.6% of the property value in Mumbai. In contrast, the cost of registering a property in Organisation for Economic Cooperation and Development (OECD) countries is around 4.2% of the property value, and in Shanghai it is 3.6%.[86]

The lack of transparency in the housing sector is another impediment to seamless transactions. Additionally, the absence of an updated market database and limited access to reliable information further increase the transaction costs between property buyers and sellers.

Transaction costs include all direct and indirect costs incurred in transfer of property from seller to buyer. These entail stamp duty charges, registration fees, Goods and Services Tax,[87] agent's commission and legal fees. Factors such as high registration costs, lack of transparency, and ubiquity of black money often lead to reluctance on the part of both buyers and sellers to

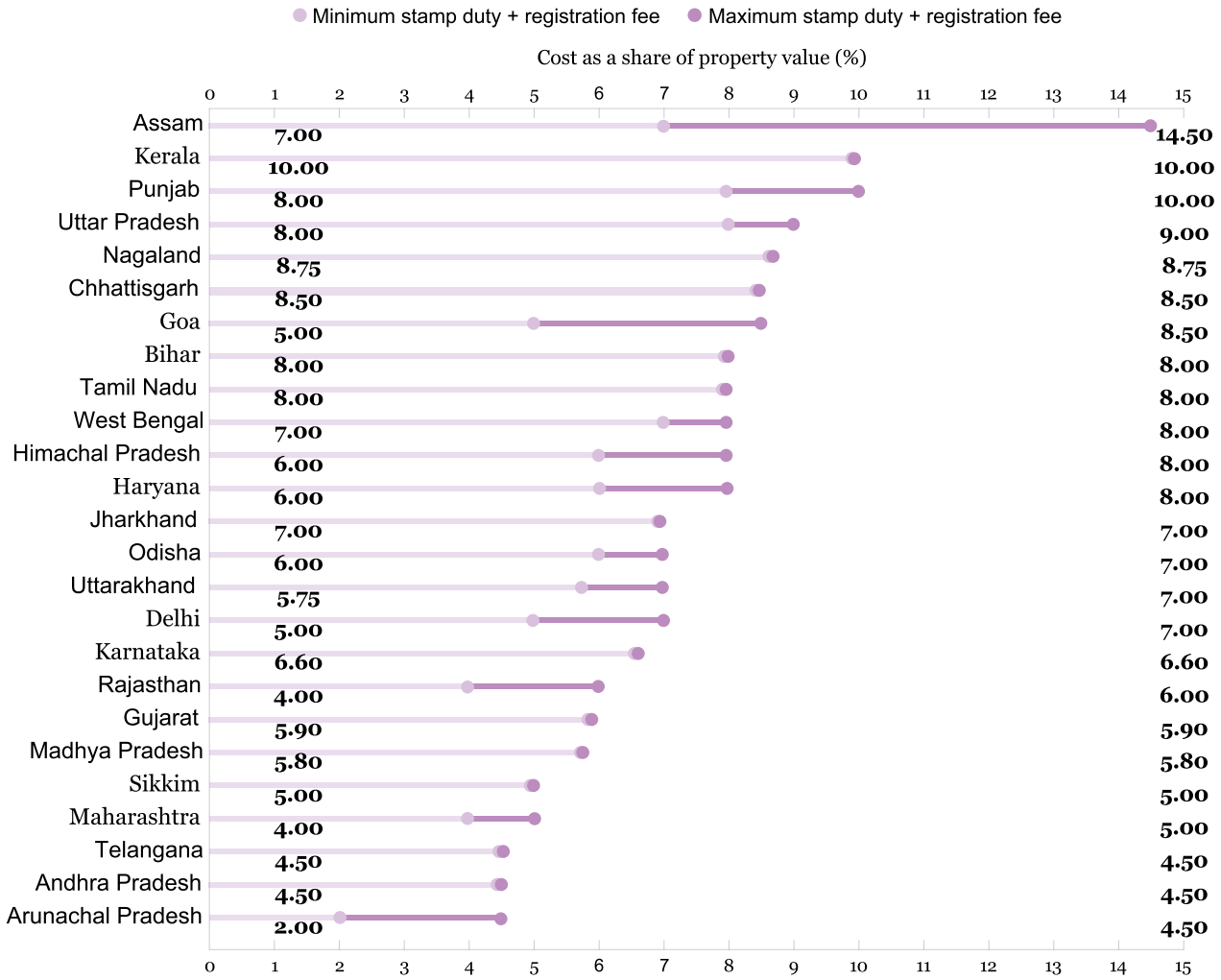
Figure 4.1: Process for registering property



[86] World Bank, 2017. The World Bank Ease of Doing Business reports focus on registering properties for businesses, but since many of the processes are similar, the rankings are indicative of the costs involved for property registrations in the residential market as well.

[87] While the intention of GST was to subsume all indirect taxes levied by states, stamp duty rates and registration charges for property transactions were left out of its ambit.

Figure 4.2: State-wise stamp duties and registration fees as a percentage of property value



Source: Refer to Appendix 4.1 for a full list of sources

undertake property transactions in the secondary market (resale of existing houses). The absence of a fluid market for resale of property precludes efficient use of existing stock and exacerbates the housing shortage.

4.2. Costs to register property transfers

Prior to registering the sale of immovable property, the buyer must ascertain that the property being sold is free of encumbrances, such as a mortgage or any other claims. This involves applying for an encumbrance certificate from the Sub-Registrar's office. In some states such as Andhra Pradesh, Telangana, Karnataka and Tamil Nadu, this application can be submitted online and applicants are issued digital encumbrance certificates. The buyer, usually through a lawyer, then prepares the final sale deed, which is stamped, executed, and registered at the sub-registrar's office. This process typically requires both the buyer and seller to be present before the Registrar on a pre-assigned date. They submit the necessary documents and pay a prescribed stamp duty. The deed is then registered by the Registrar and a certified copy of the registered sale deed is provided to the buyer.

The registration of the sale deed does not imply the transfer of the title of ownership from the seller to the buyer. In order to change the title of ownership, the buyer has to apply to the relevant authority under the Revenue Department of the state government for a mutation in the Record of Rights.

Stamp duty and registration fees are payable to the government for the legal recognition of property transactions. This is calculated on the total value reported in the sale deed. This reported value cannot be lower than

Table 4.1: Stamp duties in other countries

Country	Stamp Duty (%)
Argentina	1-4%
China	0.05%
Denmark	0.60%
Ireland	1-2%
Malaysia	1-3%
New Zealand	None
Norway	2.50%
Portugal	0.80%
Spain	0.5-2%
United States	0-4%

Source: PricewaterhouseCoopers (2016), National Conference of State Legislatures (2017).
Note: For the United States, we took the lowest and highest values applicable across the listed states for the range.

the guidance value or circle rate, which is the minimum value at which property can be sold or bought. This is published by state governments annually in a document known as the Ready Reckoner. Figure 4.2 shows the stamp duty rates and registration fees in urban areas in different states, as a percentage of the average house price[88].

Stamp duties in India are higher than those in other countries (see Table 4.1). In China the stamp duty rate is 0.05%, in Spain it ranges between 0.5 and 2%, while in New Zealand, stamp duties have been abolished entirely.

The high stamp duty and registration fees across most states add substantially to the cost of officially registering property transactions. This discourages official registration entirely or incentivizes under-reporting of the true value of the property that is registered. Under-reporting also benefits sellers who have to pay lower capital gains tax on the property. In practice, sale deeds tend to report the guidance value or circle rate, and not the market value of the property, curtailing transparency and price discovery in the market. A report by HDFC in 2015 estimated the market price of houses in Mumbai to be 61% higher than the guidance values on average (see Figure 4.3).

Table 4.2 illustrates the rules and incentives that encourage participants in the real estate market to transact in black money. Capping transaction costs is critical to ensure fluid property markets and a steady flow of affordable units.

Table 4.2: Black money in housing transactions

Homebuyers

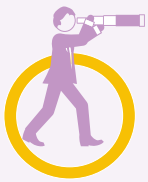
Incentives/Rules

High stamp duty rate, registration fees and recurring municipal taxes

Strategies

Under-report transaction value

Builders



Incentives/Rules

Tax on income from transaction, high cost of capital, high cost of procurement, no bank lending for buying land

Strategies

Require cash for project financing and demand cash advances from buyers

Individual sellers

Incentives/Rules

Capital gains tax

Strategies

Under-report transaction value

Political parties

Incentives/Rules

Campaign finance rules that cap expenditures on election campaigns

Strategies

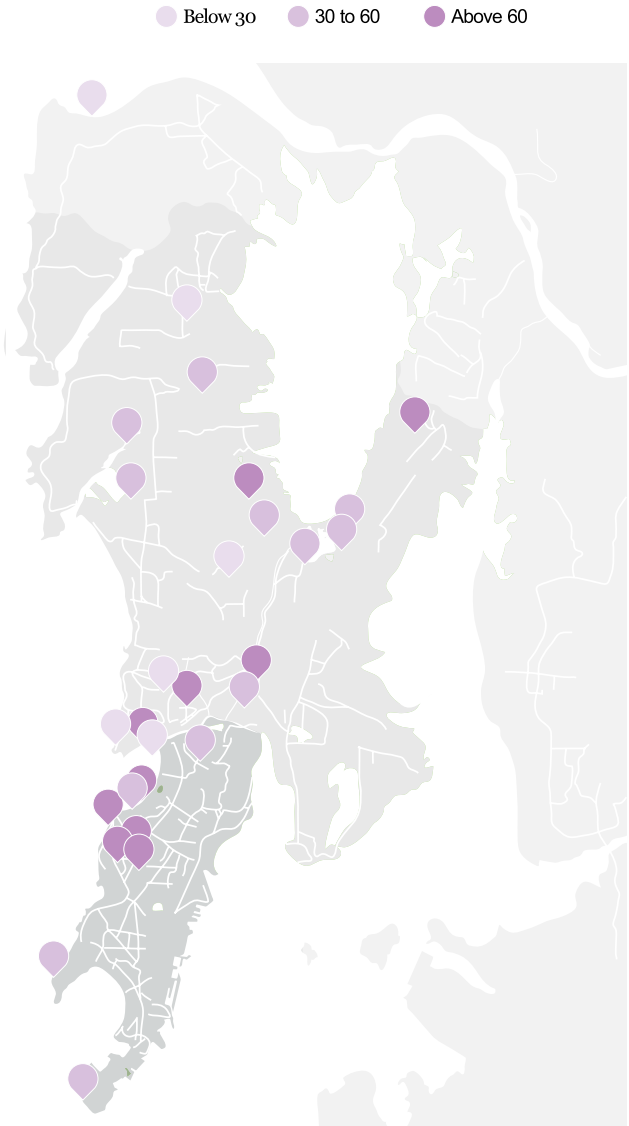
Builders advance cash for costly election campaigns and in return receive clearances for projects

Source: Kapur and Vaishnav, 2013
Note: Builders are allowed 100% tax deduction on profits and gains on construction of affordable housing projects, provided the project fulfils certain criteria (under Sec 80IB(A) of the Income Tax Act).

[88] Stamp duty and registration fee rates may differ for a state based on the value of the transaction, urban vs rural location, gender and social group (SC/ST) of the applicant.

Figure 4.3: Mark-up of market rates over ready reckoner rates in Mumbai

Locality	Mark-up of market price over ready reckoner value (%)
Lower Parel-II	139.68
Parel-Sewri	134.17
Mahalakshmi	116.32
BKC	112.52
Worli	105.20
Lower Parel -I	101.81
Mulund (W)	84.48
Kurla (W)	80.79
Dadar	80.37
Overall Mumbai	**60.80**
Malabar Hill	58.59
Oshiwara (W)	56.04
Ghatkopar (W)	55.86
Prabhadevi	53.37
Colaba	52.16
Malad (W)	51.93
Goregaon (E)	45.71
Chembur (E)	45.52
Bhandup (W)	38.70
Kandivali (E)	37.28
Kanjur Marg (E)	35.79
Powai	33.45
Santacruz (W)	28.69
Andheri (W)	23.08
Dahisar (E)	21.67
Mahim	21.59
Bandra (W)	19.43
Borivali (E)	6.62



Source: IGR Maharashtra, Industry Sources, HDFC Securities Institutional Research (February 2015). Also refer to Appendix 4.2

CHAPTER

5

Rental Housing

5.1. Introduction

Rental housing has received little attention in Indian housing policy. Government efforts have continued to focus almost entirely on home-ownership. A combination of policy neglect and market distortions created by Rent Control Acts (RCAs) have pushed the rental market into decline and informality. Data from the Census of India shows a sharp drop in the share of urban rental housing from 54 % in 1961 to 28 % in 2011.[89]

In order to enable large-scale access to jobs, it is critical for the urban rental markets to function efficiently. Rental housing allows labour to move closer to economic opportunities in cities, without the constraints imposed by home-ownership.

5.2. The case for rental housing

Many countries have prioritised home-ownership under the assumption that it confers greater social benefits. In the United States, home-ownership was believed to provide social and financial stability, increase citizen involvement, improve neighbourhood safety, and contribute towards a better education system.[90] In Singapore, the idea of home-ownership was linked to nation-building. [91] Home-ownership has been encouraged in various countries through a mix of subsidies and tax breaks. However, in his 2010 book, *Fault Lines*, Raghuram Rajan argues that the political motives for providing such incentives and credit for home-ownership presaged the 2008 financial crisis: [92]

> “Politicians love to have banks expand housing credit, for credit achieves many goals at the same time. It pushes up house prices, making households feel wealthier, and allows them to finance more consumption. It creates more profits and jobs in the financial sector as well as in real estate brokerage and housing construction.”
>
> *Raghuram Rajan, Former RBI Governor*

In India also, home-ownership continues to be the focus of government housing policies. The Pradhan Mantri Awas Yojana, or the ‘Housing for all by 2022’, equates access to

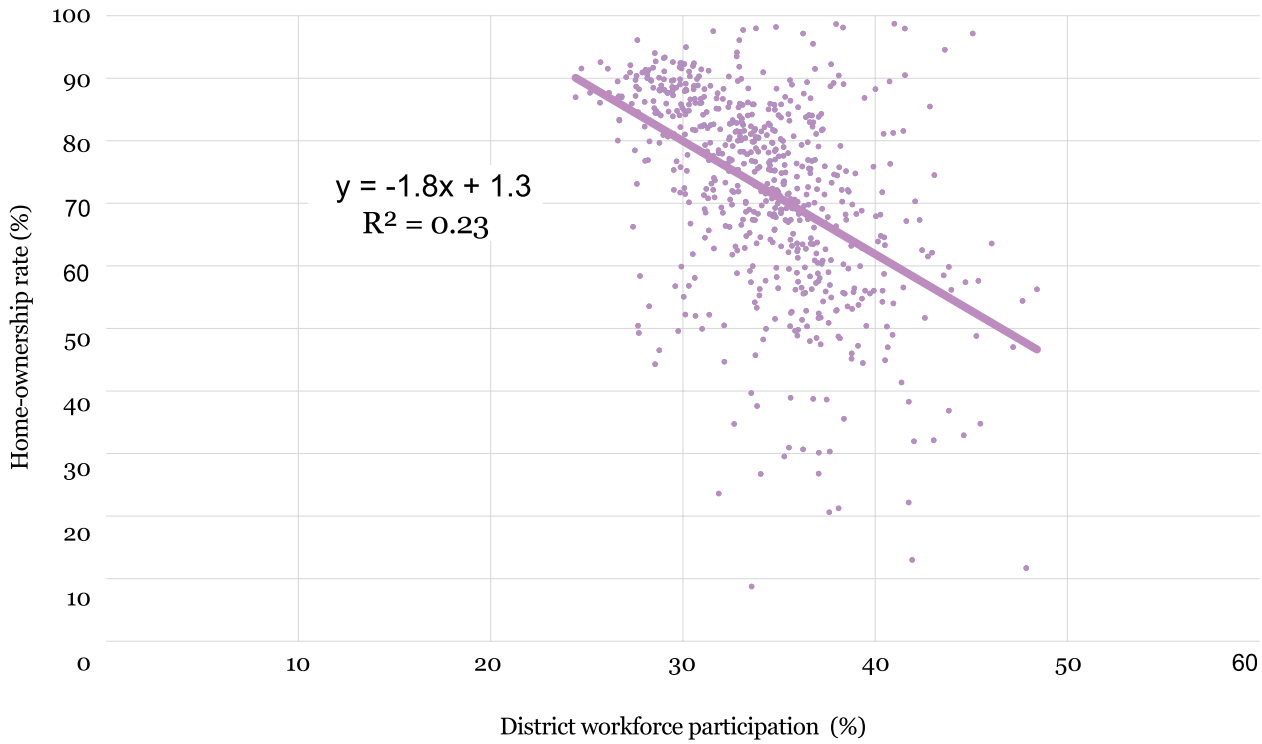
[89] Tandel et al., 2016

[90] Kiviat, 2010

[91] “The best stake we can give to Singaporeans is a house or a flat, a home. It is the single biggest asset for most people, and its value reflects the fundamentals of the economy.” - Goh Chok Tong, the second Prime Minister of Singapore, as quoted in Chua (1997).

[92] Rajan, 2010

Figure 5.1: Correlation of workforce participation and home-ownership rates across Indian districts in 2011 (Urban)



Source: Census of India (2011)
Note: 5 districts have been excluded for this analysis: Tawang (Arunachal Pradesh), Peren (Nagaland), Leh Ladakh (J&K), Daman (Daman & Diu), Rajauri (J&K). The coefficients did not change substantially after inclusion of these districts.

affordable housing with ownership. Such thinking does not take into account the critical role of rental housing in facilitating labour mobility. Across districts within India, higher home-ownership rates coincide with lower labour force participation (see Figure 5.1). Mobility is vital for low-income families, who cannot afford the costs of unemployment.[93]

Besides the need to rely on affordable rental housing when migrating to cities, home-ownership is less suitable for low-income households for other reasons. Owning an illiquid, undiversifiable asset such as a house constrains low-income families with volatile incomes.[94]

Rental housing is also essential for social mobility within cities. A study from the United States shows how rental housing is central to moving from wealth-based, segregated neighbourhoods to more mixed communities.[95] Across the income spectrum, rental housing provides a foothold into a new city for migrants, until they choose to purchase their own house.

5.3. The legacy of Rent Control Acts

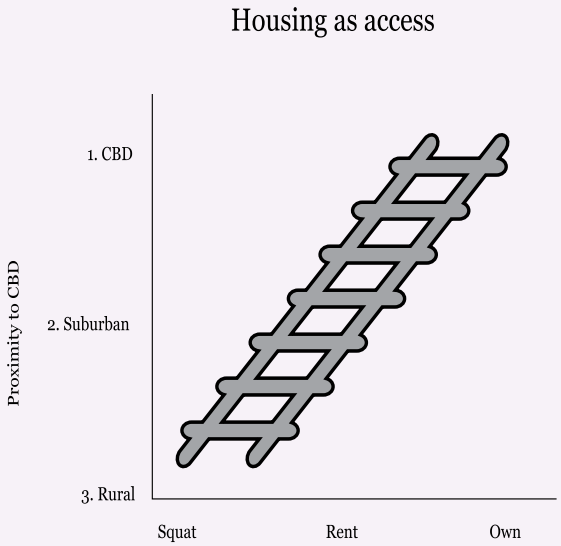
Rent control legislation originated in Europe as a popular tool for policymakers to combat widespread inflationary pressures, especially in the aftermath of the Second World War. It was considered a tool to address inaccessibility to shelter and was meant to be a temporary measure.

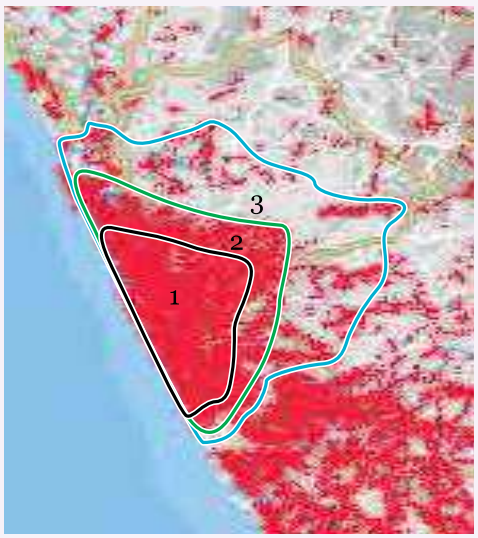
In India, RCAs were introduced to prevent landlords from charging exorbitant rents and ensure that migrants found stable and secure housing when they moved to cities. However, political opposition to rationalizing rents has ensured that rents have remained frozen at below-market rates for many years. This has created perverse incentives for owners. Unable to evict or replace tenants, landlords have allowed their buildings to deteriorate or even collapse.[96] As a direct result of the RCA, almost half of all rental units in Mumbai are now either condemned

[93] Mitra and Murayama (2008)
[94] Spiegel and Goetzmann, 2000
[95] Sahasranaman and Jensen, 2017
[96] Bertaud, 2002; Wadhva, 2002

Box 5.1: Housing Ladder

A housing ladder represents the aspiration of a household to move from a) rural to urban areas and, b) no property rights to ownership. As the income of a household goes up, it tries to find the optimal balance between proximity to the central business district, greater security of tenure and better amenities (schools, hospitals, etc.). In this context, rental housing allows families more flexibility to make the choices that work best for them, without the constraints that ownership might impose. This flexibility means that households have more control over the quality of their housing choices and the number of times they can make this choice. In the long run, the ability to move to and within cities expands the economic and social opportunities available to families and their successive generations. A vibrant rental market is thus essential for an upwardly mobile, young, aspirational society to thrive.





Source: Analysis by IDFC Institute. Refer to Appendix 5.1 for data sources.

or beyond repair.[97]

The adverse impact of rent control continues to undermine the trust landlords have in the State's protection of their property rights. As a result, we see a decline in the supply of formal rental housing and an increase in informal housing arrangements (see section 5.4.a).

Despite the well-known distortionary effects of rent control legislations on housing markets, they have not been substantially amended in several states. The central government, through the MHUPA, now reconstituted as the Ministry of Housing and Urban Affairs (MoHUA), has made several attempts to persuade states to reform their respective rental legislations. Three different model tenancy agreements were suggested for adoption in 1992, 2011 and again in 2015.[98] Additionally, the reform of RCAs was classified as mandatory under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM). However, the Comptroller Auditor General's performance audit of JNNURM in 2012-13 found that only 10 of 26 states (then) had made any headway in reforming RCAs.[99]

As per the Constitution, housing is a state subject and therefore states have exclusive jurisdiction to legislate on rental policy. Therefore, it is difficult to reform rental legislations through centrally-directed policies such as JNNURM. Reforms in the housing sector are highly contingent on the local political climate and vagaries of electoral politics. For instance, in 2016, the Maharashtra government proposed to free residential properties bigger than 847 sq ft and commercial properties bigger than 540 sq ft from rent control. The move faced backlash not only from the opposition party but also from members of the

[97] Hammam, 2015; Tandel et al., 2016

[98] Primer on Rent Control: JNNURM State-Level Reform Final Report, 2010

[99] Performance Audit of Jawaharlal Nehru National Urban Renewal Mission, Ministry of Housing and Urban Poverty Alleviation

ruling coalition, who had initially proposed the changes. [100]

5.4. State of rental markets in India

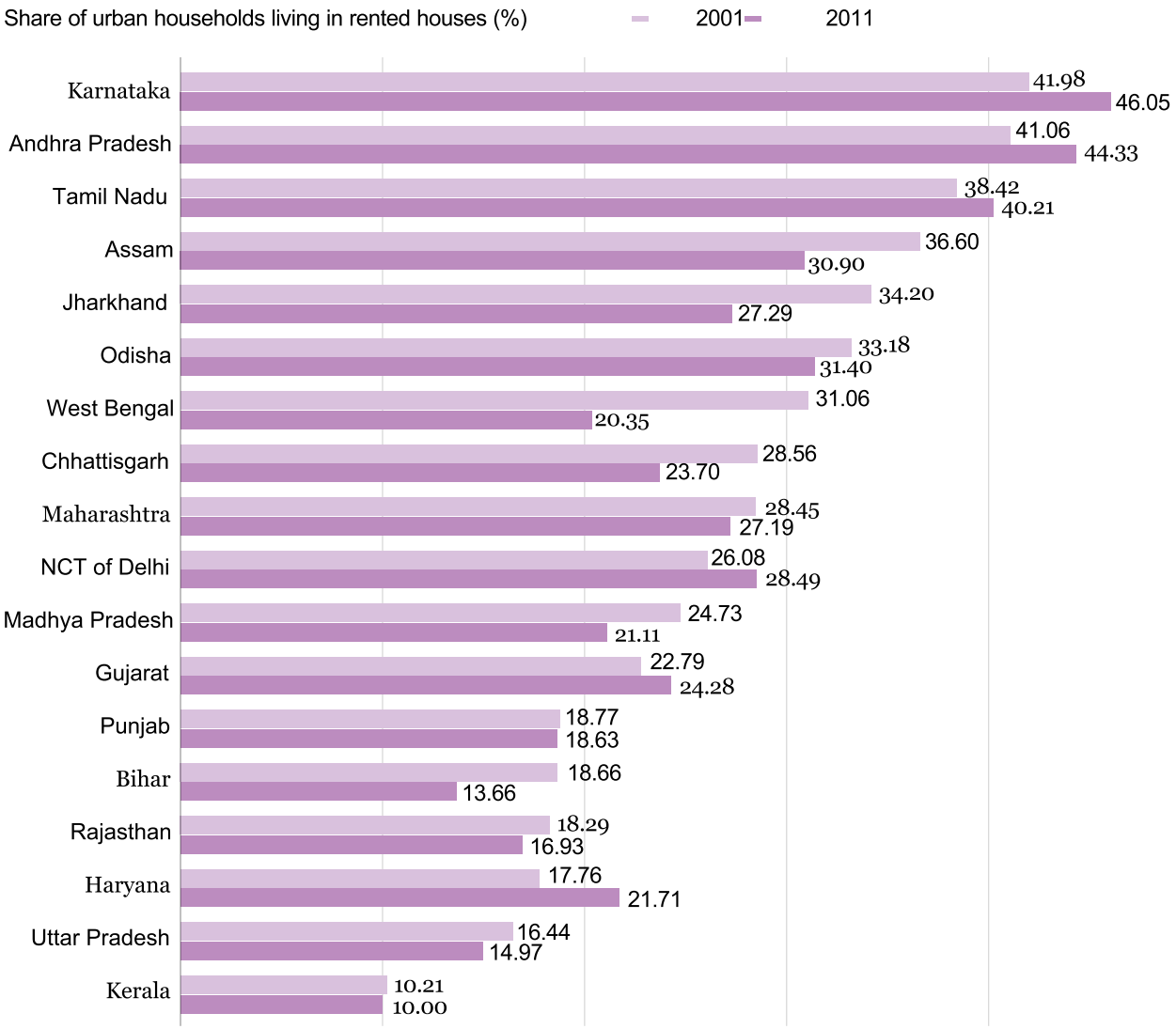
a. Rental housing is largely an urban story

Ownership remains the predominant form of tenure in the housing market in India. However, as a proportion of all housing, rentals are more prevalent in urban areas than in rural. According to the 2011 Census, the share of households living in rented accommodations was 5% in rural areas, but 31% in urban areas.[101] The more urbanised states, such as Gujarat, Maharashtra and Andhra Pradesh also had a higher percentage of rental housing than more rural states (see Figure 5.2).[102] The share of rental housing also increases with city-size–from 28% in small towns, 36% in medium-sized towns, to 40% in large cities.[103]

b. Rental housing facilitates labour mobility

Across the 18 most urbanised states in India, Census workforce participation rates are positively correlated with the proportion of housing that is rented in urban areas.[104] A similar trend is also observed within cities–in

Figure 5.2: State-wise share of urban households living in rented accommodation



Source: Census 2001 and 2011

[100] Phadke, 2016
[101] Census, 2011
[102] Harish, 2016
[103] Kumar, 2016
[104] Harish, 2016

Bengaluru, where about 60% of households live in rental housing, the highest share of rental housing is in wards dominated by industrial corridors and those with large-scale construction.[105] These observations corroborate evidence from around the world that home-ownership is detrimental to the ability of labour to migrate for better job prospects.[106]

c. Formal urban rental housing is declining

The Census shows a persistent decline in rentals as a share of total housing, from 37% in 1991 to 28% in 2011 (see Figure 1.3). However, National Sample Survey Office (NSSO) data shows a marginal increase from 34% to 35% from 1991 to 2011. One reason for this difference is the high share of informal rental arrangements, which are not captured in the Census.[107] According to the NSSO, in 2012, 71% of households living in rented accommodations did so with no written contract.[108] This could be due to both the underlying informality of the accommodation itself (i.e. slums) and the legacy of RCAs that have discouraged formalisation of rental agreements.

d. Alternative rental agreements

As a consequence of the many political, legal and enforcement hurdles created by RCAs, landlords are increasingly relying on loopholes in existing laws or informal means to rent out their properties. In Mumbai, leave-and-license agreements are gradually becoming a standard mechanism for landlords and tenants to bypass Maharashtra's onerous RCA.[109] Due to their ubiquity, the state now formally recognises the use of leave-and-license agreements for rental transactions.[110]

Under these agreements, the tenant is granted a license merely to use the premises of the landlord, without an exclusive interest in the property for the specified duration. From the perspective of landlords, eviction proceedings under the leave-and-license arrangement are easier given that they are covered by Section 52 of the Indian Easements Act, 1882. Under a rental agreement, the tenant acquires a significant personal interest in the property. She may assign her rights to a third person or may sue a third person for trespass on the property in her own name. Most importantly, under a rental agreement, a tenant can only be evicted if the criteria for eviction is in accordance with the state's Rent Control Act, and not otherwise.

e. Short-term rentals

There has been an increase in the number of short-term rental options available in Indian cities. Paying Guest (PG) accommodations, shared dormitories, hostels and serviced homes are particularly useful for migrant students and workers. However, the regulatory framework around these arrangements is not robust, at times treating them as hotels and in other occasions, allowing them to exist in the informal, unregulated sector (Box 5.2).[111]

f. Employer-provided housing

In the past, several large employers in India have provided housing to their employees due to limited affordable housing options. In industrial areas of cities, some employers used to provide tenements for factory workers, such as in the *chawls* of Mumbai and Ahmedabad.[112] Similarly, some large firms have established townships in far-off suburbs or developed new cities altogether, such as Jamshedpur. However, this trend of employer-provided housing is on the decline.

g. Government rental housing schemes

Some state governments have tried to address the affordable housing problem through rental schemes for low-income households. For instance, the Mumbai Metropolitan Regional Development Authority (MMRDA) launched the Rental Housing Scheme in 2008 with the aim of developing flats of 160 sq ft carpet area each for renting, by extending FSI and TDR incentives to private builders. However, there was limited planning on how MMRDA would manage the rental scheme once the housing stock was built. Ultimately, the government had to sell these units because it is politically difficult for the government to act as a rental management agency and (i) identify rental users in a fair and transparent manner (ii) raise rents, and (iii) force eviction in case of non-payment and/or misbehaviour.

[105] Ibid

[106] Blanchflower and Oswald, 2013

[107] The Census data does not distinguish between formal and informal rental housing (Tandel et al., 2015).

[108] National Sample Survey of India, 2012

[109] IDFC Institute interviews with brokers, landlords and real estate lawyers (2017).

[110] Primer on Rent Control: JNNURM State-Level Reform Final Report, 2010. Maharashtra has made registrations of leave-and-licence agreements of any duration mandatory (Section 55, Maharashtra Rent Control Act, 1999).

[111] Asian Development Bank, 2013

[112] Mahadevia and Gogoi, 2011

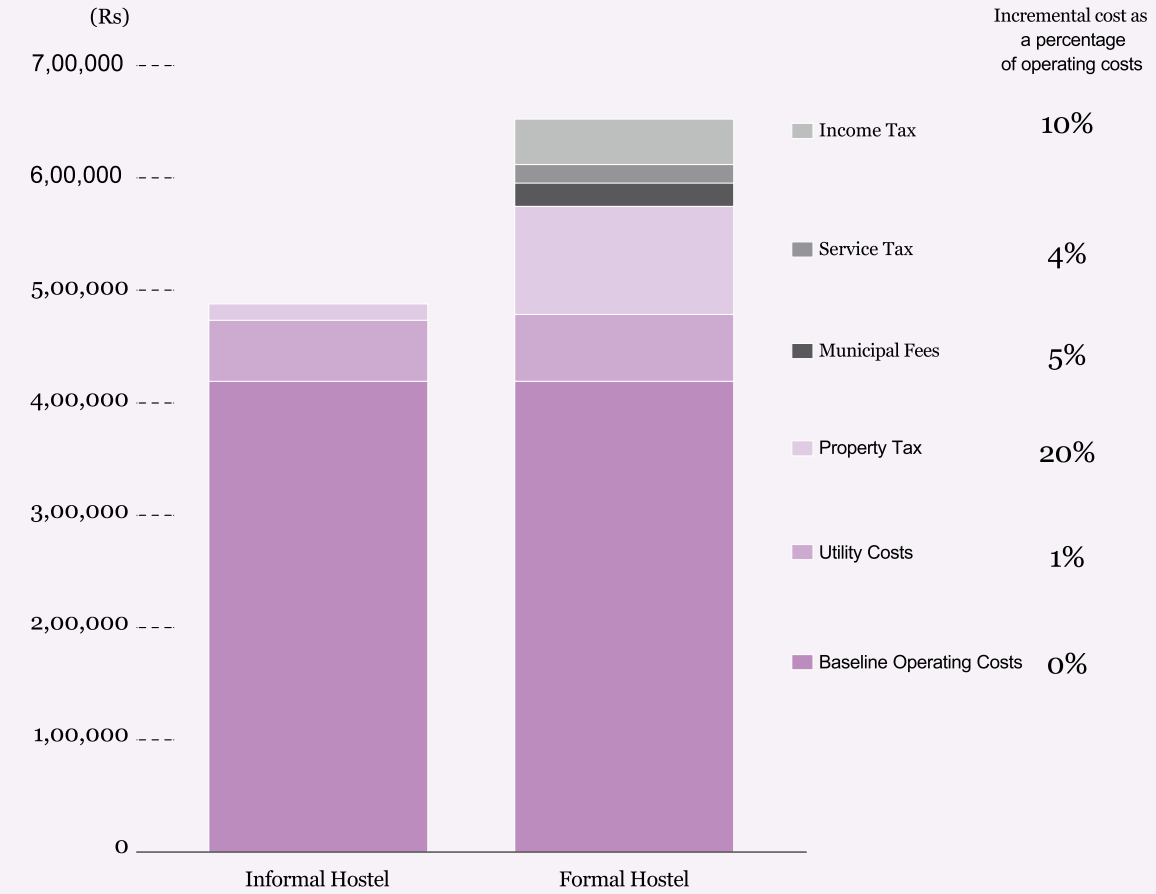
Box 5.2: Case Study- Hostels in Hyderabad

There are about 6,000 hostel operators in Hyderabad providing rental accommodation to nearly 3,50,000 students and professionals. They charge between Rs 2,400 and Rs 4,500 per month (ADB, 2013). The vast majority of these hostels operate in the informal sector.

Aarusha Homes is one of the few formal private sector hostels in Hyderabad. However, as the regulations around hostels are unclear, Aarusha is forced to operate as a hotel. This means that Aarusha must pay commercial water and electricity rates, higher property taxes, and a trade license fee, which its competitors in the informal sector do not. The following table demonstrates the impact of these different costs on the operating margins of the service providers.

Aarusha Homes initially wanted to provide short-term housing to blue-collar workers, such as security guards, cleaning staff, but this was not viable given the costs of operating as a formal hostel provider. They now mainly serve students and IT professionals, charging between Rs 3,500-Rs 10,000 a month. This example highlights the costs imposed due to regulatory burdens on short-term rental providers that wish to operate formally. These costs act as barriers to such services being provided at scale in the market.

Operating costs for hostel providers in Hyderabad (2011-12)

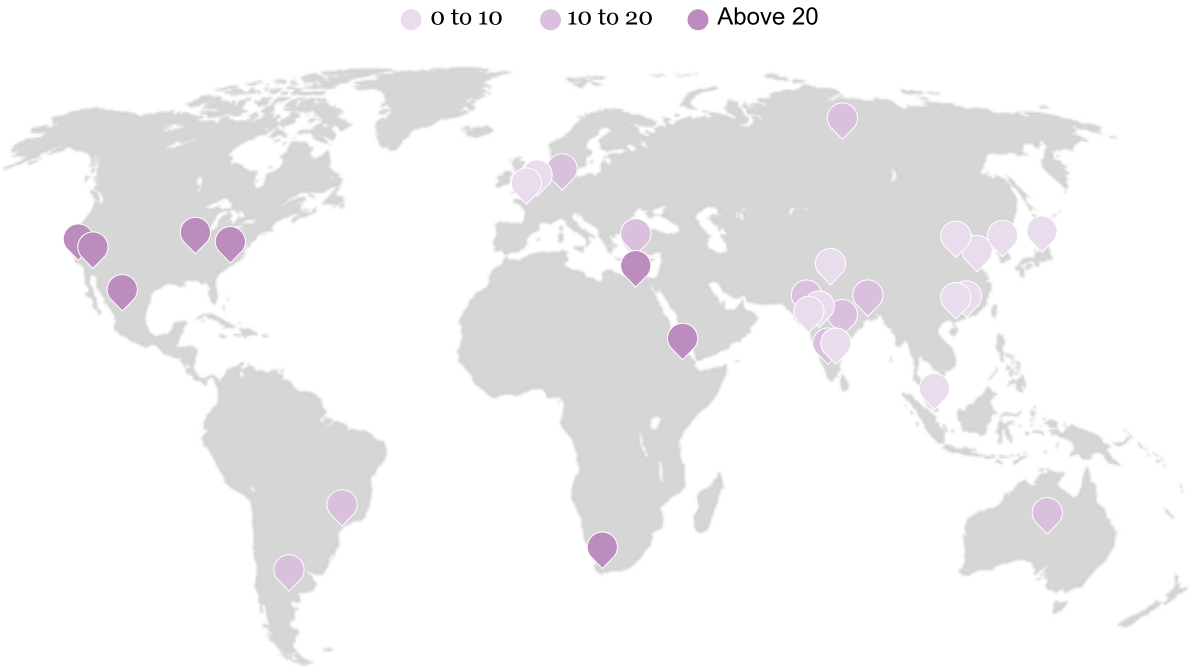


Assumptions: Baseline operating costs for informal and formal hostel providers includes rent without property tax, maintenance, staff and food costs. Municipal fees are a trade license fee and a bulk garbage collection fee. Informal hostels pay residential (Rs 0.85 per sq ft) and not commercial (Rs 6 per sq ft) property tax and use water and electricity at commercial rates.
Source: Interview with hostel providers, IDFC Policy Group (2012).

5.5. Rental yields and vacant housing

Rental yield (annual rent as a share of the property price) is a component of the net return a landlord can get by investing in property. We examine the rental yields in Indian cities using data available on Numbeo, a crowd-sourced data platform of the costs of living in cities around the world.[113] Figure 5.3 shows that Indian cities have residential rental yields between 2-4%, which is substantially lower than residential rental yields for cities around the world.

Figure 5.3: Residential rental yields (city centres): Indian cities vs global cities (2017)



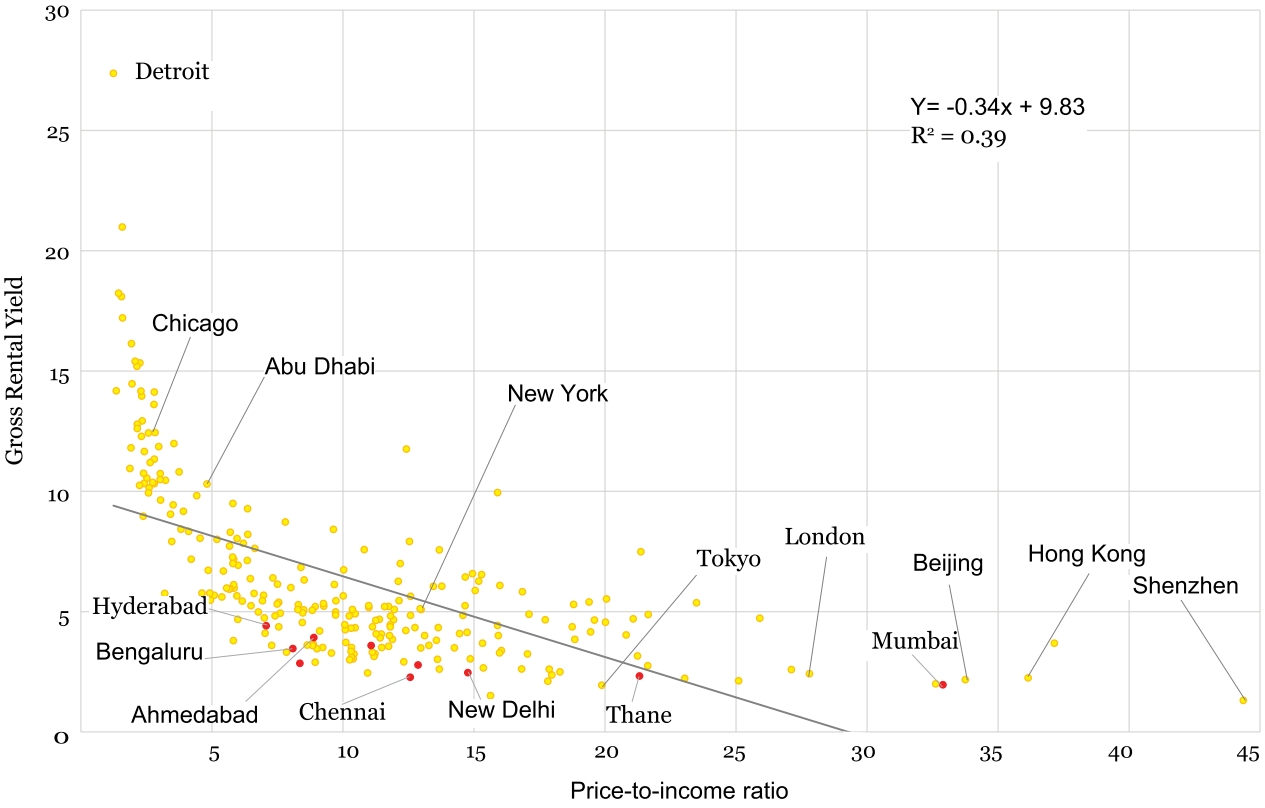
City	Rental Yield
Chicago	11.89
Dubai	10.22
Los Angeles	7.44
Cairo	7.23
Cape Town	7.05
San Francisco	6.38
Mexico City	5.98
New York	5.65
Istanbul	4.61
Hyderabad	**4.37**
Ahmedabad	**4.33**
Sao Paulo	4.12
Moscow	4.10
Sydney	4.02
Buenos Aires	3.95
Frankfurt	3.78

City	Rental Yield
Bengaluru	**3.46**
Kolkata	**3.33**
Pune	**2.83**
Paris	2.65
London	2.62
Singapore	2.45
Chennai	**2.38**
Delhi	**2.28**
Mumbai	**2.18**
Hong Kong	2.06
Shanghai	2.00
Seoul	1.94
Tokyo	1.90
Beijing	1.59
Shenzhen	1.26

Source: Numbeo (2017). Refer to appendix 1.3 for selection of cities.

[113] Numbeo provides current information on cost of living in cities around the world including housing indicators, health care, traffic, crime and pollution. Numbeo defines Gross Rental Yield as 'the total yearly gross rent divided by the house price (expressed in percentages)'. While the data aggregated is self-reported, it is widely regarded as authentic and reliable and is used by several media houses such as The New York Times, Financial Times and The Economist.

Figure 5.4: Rental yields vs price-to-income ratios (2017)



Source: Numbeo (2017). Refer to appendix 1.3 for selection of cities.
Notes:
1. 255 cities were included in the above analysis; Indian cities marked in red.
2. Numbeo provides rental yields separately for city centre vs outside. We make use of rental yields in the city centre.
3. Cities from United States are overrepresented in the Numbeo dataset but even after looking at only non-US cities, the negative relationship between rental yields and price-to-income ratio persists.

Figure 5.4 shows the relationship between the average rental yields and the average price-to-income ratios for cities (from the Numbeo database). The graph shows that as the price-to-income ratio for a city rises, the rental yield falls. In other words, the higher the house price, the lower the rental yield for that city. The Indian cities in the data set have rental yields between 2-4% and can be seen clustering at the lower end of the y-axis.

The housing supply curve is more inelastic in Indian cities than in other parts of the world. This means that an increase in demand results in a greater appreciation of house prices than it would in cities where supply is more elastic. Multiple constraints to supplying additional housing, from land-use regulations to high transaction taxes (discussed in previous chapters), lead to this inelasticity. Higher house prices result in lower rental yields. In the experience of other countries, rents eventually catch up with demand, improving rental yields over time. In India, however, residential rental yields have persistently remained low in cities. This may in part be due to RCAs and other pro-tenant legislations that have prevented market-based increases in rents.

Low rental yields contribute to overall low returns on property investments, especially relative to alternative market investments with similar risk profiles (see Figure 1.8). Landlords choose to hold onto their real estate assets primarily for capital appreciation rather than steady rental incomes. At the same time, landlords also face substantial hurdles in evicting tenants and securing property rights for their house. The slow pace with which tenancy disputes are redressed creates strong disincentives for owners of vacant properties to rent them out. In 2016, 66.2% of all civil litigation in India was related to land and property matters.[114]

Due to a combination of low rental returns and high costs from risks of tenancy disputes, households owning more than one property often do not find it worthwhile to rent

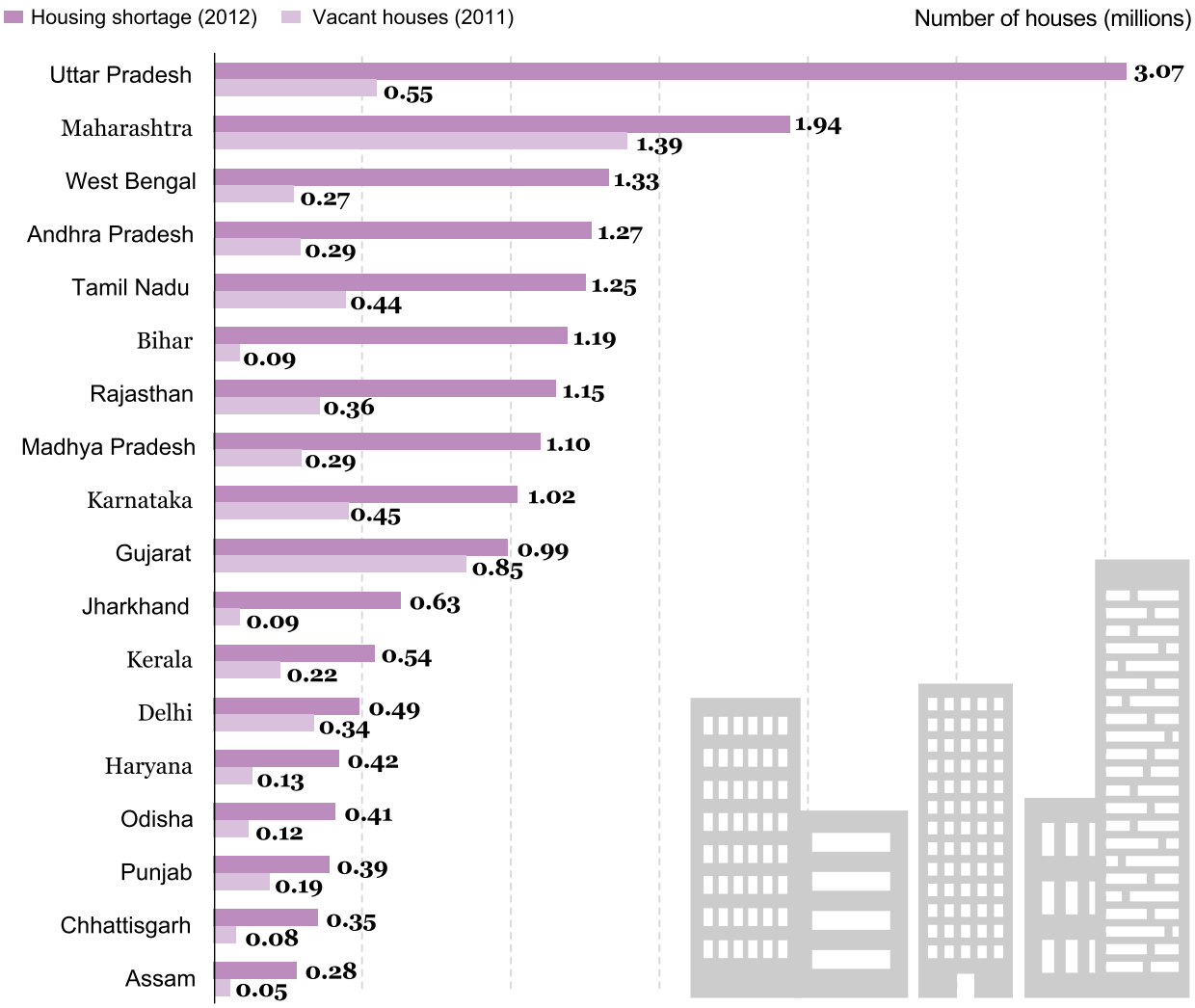
[114] Narasappa et al., 2016

out their unused properties. Census 2011 shows that there are 11 million vacant housing units in urban India (see Section 1.2.c). At the same time, the Technical Group on Urban Housing Shortage set up by MHUPA in 2012 calculated the unmet demand for rental housing at about seven million units.[115] Thus, we have a situation where unmet demand for rental housing co-exists alongside vacant residential units (see Figure 5.5).

Vacant houses are more prevalent in urban peripheries where there is lesser demand for rental housing. Builders may find it easier to construct housing in these areas as land prices are lower but people might be averse to living away from their workplace, especially when there is limited connectivity. These areas may also lack proximity to schools, hospitals and other amenities. Figure 5.7 shows the increase in vacancy rates in the Mumbai Metropolitan Region (MMR)[116] as we move further away from Mumbai City.

In addition, while a majority of the shortfall in housing is estimated for the EWS and LIG segments, new construction of housing stock may be skewed towards higher-income households. The high costs for new construction, documented in the previous chapters, disadvantage EWS/LIG housing more since the margins are smaller.

Figure 5.5: Urban housing shortage vs houses left vacant across states

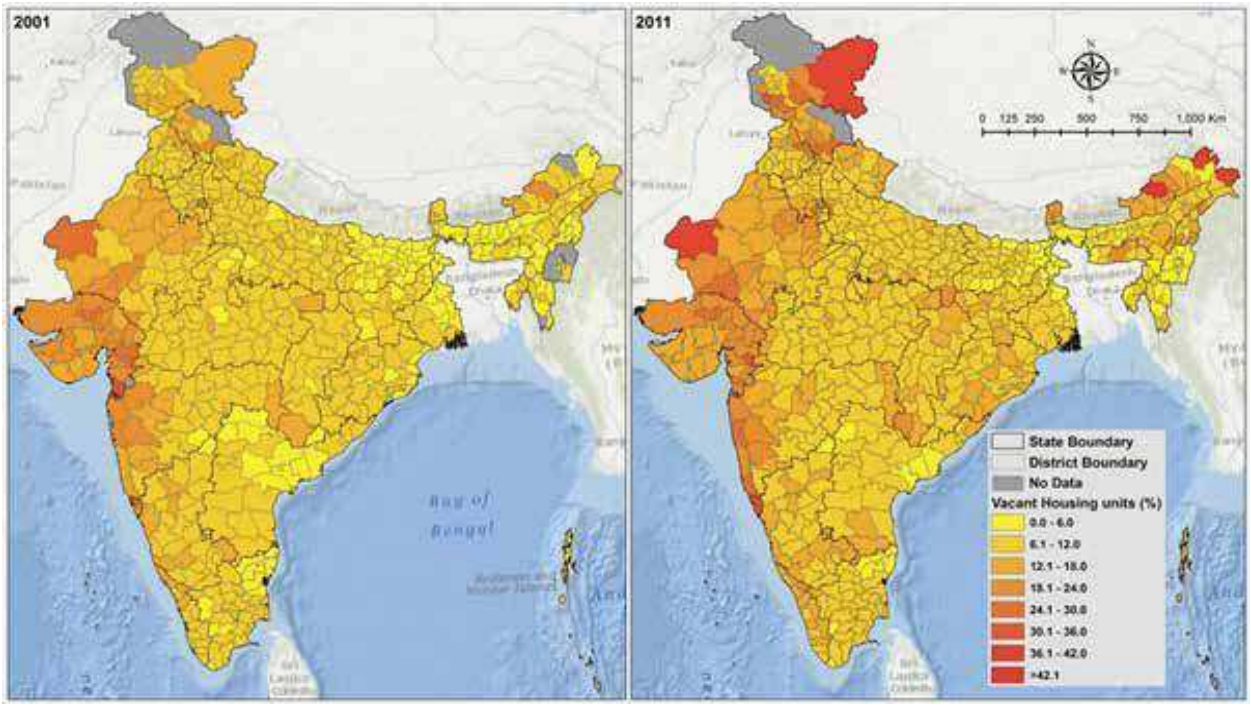


Source: Census 2011 and Report of the Technical Group on Urban Housing Shortage (2012)

[115] National Buildings Organisation, 2012

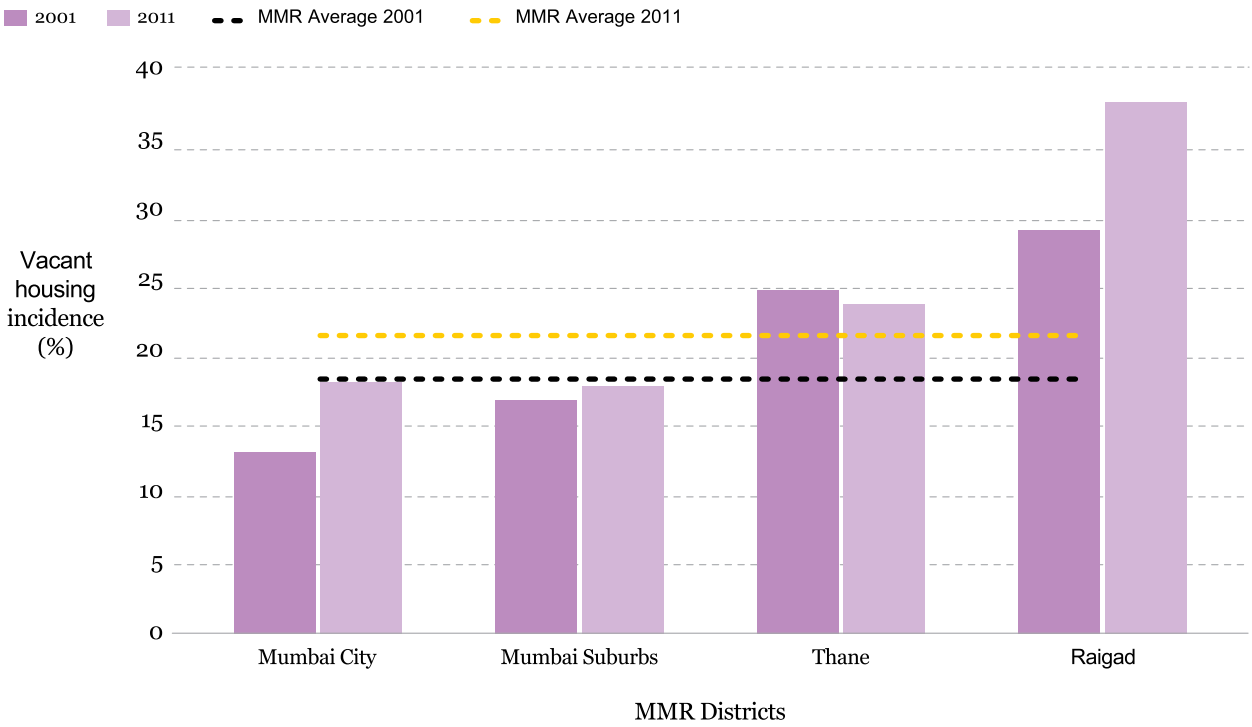
[116] Mumbai Metropolitan Region (MMR) is the metropolitan area comprising the Municipal Corporations of Greater Mumbai, Thane, Kalyan, Navi Mumbai and Ulhasnagar, 15 municipal towns, 7 non-municipal urban centers, and 995 villages.

Figure 5.6: District-wise distribution of urban vacant housing in India (2001 vs 2011)



Source: Analysis by IDFC Institute and Urban Expansion Observatory (2018). Refer to Appendix 5.1 for data sources.

Figure 5.7: Vacant housing as a share of the total housing stock in MMR (2001 and 2011)



Source: Census 2001 and 2011. Analysis by IDFC Institute

CHAPTER

6

Transport and Urban Governance

6.1. Introduction

Most large Indian cities are growing spatially into urban peripheries, away from the centre (see Figures 6.1-6.4).

These urban peripheries, although beyond the administrative jurisdiction of municipal authorities, are typically part of a 'spatially integrated labour market'. [117] The efficiency of the housing market and proximity to public transport have a significant impact on access to economic opportunities. Ultimately, whether urban areas are able to thrive as drivers of economic growth and opportunity, will depend in large part on these two factors.

As cities prosper, demand for real estate in the business district increases, pushing up property prices. Consequently, it becomes harder to find affordable housing close to jobs. For households that cannot afford to live close to their place of work, living near a transport network is the next best option. Figure 6.3 shows how built-up areas in the outskirts of Mumbai have come up in places located closer to the local-train network that connects people to the centre of the city.

Affordable, safe and accessible modes of transport enable the efficient functioning of labour markets. Mass public transport opens up more job opportunities for the labour force and conversely, provides firms with access to a greater pool of skilled labour. [118]

In India, housing policies tend to neglect or underestimate the importance of public transport. In this chapter, we argue that implementing policies that prioritise access to urban opportunities are critical to making housing affordable.

6.2. Nature of India's urban growth

Urban expansion is often haphazard, unregulated, and poorly managed.[119] Currently, municipalities plan for services and infrastructure within their administrative borders.[120] These boundaries are seldom changed even as population growth extends beyond them. In some cases,

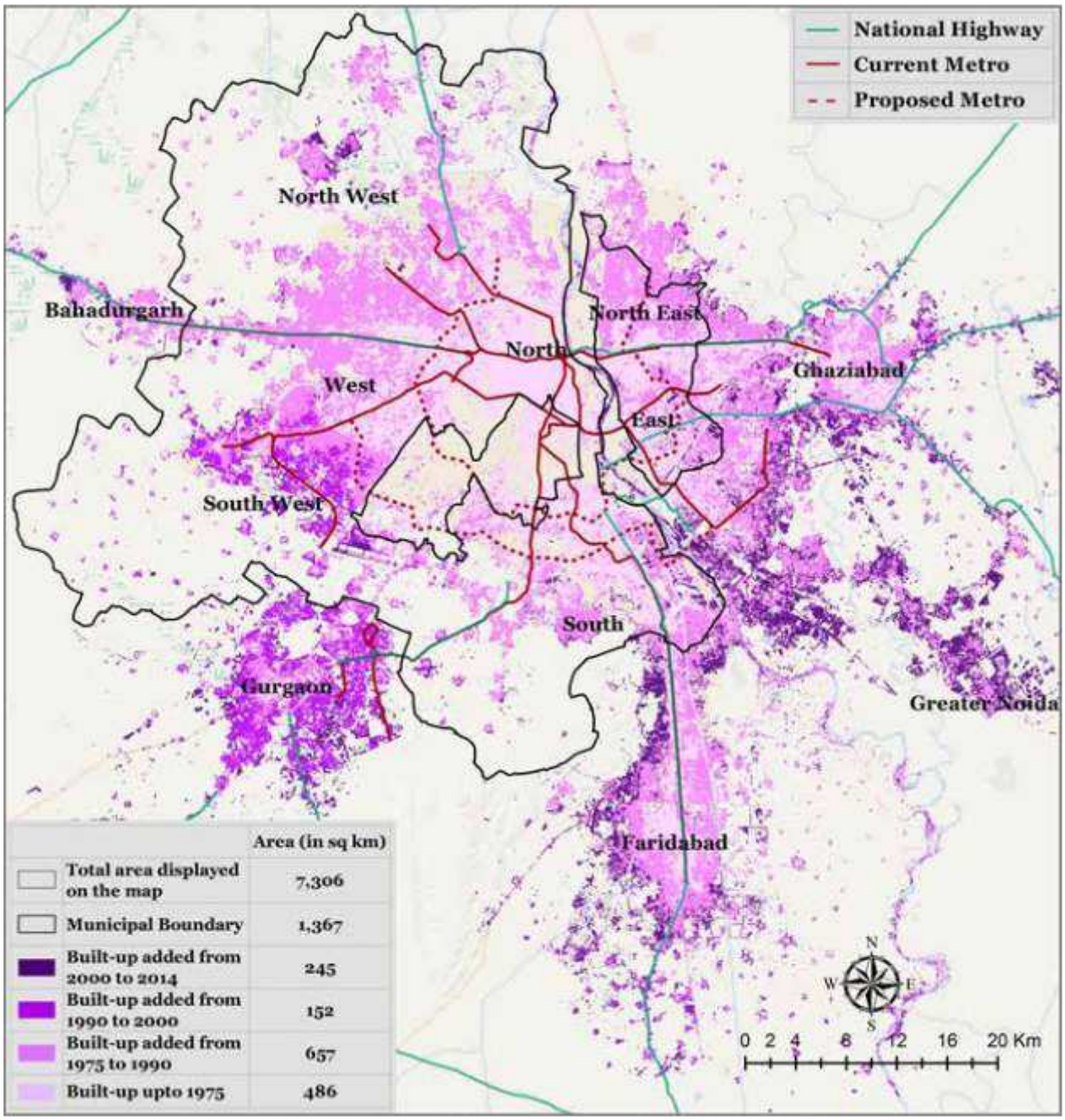
[117] Ingram, 2014

[118] Bertaud, 2012

[119] A study on the extent and nature of urban expansion in cities found that in Indian cities such as Kolkata, Mumbai, and Hyderabad, the average street widths and share of built-up areas occupied by roads are falling and are lower than the respective averages for South Asia and the world (see Atlas of Urban Expansion, 2017).

[120] A web-tool designed by IDFC Institute to explore this relationship for a few cities: www.idfcinstitute.org/Webmap/Index.html. A part of this work was also featured in Vol. 2 of the Economic Survey 2016-17 that was released by the Ministry of Finance in August 2017. More detailed information about our spatial mapping work on urban growth in India can be found here: www.idfcinstitute.org/projects/transitions/spatial-analysis/.

Figure 6.1: Delhi urban expansion (1975-2014)



Source: Analysis by IDFC Institute and Urban Expansion Observatory (2018). Refer to Appendix 5.1 for data sources

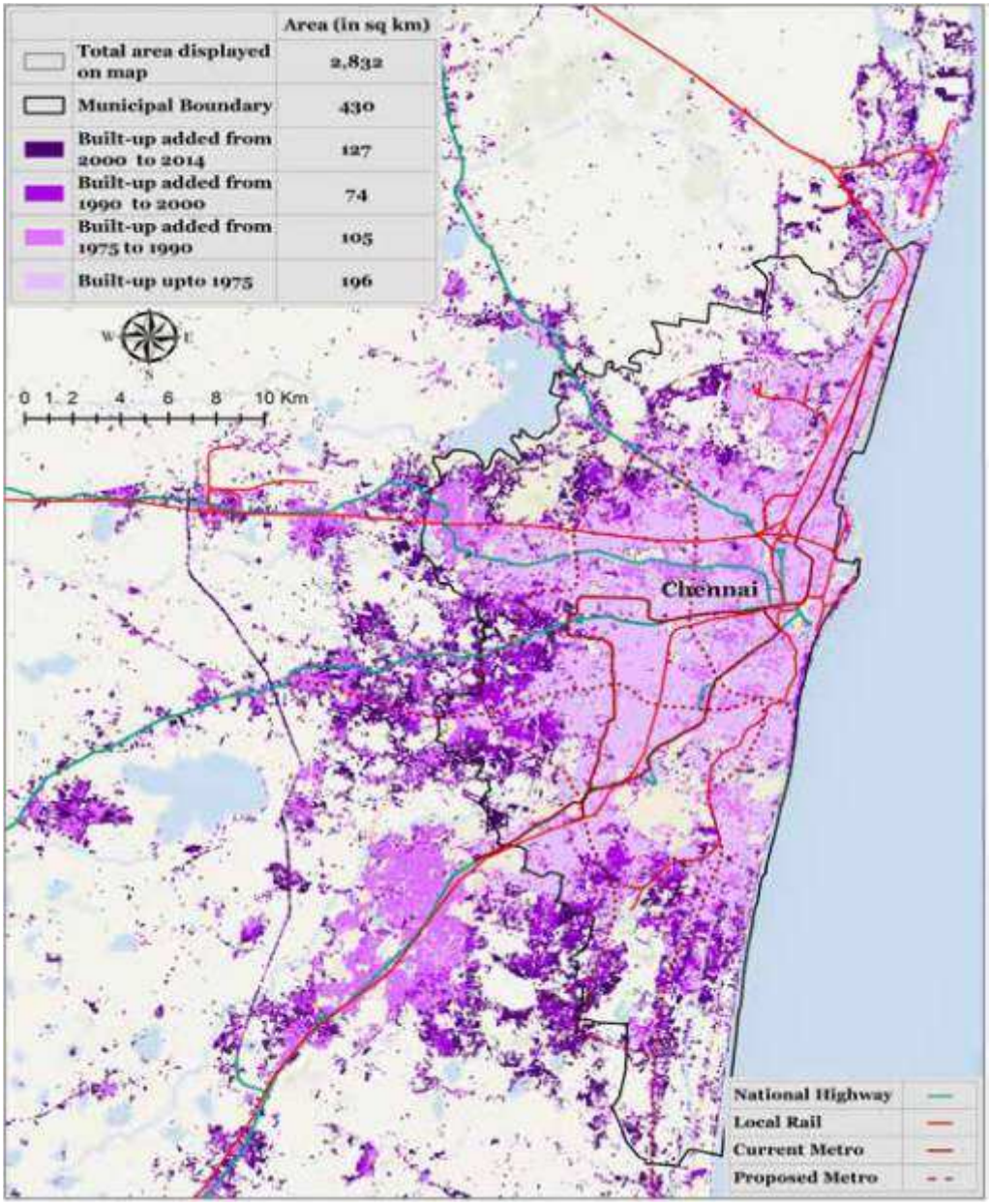
a metropolitan development authority is created to plan for some of these 'peri-urban' areas, or the metropolitan region as a whole. Planning for these areas is split between metropolitan development authorities, state and central governments, many times with little or no coordination between them. Often there is an overlap in jurisdiction between multiple departments and parastatals for urban planning, housing, infrastructure and public service delivery. This results in limited connectivity within the broader economic region, increases the cost of transportation, and hampers the smooth functioning of labour markets.

6.3. The case for mass rapid transport

The case for efficient mass rapid transport as a way to make housing affordable, can be made on the following grounds:

a. It reduces household expenditure on transport,

Figure 6.2: Chennai urban expansion (1975-2014)



Source: Analysis by IDFC Institute and Urban Expansion Observatory (2018). Refer to Appendix 5.1 for data sources

resulting in higher disposable incomes.

b. It allows people to live further away from the central business district. This in turn opens up more land for building housing outside of the urban core.
c. It reduces the cost of construction as residential housing projects would not need as many car parks.

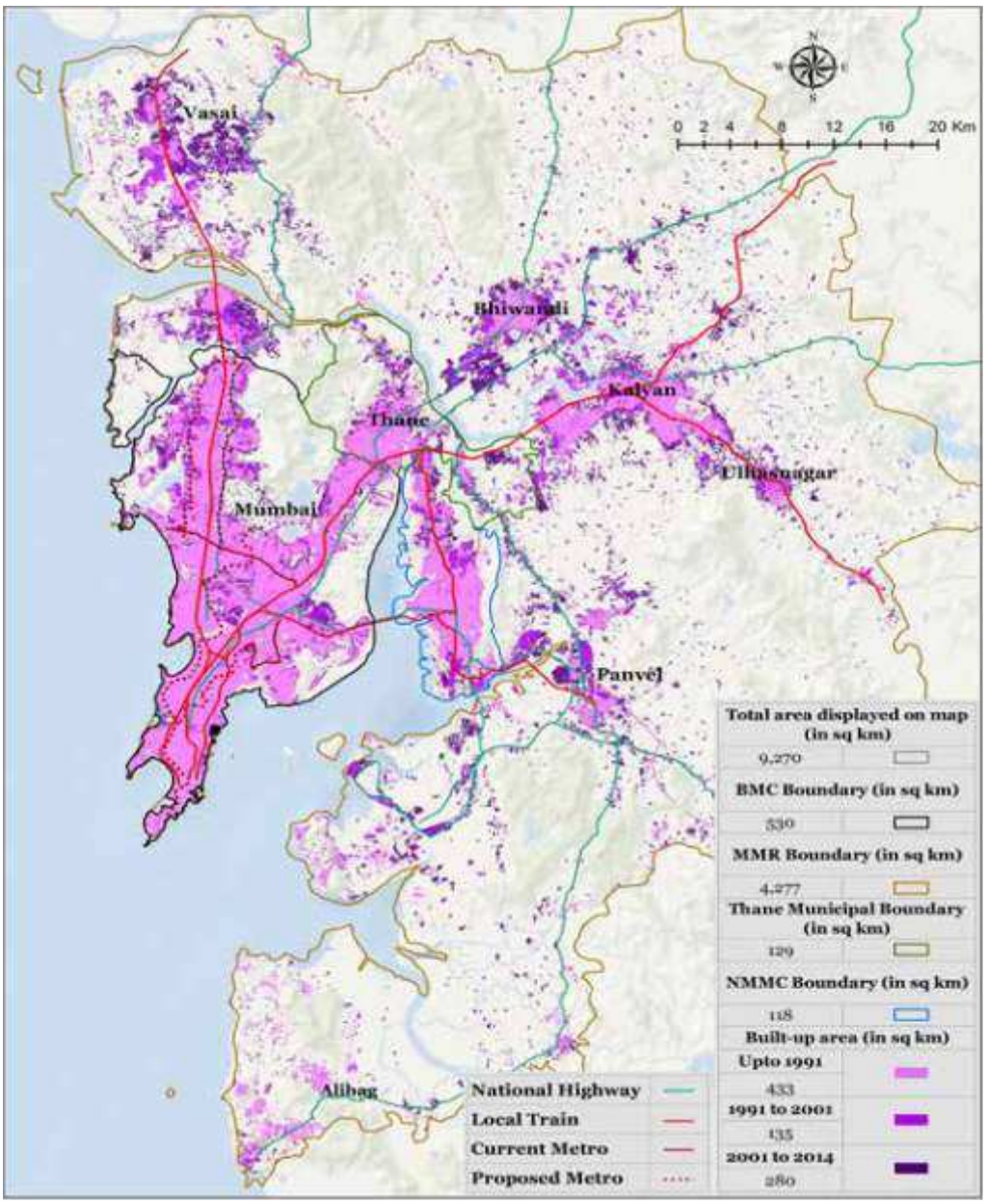
a. Reduces cost burden on households

Households typically choose the size of their house and its location based on their income level. The location is often contingent on accessibility to work. If a household prefers living close to the place of work to save on commuting time and cost, it might have to live in a smaller house. This is because given the income constraint, households can either live in homes farther from the city centre, which are cheaper and incur higher expenses on commuting, or live closer to the city centre and save on commuting but instead spend more on housing. For low-income households, this will mean either higher savings or having more disposable income for incurring expenses on other basic necessities.

b. Increases access to developable land

Introduction of public transport systems in cities can

Figure 6.3: Mumbai urban expansion (1991-2014)



Source: Analysis by IDFC Institute and Urban Expansion Observatory (2018). Refer to Appendix 5.1 for data sources.

improve the affordability of housing by increasing the supply of developable land.[121] Although we can expect areas along transit networks to experience an increase in price (since there will be higher demand for such areas), the city as a whole will benefit from lower land prices as supply increases.

c. Lowers construction costs

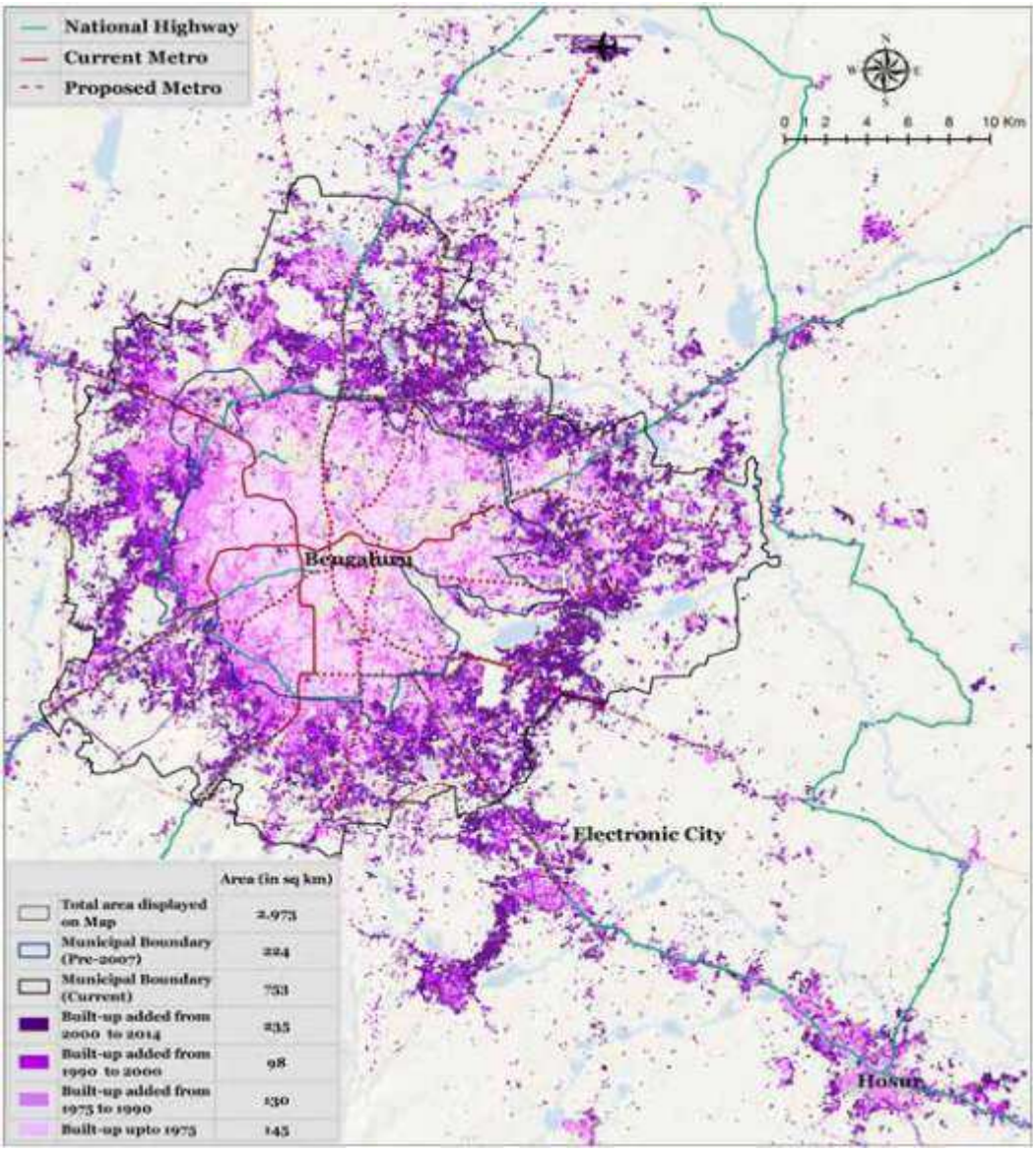
Mass public transport reduces the reliance on cars and the need for on-site parking in residential buildings. If parking requirements are removed there will be a decrease in the cost and time for construction (see section 3.5 on minimum parking requirements). Mass transit systems also lower environmental costs by lowering vehicular emissions.

6.4. Urban governance and transport planning

Transportation policy will determine how easy it will be for residents and businesses to access jobs and labour

[121] The supply of land in a city is determined by the time taken for commuting from the major economic centre. Bertaud, 2012.

Figure 6.4: Bengaluru urban expansion (1975-2014)

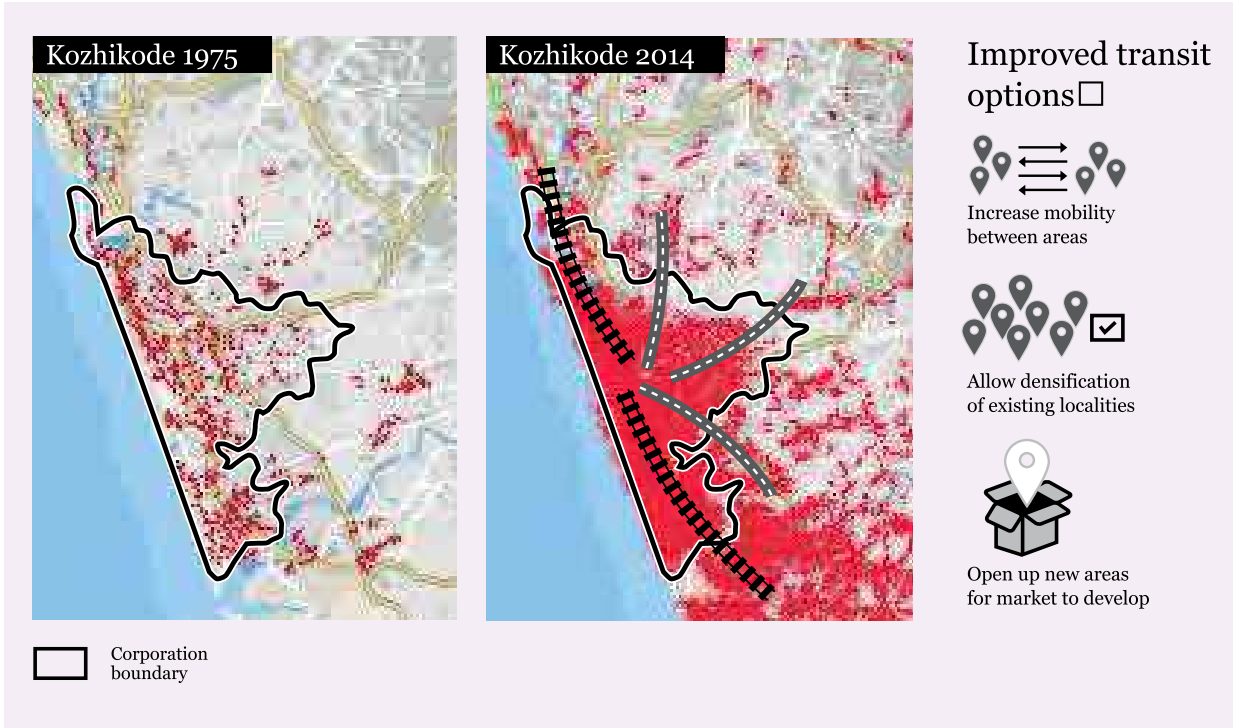


Source: Analysis by IDFC Institute and Urban Expansion Observatory (2018). Refer to Appendix 5.1 for data sources.

markets respectively, and how productive cities can be.

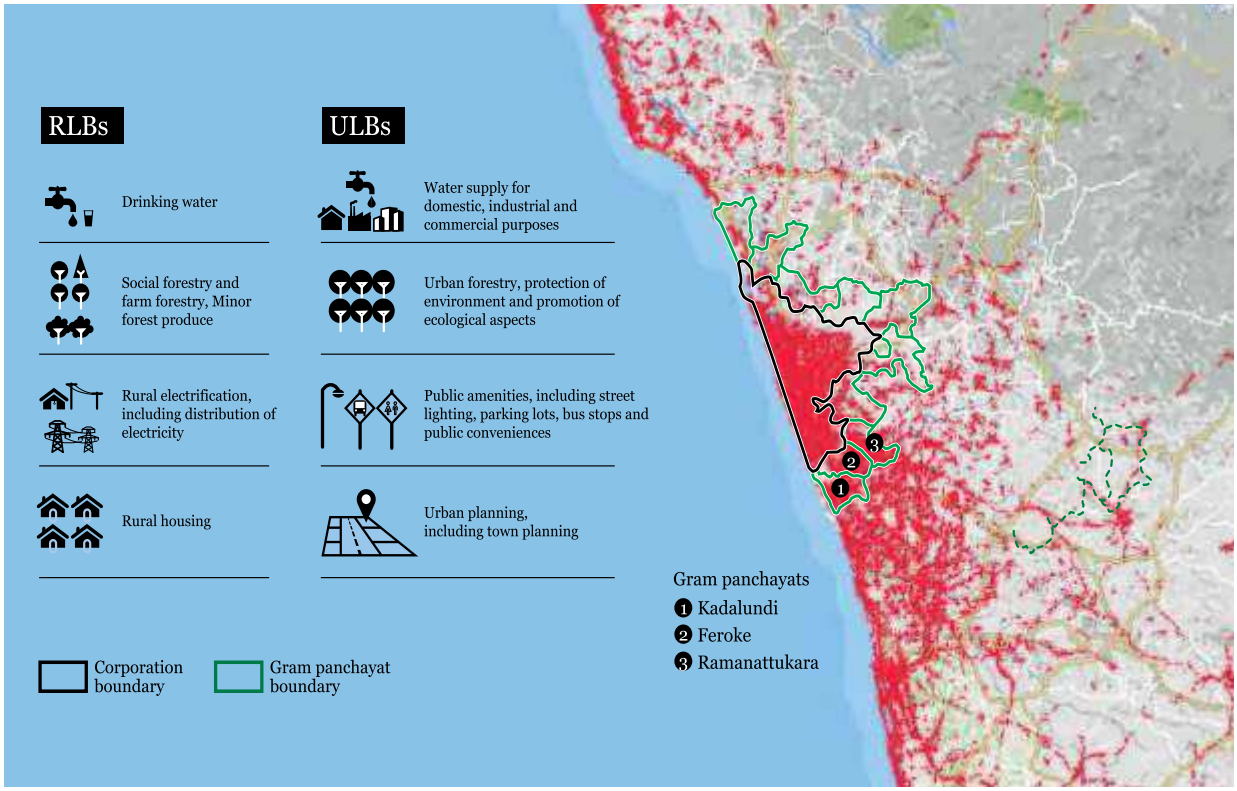
The existing institutional approach to urban planning—with multiple authorities and no coordinating mechanisms—preclude the conception and implementation of integrated plans to create fluid labour markets while keeping housing affordable. Metropolitan regions constitute multiple local bodies (for e.g., MMR includes eight municipal corporations, nine municipal councils and more than a 1,000 villages), but economically function as one integrated labour market. The existing static governance models quickly become antiquated for rapidly growing cities. States should devise flexible planning frameworks that take into account the changing nature of economic activities in urban areas and also empower local administrative authorities to initiate and implement transportation and other public investments across the broader metropolitan region.

Figure 6.5: Kozhikode urban expansion (1975 vs 2014)



Source: Analysis by IDFC Institute and Urban Expansion Observatory (2018). Refer to Appendix 5.1 for data sources.

Figure 6.6: Governance responsibilities of Urban vs Rural Local Bodies: Kozhikode Agglomeration



Source: Analysis by IDFC Institute and Urban Expansion Observatory (2018). Refer to Appendix 5.1 for data sources.

CHAPTER

7

Next Steps

This report has tried to document the key supply-side constraints that limit access to affordable housing in Indian cities. These problems have persisted for several years despite earnest attempts to address them. In part, this is a consequence of the contentious political economy challenges that throttle any attempt at change. Our recommendations are informed by evidence-based research as well as an appreciation of the institutional barriers that have precluded reforms in the housing sector in the past. We hope that this report will spur a meaningful debate about the housing dilemma facing urban India.

7.1. Data and Research

Any attempt to begin substantive research on housing policy in India is hamstrung at the outset by an acute shortage of quality data and information about the sector. The primary challenge for this report as well, was collecting credible data to understand the key constraints in the housing sector. The paucity of data is at times an unintended by-product of onerous regulations. For instance, high stamp duty and registration fees across states has created an equilibrium where buyers and sellers collude to under-report the true market value of properties. At an aggregate level, this leads to lack of data on market valuations of houses, creating information asymmetries across the entire supply chain. Even on relatively innocuous variables, such as property registration records, building approvals and official urban area boundaries, access to reliable public information is limited. This is despite the fact that such information is required to be made public by the concerned departments.

- In order to obtain data on housing outcomes across Indian cities, the central government can initiate an annual National Housing Survey. The survey should interview households to document living conditions, tenure security, commuting costs and housing affordability. Such surveys are routine in countries such as the US, UK and China, and are a critical input to informing their housing policies. The National Housing Bank can be the nodal agency to plan the implementation of this survey, with inputs from the Central Statistics Office.

- We also propose the creation of state-level data cells that will collate secondary data on metrics such as housing starts, official registration, transaction records and building approvals. The data cells can help collect and organize administrative data from

government departments, as well as relevant external data (such as satellite imagery). The Ministry of Housing and Urban Affairs can oversee the creation of these state cells.

ò We recommend the creation of an annual enterprise survey of builders, lawyers, architects, real estate financiers, and other stakeholders engaged in the housing supply chain. Data from this survey can be used to rank states on the basis of progress made in easing supply bottlenecks. This ranking, akin to the World Bank's Ease of Doing Business rankings, will encourage competitive federalism. NITI Aayog can identify an independent agency to administer the survey and design an accompanying dashboard.

ò In addition to raw data, the housing sector requires a substantive increase in high-quality research. There are several questions that remain unanswered and for which we struggled to find reliable insights. For instance, at what node of the Laffer curve are the current stamp duty rates in different states and what is their optimal revenue-maximising rate? What would be the short-term and long-term supply responses resulting from an increase in the floor-area ratios in different cities? What is the magnitude of the return on investment on public infrastructure in cities? We propose the creation of state-level research hubs for conducting research on such questions.

7.2. Reforming land-use regulations

The analysis presented in Chapter 2 lays out the negative impacts of restrictive land-use regulations on house prices. These policies effectively reduce the amount of residential space available per person and price out low-income families from the formal housing market.

ò Indian cities have some of the most restrictive FSI policies in the world. We argue a phased, steady increase in FSI by state and municipal governments using two principles:

a) Transit-Oriented Development: Higher FSI should be allowed in areas around transport nodes such as metros, railway stations and highways

b) Land-value capture: Land-owners who benefit from an increase in value of their existing properties (as a consequence of higher permissible FSI) should finance a greater share of infrastructure investments through higher taxes or betterment levies.

ò State and municipal governments should remove all height restrictions on residential construction in cities other than for reasons related to defence or civil aviation.

As land is a state subject, land-use reforms require active involvement from state governments. The Centre can, however, incentivize states and municipalities to ease land-use constraints in several ways:

ò All proposals for centrally-funded urban infrastructure (metros, roads, etc.) should be accompanied by a transit-oriented development proposal with higher FSI, as well as a land-value capture plan to benefit municipal revenues.

ò As part of the annual enterprise survey mentioned in Section 7.1, NITI Aayog can measure the regulatory burden imposed due to land-use policies across states. This data can be used to rank states and track progress of reforms made overtime from the initial baseline assessment.

ò NITI Aayog should also commission an independent study to assess the impact of land-use regulations on the housing market.

7.3. Reducing the costs to build

Chapter 3 laid out the regulatory hurdles that escalate the cost of residential construction in Indian cities—from restrictions on financing land acquisition to the tedious process of obtaining approvals. These costs either prevent builders from creating adequate new housing stock or drive up the price of houses.

Several reforms are needed to lower the costs of construction:

ò RBI should re-evaluate the implications of restricting formal debt financing for land purchases for residential construction. As a result of this rule, builders have to resort to alternative, costlier sources of financing, which push up the cost of residential projects. The central bank should, therefore, weigh the benefits of insulating the formal banking sector from exposure to speculative land purchases, against the costs of reduced access to affordable housing.

- ò Ministry of Housing and Urban Affairs (MoHUA) should constitute a high-level committee to evaluate the time and costs for obtaining clearances, approvals and permits for construction across states. In order to incentivize states to reduce the costs imposed by these procedures, MoHUA can make releasing funds for PMAY and other central housing schemes tied to the extent of actual reforms carried out by the state.

- ò State governments should conduct technical feasibility assessments and empanel firms that can provide eGovernance platforms and AutoDCR software applications for automating building plan approvals.

- ò Municipalities should abolish all mandatory parking requirements for residential buildings such that the costs of building parking slots are borne only by car owners. At the same time, cities should limit street-side parking.

7.4. Reducing transaction costs

Chapter 4 discussed how high transaction costs, primarily stamp duty and registration fees levied by states, encourage under-reporting of the true market values of houses. Based on the analysis presented in this chapter, we make the following recommendations to improve the process of property registration and lower transactions costs:

- ò To reduce the costs associated with registering property transactions, it will be necessary for states to lower stamp duties and registration fees to less than 1% of the housing price, in line with similar transaction rates around the world. However, since these duties are a significant source of revenue for states, interim measures to make up for the shortfall need to be established. We recommend the following steps:

1. In parallel with a phased reduction in stamp duty and registration fees, state governments should consider moving to a self-reported property valuation process to replace the circle rate system. Bengaluru has managed to improve its property tax revenues by migrating to such a system. A similar process can be followed for recording values for property transactions for stamp duties and registration fees as well.

2. Owners can be induced to accurately report transaction values by establishing high penalties for under-reporting beyond a certain fraction. The actual transaction value can be determined by conducting physical audits for a sample of properties by independent appraisers.

3. The process of sampling properties to audit can be improved by using big data techniques. For instance, satellite data can help identify clusters of unregistered properties in cities, and machine-learning algorithms can help rank valuations that have the highest probability of illegal under-reporting.

This system will help eliminate the dual-pricing system, where property is transacted at one price, but is reported at another (usually the circle rate), while making sure states remain revenue-neutral. Creating incentives to report the true values of property transactions will help lower the incidence of black money in the economy, improve the fluidity of the housing market, and bring more transactions into the legal tax net.

- ò To ease the process of registering property transactions officially, states should establish an online portal that clearly delineates the steps, time and costs required, with a professional independent agency managing the workflow for approvals. The portal should be able to generate electronic encumbrance certificates and allow digital payments for fees. The digitisation of the registration process should also entail integrating all Sub-Registrar Offices in a state so that there is a centralised database that can be queried across any part of the state. While Maharashtra, Karnataka, Madhya Pradesh, Andhra Pradesh and Telangana already have online systems in place, other states still use a manual registration process.

- ò Once a property is registered, the buyer has to apply for mutation in the Record of Rights for changing the title of ownership. States should link the databases of the registration and records departments such that there can be automatic mutation in the Record of Rights at the point of registration for transactions where no disputes are involved. There is an opportunity here to link Aadhaar records with the property tax database of municipalities, Sub-Registrar Offices, and Records of Rights, to eliminate the risk of fraud (usually in the form of false claims of ownership) and reduce uncertainties while transacting. To ensure transparency, states can also explore the possibility of using blockchain technology to record and verify property transactions by a third-party.

7.5. Reforming the rental market

Chapter 5 highlighted the importance of the rental market in a rapidly urbanising country such as India, with a high share of migrant labour. Rental housing as proportion of the total urban housing stock in India has fallen from 54% in 1961, to roughly 28% in 2011. To a large extent this fall can be attributed to Rent Control Acts instituted by various state governments. Further, rental yields in Indian cities are typically around 2-4%, much lower than global averages. Due to the high risks and low returns in rental markets in India, landlords would rather leave their properties vacant than rent them out. As a result, 12% of the total urban housing stock lies vacant.

Rental agreements across states are governed by their respective RCAs which place restrictions on the rent that can be charged by a landlord, and also restrict the eviction of tenants to specific circumstances. These procedures and circumstances set in the Acts, some enacted in the early decades of the 19th century, assume an efficient judicial arbiter to reconcile disputes. Given the inability of the Indian legal system to address tenancy disputes in a timely manner, landlords are effectively left with highly curtailed rights once they rent out their property. Reforming RCAs is thus an essential first step to increase the confidence of landlords to participate in the rental market.

In 2015, MHUPA published the Draft Model Tenancy Act, 2015 that seeks to ease distortionary rental regulations, increase formalisation in the market and provide incentives to landlords.

- The Draft Act suggests that states deregulate rents, so that prices that are currently regulated by a rent controller or court are replaced by the market-determined rent as negotiated between the renter and the landlord. Basic protections for the tenant remain in place to prevent mid-tenure increases in rents, but prices may increase as determined in the negotiated contract between renter and landlord.

- The new Draft Act has also mandated much easier eviction proceedings. The tenant can overstay in the rented apartment only up to six months post the expiry of tenure and has to vacate the premises thereafter.

- Currently, high registration costs dissuade transacting parties from formally registering agreements for short-term rentals. The Draft Act recommends simplifying the lease registration process, enabling online fee payment, linking lease agreements with Aadhaar, creating separate queues at Sub-Registrar Offices for lease and property registrations, and reducing stamp duty and registration fees.

We argue that states should strive to replace their RCAs with the Draft Model Tenancy Act. In addition, we recommend the following:

- Bifurcate rent control laws applicable to commercial and residential properties as an intermediate step towards repealing RCAs. Such a distinction may make it politically easier for state governments to implement rent control reforms in states as it would reduce the opposition by commercial interest groups.

- For effective implementation of flexible rental agreements, it will be beneficial to set up a fast-track court mechanism for speedy redressal of disputes. The proposed Model Tenancy Act seeks to create Rent Tribunals. However, the quasi-judicial nature of the Tribunals creates vulnerability in terms of lack of finality in decision-making, complex appeal procedures and multiplicity of litigation at different jurisdictions. Therefore, fast-track courts tasked only with settlement of rental disputes at the trial court level can better ensure effective enforcement of rental contracts. The guidelines for fast-track courts should fix specific time periods within which disputes must be redressed, and the circumstances under which appeals can be made to high courts. The courts should have benches across all the major cities.

- States should adopt the proposals of the Draft National Urban Rental Housing Policy of 2015 to provide specific incentives for low-cost hostel providers and rental management companies. These include reducing or waiving the trade license fee for hostels and paying guest accommodations, allowing them to pay residential rates for power supply, water and other municipal services, and property tax exemptions.

Housing is a bundled good, which means that households have to make trade-offs between location, amenities and physical attributes in choosing the optimal house. With limited state capacity, the Indian government will be hard-pressed to provide housing for all, and also deliver on all these parameters. Given the enormity of the urban housing shortage, the government should shift focus from constructing houses to developing enabling infrastructure and removing supply-side bottlenecks in the housing market.

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Appendix

Appendix 1.1: Growth of other investment opportunities (March 2007 to March 2015)

Investment opportunities	If Value is 100 in March 2007	Value in March 2015 would be*	YoY growth (in %)
Gold	100	279	13.70
Sensex S&P (30)	100	227	10.80
Fixed Deposit	100	188	8.25

Note: *Growth in gold and Sensex S&P is based on actual growth of gold prices and Sensex index. For fixed deposit, we have taken rates for deposits for duration of 5 years and above from January 2007 to January 2015.
Sources: For Gold - database on Indian economy, RBI warehouse; for Sensex S&P (30) – 'Bombay Stock Exchange (Accessed on 20 February 2018); for fixed deposit - State Bank of India.

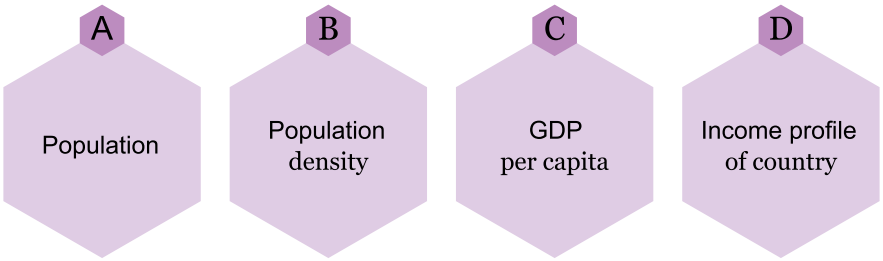
Appendix 1.2: Population of a few Metropolitan Regions in India (2001 - 2011)

Jurisdiction	Mumbai			Kolkata			Chennai		
	Population (lakhs)		Contribution to the region's increase (%)	Population (lakhs)		Contribution to the region's increase (%)	Population (lakhs)		Contribution to the region's increase (%)
	2001	2011		2001	2011		2001	2011	
Primate city (Municipal Corp)	120	124	13.7	46	45	-5.5	43	47	17.3
Other corporations and councils	58	84	76.1	78	85	45.4	20	30	50.1
Census Towns	3	6	10.2	10	19	60.1	3	9	32.6
Total	180	214	100	134	149	100	66	86	100
State's urban population (%)	44	42		60	51		24	25	

Source: Centre for Policy Research (2013). We could not look into Hyderabad and Bengaluru as primate municipal corporations were amalgamated with other parts in the region.

Appendix 1.3: Methodology for selecting global cities to compare with Indian cities

In order to define a common set of global cities to compare with Indian cities on the different metrics assessed in this report, we used the following criteria. 'City' here implies the chief metropolitan areas of a country. We looked at cities in both other developing economies as well as in developed economies in order to allow a comparison between where Indian cities are vs. where they should be. We identified a few parameters of population, density and income, and ranked cities based on the following:



We obtained figures for population, population density, GDP per capita and country incomes from the sources listed below.

Classification of the countries into developed and developing-

'2014 Country Classification', United Nations, http://www.un.org/en/development/desa/policy/wesp/wesp_current/2014wesp_country_classification.pdf (Accessed on 19 February 2018)

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'GDP, Regional Economic Accounts: Downloads', USA Bureau of Economic Statistics- https://www.bea.gov/regional/downloadzip.cfm https://www.bea.gov/itable/iTable.cfm?ReqID=70&step=1#reqid=70&step=10&isuri=1&7003=1000&7035=-1&7004=naics&7005=1&7006=xx&7036=-1&7001=21000&7002=2&7090=70&7007=2016&7093=levels (Accessed on 19 February 2018)

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'Urban World: Mapping the economic power of cities', McKinsey Global Institute, https://www.mckinsey.com/~/media/McKinsey/Global%20Themes/Urbanization/Urban%20world/MGI_urban_world_mapping_economic_power_of_cities_full_report.ashx (Accessed on 19 February 2018)

'The World in 2050- The long view: how will the global economic order change by 2050?', Price Waterhouse Coopers Global, https://www.pwc.com/gx/en/issues/economy/the-world-in-2050.html (Accessed on 19 February 2018)

Appendix 1.4: Sources for central government schemes for housing

Pradhan Mantri Awas Yojana (PMAY-U)

Time Period
'Pradhan Mantri Awas Yojana-Urban leaflet', Ministry of Housing and Urban Affairs, Government of India, http://mohua.gov.in/upload/uploadfiles/files/6PMAY_Single_leaflet.pdf (Accessed on 10 February 2018)

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'PMAY State-wise Progress', Schemes and Programmes, Ministry of Housing and Urban Affairs, Government of India, http://mohua.gov.in/upload/uploadfiles/files/PMAY_Master_All.pdf (Accessed on 10 February 2018)

Rajiv Awas Yojana (RAY)

Time Period
'Rajiv Awas Yojana (RAY) Guidelines', Schemes and Programmes, Ministry of Housing and Urban Affairs, Government of India, http://mohua.gov.in/upload/uploadfiles/files/RAYGuidelines.pdf (Accessed on 10 February 2018)

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'About Rajiv Awas Yojana (RAY)', Schemes and Programmes, Ministry of Housing and Urban Affairs, Government of India, http://mohua.gov.in/upload/uploadfiles/files/Ray_All_India.pdf (Accessed on 10 February 2018)

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'Rajiv Awas Yojana (RAY) Sanctions and Releases', Schemes and Programmes, Ministry of Housing and Urban Affairs, Government of India, http://mohua.gov.in/cms/sanctionordersandrelease.php (Accessed on 10 February 2018)

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'Rajiv Awas Yojana (RAY) Guidelines', Schemes and Programmes, Ministry of Housing and Urban Affairs, Government of India, http://mohua.gov.in/upload/uploadfiles/files/RAYGuidelines.pdf (Accessed on 10 February 2018)

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'About Rajiv Awas Yojana (RAY)', Schemes and Programmes, Ministry of Housing and Urban Affairs, Government of India, http://mohua.gov.in/upload/uploadfiles/files/Ray_All_India.pdf (Accessed on 10 February 2018)

JNNURM

ò Integrated Housing & Slum Development Programme (IHSDP) ò Basic Services to the Urban Poor (BSUP)

All details
'e-Book for Ministry Of Housing and Urban Poverty Alleviation(MHUPA)', Ministry of Housing and Urban Affairs, Government of India, http://mohua.gov.in/upload/ebook/ebook/index.html#features/23 (Accessed on 10 February 2018)

Valmiki Ambedkar Milan Basti Awas Yojana (VAMBAY)

Time Period
'Valmiki Ambedkar Awas Yojana (VAMBAY)', Urban Schemes, Social and Welfare Schemes, Indiastat, https://www.indiastat.com/socialandwelfareschemes/27/urbanschemes/286/valmikiambedkarawasyojanavambay/449754/stats.aspx (Accessed on 8 February 2018)

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http://www.indiabudget.gov.in/ub2003-04/eb/sbe101.pdf
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http://www.indiabudget.gov.in/ub2007-08/eb/sbe55.pdf (Accessed on 8 February 2018)

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'Valmiki Ambedkar Awas Yojana (VAMBAY)', Urban Schemes, Social and Welfare Schemes, Indiastat,
https://www.indiastat.com/table/socialandwelfareschemes/27/valmikiambedkarawasyojanavambay/449754/405144/data.aspx
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Rajiv Rinn Yojana (RRY)

Time Period
'Guidelines for Rajiv Rinn Yojana', Ministry of Housing and Urban Poverty Alleviation, http://www.agvbank.co.in/pdf/rajiv_rinn26march14.pdf (Accessed on 10 February 2018)

Fiscal Outlay
'Ministry of Housing and Urban Poverty Alleviation', Volume II, Expenditure Budget, Union Budget,
http://www.indiabudget.gov.in/budget2015-2016/ub2015-16/eb/sbe58.pdf
http://www.indiabudget.gov.in/budget2016-2017/ub2016-17/eb/sbe50.pdf (Accessed on 8 February 2018)

Funds Disbursed
'Ministry of Housing and Urban Poverty Alleviation', Volume II, Expenditure Budget, Union Budget,
http://www.indiabudget.gov.in/budget2015-2016/ub2015-16/eb/sbe58.pdf
http://www.indiabudget.gov.in/budget2016-2017/ub2016-17/eb/sbe50.pdf (Accessed on 8 February 2018)

Objectives
'Rajiv Rinn Yojana', Other Schemes, Ministry of Housing and Urban Affairs, Government of India,
http://mohua.gov.in/cms/RajivRinnYojana.php (Accessed on 10 February 2018)

Detail: Achievements
'Integrated Housing and Slums Development Programme (IHSDP)', Indiastat, https://www.indiastat.com/table/housing/17/integratedhousingandslumsdevelopmentprogrammeihsdp20052014/702161/583231/data.aspx
'Lok Sabha Unstarred Question No. 577', http://164.100.47.193/Annexture_New/lsq16/3/au577.htm (Accessed on 10 February 2018)

Interest Subsidy Scheme for Housing the Urban Poor (ISHUP)

Time Period
'Guidelines for Rajiv Rinn Yojana', Ministry of Housing and Urban Poverty Alleviation,
http://www.agvbank.co.in/pdf/rajiv_rinn26march14.pdf (Accessed on 10 February 2018)

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'Ministry of Housing and Urban Poverty Alleviation', Volume II, Expenditure Budget, Union Budget,
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http://www.indiabudget.gov.in/budget2012-2013/ub2012-13/eb/sbe57.pdf
http://www.indiabudget.gov.in/budget2013-2014/ub2013-14/eb/sbe58.pdf
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'Ministry of Housing and Urban Poverty Alleviation', Volume II, Expenditure Budget, Union Budget,
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Appendix 2.1: Highest and lowest permissible FSI across Indian cities

City	Maximum Free FSI	Minimum Free FSI	Purchasable Premium FSI
Mumbai	1.33 (Island City)	0.5 (Main City) and 1.0 for most suburbs	0.5 (Island City); 0.5 (Suburbs and Extended Suburbs) – up to a maximum of 2.5 total
New Delhi	3.5	1.2	-
Bengaluru	3.25	1.75	-
Ahmedabad	5.4	1.2	-
Chennai	1.5 (2.5 for multi-storeyed residential buildings)	1.5	20/30/40% of Base FSI - Max 1.00
Kolkata	3.0	1.25	-
Surat	4.0 (ORR residential Zone)	0.6	Maximum 3.4 Chargeable FSI (Outer Ring Road Residential Zone)
Pune	2.0 in congested area; 1.1 in non-congested	1.5 in congested area; 1.1 in non-congested area	0.5 in non-congested area, 0.25 in congested area
Jaipur	2.0	1.2	-
Lucknow	2.5	1.5	-
Kanpur	2.5	1.5	-
Nagpur	1.5 in congested area, 1.25 in non-congested area	0.5	0.30 for non-congested areas in NMC area; 0.7 in non-congested area for which the Nagpur Improvement Trust is a special planning authority
Indore	2.0	0.75	-
Thane	1.0	1.0	Premium FSI that can be purchased through TDR varies depending on location.
Bhopal	2.0	0.75	-
Patna	3.5 in new area, 2.5 in old area	1.5	-
Vadodara	1.6	0.75	Based on road width, from 1.8 upto 2.5
Ludhiana	2.0	1.25	-
Jabalpur	2.0	0.75	-
Coimbatore	1.5	1.5	From 0.5 for group developments to 1.0 for multi-storeyed buildings
Guwahati	1.75	1.0	-
Bhubaneswar	2.75	1.0	-
Kochi	2.0	2.0	-
Udaipur	1.2	1.2	-

Source: See References (Chapter 2)
Notes:
1. The FSI values in this table are based on the latest available sources (as of January 2018) and are subject to change based on government policies and notifications.
2. Indore and Bhopal FSI values are for group housing.

Appendix 2.2: Maximum height restrictions in Indian cities

Note: This table depicts the maximum height permitted for residential construction by municipalities in India.

Ahmedabad

Maximum Height Restriction (m):

Road Width (m)	Max permissible height (m)
Up to 7.5m	Twice the width of abutting road or open space
Above 7.5m up to 12m	15m
12m and above	25m

Notes: For buildings abutting khadki, chowk, fadia, alley or cul de sac, the maximum permissible height is regulated as per width of road.

Source: 'Comprehensive Development Plan 2021, Second Revised)', PART III, General Development Control Regulations, Ahmedabad Urban Development Authority (2015), https://townplanning.gujarat.gov.in/monitoring/documents/dps-milestone-documents/08D2728415909D1Ejxxnknu5agx0.pdf (Accessed on 19 February 2018)

Bengaluru

Maximum Height Restriction: Height of the building shall be regulated according to the width of public street or road only.

Notes: The minimum width of road shall not be less than 9.0 m and the road widths shall not be less than the plot widths facing the respective road. If the road width is less than 9.0 m, then the maximum height is restricted to 11.5 m or Stilt +GF+2 floors (whichever is less) irrespective of the FAR permissible.

Source: 'Revised Master Plan 2015', Bangalore 2007, Volume 3ḥttp://bbmp.gov.in/documents/10180/504904/Zoning_Regulations_RMP2015f.pdf/0a916060-b198-4903-b7cd-d18db7096ebd (Accessed on 19 February 2018)

Bhopal

Maximum Height Restriction: The maximum height of building shall not exceed one and half times the width of road abutting plus the front of open spaces.

Notes: The height shall be subject to FAR, open spaces and width of street.

Source: 'The Madhya Pradesh Bhumi Vikas Rules 1984', http://www.naredco.in/notification/pdfs/Bhopal%20Building%20Bye%20Laws.pdf (Accessed on 19 February 2018)

Bhubaneshwar

Maximum Height Restriction: The height of building shall be governed by limitations of FAR, setbacks and width of road facing the plot.

Notes: The maximum height of a building shall in no case exceed 1.5 times the width of the road on which the plot abuts + the front setback. However, higher height on account of premium FAR may be permitted with the approval of government. Notwithstanding the above, the height restrictions with respect to approach funnels and transitional area of airport shall be adhered to.

Source: 'The Orissa Gazette', Bhubaneshwar Development Authority, (Planning and Building Standards) Regulations (2008), http://bdabbsr.in/website/pdf/AssetForSale.pdf (Accessed on 19 February 2018)

Chennai

Maximum Height Restriction: 15.25m

Notes: Excluding areas for buildings of special character, all areas allow a maximum height of buildings of 15.25m. Water tanks, chimneys, architectural features such as flag masts, gopurams, minarets, steeples and other ornamental structures which are not intended for human habitation may be permitted subject to a ceiling of 30.5m from ground level with special sanction of the Authority. Within Chennai Metropolitan Area and Continuous Building Areas, the building height can further be restricted to a maximum of 9m.

Continued...

Source: 'Second Master Plan for Chennai Metropolitan Area, 2026', Volume II Development Regulations, Chennai Metropolitan Development Authority, http://www.cmdachennai.gov.in/Volume2_English_PDF/DR-English.pdf (Accessed on 19 February 2018)

Coimbatore

Maximum Height Restriction: The maximum height of building shall not exceed 1.5 times the abutting road width + minimum front open space 1.3m + 1m for every 0.3m space left for front open (which excludes 1.3m)

Source: 'Coimbatore City Municipal Corporation - Citizen Charter', https://payment.ccmc.gov.in/BuildRule-Simplified.asp (Accessed on 19 February 2018)

Delhi

Maximum Height Restriction: 15m

Notes: The residential plot size has to be a minimum of 32 sq m (excluding special EWS schemes sponsored by the government). For residential group housing, the maximum height has no restriction but is subject to clearance from AAI/ Fire Department and other statutory bodies.

Source: 'Master Plan for Delhi - 2021 (2007, reprinted 2010)', Delhi Development Authority, http://dda.org.in/ddanew/pdf/Planning/reprint%20mpd2021.pdf (Accessed on 19 February 2018)

Gurugram

Maximum Height Restriction: 15m

Notes: Regardless of plot size, the maximum permissible height of residential buildings is 12.5m or 15m including stilt parking both in core areas and other areas. For group housing, no height restriction is given. Neither FAR, nor plot size or road width impact the height of residential buildings.

Source: 'Haryana Building Code (2016)', Government of Haryana, https://tcpharyana.gov.in/Policy/OfficeOrder/The_Haryana_Building_Code_2016.pdf (Accessed on 19 February 2018)

Guwahati

Maximum Height Restriction: 11m

Notes: For residential plots. Height restricted to 26m for apartment buildings. The maximum height of building shall not exceed 1.5 times the width of road abutting plus the front open spaces.

Source: "Master 'Master Plan for Guwahati Metropolitan Area – 2025 (Land Use Zoning and Development Control Regulation)', Guwahati Metropolitan Authority, https://gmda.eodbassam.in/wp-content/uploads/2017/01/part2.pdf (Accessed on 19 February 2018)

Hyderabad

Maximum Height Restriction: 18m

Notes: Permissible height of residential buildings is dependent on plot size (in sq m). For any plot size above 2500 sq m, building height is restricted to 15m, or up to 18m if the plot abuts minimum 12m wide roads only.

Source: 'The Andhra Pradesh Building Rules – 2012', Government of Andhra Pradesh - Municipal Administration and Urban Development Department, https://www.hmda.gov.in/Gos/168.PDF (Accessed on 19 February 2018)

Indore

Maximum Height Restriction: The maximum height of building shall not exceed one and half times the width of road abutting plus the front of open spaces.

Notes: The height shall be subject to FAR, open spaces and width of street.

Source: 'The Madhya Pradesh Bhumi Vikas Rules 1984', http://www.naredco.in/notification/pdfs/Bhopal%20Building%20Bye%20Laws.pdf (Accessed on 19 February 2018)

Continued...

Jabalpur

Maximum Height Restriction: The maximum height of building shall not exceed one and half times the width of road abutting plus the front of open spaces.

Notes: The height shall be subject to FAR, open spaces and width of street.

Source: The Madhya Pradesh Bhumi Vikas Rules, 1984, http://www.naredco.in/notification/pdfs/Bhopal%20Building%20Bye%20Laws.pdf (Accessed on 19 February 2018)

Jaipur

Maximum Height Restriction:

Plot Size (sqm)	Maximum height (m)
<50	8
50 - 75	8
75 - 100	8
100 - 162	12
162 - 225	12
225 - 350	12
350 - 500	14
500 - 750	14
750 - 1500	14
1500 - 2500	14
2500 - 4000	14
4000 - 1 Ha	14
1 Ha - 10 Ha	14

Notes: The maximum building height is dependent on the plot size and restricted to maximum 14m.

Source: 'Jaipur Building Byelaws 2010', Rajasthan Gazette, Jaipur Development Authority, http://naredco.in/notification/pdfs/Jaipur%20Building%20ByeLaw.pdf (Accessed on 19 February 2018)

Kanpur

Maximum Height Restriction: 12.5m

Source: 'Kanpur Building, Construction and Development Bye Law 2008 (amended 2016)', http://www.kdaindia.co.in/pdf/Buildingconstructionanddevelopmentby-law2016Revised.pdf (Accessed on 19 February 2018)

Kochi

Maximum Height Restriction: The building height shall not exceed twice the width of the street abutting the plot + twice the width of the yard from the building to the abutting street.

Notes: This height may further be increased at 3m for every 50 cms by which the building or the corresponding portion or floor of the building is set back from the building line. If a building plot abuts on two or more streets of different widths, the building plot shall be deemed to abut the street that has greater width. Buildings in the vicinity of airports are subject to different limitations.

Source: 'Kerala Municipality Building Rules (1999)', Government of Kerala, https://buildingpermit.lsgkerala.gov.in/content/rules/kmbr_rule.pdf (Accessed on 19 February 2018)

Continued...

Kolkata

Maximum Height Restriction:

Width of means of access (in m)	Permissible height of building (m)
Above 2.4 upto 3	7
Above 3 upto 5	10
Above 5 upto 7	12.5
Above 7 upto 9	20
Above 9 upto 12	40
Above 12 upto 15	60
Above 15	No restriction

Notes: Height dependent on width of means of access, with no restriction above 15m of means of access (p. 46)

Source: 'The Kolkata Gazette', The Kolkata Municipal Corporation Building Rules (2009), https://www.kmcgov.in/KMCPortal/downloads/Building_%20Rules2009.pdf (Accessed on 19 February 2018)

Lucknow

Maximum Height Restriction (m): No restriction to building height

Source: 'Building By-laws', Housing and Urban Planning Department Lucknow, Uttar Pradesh, http://www.naredco.in/notification/pdfs/Uttar%20Pradesh%20building_byelaws_2008.pdf (Accessed on 19 February 2018)

Ludhiana

Maximum Height Restriction: 15.24m

Notes: The maximum permissible height shall be excluding parapet, water tank and Mumti only.

Source: 'Punjab Government Gazette', Model Municipal Building By-laws 2015, https://punjabxp.com/wp-content/uploads/Building-Bye-Laws-2015.pdf (Accessed on 19 February 2018)

Mumbai

Maximum Height Restriction: 21.35m

Notes: Preserving the eastern and southern view of the Back bay Area, Marine Drive:—Notwithstanding anything contained in these Regulations, to preserve the eastern and southern view of the Back bay and the Marine Drive area from Kamla Nehru Park on Malabar Hill, a funnel of vision has been marked on the sheet pertaining to Part II of the 'D' Ward Development Plan. No building shall in this funnel of vision be raised or erected to the height of more than 21.35 m. or such lesser height as the Commissioner may prescribe which would include the include the terrace, staircase or lift room, elevated water storage tank or any other building feature; Provided that the Commissioner may, with the prior approval of the Government, permit a building more than 21.35 m. high, after due consideration of the contours of the area, surrounding developments and plot location, the objective being not to obstruct the view within the funnel of vision.

Source: 'Clause 31 (4)(c)- Development Control Regulations for Greater Bombay 1991', http://www.peataindia.org/dcr_rules/DCR1991.pdf (Accessed on 20 February 2018)

Nagpur

Maximum Height Restriction:

Road Width	Max. permissible height (m)
Upto 6m	1.5 times the width of road + front marginal open space within the premises
6 - 10m	10m + front marginal distance within the premises
Other roads above 10m	Sum of width of the road + front marginal distance

Continued...

Notes: The height of the building is related to provisions of FSI, while the maximum height of building shall not exceed 1.5 times total the width of road abutting. In case of a congested area, maximum height of building is dependent on road width.

Source: 'Development Control Regulations (2000) for Nagpur City' http://nitnagpur.org/pdf/dcr.pdf (Accessed on 19 February 2018)

Patna

Maximum Height Restriction: The maximum height of a building shall in no case exceed (1.5 times x the width of the road on which the plot abuts) + the front setback.

Notes: The height of building is governed by limitations of FAR, setbacks and width of street facing the plot. Higher height on account of premium FAR may be permitted by the authority with the prior approval of the government.

Source: 'Bihar Building By-laws, 2014', Urban Development and Housing Department, Government of Bihar, https://credai.org/assets/upload/state/resources/bihar-building-bye-law--december-2014.pdf (Accessed on 19 February 2018)

Pune

Maximum Height Restriction: No restriction to building height

Source: 'Development Control and Promotion Regulations', Pune Municipal Corporation (DCPR 2017), https://pmc.gov.in/sites/default/files/DC%20Rul%202017.PDF (Accessed on 19 February 2018)

Surat

Maximum Height Restriction: 70m

Notes: The maximum permissible building height is regulated according to width of road, with 70 m being the maximum building height.

Source: 'Gujarat Comprehensive Development Control Regulations 2017', https://udd.gujarat.gov.in/pdf/L/Notification/FINAL%20Comprehencive%20GDCR.pdf (Accessed on 19 February 2018)

Thane

Maximum Height Restriction: No restriction to building height

Notes: The building height is not capped by FSI regulations.

Source: 'The Indian Express (September 15, 2017)', http://indianexpress.com/article/india/maharashtra-height-cap-for-thane-buildings-removed-4844249/ (Accessed on 19 February 2018)

Udaipur

Maximum Height Restriction: 14m

Source: 'Udaipur Building By-laws 2013', http://uitudaipur.org/uitweb/acts_rules/bylaws_2013.pdf (Accessed on 19 February 2018)

Vadodara

Maximum Height Restriction (m): The height of building shall not exceed twice the width of the abutting road plus the setback provided at ground level.

Notes: For areas other than gamtal and the walled city area, maximum height of any building shall be 40m.

Source: 'Second Revised General Development Control Regulations 2006', Vadodara Urban Development Authority, https://vmc.gov.in/pdf/GDCRbookFinal.pdf (Accessed on 19 February 2018)

Appendix 2.3: Maximum height restrictions in global cities

Note: This table depicts the maximum height permitted for residential construction by municipalities around the world.

Amsterdam

Maximum Height Restriction: No explicit limit to building height

Notes: The height is depending on buildings in surrounding area and other criteria, such as the relationship between the height of the building and the distance from other buildings and open spaces on the same plot and the buildings on adjacent plots and their open areas, and from roads and paths, for example in order to provide satisfactory light conditions and to prevent unreasonable overlooking.

Source: 'Building Regulations - Danish Enterprise and Construction Authority 2010', High-rise housing in the Netherlands, past, present and sustainability outlook, http://bygningsreglementet.dk/file/155699/BR10_ENGLISH.pdf (Accessed on 19 February 2018)

Paris

Maximum Height Restriction: 50m

Notes: Residential buildings can reach 50 meters and commercial buildings can theoretically extend to 180 meters, or twice as high as the spire of the Notre-Dame Cathedral.

Source: 'Heyman, S. (2015). Paris Raises Its Silhouette, but Slowly and Not Easily. The New York Times.' (Accessed on 22 May 2018).
https://www.nytimes.com/2015/06/04/arts/international/paris-raises-its-silhouette-but-slowly-and-not-easily.html

Singapore

Maximum Height Restriction: No explicit limit to building height

Notes: Residential development will follow the GPR / Storey Height Typology for flats and condominium. For other land uses without stipulated building height controls, the permissible height will be subject to evaluation. All building heights are subject to technical height controls and detailed height controls may be applicable.

Source: 'Building Height Plan 2014', Urban Redevelopment Authority Singapore, https://www.ura.gov.sg/Corporate(Accessed on 19 February 2018)

Sydney

Maximum Height Restriction: 80m

Notes: Within two areas, a maximum building height is allowed of 235m.

Source: 'Central Sydney Planning Strategy 2016', City of Sydney, http://www.cityofsydney.nsw.gov.au/development (Accessed on 19 February 2018)

Tokyo

Maximum Height Restriction: No explicit limit to building height

Notes: FAR, shadow restrictions and slant plane restrictions limit building height.

Source: 'Legal Constraints to City form of Tokyo', Urban Land Use Planning System Japan, http://www.mlit.go.jp/common/001050453.pdf (Accessed on 19 February 2018)

Washington D.C.

Maximum Height Restriction: 27.4m

Notes: Residential areas: height is limited to 90 feet (27.4m). Mixed use or commercial areas: buildings may be as high as the width of the street plus 20 feet, but may not exceed 130 feet.

Source: 'National Capital Planning Commission. Height of Buildings Act, 1910.' (Accessed on 22 May 2018).
https://www.ncpc.gov/about/authorities/hoba/
'National Capital Planning Commission. *Part I: Historical Background on the Height of Buildings Act, 1910*.' (Accessed on 22 May 2018).
https://www.ncpc.gov/heightstudy/docs/Historical_Background_on_the_Height_of_Buildings_Act_(draft).pdf

Appendix 2.4: Additional height restrictions for residential buildings surrounding international and domestic Indian airports

Index	Distance from International Airport (km)	Distance from Civic Airport (km)	Permissible Height (m)
1	8.5 - 22	7.9 - 22	152
2	7.3 - 8.5	6.7 - 7.9	122
3	6.1 - 7.3	5.5 - 6.7	91
4	4.9 - 6.1	4.3 - 5.5	61
5	4.3 - 4.8	3.7 -.4.3	45
6	3.7 -.4.3	3.0 - 3.7	36
7	3.0 - 3.7	2.4 - 3.0	24
8	2.4 - 3.0	1.8 - 2.4	12
9	0.0 - 2.4	0.0 - 1.8	0

Source: Development Control Regulations for Greater Bombay (1991).

Appendix 3.1: Minimum parking requirements for residential construction in Indian cities

City	Parking Requirements	
Mumbai[1,2]	**Occupancy**	**One parking space for every**
	Residential	a) Tenement with a carpet area upto 45 sq m b) 2/3rd tenement with carpet area exceeding 45 sq m but not exceeding 100 sq m c) Vi tenement with carpet area exceeding 100 sq m d) 1/4th tenement with carpet area exceeding 100 sq m
New Delhi[3]	**Use Premises**[4]	**Permissible Equivalent Car Space / 100 sq m of floor area**
	Residential	2
Bengaluru[5, 18]	**Type of Use**	**One car parking of 2.5m x 5.5m shall be provided for every**
	Multi-dwelling units	a) DU of 50 sq m to 150 sq m of floor area. Additional 1 car park for part thereof , when it is more than 50% of the prescribed limit b) Additional car parking for each 2 DUs, if it is less than 50 sq m c) 10% of additional parking kept for visitors car parking
Ahmedabad	**Type of Use**[6]	**Minimum Parking Requirement**
	Dwelling 1, Dwelling 2	1 car parking for 80 sq m - 300 sq m of plinth area per unit. Additional 1 car parking per 100 sq m extra plinth area per unit (permitted within the marginal space.)
	Dwelling 3[7]	20% of total utilised FSI
Chennai[8]	**Building Use**	**No. of Parking Spaces**
	Residential A: Municipalities, IT Corridor, Corporation	a) Above 25 sq m and upto 50 sq m: 1 two wheeler space b) Above 50 sq m and upto 75 sq m: 1 car space for every 2 DUs, 1 two wheeler space for every DU c) Above 75 sq m: 1 car space for every 75 sq m
	Residential B: Panchayat areas	a) Above 50 sq m and upto 75 sq m: 1 two wheeler space b) Above 75 sq m and upto 100 sq m: 1 car space for every 2 DUs, 1 two wheeler space for every DU c) Above 100 sq m: 1 car space for every 100 sq m
Kolkata	**Occupancy**	**Car Parking Space Requirement**
	Residential	1) Building with single tenement a) For less than 100 sq m in floor area - no car parking space b) For 100 sq m - 200 sq m of floor area - 1 car parking space c) For 200 sq m or more of floor area - 1 car parking space per 200 sq m 2) Buildings with multiple tenements A) For less than 50 sq m of floor area: a) upto 5 such tenements - no car parking space b) for 6 such tenements - one car parking space c) for every extra 6 such tenements - one added car parking space B) For 50 sq m - 75 sq m of floor area a) upto 3 such tenements - no car parking space b) for 4 such tenements - one car parking space c) for every extra 4 of such tenements - one added car parking space C) Tenement with 75 sq m - 100 sq m for every two such tenement additional one car parking space D) Tenement with more than 100 sq m and one car parking space for every additional 100 sq m
Surat	**Type of Use**	**Minimum Parking Space Required**
	Residential Building (Detached / semi-detached / plotted development)	1 car parking for 80 sq m - 300 sq m of plinth area per unit. Additional 1 car parking for every 100 sq m additional plinth area per unit. Permitted within the marginal space.
	Flats / Apts.[9]	20% of total utilised FSI

Continued...

City	Parking Requirements	
Pune	**Occupancy**	**One Parking space for every**
	Residential (multi-family)	1) 1 Tenement having carpet area 150 sq m and above: 3 car spaces, 2 scooter spaces[18] 2) 1 Tenement having carpet area 80 - 150 sq m: 2 car spaces, 2 scooter spaces[18] 3) 2 Tenements having carpet area 40 - 80 sq m: 2 car spaces, 4 scooter spaces[18] 4) 2 Tenements having carpet area of less than 40 sq m: 1 car space, 4 scooter spaces[18] 5) in congested area, for plot areas less than 200 sq m, and for tenement upto 40 sq m
Nagpur[11]	**Occupancy**	**One Parking space for every**
	Residential (multi-family)	a) 1 tenement having carpet area more than 80 sq m: 1 car space, 2 scooter spaces b) 2 Tenements having carpet area between 40-80 sq m: i) congested area: 2 scooter spaces ii) non-congested area: 1 car space, 2 scooter spaces c) 4 Tenements having carpet area upto 40 sq m: i) congested area: 4 scooter spaces ii) non-congested area: 1 car space, 4 scooter spaces
Patna[12]	**Occupancy**	**Parking area to be provided as percentage of total built-up area**
	Residential Building, Appt. Buildings, Group Housing	25%
Coimbatore[13]	**Nature of Building**	**Required Parking Space**
	Residential	17 sq m for every 250 sq m floor area
Guwahati[14]	**Occupancy**	**Equivalent Car Space (ECS) per 100 sq m floor area**
	Residential/Plotted Housing	1.33
Bhubaneshwar[15]	**Category of Building**	**Parking area to be provided as a % of total built-up area**
	Residential appt. buildings, Group Housing	30%
Kochi[16]	**Occupancy**	**One parking space for every fraction of**
	Group A1 - Residential Appt. Houses/ Flats	a) 8 units (each upto 100 sq m of carpet area) b) 4 units (each unit between 101 sq m - 150 sq m of carpet area) c) 2 units (each unit between 151 sq m - 200 sq m of carpet area d) Single unit (excluding 200 sq m of carpet area)
Hyderabad[17]	**Region/Authority**	**Parking per Residential Complex, as percentage of total built-up area**
	GHMC	30%
	HMDA Area	20%
	UDA Area	20%
	Other Areas	20%

Notes

1. In Malabar Hill, Cumballa Hill and for Colaba areas, Pali Hill, Bandra, Juhu, Ville Parle Development Scheme, Sasoon dock and Jagmohandas Marg, (Nepean Sea Road). Parking requirements differ for rest of Island City area, Suburbs and Extended Suburbs.
2. In addition to specified parking spaces, visitor parking shall be provided at the extent of at least 25%of the stipulated number subject to a minimum of one.
3. For group housing. Each car needs/ occupies an average of three different parking locations in the city every day. The land required to park a car is approx. 23 sq m, which includes the space occupied by the vehicle as well as the minimum space needed to move it into and out of the space. This is called equivalent car space, or ECS.
4. The premises are specified in the Map of the Delhi Master Plan 2021.
5. DU=Dwelling Unit. Residential buildings with a floor area not exceeding 100 sq m are exempted from providing car parking.
6. Dwelling 1: Residential DUs with buil- up area upto 50 sq m. Dwelling 2: Residential DUs with built-up area within 50 sq m-66 sq m. Dwelling 3: Residential DUs with built-up area within 66 sq m - 80 sq m.
7. 10% of the required parking space shall be provided as visitor's parking.
8. Parking spaces for visitors shall be provided to extent of 10% of number stipulated above rounded to nearest whole number where number of dwelling units exceeds six.
9. 10% of the required parking space for visitor parking.
10. For both congested and non-congested area. In addition, 5% visitor parking.
11. Minimum size / area of: 1. motor vehicle = 2.5m x 5m, 2. scooter, motor-cycle = 3sq m, 3. bicycle = 1.4 sq m, 4. transport vehicle = 3.75 m x 7.5 m.
12. At least 15% of parking space in group housing and apartment buildings shall be for visitors.
13. Two-wheeler parking: 1 two-wheeler parking space per dwelling unit with floor area of 40-75 sq m. Separate driveway insisted where number of car parking space required does not exceed 3 in number.
14. For open parking, the space standards for car parking spaces shall be 23 sq m per ECS.
15. At least 20 of parking in group housing and apartment buildings shall be for visitors.
16. Each off street parking space shall be no less than 15 sq m for parking motor cars and 3 sq m for parking scooters.
17. HMDA: Hyderabad Metropolitan Development Authority; GHMC = Greater Hyderabad Municipal Corporation Commissioner; UDA = Urban Development Authority.
18. In mixed use residential areas, buildings with a floor area not exceeding 100 sq m are exempted from providing car parking.

Sources for Minimum Parking Requirements

Mumbai

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Delhi

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Bengaluru

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(Accessed on 20 April 2017)

Ahmedabad

'Comprehensive Development Plan (Second Revised) 2021-General Development Control Regulations', *Town Planning and Valuation Department*, Ahmedabad Urban Development Authority, 21 Jan 2015, https://townplanning.gujarat.gov.in/monitoring/documents/dps-milestone-documents/08D272841 (Accessed on 20 April 2017) 5909D1Ejxxnknu5agx0.pdf

Chennai

'Second Master Plan for Chennai Metropolitan Area, 2026, Volume 3: Development Regulations', *Chennai Metropolitan Development Authority*, May 2013, http://www.cmdachennai.gov.in/Volume1_English_PDF/Vol1_Chapter00_Introduction.pdf (Accessed on 13 November 2017)

Kolkata

'The Kolkata Gazette', *Kolkata Municipal Corporation* , Urban Development Department, Government of West Bengal, 9 Sept 2009, https://www.kmcgov.in/KMCPortal/downloads/ (Accessed on 20 April 2017)Building_%20Rules2009.pdf

Gujarat - Surat

'Gujarat Comprehensive Development Control Regulations 2017', *Surat Urban Development Authority* , Gujarat Gazette, https://udd.gujarat.gov.in/pdf/L/Notification/FINAL%20 (Accessed on 15 November 2017)
Comprehencive%20GDCR.pdf

Pune

'Development Control And Promotion Regulations for Pune Municipal Corporation (DCPR-2017)', *Pune Municipal Corporation*, Urban Development Department, https://pmc.gov.in/sites/default/files/DC%20Rul%202017.PDF (Accessed on 13 November 2017)

Nagpur

'Development Control Regulations (2000) for Nagpur City', *Nagpur Improvement Trust* , Urban Development Department, Government of Maharashtra, http://nitnagpur.org/pdf/dcr.pdf (Accessed on 20 April 2017)

Bihar - Patna

'Bihar Building By-laws 2014', Urban Development and Housing Department, Government of Bihar, https://credai.org/assets/upload/state/resources/bihar-building-bye-law--december-2014.pdf (Accessed on 13 November 2017)

Coimbatore

Coimbatore City Municipal Corporation - Citizen Charter: https://payment.ccmc.gov.in/BuildRule-ParkingSpace.asp (Accessed on 14 November 2017)

Guwahati

'Master Plan for Guwahati Metropolitan Area – 2025 (Land Use Zoning and Development Control Regulation)', *Guwahati Metropolitan Development Authority* , 7th July 2009, https://gmda.eodbassam.in/wp-content/uploads/2017/01/part2.pdf (Accessed on 13 November 2017)

Bhubaneswar

'Bhubaneswar Development Authority (Planning and Building Standards) Regulations (2008)', *Bhubaneswar Development Authority*, The Orissa Gazette, 18th Dec 2008, http://bdabbsr.in/website/pdf/AssetForSale.pdf (Accessed on 20 April 2017)

Kerala

'Kerala Municipality Building Rules (1999)', *Department of Town and Country Planning*, Government of Kerala, http://www.townplanning.kerala.gov.in/Pages/KMBR/kmbr_main.ht(Accessed on 20 April 2017)

Hyderabad

'The Andhra Pradesh Building Rules – 2012', Government of Andhra Pradesh, *Municipal Administration and Urban Development Department*, 7th April 2012, https://www.hmda.gov.in/Gos/168.PDF (Accessed on 15 November 2017)

Appendix 3.2: Methodology for Comparing Parking Requirements

This data has been collated through multiple regional reports published by local authorities. Unfortunately, every local authority has used its own unit of measurement in order to quantify parking obligations. For example, in case of Mumbai parking obligations have been described using the unit parking space per tenement. On the other hand, Hyderabad dictates the minimum number of parking slots within a residential complex. New York has a mandate that every residential building should cover minimum 40% of its dwelling units.[122] Due to these inconsistencies, it was imperative to convert all parking obligation data under a common unit of measurement. The formula used for this purpose is the following:

$$\text{Parking Slots } (100^2 \text{ meter of floor area}) = \frac{\text{Parking Slot per Residencial Unit}}{\text{Floor Area (midpoint)}} * 100$$

The Floor Area (midpoint) represents the midpoint value of residential floor area range for which the particular report mentions parking obligations.

Appendix 3.3: Parking slots to be built as per regulations in residential buildings (per 100 sq m of floor area)- Indian cities vs global[123]

City	Parking Slots per 100 square metres	Sources
Pune	3.33	Development Control Regulations for Pune
Greater Mumbai	2.07	Development Control Regulations for Greater Bombay (1991)
Chicago	2.00	Chicago Municipal Code - Parking Requirements
New Delhi	2.00	Centre for Science & Env. - Parking Imperatives New Delhi; Master Plan for Delhi 2021
Chennai	1.60	Master Plan Chennai Metropolitan Area
Sao Paulo	1.43	Strategic Master Plan - Sao Paulo
London	1.43	The London Plan 2011; The Berkeley Group - Car Parking within Residential Schemes in London
Boston	1.25	Boston Transportation Department - Zoning Board of Appeal
Sydney	1.20	Asian Development Bank - Parking Policy Asia
Gurugram	1.00	Haryana Building Code 2016
Bengaluru	1.00	Revised Master Plan Bangalore 2015
Amsterdam	1.00	Building Regulations - Danish Enterprise and Construction Authority 2010; High-rise housing in the Netherlands: sustainability outlook; Europes Parking Report – ITDP
Singapore	1.00	Singapore Land Provision Authority - Parking Provision
Suburban Mumbai	0.69	Development Control Regulations for Greater Bombay 1991
Kolkata	0.67	Kolkata Municipal Corporation - Building Rules 2009
New York	0.40	https://www1.nyc.gov/site/planning/zoning/districts-tools/r10.page
Tokyo	0.20	Asian Development Bank - Parking Policy Asia

[122] https://www1.nyc.gov/site/planning/zoning/districts-tools/r10.page

[123] Values used for this dataset pertain only to medium flats. Floor area range (in sq m) = approx. 60 to 100.

Appendix 3.4: Sources for RERA notifications and rules

Andhra Pradesh

'RERA Act, 2017', MAUD Department, Government of Andhra Pradesh, http://dtcp.ap.gov.in/webdtcp/pdf/AP%20RERA%20Rules-2017.PDF(Accessed on 13 June 2017)

Bihar

'RERA Rules, 2017', Urban Development and Housing Department, Government of Bihar, http://www.naredco.in/notification/pdfs/Bihar%20%20Real%20Estate%20(Regulation%20and%20Development)%20Rules%202017%20AR-01-28-04-2017.pdf (Accessed on 13 June 2017)

Gujarat

'RERA Rules, 2017', Urban Development and Housing Department, Government of Gujarat, http://naredco.in/notification/pdfs/Gujarat%20Real%20Estate%20(Regulation%20and%20Development)%20Rules,%202016_1%20(1).pdf (Accessed on 13 June 2017)

Karnataka

'RERA Rules, 2017', Housing Department, Government of Karnataka, http://naredco.in/notification/pdfs/Karnataka%20Real%20Estate%20(Regulation%20and%20Development)%20Rules,%202017.pdf (Accessed on 13 June 2017)

Kerala

'RERA Act, 2015', Law (Legislation-C) Department, Government of Kerala, http://naredco.in/notification/pdfs/KeralaRealEstate Act2015.pdf (Accessed on 13 June 2017)

Madhya Pradesh

'RERA Rules 2017', *Urban Development and Housing Department* , Government of Madhya Pradesh, http://www.naredco.in/notification/pdfs/Madhya-Pradesh-RERA-Rules-22October2016.pdf (Accessed on 13 June 2017)

Maharashtra

'RERA Rules 2017', *Housing Department*, Government of Maharashtra, http://www.naredco.in/notification/pdfs/RERA%20Final%20English%20Registration%20Rules21042017.pdf (Accessed on 13 June 2017)

Odisha

'RERA Rules 2017', *Urban Development and Housing Department* , Government of Odisha, http://www.naredco.in/notification/pdfs/RERA%20Final%20English%20Registration%20Rules21042017.pdf (Accessed on 13 June 2017)

Rajasthan

'RERA Rules 2017', *Urban Development Department*, Government of Rajasthan, http://www.naredco.in/notification/pdfs/Rajasthan%20Real%20Estate%20(Regulation%20and%20Development)%20Rules,%202017.pdf (Accessed on 13 June 2017)

Uttarakhand

'RERA Rules 2016', *Urban Development Department*, Government of Uttarakhand, http://www.naredco.in/notification/pdfs/Uttarakhand%20Real%20Estate%20(Regulation%20and%20Development)%20(General)%20Rules,%202017.pdf (Accessed on 13 June 2017)

Uttar Pradesh

'RERA Rules 2016*', Urban Development Department*, Government of Uttar Pradesh, http://www.naredco.in/notification/pdfs/Uttar%20Pradesh%20Real%20Estate%20(Regulation%20and%20Development)%20Rules,%202016_Notification%20No.%201438_Eight-3-16-65%20Vividh16%20dated%2027th%20October%202016.pdf (Accessed on 13 June 2017)

NCT Delhi

'RERA Rules 2016', *Ministry of Urban Development* , Government of NCT Delhi, http://naredco.in/notification/pdfs/NCT%20of%20Delhi%20Real%20Estate%20(Regulation%20and%20Deveopment)%20(General)%20Rules,%202016.pdf (Accessed on 13 June 2017)

Appendix 4.1: State-wise stamp duties and registration fees

Stamp Duty	Registration fees	Sources
Assam		
Sale to Women- 5% Sale to Others- 6%	Upto Rs. 500 - Rs. 10 Above Rs. 500 Upto Rs. 1000 - Rs. 15 Above Rs. 1000 Upto Rs. 10000 - 2% Above Rs. 10000 Upto Rs. 20000 - 2.5% Above Rs. 20000 Upto Rs. 30000 - 3% Above Rs. 30000 Upto Rs. 50000 - 3.5% Above Rs. 50000 Upto Rs. 75000 - 4% Above Rs. 75000 Upto Rs. 90000 - 4.5% Above Rs. 90000 Upto Rs. 150000 - 5.5% Above Rs. 150000 Upto Rs. 300000 - 6.5% Above Rs. 300000 Upto Rs. 500000 - 7.5% Above Rs. 500000 - 8.5%	Stamp Duty Fees', Revenue Department, Government of Assam, https://igr.assam.gov.in/sites/default/files/STAMP%20DUTY%20FEE%20FOR%20DEED%20REGISTRATION-PART3.pdf (Accessed on 19 February 2018) 'Registration fees', Revenue Department, Government of Assam, https://igr.assam.gov.in/sites/default/files/REGISTRATION%20FEES%20FOR%20DEED%20REGISTRATION%20PART-1.pdf (Accessed on 19 February 2018)

Stamp Duty	Registration fees	Sources
Punjab		
Urban - 9% Rural - 7%	1%	'Stamp Duty Frame', Revenue Department, Government of Punjab, http://agpunjab.gov.in/pdf/manual-stamp%20duty%20and%20registration%20fee%20_1_2.pdf (Accessed on 19 February 2018)
Kerala		
8%	2%	'Stamp Duty and Fees', Registration Department, Government of Kerela, http://keralaregistration.gov.in/pearlpublic/downloads/Stamp Duty & Fees.pdf (Accessed on 19 February 2018)
Uttar Pradesh		
Men - 7% Women - Upto 10 lakh: 6% Above 10 lakh: 7%	2%	Sunder, G.S (2016). Property Registration, Land Records And Building Approval Procedures Followed in Various States in India (2nd ed.). Chennai, India: Shri Vidya Devi Publishers. 'Registration Fee Table', Stamp and Registration Department, Government of Uttar Pradesh, 8th December 2015, http://igrsup.gov.in/prernadoc/Adhiniyam/rule/pdf13/english/index.pdf (Accessed on 19 February 2018)
Chhattisgarh		
7.5%	1%	'Stamp Duty Fees', Registration and Stamp Department, Government of Chhattisgarh, https://cgstate.gov.in/documents/6847155/4748d0b3-ba41-407e-9aa1-051144728d28 'Registration Fees', Registration and Stamp Department, Government of Chhattisgarh, https://cgstate.gov.in/documents/6847155/4ecd7f14-e28b-489d-82a6-b4fd7bfa9238 (Accessed on 19 February 2018)
Himachal Pradesh		
Men - 6% Women - 4%	2%	'The Indian Stamp (Himachal Pradesh Amendment) Bill (2013)', Revenue Department, Government of Himachal Pradesh, http://rajpatrahimachal.nic.in/OPENFILE1.aspx?etype=SPECIAL&ID=206/GAZETTE/2013-12/21/2013 (Accessed on 19 February 2018) 'Stamp-Registration Fees', Revenue Department, Government of Himachal Pradesh, 12th Jan 2012, http://rajpatrahimachal.nic.in/openFile.aspx?id=12371&etype=Notice (Accessed on 19 February 2018)
Bihar		
6%	2%	'Change in Stamp Duty', Bihar Chambers of Commerce and Industries, Government of Bihar, 29 July 2015, http://www.biharchamber.org/sites/default/files/bcci_updates/Change in Stamp Duty from 29 July 2015.pdf (Accessed on 19 February 2018) 'Change in Registration Fees', Bihar Chambers of Commerce and Industries, Government of Bihar, 29 July 2015, http://www.biharchamber.org/sites/default/files/bcci_updates/Change in Registry Fee from 29 July 2015.pdf (Accessed on 19 February 2018)
West Bengal		
Urban - Property Value > 40 lakhs: 7% Property Value upto 40 lakhs: 6% Rural - 5%	1%	'Stamp Duties and Fees', Finance (Revenue) Department, Government of West Bengal, http://www.wbregistration.gov.in/(S(coxcbnhwic2mias0omcpnqxx))/Stamp_duty.aspx (Accessed on 19 February 2018) 'Notification of Fees', Finance (Revenue) Department, Government of West Bengal, 6th March 2017, http://www.wbregistration.gov.in/(S(tk4l0xjrva15xfovdm3vq4rh))/writereaddata/Documents/Notification - 450 FT dt. 06.03.2017.pdf (Accessed on 19 February 2018)
Tamil Nadu		
7%	1%	'Tamil Nadu Stamp Manual', Revenue Department, Government of Tamil Nadu, http://revenue.tn.nic.in/books/Tamil%20Nadu%20Stamp%20Manual-ENGLISH-FILE-9.pdf (Accessed on 19 February 2018)

Continued...

Stamp Duty	Registration fees	Sources
Haryana Urban - Men: 8%; Women: 6% Rural - Men: 6%; Women: 4%	Minimum Rs. 50 Maximum Rs. 15000	'Indian Stamp Act (Haryana)', Department of Revenue, Government of Haryana, http://revenueharyana.gov.in/Portals/0/indian%20stamp%20Act1899.pdf (Accessed on 19 February 2018)
Uttarakhand Men - 5% Women - 3.75%	2%	'Stamp and Registration Fees', Department of Stamps and Registration, Government of Uttarakhand, http://registration.uk.gov.in/files/Stamps_and_Registration_-_Stamp_Fees__Regn_Fess.pdf(Accessed on 19 February 2018)
Jharkhand 4%	3%	'Stamp Registration Fees List', Registration Department, Government of Jharkhand, http://regd.jharkhand.gov.in/jars/website/ (Accessed on 19 February 2018)
Odisha Men - 5% Women - 4%	2%	'Odisha Stamp Act', Inspector General of Registration Revenue and Disaster Management Department, Government of Odisha, https://www.igrodisha.gov.in/StampAct.aspx (Accessed on 19 February 2018)
New Delhi Men - 6% Women - 4%	1%	'Property Registration', Department of Revenue, Government of NCT of Delhi, 22 March 2014, http://www.delhi.gov.in/wps/wcm/connect/doit_revenue/Revenue/Home/Services/Property+Registration (Accessed on 19 February 2018) 'Registration Fees', Department of Revenue, Government of NCT of Delhi, July 2010, http://delhi.gov.in/DoIT/Revenue/pdf/notification/2010/2010_1.pdf (Accessed on 19 February 2018)
Karnataka 5.60%	1%	'At a Glance: Duties and Fees', Stamp and Registration Department, Government of Karnataka, http://www.karnataka.gov.in/karigr1/Documents/Stamp-duty-Regn-fee-at-a-Glance.pdf (Accessed on 19 February 2018)
Rajasthan Men - Regular: 5% Disabled: 4% Women - ST/SC/OBC: 3% Other Women: 4%	1%	'Stamp Duty and Registration Fee Details', Registration and Stamps Department, Government of Rajasthan, 5 March 2017, http://igrs.rajasthan.gov.in/writereaddata/Portal/Images/fees_new.pdf (Accessed on 19 February 2018)
Maharashtra Urban (Municipal Corporations) - 5% Urban (Municipal Councils) - 4% Rural - 3%	1%	'Maharastra Stamp Act: Schedule 1A', Stamp and Registration Department, Government of Maharastra, http://igrmaharashtra.gov.in/SB_PUBLICATION/DATA/Schedule/Maharshtra Stamp Act Shulde.pdf (Accessed on 19 February 2018) 'Table of Fees', Stamp and Registration Department, Government of Maharashtra, http://igrmaharashtra.gov.in/SB_PUBLICATION/DATA/Registration fee table.pdf (Accessed on 19 February 2018)
Gujarat 4.90%	1%	Sunder, G.S (2016). Property Registration, Land Records And Building Approval Procedures Followed in Various States in India (2nd ed.). Chennai, India: Shri Vidya Devi Publishers
Madhya Pradesh 5%	0.80%	'Indian Stamp (MP Amendment) 2015, January 2015, https://www.mpigr.gov.in/pdf/IndianStamp(M.P.Amendment)_Act_2015-01-07-007.pdf (Accessed on 19 February 2018) 'Registration Fees', Department of Registration and Stamps, Government of Madhya Pradesh, 15th August 2014, https://www.mpigr.gov.in/pdf/Registration_fees_2014-08-08-353.pdf (Accessed on 19 February 2018)
Telangana 4% upto Rs. 1000 and 20% for every Rs. 500 in excess of Rs. 1000	0.50%	'Telangana Stamp Act: Schedule 1A', Registration and Stamps Department, Government of Telengana, https://registration.telangana.gov.in/StampFees.pdf (Accessed on 19 February 2018) 'Registration Fees', Registration and Stamps Department, Government of Telangana, (Accessed on 19 February 2018) https://registration.telangana.gov.in/registrationfee.jsp

Continued...

Stamp Duty	Registration fees	Sources
Andhra Pradesh		
4%	0.50%	Reduction of Stamp Duty', Revenue Department, Government of Andra Pradesh, 30th November 2013, http://registration.ap.gov.in/CitizenServices/Circulars/GeneralSection/GOMNo_150_06042013.pdf (Accessed on 19 February 2018) 'Simplification of Fee Structure', Revenue Department, Government of Andra Pradesh, 17th August 2013, http://registration.ap.gov.in/CitizenServices/ACT/Registration/RegistrationFees.pdf (Accessed on 19 February 2018)
Arunachal Pradesh		
Above Rs. 1000 upto Rs. 10,000- 3% Above Rs. 10,000 upto Rs. 1,00,000- 2% Above Rs. 1,00,000 upto Rs. 3,00,000- 1% Above Rs. 3,00,000 upto Rs. 5,00,000- 2% Rs. 5,00,000 and above- 3%	Upto Rs. 1000- Rs. 50 Rs. 1,001 to Rs. 10,000- Rs. 50 + 1.5% Rs. 10,001 to Rs. 1,00,000- 1% Rs. 1,00,000 to Rs. 3,00,000- 0.75% Rs. 3,00,000 to Rs. 5,00,000- 1% Rs. 5,00,000 and above- 1.5%	'The Indian Stamp (Arunachal Amendment) Act, 2007', Government of Arunachal Pradesh, http://westkameng.nic.in/Actsandnotifications/apmunact2007.pdf (Accessed on 19 February 2018) 'Arunachal Pradesh Registration (Amendment) Rules, 2007', Government of Arunachal Pradesh, http://westkameng.nic.in/Actsandnotifications/apUrbCounPlan2007.pdf (Accessed on 19 February 2018)
Goa		
Rs. 600 – Rs. 50,00,000 - 3% Rs. 50,00,000 – Rs. 75,00,000 - 3.5% Rs. 75,00,000 - Rs. 1,00,00,000 - 4% Above Rs. 1,00,00,000 - 4.5%	Amount not exceeding Rs. 50 lakhs - 2% Above Rs. 50 lakhs upto Rs. 75 lakhs - 3% Above Rs. 75 lakhs upto Rs. 100 lakhs - 3.5% Above Rs. 100 lakhs - 4%	'Stamp Duty Rates', Department of Revenue, Government of Goa, http://goacomtax.gov.in/uploads/content/pdf/509_CI_1617-52-SI-EOG-1_VAT_146_pdf_pdf.pdf (Accessed on 19 February 2018) 'Registration Rates', Department of Revenue, Government of Goa, https://www.goa.gov.in/wp-content/uploads/2016/05/REGISTRATION-FEES-REGISTRATION-DOCUMENTS.pdf (Accessed on 19 February 2018)
Nagaland		
Above Rs. 150000 - 8.25%	0.50%	'Indian Stamp Act (Nagaland)', Government of Nagaland, https://www.nagaland.gov.in/Nagaland/UsefulLinks/The%20Indian%20Stamp%20Duty%20(Nagaland%20Amendment)%20Act,%201989.pdf (Accessed on 19 February 2018)
Sikkim		
1%	4%	'Stamp Duty Rates', Documents, Volume III, Government of Sikkim, http://sikkimfred.gov.in/FCD/DOCUMENTS14th_FC/volIII/Vol_III.pdf (Accessed on 19 February 2018)

Appendix 4.2: Mark-up of market rates over Ready Reckoner rates in Mumbai

Area	Ready Reckoner Rate of residential building (Rs/sq ft) in 2015	Residential market rate (Rs/sq ft) 1.2XCarpet Rate in 2015	Markup market rate over Ready Reckoner rate (%)
Mumbai city			
Colaba	56,959	86,667	52.16
Malabar Hill	78,977	125,250	58.59
Parel-Sewri	18,683	43,750	134.17
Mahalakshmi	25,734	55,667	116.32
Worli	33,910	69,583	105.20
Lower Parel -I	39,307	79,325	101.81
Lower Parel-II	17,419	41,750	139.68
Prabhadevi	27,221	41,750	53.37
Dadar	15,431	27,833	80.37
Mahim	22,891	27,833	21.59
Western Suburbs			
Bandra (W)	34,959	41,750	19.43
Santacruz (W)	27,035	34,792	28.69
BKC	22,919	48,708	112.52
Andheri (W)	19,222	23,658	23.08
Oshiwara (W)	17,837	27,833	56.04
Goregaon (E)	14,326	20,875	45.71
Malad (W)	13,740	20,875	51.93
Kandivali (E)	12,672	17,396	37.28
Borivali (E)	15,663	16,700	6.62
Dahisar (E)	10,294	12,525	21.67
Eastern Suburbs			
Kurla (W)	13,471	24,354	80.79
Ghatkopar (W)	16,072	25,050	55.86
Chembur (E)	16,258	23,658	45.52
Powai	20,857	27,833	33.45
Kanjur Marg (E)	12,811	17,396	35.79
Bhandup (W)	11,037	15,308	38.70
Mulund (W)	9,430	17,396	84.48
Overall Mumbai			60.80

Source: HDFC Securities Institutional Research (February 2015).

Appendix 5.1: Data sources for maps

Maps created by IDFC Institute and the Urban Expansion Observatory (Mahatma Education Society) rely on the following sources of data:

Data	Source
Built-up area, Population grid	Global Human Settlements Layer: http://ghsl.jrc.ec.europa.eu/
Municipal boundaries	
Delhi	https://github.com/datameet/Municipal_Spatial_Data
Mumbai	https://github.com/datameet/Municipal_Spatial_Data
Thane	http://thanecity.gov.in/uploadpdf/ThaneMap.pdf
Bangalore	Pre-2007: http://wgbis.ces.iisc.ernet.in/energy/water/paper/bangalore/TVR24_p11_Bangalore.pdf https://github.com/datameet/Municipal_Spatial_Data
Chennai	https://github.com/datameet/Municipal_Spatial_Data
Kozhikode	http://kozhikodecorporation.lsgkerala.gov.in/sites/default/files/Block%20Map.pdf
Infrastructure lines (Highway, Local, Metro and Mono)	https://www.geofabrik.de/data/download.html http://themetrorailguy.com
District Boundaries	https://github.com/datameet/maps/tree/master/Districts
Vacant Housing	Census 2001 and 2011
Basemap sources	ESRI, DeLorme, GEBCO, NOAA NGDC, HERE, MapmyIndia

The *India Infrastructure Report 2018: Making Housing Affordable* focuses on the key supply-side constraints in the housing market in urban India. A host of restrictive policies have prevented supply from keeping pace with demand and made housing less affordable in Indian cities. Most government housing schemes have also fallen short of targets, and a shift away from relying either on demand-side interventions or government-led construction, will be imperative to achieve 'Housing for All by 2022'. This report is an attempt to evaluate each step of the housing supply chain and pivot policy thinking from constructing affordable housing towards making housing affordable. The report looks at:

- Restrictive land-use regulations: Indian cities have some of the strictest constraints on land-use–from low FSI ceilings to restrictions on the maximum height of buildings. While these policies are meant to limit population density in cities, they instead limit the inhabitable space available per person and increase the price of available housing.

- The procedural and financial constraints to building new housing stock: Getting the requisite approvals and permits to start construction is a tedious process in India. From restrictions on borrowing to acquire land for housing projects, to obtaining permissions before occupancy, lengthy procedures raise the risk-adjusted costs of financing housing construction and make many affordable housing projects unviable.

- High transaction costs and lack of transparency: Indian states impose some of the highest stamp duty and registration rates in the world. This drives up the costs of legal property transactions, limiting liquidity in the market and hurting municipal revenues in the process.

- The decline in rental housing: Housing policies in India have tended to focus almost entirely on home-ownership. Juxtaposed with pro-tenant legislations such as the Rent Control Acts in various states, this translates into very little incentive for landlords to formally rent out their property. This is evident in the considerable fall in the share of rental housing from 54% in 1961 to 28% in 2011.

- Investments in public transportation and urban governance: Large-scale job creation requires equitable access to places where most economic opportunities lie–urban job centres. Investments in public transportation can help by opening up new land for developing affordable housing as well as reducing congestion costs, environmental harm, and increasing mobility. India's urban governance structures also need to be updated to reflect the current reality of cities as broader, integrated labour markets, not limited to administrative boundaries drawn a long time ago.

The issues covered in this report have persisted for several years despite earnest attempts to address them. In part, this is a consequence of contentious political economy challenges in the housing sector that throttle any attempt at change. The policy recommendations in IIR 2018 are informed by evidence-based research as well as an appreciation of the institutional barriers that have precluded reforms in the past. In sum, we hope that this report will spur a meaningful debate about the housing dilemma facing urban India.

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