

## Chapter 6

# Housing Poverty and Inequality in Urban India

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**Abstract** Inequitable distribution of resources, including physical capital such as housing, poses a threat to sustainable development. Employing a case of housing in urban India, focusing on renter and slum dwellers, this study documents housing inequality and poverty, examines whether and why there is a gap in living standards (measured by dwelling size), and estimates the demand for housing. The study uses decomposition analysis to identify causes of inequality and estimates demand for housing among owner, renter and slum dwellers, employing a national representative microdata over a survey of 50,000 households. The results revealed that the average floor area consumption in renter/slum households is about two-third of the owner households, *ceteris paribus*. The reason for poor quality of renter/slum dwellings is not limited to differences in endowment levels, but also includes different ‘rates of return’ to these endowments. In order to enhance housing consumption in renter/slum dwellers, in addition to income improvement strategies, there needs to be a focus on skills upgradation and provision of a stable employment base. Moreover, renters/slums dwellers are concentrated in million plus cities and in the western and eastern regions of the country. Therefore, specific housing programs should be designed to target these regions.

**Keywords** Living standard · Housing · Poverty · Inequality · Renter · Slum · India

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## 6.1 Introduction

India has the second largest urban population in the world (after the PRC) with 377 million people (Census of India 2011b). Urban India is characterized by severe housing poverty as well as inequality, with about 24 million housing shortages in 2007 (NBO 2007) and about 93 million slum dwellers spread unevenly in 49,000 slums across the country (NBO 2010).<sup>1</sup> Moreover, one-third of urban dwellers live in rental accommodations, which are poorly equipped. For instance, renter households have lower living standards than the owner households and are almost comparable to slums on certain indicators. Therefore, slums as well as rental dwellings can be perceived to be representative of housing poverty and inequality. Slums have been widely discussed among researchers and policy-makers (Angeles et al. 2009; Dupont 2008; Habitat 2003a, b; Mathur 2009). Recently, a serious attempt has been made through the ambitious program Rajiv Awas Yojana (RAY) to make India slum-free within five years (MHUPA 2011). In contrast, there are few studies dealing with issues of rental dwellings, despite their significance for the urban poor in developing economies (Habitat 2003a, b). The few studies that have dealt with rental dwellings have focused on the low-income and informal settlements, whose poor conditions are obvious and are rarely at the national level. For example, Ha (2002) critiqued that the Republic of Korea's state housing development authority has focused on expansion of housing development for sale rather than provision of rental accommodation, resulting in poor conditions of low-income rental accommodation. Rakodi (1995) has examined policies related to rental housing in the cities of developing countries. Urban the PRC presents some interesting findings, where privatization of public-owned housing based on 'work unit socialism' has led to housing inequality, on the one hand, and somehow state-controlled migration has led to poor housing conditions for migrant households, on the other hand (Sato 2006).

Studies of housing poverty and inequality in India have been limited to descriptive analyses (Mahadeva 2006; Mathur 2009), but recently empirical analyses have been added (Ahmad 2012; Mehta and Mehta 1989; Tiwari and Parikh 1998; Tiwari et al. 1999), including a focus on rental and slum dwellings at the national level (Chandrasekhar and Montgomery 2010). This study focuses on whether and why the renter/slum households have a lower living standard (measured by the floor area consumption) in comparison with the owner households and estimates housing demand. The study also contributes to expanding the definition of poverty merely from income (or consumption expenditure) to physical and social capital, such as housing (Baud et al. 2008; Chandrasekhar and Montgomery 2010; Wratten 1995).

The objectives of this study are twofold: first, to assess patterns of housing and amenities in urban India, with an emphasis on renters and slums, including causes for differences, and second, to estimate housing demand for owner, renter and slum dwellers. The prevalence of widespread poorly equipped rental and slum

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<sup>1</sup> The recent data reveal between 65 million (Census of India 2011a) and 45 million (NSSO 2012) slum dwellers in urban India.

dwellings (in terms of floor area) is *not only* differences in endowment levels, but also, to a large extent, different ‘rates of return’ to these endowments.

## 6.2 Methods and Data

### 6.2.1 Methods

#### 6.2.1.1 Estimates for Differences in Living Standard

The source of differences in living standard can be differences in household characteristics (endowments) as well as differences in returns to these characteristics. The characteristics effect arises on the possibility that the household attributes contributing to living standards, for example, income and employment status, may vary. The coefficients effect, i.e., ‘returns to endowment’ reflects how differences in the regression coefficients across groups affect living standard. Although interpretations are not straightforward, labor economics literature has shown that the characteristics effect is not based on discrimination, but the coefficient effect may be related to an unequal treatment by the society. Most studies employ the Blinder–Oaxaca decomposition to identify disparities, such as ethnic and caste disparities, in living standards and earnings (Kijima 2006; Gang Sen et al. 2008; Van de Walle and Gunewardena 2001). Neumark (1988) provides a more general decomposition method that does not assume that one of the groups has a discriminatory structure. This study uses the Neumark method to decompose the disparities in mean living standards, measured by floor area consumption, between the owner and renter/slum households into the component explained by the differences in endowments and returns to these endowments (Eq. 6.1).

$$\bar{y}_o - \bar{y}_r = (\bar{X}_o - \bar{X}_r)\beta + [\bar{X}_o(\beta_o - \beta) - \bar{X}_r(\beta_r - \beta)] \quad (6.1)$$

where  $\bar{y}_o$  and  $\bar{y}_r$  represent average floor area of the owner and renter households;  $\bar{X}_o$  and  $\bar{X}_r$  represent the mean value of the explanatory variables in the owner and renter households, which are the same as used in the housing demand estimates such as households’ income and land possession, demographic characteristics, labor characteristics, sociocultural characteristics, and locational characteristics (refer to Table 6.3 for details).  $\beta$ ,  $\beta_o$ , and  $\beta_r$  represent the parameters estimate, where  $\beta$  can be estimated using the weighted average of the floor area consumption of owner and renter households on the pooled sample, and similarly  $\beta_o$  and  $\beta_r$  separately for owner and renter households. The first term on the right side of the equation, which reflects the difference between the mean values of the explanatory variables (or determining factors), represents the endowments effect; the second term represents the coefficients effect; and the over bar represents the value of the sample average. Please note that the Eq. 6.1 deals with owners and renters; we can, similarly, have an equation for owners and slum dwellers by replacing renters

with slum dwellers. Though the use of ‘floor area per household’ as a measurement of living standards is questionable, many studies have used it in housing inequality studies (Huang and Jiang 2009; Logan et al. 1999). The explanatory variables are similar to those used in the housing demand estimations, mainly derived from housing economics literature (for details. See the next part).

### 6.2.1.2 Estimates for Housing Demand

The housing demand function can be written as Eq. (6.2), where  $Q$  is the living standard,  $P$  is the unit price of dwelling,  $Y$  is the income of the household,  $Z$  is the vector of households’ demographic and socioeconomic characteristics, and  $L$  refers to the locational characteristics.

$$Q = Q(P, Y, L : Z) \quad (6.2)$$

The living standard ( $Q$ ) is measured by the total floor area consumed by the household. Unfortunately, the dataset does not have any information about the unit price of dwelling, except rent for only rental accommodation. Therefore, we do not use the price component in estimations that could give a relatively higher value of coefficients. Average monthly consumption expenditure as a proxy for income ( $Y$ ) is used. Since income is difficult to measure and there is a high probability that it will be misreported, permanent income, which can be measured by consumption expenditure, can provide a better measure in explaining living standard. Two variables capture location effects ( $L$ )—city size and region. The household characteristics ( $Z$ ) include principal occupation, employment status, household size, gender of household head, and household’s sociocultural background. This study employs a log-linear functional form where both the dependent variable  $Q$  and the independent variable  $Y$  take logarithmic form so that the estimated coefficients can be directly interpreted as the income elasticity of the living standards. Few independent variables are treated as dummy variables. Household principal occupation can be categorized into five classes—professional/managerial, associate professional, clerical, sales/service worker, and elementary worker, using NCO-2004 two-digit codes. Two locational variables, city size and region, are used to control housing disparities on account of geographical variation. Large towns may have less floor area per household, a proxy to living standards, due to land supply constraints (Sivam 2002). Cities/towns are categorized into five classes based on the population figures of the 2001 census—class I (less than 50,000), class II (50,000–99,999), class III (100,000–499,999), class IV (500,000–999,999), and class V (million plus cities). India has 6 regions excluding all union territories except Delhi and Chandigarh.<sup>2</sup>

<sup>2</sup> These are as follows: Central—Madhya Pradesh, Uttar Pradesh, Chhattisgarh, and Uttaranchal; Southern—Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu; Western—Gujarat, Maharashtra, and Goa; Eastern—Odisha, Bihar, Jharkhand, and West Bengal; Northern—Haryana, Himachal Pradesh, Punjab, Rajasthan, Delhi, and Chandigarh; and North Eastern—Assam, Sikkim, Nagaland, Manipur, Mizoram, Tripura, and Meghalaya.

## 6.2.2 Data

This study uses the 65th round of India's National Sample Survey (NSS) on 'Housing Condition and Amenities in India,' the microdata provided by the National Sample Survey Organization (NSSO 2010). The data were collected through a stratified multi-stage sample design in urban India during 2008–2009 (here after 2009), with a total of 56,474 households selected randomly from 4,735 Urban Frame Survey blocks. The 65th round collected data on household characteristics, housing characteristics, and the micro environment, among others. A temporal comparison has been made, using the previous dataset from the same theme conducted in 2002 (NSSO 2004).

## 6.3 Results

### 6.3.1 Housing Poverty and Inequality in Urban India

The results provided in this section are based on the summary statistics of the sample survey (Table 6.4), including the *t*-test (chi-square test) associated with testing the null hypothesis that the relevant owner and renter (or slum) household mean values (frequencies) were equal. In addition, some of the results are derived from the comparison of selected variables between the present survey (2009) and the previous survey on the same theme (2002). An empirical result which estimates the causes of differences in living standard is derived from a decomposition analysis.

The *t*-test assessed the means of owners and renters (or slum dwellers) and revealed that important socioeconomic characteristics such as floor area consumption, income, and land possession were statistically different. For instance, average dwelling sizes (in m<sup>2</sup>) for owner, renter, and slum dwellers were 51, 30, and 25, respectively. The average dwelling size of slum households was half of that of the owners, but surprisingly renters' dwelling size was very close to that of the slum dwellers. Slum households were dominated by low-skilled occupations and poor employment status. Relatively large proportions of socioculturally disadvantaged communities were living in slums, which were concentrated in million plus cities, and the western and northern regions. The 2009 data reveal extremely poor conditions of slums—one-fourth of the households live in structurally poor dwellings, 43 % of the households live with more than three persons per living room, only one-third of the households has their own toilet, and more than half do not have access to motorable roads (Table 6.1). The owner dwellings are better equipped in comparison with rental dwellings. For instance, the rental dwellings are overcrowded (about 6 % points) with poor sanitation facilities. In comparison with the owner households, the renter and the slum households consume 33 and 38 % less floor area, provided other variables are constant.<sup>3</sup>

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<sup>3</sup> This is based on the result of a regression where variables are the same as used in Table 6.3 with additional independent variable tenure: owner (reference group), renter, and slum.

**Table 6.1** Changes in housing conditions of urban households, 2002 and 2009

|   | 2002           |               |               |              |                | 2009           |               |              |       |        |      |           |
|---|----------------|---------------|---------------|--------------|----------------|----------------|---------------|--------------|-------|--------|------|-----------|
|   | Owner          | Renter        | Slum          | Aggregate    | Owner          | Renter         | Slum          | Aggregate    | Owner | Renter | Slum | Aggregate |
| Consumption expenditure (Rs.)                             | 4,501.47       | 3,447.95      | 2,929.97      | 3,920.82     | 5,760.90       | 4,763.00       | 3,924.30      | 5,187.77     |       |        |      |           |
| Living space per capita (in m <sup>2</sup> )              | 11.87          | 10.42         | 5.84          | 10.51        | 12.22          | 10.73          | 6.92          | 11.00        |       |        |      |           |
| Dwelling with more than three persons per living room (%) | 27.90          | 29.52         | 52.72         | 32.02        | 23.41          | 29.63          | 42.92         | 27.95        |       |        |      |           |
| Structurally bad dwelling (%)                             | 9.54           | 11.10         | 24.28         | 12.21        | 9.28           | 10.82          | 23.54         | 11.83        |       |        |      |           |
| Separate kitchen (%)                                      | 67.47          | 51.56         | 30.08         | 56.75        | 71.94          | 54.3           | 39.04         | 61.92        |       |        |      |           |
| Own toilet (%)  | 66.06          | 48.11         | 21.45         | 53.55        | 71.3           | 48.44          | 31.22         | 58.68        |       |        |      |           |
| Tap as a drinking water (%)                               | 68.85          | 79.08         | 78.72         | 73.65        | 69.8           | 81.77          | 77.23         | 74.42        |       |        |      |           |
| Motorable access road (%)                                 | 60.4           | 69.14         | 44.26         | 60.9         | 62.77          | 69.56          | 45.85         | 62.28        |       |        |      |           |
| Sample size (≈) (% of total)                              | 21,867 (61.39) | 13,752 (38.6) | 6,130 (14.64) | 41,829 (100) | 31,518 (65.55) | 16,563 (34.45) | 8,273 (14.68) | 56,354 (100) |       |        |      |           |

Notes: The owner and renter households are only from non-slums, while the slum households include all irrespective of their tenure. Source of data (NSSO 2004, 2010)

**Table 6.2** Decomposition sources of inequality in dwelling size between owner and renter/slum, 2009

| Difference of floor area consumption | Renter                       |                                    | Slum                         |                                    |
|--------------------------------------|------------------------------|------------------------------------|------------------------------|------------------------------------|
|                                      | Characteristics (endowments) | Structures (returns to endowments) | Characteristics (endowments) | Structures (returns to endowments) |
| Logarithm                            | 0.168                        | 0.331                              | 0.25                         | 0.248                              |
| Percentage                           | 33.67                        | 66.33                              | 50.2                         | 49.8                               |

*Notes* The owner and renter households are only from non-slums, while slum households include all irrespective of their tenure. *Source of data* NSSO 2008–2009

In the span of 7 years (2002–2009), housing conditions have not improved significantly, but incremental changes have been noticed in select indicators (Table 6.1). Though these surveys are not based on a panel data, this comparison provides trends of dwelling conditions. The share of households with more than three persons per living room decreased from 32 to 28 %. Similar improvement has been reported in owner, renter, and slum households. Public infrastructure, such as ‘tap as a drinking water’ and ‘motorable access road,’ has improved only marginally, and even decreased in slums.

The empirical estimates, decomposition sources of inequality in housing consumption, show that the magnitude of differences between the owner and the renter households and between the owner and the slum households are similar (log (floor area)  $\approx 0.50$ ) (Table 6.2). About one-third of the difference is accounted to differences in endowment levels, while two-third is due to different returns of these endowments between owner and renter households. It means that if the owner and the renter households had the same endowments, then one-third of the lower living standards in the renter households would disappear, and, in the same way, if the renter households had the same return to these endowments, then two-third of the lower living standards would disappear. However, differences between owner and slum households are equally due to differences in endowment levels and the returns of these endowments (about 50 %). This is one of the important findings, where a significant proportion of living standard differences (50–66 %) is contributed by different returns of endowments, that is, an unequal treatment by the society.

### 6.3.2 Housing Demand in Urban India

Housing demands are estimated employing ordinary least squares (OLS) regression, where the dependent variable is the floor area and the independent variables are socioeconomic characteristics of the households. All models show a modestly high level of goodness to fit with adjusted *R*-Square from 0.33 to 0.41 (Table 6.3).

#### 6.3.2.1 Effects of Income and Land Possession

Income is the single-largest determinant of housing consumption. The income elasticities of owner, renter, and slum households are 0.42, 0.45, and 0.26, respectively. Therefore, a 10 % increase in consumption expenditure enhances

Table 6.3 Estimation results of housing demand in urban India, 2008–2009

|   | Non-slum |          |        | Slum   |          |          |
|---|----------|----------|--------|--------|----------|----------|
|   | Owner    |          | Renter | Owner  |          | Renter   |
|   | Coef.    | p-value  | Coef.  | Coef.  | p-value  | p-value  |
| <i>Income and land possession</i>   |          |          |        |        |          |          |
| Consumption expenditure (log)   | 0.422    | 0.001*** | 0.458  | 0.258  | 0.001*** | 0.001*** |
| Land possession   | 0.110    | 0.001*** | 0.087  | 0.111  | 0.001*** | 0.001*** |
| <i>Demographic characteristics</i>  |          |          |        |        |          |          |
| Household size  | 0.012    | 0.001*** | 0.015  | 0.043  | 0.001*** | 0.001*** |
| Male-headed household   | -0.073   | 0.001*** | -0.028 | -0.052 | 0.090*   | 0.013**  |
| <i>Labor market characteristics: principal occupation and employment status</i> |          |          |        |        |          |          |
| Associate professional (ref: Prof./managerial)                                  | -0.002   | 0.907    | -0.033 | 0.046  | 0.105    | 0.271    |
| Clerical (ref: Prof./managerial)  | -0.027   | 0.074*   | -0.087 | 0.035  | 0.001*** | 0.387    |
| Sales/service worker (ref: Prof./managerial)                                    | -0.154   | 0.001*** | -0.221 | -0.161 | 0.001*** | 0.001*** |
| Elementary worker (ref: Prof./managerial)                                       | -0.250   | 0.001*** | -0.289 | -0.223 | 0.001*** | 0.001*** |
| Self-employed (ref: regular wage/salary earning)                                | 0.004    | 0.608    | -0.098 | -0.006 | 0.001*** | 0.715    |
| Casual labor (ref: regular wage/salary earning)                                 | -0.031   | 0.005*** | -0.094 | -0.021 | 0.001*** | 0.230    |
| Others (ref: regular wage/salary earning)                                       | -0.029   | 0.232    | -0.165 | 0.107  | 0.001*** | 0.044**  |
| <i>Sociocultural characteristics: religion and social group</i>                 |          |          |        |        |          |          |
| Muslim (ref: Hindu)   | -0.064   | 0.001*** | -0.062 | -0.030 | 0.001*** | 0.109    |
| Christian (ref: Hindu)  | -0.037   | 0.014**  | 0.053  | -0.064 | 0.011**  | 0.054*   |
| Others (ref: Hindu)   | 0.041    | 0.014**  | 0.154  | 0.127  | 0.001*** | 0.001*** |
| SC and ST (ref: others)   | -0.152   | 0.001*** | -0.073 | -0.053 | 0.001*** | 0.003*** |
| OBCs (ref: others)  | -0.026   | 0.001*** | -0.023 | 0.063  | 0.038**  | 0.001*** |

(continued)



Table 6.3 (continued)

| Independent variables                                 | Non-slum |          | Slum   |          |
|---|----------|----------|--------|----------|
|   | Owner    |          | Renter |          |
|   | Coef.    | p-value  | Coef.  | p-value  |
| <i>Location characteristics: town size and region</i> |          |          |        |          |
| Class I (<50,000) (ref: million+)                     | 0.141    | 0.001*** | 0.190  | 0.001*** |
| Class II (50,000–99,999) (ref: million+)              | 0.143    | 0.001*** | 0.207  | 0.001*** |
| Class III (100,000–499,999) (ref: million+)           | 0.061    | 0.001*** | 0.131  | 0.001*** |
| Class IV (500,000–999,999) (ref: million+)            | 0.084    | 0.001*** | 0.062  | 0.008*** |
| Region—Southern (ref: Central)                        | –0.029   | 0.004*** | –0.002 | 0.913    |
| Region—Western (ref: Central)                         | –0.167   | 0.001*** | –0.130 | 0.001*** |
| Region—Eastern (ref: Central)                         | –0.104   | 0.001*** | –0.107 | 0.001*** |
| Region—Northern (ref: Central)                        | –0.006   | 0.006*** | –0.035 | 0.001*** |
| Region—North Eastern (ref: Central)                   | 0.109    | 0.001*** | 0.057  | 0.004*** |
| Constant  | 0.006    | 0.911    | –0.605 | 0.001*** |
| Adjusted R-square                                     | 0.41     |          | 0.41   |          |
| Number of observations                                | 26,437   |          | 14,023 |          |

Notes \*\*\*:  $p$ -value < 0.01, \*\*:  $p$ -value < 0.05, \*:  $p$ -value < 0.1; DV Total Floor Area (log); slum samples include both owner and renter households

corresponding housing consumption by 4.2, 4.5, and 2.6 %, *ceteris paribus*. The income elasticities are consistent with previous studies, which showed that income elasticities in developing countries are inelastic, with little difference between owner and renter households (Ahmad et al. 2013; Malpezzi and Mayo 1987; Tiwari and Parikh 1998). The income elasticities are smaller in magnitude from the earlier study in urban India, where income elasticities for both owner and renter households were 0.9 (Tiwari and Parikh 1998), and urban Bangladesh, where income elasticities for owner, renter, and slums were 0.69, 0.67, and 0.39, respectively (Ahmad 2015). The amount of land possessed, a proxy to well-off sections of society, is one of the important determinants for housing consumption. As quantity of land possessed increases, housing consumption also increases irrespective of tenure.

### **6.3.2.2 Effects of Labor Market Characteristics: Principal Occupation and Employment Status**

Two household variables related to labor market—principal occupation and employment status—have been used in the estimates. As expected, the results revealed that the ‘principal occupation’ affects housing consumption considerably and the effect of ‘employment status’ is significant, though smaller in magnitude. Households with a better principal occupation consume more floor area, controlling other variables. For instance, households with ‘sales/service’ principal occupation consume 15, 22, and 16 % less floor area as compared to the ‘professional/managerial’ category in owner, renter, and slum households, respectively, *ceteris paribus*. Similarly, households with better employment status consume more floor area, but in a smaller magnitude. For instance, households with ‘casual labor’ consume 3 and 9 % less floor area in comparison with the ‘regular wage/salary earning’ category in owner and renter households, respectively, *ceteris paribus*.

### **6.3.2.3 Effects of Other Variables: Demographic, Sociocultural, and Location Characteristics**

Demographic, sociocultural, and location characteristics are important variables in determining housing consumption, albeit of lesser magnitude than income, and land possession, as revealed from standardized coefficients (not presented here). Male-headed households consume less floor area in comparison with female-headed households, *ceteris paribus*. Across the models, household size positively impacts the floor area consumption, but with a relatively higher magnitude in the case of slum households, similar to what other studies in India have revealed (Ahmad 2011; Tiwari, and Parikh 1998).

Despite affirmative action over the past few decades, households from socio-culturally disadvantaged communities lack housing consumption in comparison with their counterparts (Sachar 2006). For instance, Muslim households living in

owner/rental dwellings consume 6 % less floor area in comparison with Hindu households, *ceteris paribus*. This is also true for Scheduled Caste and Scheduled Tribe communities. Moreover, the social group has a more significant bearing than the religious group.

Variables related to location, city size, and region revealed that small cities have better housing consumption irrespective of their tenure. This is understandable since housing and land supply have fewer constraints in small towns/cities than in large cities (Pugh 1991; Sivam 2002, 2003). Similarly, housing consumption varies regionally, provided other variables are constant, particularly between the western (Gujarat, Maharashtra, and Goa) and eastern (Odisha, Bihar, Jharkhand, and West Bengal) regions. In comparison with the central region (Madhya Pradesh, Uttar Pradesh, Chhattisgarh, and Uttarakhand), households living in western and eastern regions consume 10–22 % less floor area, *ceteris paribus*. To sum up, there are significant disparities in living standards based on city size and region.

## Conclusion

The aim of this study was to bridge the gap in housing consumption between renter/slum and owner households in urban India. Therefore, the study first assessed housing poverty and inequality in urban India and estimated determinants of housing consumption among owner, renter, and slum dwellers. The purpose of such analyses was to provide evidence-based urban/housing policy interventions to reduce housing poverty and inequality in urban India. This study used a nationally representative microdata and employed econometric analyses derived from housing economics literature (Malpezzi and Mayo 1987). The followings key findings emerged:

- The renters and slum dwellers have low-living standards, as measured by the floor area consumption, in comparison with the owner households. They are also at the lower end of the socioeconomic composition, being largely engaged in low-skilled occupations and casual employment.
- The disparities in the living standards between owner and renter households were due to their low endowment (34 %) as well as different returns to endowment (66 %), while corresponding disparities between owner and slums were equal, about 50 % each. This means renter dwellers face more unequal treatment than slum dwellers by the society.
- The determinants for housing consumption in renter dwellers are income, high-skilled occupations, and stable employment status. In addition, renter households in small towns/cities consume a large-sized dwelling in comparison with million plus cities. Similarly, determinants for housing consumption among slum dwellers were the same except stable employment status, since self-employed and casual laborers were not significant. Moreover, magnitudes

of these variables in determining housing consumption were large in renter than slum households.

- Notably, determinants for housing consumption among renters and slums significantly vary by city size and regions. Households living in million plus cities, and western and eastern regions lag behind their counterparts, *ceteris paribus*.

Rental and slum dwellings together form the large share of housing stock in urban India. Therefore, policy-makers should recognize their importance in formulating urban/housing policy and programs. As expected, slum dwellers live in poor quality of dwellings, but surprisingly renters also live in poorly equipped dwellings. This is in contrast to our neighboring country Bangladesh, where urban renters live in better dwellings than owners (Bangladesh Bureau of Statistics 2010). Moreover, rental housing is not on the agenda of policy-makers. Since poor quality of rental housing is more due to different returns to endowments (about 66 %) than differences in endowment levels (34 %), this implies there is unequal treatment by the society. This should be rectified through appropriate policies and programs, which are, not exhaustive but indicative, as following. Besides income improvement strategies, in general, there needs to be a focus on upgrading the job skills of low-skilled workers (sales/service and elementary workers) and providing a stable employment base to the self-employed, casual, and others workers. Additionally, these specific groups of households can be targeted through housing subsidies (or concessions). Spatially, renter/slum households are located in million plus cities, and western (Gujarat, Maharashtra, and Goa) and eastern (Odisha, Bihar, Jharkhand, and West Bengal) regions. Therefore, the focus of such interventions should be targeted in these regions through special housing/urban programs.

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## Appendix

See Table 6.4.

Table 6.4 Summary statistics of the sample survey, 2009

| Variables   | Non-slum |         |         | Slum    |         |         | Statistics <sup>a</sup> |
|---|----------|---------|---------|---------|---------|---------|-------------------------|
|   | Owner    |         | Renter  | Mean    |         | S.D.    |                         |
|   | Mean     | S.D.    | Mean    | S.D.    | S.D.    |         |                         |
| DV: Floor area (square meter)   | 50.84    | 35.61   | 29.87   | 23.13   | 25.20   | 19.89   | (-68.56) [-62.95]       |
| <i>Income and land possession</i>   |          |         |         |         |         |         |                         |
| Consumption expenditure   | 5760.94  | 4601.44 | 4731.08 | 3682.53 | 3924.28 | 2363.34 | (-24.91) [-35.10]       |
| land possession   | 2.33     | 1.46    | 1.67    | 1.08    | 1.64    | 1.16    | (-51.10) [-39.68]       |
| <i>Demographic characteristics</i>  |          |         |         |         |         |         |                         |
| Household size  | 5.03     | 2.52    | 3.70    | 2.08    | 4.50    | 2.36    | (-58.11) [-17.23]       |
| Male-headed household   | 0.87     | 0.33    | 0.89    | 0.31    | 0.88    | 0.33    | (5.30) {0.69}           |
| <i>Labor market characteristics: principal occupation and employment status</i> |          |         |         |         |         |         |                         |
| Occupation—Prof./manag.   | 0.26     | 0.44    | 0.18    | 0.38    | 0.12    | 0.32    | (-19.35) [-27.04]       |
| Occupation—Assoc. prof.   | 0.06     | 0.24    | 0.07    | 0.26    | 0.03    | 0.17    | (5.32) [-10.64]         |
| Occupation—Clerical   | 0.06     | 0.23    | 0.06    | 0.25    | 0.04    | 0.19    | (3.80) [-7.01]          |
| Occupation—Sales/service  | 0.45     | 0.50    | 0.47    | 0.50    | 0.49    | 0.50    | (4.58) {6.86}           |
| Occupation—Elementary   | 0.17     | 0.38    | 0.21    | 0.41    | 0.32    | 0.47    | (9.41) {29.66}          |
| Status—regular wage/salary  | 0.30     | 0.46    | 0.52    | 0.50    | 0.36    | 0.48    | (48.4) {10.53}          |
| Status—self-employed  | 0.46     | 0.50    | 0.25    | 0.43    | 0.32    | 0.47    | (-46.6) [-22.78]        |
| Status—casual labor   | 0.14     | 0.35    | 0.13    | 0.34    | 0.26    | 0.44    | (-2.05) {26.22}         |
| Status—others   | 0.10     | 0.30    | 0.10    | 0.31    | 0.06    | 0.24    | (0.049) [-11.23]        |
| <i>Sociocultural characteristics: religion and social groups</i>                |          |         |         |         |         |         |                         |
| Religion—Hindu  | 0.75     | 0.43    | 0.80    | 0.40    | 0.73    | 0.44    | (11.23) [-4.08]         |
| Religion—Muslim   | 0.15     | 0.36    | 0.11    | 0.31    | 0.18    | 0.38    | (-12.49) {6.04}         |
| Religion—Christian  | 0.06     | 0.24    | 0.07    | 0.25    | 0.05    | 0.22    | (3.22) [-3.19]          |
| Religion—others   | 0.04     | 0.19    | 0.03    | 0.16    | 0.04    | 0.20    | (-6.83) {1.66}          |

(continued)

Table 6.4 (continued)

| Variables   | Non-slum |      |        | Slum   |      |      | Statistics <sup>a</sup> |
|---|----------|------|--------|--------|------|------|-------------------------|
|   | Owner    |      |        | Renter |      |      |                         |
|   | Mean     | S.D. | Mean   | S.D.   | Mean | S.D. |                         |
| Social group—others                                   | 0.42     | 0.49 | 0.43   | 0.50   | 0.33 | 0.47 | (1.90) {-15.11}         |
| Social group—SC and ST                                | 0.21     | 0.40 | 0.21   | 0.41   | 0.36 | 0.48 | (0.503) {30.54}         |
| Social group—OBCs                                     | 0.37     | 0.48 | 0.36   | 0.48   | 0.30 | 0.46 | (-2.37) {-11.45}        |
| <i>Location characteristics: city size and region</i> |          |      |        |        |      |      |                         |
| Class I (<50,000)                                     | 0.35     | 0.48 | 0.26   | 0.44   | 0.19 | 0.39 | (-2.37) {-26.88}        |
| Class II (50,000–99,999)                              | 0.14     | 0.35 | 0.12   | 0.32   | 0.13 | 0.34 | (-7.16) {-1.67}         |
| Class III (100,000–499,999)                           | 0.24     | 0.43 | 0.25   | 0.43   | 0.24 | 0.43 | (2.33) {-0.169}         |
| Class IV (500,000–999,999)                            | 0.10     | 0.30 | 0.13   | 0.34   | 0.12 | 0.32 | (11.28) {5.37}          |
| Class V (million+)                                    | 0.17     | 0.38 | 0.24   | 0.43   | 0.31 | 0.46 | (17.23) {28.59}         |
| Region—Central  | 0.22     | 0.41 | 0.14   | 0.34   | 0.13 | 0.34 | (-20.97) {-17.52}       |
| Region—Southern                                       | 0.22     | 0.41 | 0.30   | 0.46   | 0.23 | 0.42 | (19.56) {2.34}          |
| Region—Western  | 0.16     | 0.37 | 0.13   | 0.34   | 0.32 | 0.47 | (-7.61) {33.19}         |
| Region—Eastern  | 0.15     | 0.36 | 0.13   | 0.34   | 0.15 | 0.35 | (-5.57) {-1.88}         |
| Region—Northern                                       | 0.67     | 1.71 | 0.83   | 1.86   | 0.56 | 1.58 | (9.06) {-5.41}          |
| Region—North Eastern                                  | 0.12     | 0.32 | 0.13   | 0.33   | 0.06 | 0.24 | (3.81) {-14.71}         |
| Number of observations                                | 31,518   |      | 16,563 |        |      |      |                         |

*Notes*

Slum samples include both owner and renter households

<sup>a</sup>The statistics is the t-value in case of average and chi-square value in case of frequency; figures in ( ) are the t-values associated with testing the null hypothesis that the relevant owner and renter household mean values were equal; figures in { } are the t-values associated with testing the null hypothesis that the relevant owner and slum mean values were equal

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