Inequality in Housing and Basic Amenities in India

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Abstract

The paper analyses inequality in housing conditions for India for two time period 2008-09 and 2012. Housing conditions are important determinants of health status. Access to descent housing and basic amenities is essential to improve health status of people. Given this backdrop, we examine the distribution of housing and basic amenities, namely, drinking water, toilets and electricity, across regions and over time. We also study the determinants of access to these basic amenities. The results show unequal distribution of housing conditions with rich households having higher access to better housing. Under the Millennium Development Goals, the Indian government has worked towards improving access to safe drinking water and sanitation. However, the results of multivariate analysis show that the economic and social background of household determine the access to basic services even in the year 2012.

Keywords: Basic amenities, housing conditions, inequality, India.

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Abstract

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Introduction

Access to adequate housing and basic amenities, such as drinking water, is essential for human development. In developing countries, like India, the access is unequally distributed and poor remain deprived of adequate housing facilities. Millennium development goals for India aim at improving access to safe drinking water and sanitation facilities by 2015. India is progressing towards achieving these goals, however regional variations are observable (Government of India, 2014). Moreover, improved access to these basic amenities may be concentrated in relatively higher income households. Given this backdrop, the paper examines changes in the income-related inequality in housing and basic amenities from 2009 to 2012 for India. This analysis helps to understand how the improved access to housing and basic amenities is distributed across income groups. We also study the regional variations in access to housing amenities and its distribution. Further, we examine the determinants of housing inequality.

Housing conditions and access to basic amenities are closely linked to the health conditions of family members. Marsh *et al.* (2000), based on data from Great Britain, points out that poor housing conditions affect current as well as future health status. Therefore, access to reasonable housing conditions is essential for family's overall welfare.

At the same time, housing inequality exists in both developed and developing countries. Many developed countries show inequality in housing across racial and ethnic communities (Uehara, 1994; Krivo and Kaufman, 2004; Elmelech, 2004). Similarly, in developing countries access to better housing facilities are correlated with higher economic and social status (Srinivasan and Mohanty, 2004; Huang and Jiang, 2009 and Ahmad, 2012).

Government policies affect access to better housing and increases correlation of housing conditions with economic status. In this context, studies point out that the market provision of housing increases inequality in housing and housing conditions. For instance, studies on China point out that the inequality in housing consumption has increased in early twentieth century after marketization of housing sector (Huang and Jiang, 2009; and Yi and Huang, 2014).

Similar to other developing countries, India also experience inequality in housing and basic amenities (Kundu *et al.*, 1999; Srinivasan and Mohanty, 2004; Edelman and Mitra, 2006; and Ahmad, 2012). Kundu *et al.* (1999) examines access to basic amenities, namely, electricity, toilet facility and safe drinking water; across states in urban India. This paper reports high disparities across Indian states in terms of access. Srinivasan and Mohanty (2004) studies deprivation in basic amenities, such as, housing structure, electricity, toilet facility, and drinking water. Based on the National Family Health Survey data for 1992 and 1999, the paper shows that there is substantial improvement in housing deprivation across India during this period. At the same time, the study finds differences across households based on their social background. In particular, households belonging to socially deprived classes were found to be more disadvantaged as compared to the others.

Edelman and Mitra (2006) and Ahmad (2012) consider possible reasons behind inequality in housing. Edelman and Mitra (2006), based on a primary survey, reports positive relation between political contacts and access to basic amenities among slum dwellers in Delhi. Ahmad (2012) studies effect of socio-economic factors on housing conditions in urban India. This study finds that the Muslim and Dalit households have lower living standards as compared to the Hindu households.

We extend the above studies and examine income-related inequality in housing conditions and access to basic amenities. Income-related inequality in housing explicitly brings out the correlation between housing conditions and economic status of households. The paper analyzes the changes in access to housing facilities and inequality over time from 2009 to 2012 for rural and urban India. It also studies the determinants of access to basic amenities and better housing conditions.

Data and Variables

The paper uses two rounds of India's National Sample Survey (NSS) on housing conditions and amenities conducted in 2008-09 and 2012 by National Sample Survey Organization (NSSO), Ministry of Statistics and Programme Implementation. The data is collected though stratified multi-stage sample design. For 2008-09 survey, the data was collected from 1,53,518 household – 97,144 in rural India and 56,374 in urban India, while in 2012, 95,548 households were surveyed- 53,393 in rural India and 42,155 in urban India. Both the surveys collect data on household characteristics, particularly about living facilities and amenities, socio-economic background of household, and the micro environment surrounding the dwelling unit. We use these two rounds of the NSS to examine inequality in housing across economic status of household and changes in the inequality over time.

This study considers an indicator of residential crowding and three variables to represent household's access to basic amenities. The residential crowding is measured as per capita floor area in square feet. The variables representing basic amenities are drinking water, toilet facility and electricity[1].

We examine the factors that affect the inequality in housing and access to basic amenities. For this purpose, we consider the socio-economic background of the household. Household's

[1] The definitions of these variables are given in Table 1.

monthly per capita consumption expenditure (MPCE) is considered as an indicator of economic status of the household. Occupational status of the household may also affect the housing conditions. To capture this effect, we consider three categories of households based on principal occupation: salaried, self-employed and labourers.

Given the structure of Indian society, the social background of the household may affect housing conditions. To examine this effect, we consider household's religion and caste. We divide the religion into three groups, Hindu, Muslim and other religions. In India, Hindu religion is the majority group. In the multivariate analysis, we take Hindu as the base category and study whether other groups have disadvantageous position vis-à-vis Hindus. Similarly, while considering the effect of caste on housing inequality, we consider four categories, namely, General, Scheduled Castes (SC), Scheduled Tribes (ST), and Other Backward Classes (OBC). Here, we take General as the base category, and examine the impact of socially backward classes on access to housing and basic amenities.

We also include demographic variables in the multivariate analysis. In particular, we include the household size and gender of the household head. Both the variables have economic as well as demographic implications. Larger household size means overcrowding in house. At the same time, a relatively larger household is likely to have higher number of earning members and thus better economic status. Similarly, male-headed household is likely to have better economic status given the male dominated structure of Indian society. At the same time, male-headed households are likely to be larger leading to over-crowding.

The next section describes the methodology to estimate the income-related inequality in housing conditions. It also presents the regression model that we use to estimate the effect of various household level factors on per capita floor area and access to the basic amenities.

Methods

In order to estimate the income-related inequality in housing, we use the concentration curves and indices. The concentration curve is the generalized Lorenz curve (Kakwani, 1977). In the present case, the concentration curve plots cumulative percentage of households with access to basic amenities against cumulative percentage of households arranged according to economic status of household. Thus, the concentration curve depicts the how the housing variable is distributed across households, when households are arranged according to their economic status. The distance between line of equality, shown by the 45º line, and the concentration curve shows the inequality in housing.

The concentration index estimates the degree of inequality by given a numeric measure of inequality. It is defined as twice the area between the concentration curve and the line of equality (O'Donnell *et al.*, 2008) and estimated using

$$C = \frac{2}{\mu}\mathrm{cov}(h, r)$$

where C is the concentration index, h is the housing indicator variable, r is the rank of the living standard variable and μ is the average of the housing variable.

Multivariate Analysis

We also study various determinants of housing conditions in India. For this purpose, we use the multivariate regression methods. We use the ordinary least squares method to understand factors determining per capita floor area. So, we estimate the following model for per capita floor area:

$$y_i = \beta x_i + \varepsilon_i$$

where, y_i is per capita floor area, x_i is the vector of explanatory variables, β is the vector of corresponding coefficients, and ε_i is the random error term.

Secondly, we use the logistic regression to model the probability of access to basic amenities. As mentioned previously, we consider access to three amenities, namely, drinking water, electricity and latrine. We estimate the following representative model for each of these basic amenities:

$$P(h=1 \mid x) = \frac{e^{x'\beta+\varepsilon}}{1+e^{x'\beta+\varepsilon}}$$

Here, $P(h = 1|x)$ represents the probability that the household has access to amenity 'h' given the covariates x.

Inequality in Housing and Basic Amenities

Table 2 shows that over the years residential crowding has gone down in rural India. At the same time, in the urban sector, we find increase in crowding from 2008-09 to 2012. In 2008-09 per capita floor area for urban India is 125.94 square feet and the corresponding figure for 2012 is 124.9 square feet. Access to basic amenities has improved over the years for both the rural and urban sectors. However, access to drinking water and toilet facilities is still very low in the rural areas. For instance, in 2012, only 39 percent of rural households have toilet facility inside the household or in the nearby area. In the same year, 44.3 percent of rural households report access to drinking water inside the house or in the nearby area. It is very interesting to note that a large percentage of urban households (96.1 percent in 2008-09 and 98 percent in 2012) reports access to electricity[2].

Analysis of distribution of floor area and basic amenities across household economic status reveals that access to reasonable housing conditions is concentrated among rich. Inequality in per capita floor area is more in the urban sector as compared to the rural sector (Figure 1).

[2] These figures are only showing whether the households are having electricity connections. It is possible that due to prolonged power-cuts their actual access to electricity is lower.

This result shows that urban poor suffer more due to residential crowding as compared to their rural counterparts.

The basic services, such as drinking water and toilet, are unequally distributed, particularly in the rural sector (Figure 2 and 3). Inequality in access to toilets has gone up over the years (Table 2). At the same time, access to drinking water is showing improvement both in terms of access and inequality reduction. Inequality in access to electricity is higher in the rural sector as compared to the urban sector (Figure 4).

We also carry out a state level analysis to understand differences in access and inequality across Indian states. Table 3 shows mean per capita floor area for various Indian states and its inequality within states. In 2008-09, the average per capita floor area in the rural sector is the highest in Kerala (184.23 sq ft) whereas the lowest in the states of West Bengal (81.95 sq ft). There is considerable progress shown by the state of Uttaranchal as the average per capita floor area increases from 110.8 sq ft in 2008-09 to 206.4 sq ft in 2012. At the same time, many states with higher average per capita floor area also report high levels of inequality. For instance, the concentration index for Kerala is 0.253, the second highest amongst the states. Similarly, some other states such as Goa, Gujarat, Haryana, Punjab, and Rajasthan report high level of average per capita floor area and concentration indices for rural sector.

For the urban sector, we observe that in 2008-09, the average per capita floor area is the highest (189.6 sq ft) for Kerala. During the four years time, Uttaranchal and Uttar Pradesh have shown considerable improvement with respect to the per capita floor area. In 2012, Uttaranchal reports the highest average per capita floor area at 222.1 sq ft. It is also observable that the residential crowding in urban areas has increased during this four years time in many Indian states. In particular, states of Assam, Delhi, Goa, Gujarat, Haryana,

Himachal Pradesh, Meghalaya, Mizoram, Punjab, Rajasthan, Sikkim and Tamil Nadu report decrease in average per capita floor area.

Analysis of access to basic amenities, namely, drinking water, toilet facility and electricity reveals that wide state-level variations exist. For instance, more than 80 percent of households from rural Goa and rural Punjab have easy access to drinking water in 2008-09; whereas in Orissa only 13.7 percent of households report access to drinking water in the same year (Table 4). Similarly, access to toilet facility remains low in the rural sector. Orissa reports the lowest availability in 2008-09 with only 11.3 percent of households having toilet facility inside the house or shared toilet facility with neighbours (Table 5). At the same time, the northeast states and Kerala show high availability with more than 80 percent households having access to toilets. Percentage of households having electricity connections is high (more than 80 percent) for most of the states in 2008-09 (Table 6). However, some states such as Bihar (24.5 percent), and Uttar Pradesh (37.5 percent) show very low coverage. We must note here that the availability of electricity is measured as whether households are having electricity connections. We have not considered actual supply of electricity to households due to lack of information.

In the urban areas, access to drinking water, toilet facility and electricity is better as compared to the rural areas in most of the states. For instance, in 2008-09, the states of Chhattisgarh and West Bengal are the worst performers with 51.9 percent of households reporting access to drinking water (Table 4).

The situation with respect to all the three indicators of access to basic amenities has improved over the years. At the same time, state level variations persist with some states showing very low access to these basic amenities. For instance, less than 20 percent of rural households have access to drinking water in the states of Chhattisgarh, Jharkhand, Madhya Pradesh,

Manipur, Mizoram, and Orissa even in 2012. Some of these states also show low access to toilet facilities in rural areas. Thus, even in 2012, the access to basic amenities remains distant reality for many Indian households, particularly rural households.

Moreover, the access to these basic services is highly correlated with economic status of households. It is poor households who suffer more due to inadequate access. Income-related inequality in access to basic amenities show that

Determinants of Housing Conditions

We find that the economic background of the household affects both consumption of housing and the access to basic amenities. Social background of the household also matters in most of the cases. Moreover, we find that there is no major change in determinants of access to basic amenities over the years. Socio-economic background of the household continues to play important role in determining access to drinking water and latrine in the year 2012. We discuss these results in detail below.

Household's economic status, measured by per capita consumption expenditure, is statistically significant determinant of both per capita floor area and access to basic amenities. At the same time, we find certain differences across rural-urban sectors. Coefficient of the variable 'Log MPCE' is larger for the urban sector in both the survey years as compared to the rural sector. For instance, we find that, on average, one percentage point increase in MPCE increases per capita floor area by 45.48 sq ft in the rural sector in 2012 as compared to 68.17 sq ft increase in the urban sector (Table 7). This result reflects the fact that residential space is limited and thus expensive in the urban sector as compared to the rural sector. As a result, economic conditions matter more in urban India. Similarly, we find that higher MPCE means higher access to drinking water in both the sectors. However, the marginal effect of

MPCE is higher in the urban sector than the rural sector (Table 8). This result may indicate larger availability of free water resources in the rural sector as compared to the urban sector.

On the other hand, when we consider the access to electricity and latrine, economic status plays higher role in the rural sector rather than in the urban sector. Most of the urban areas are covered by electricity connections, whereas the rural sectors are not well-covered by the electricity connections in India. Therefore, even poorer households have electricity connection in urban India and we find smaller impact of 'Log MPCE' on the probability of access to electricity in the urban sector as compared to the rural sector. For instance, on average, one percentage point increase in the MPCE increases probability of having electricity connection by 3.6 percent in the urban sector in 2012 (Table 9). In the rural sector, the probability increases by 10.7 percent due to one percentage point increase in the MPCE. Similarly, in 2012, the marginal effect of the MPCE on access to latrine is slightly lower in the urban sector as compared to the rural sector (Table 10).

The occupational status of household is another economic variable that we include in the multivariate regression. We find that the labourers are at disadvantaged positions in both the sectors as compared to the other categories. For instance, we find that, in 2012, the probability of access to drinking water is 10.9 percent lower for labourers than that for the self employed households in the rural sector (Table 8). Similarly, for the other basic amenities labourers show lower access as compared to self employed household in both the sectors. On the other hand, salaried households, on average, have higher access to the basic amenities as compared to the self employed households.

Along with the economic variables, the social background of the household is important determinant of consumption of housing and access to the basic amenities. We find that the socially deprived groups (SC, ST, and OBC), on average, have lower per capita floor area

and lower access to the basic amenities as compared to the others. For instance, in 2012, the average per capita floor area for households belonging to the SC category is 20.89 and 28.13 sp ft lower than that for the others in the rural and urban sectors, respectively (Table 7). Moreover, the comparison of average per capita floor area across years shows that the difference has increased from 2008-09 to 2012. We also observe the similar results for households belonging to the ST category. In the case of access to the basic amenities, the households from these socially deprived classes are at disadvantaged position. The probability of having drinking water facility, electricity and latrine is lower for these household as compared to the others in both the sectors.

Religious minorities, namely Muslims, also show lower average per capita floor area as compared to Hindus in both the sectors. At the same time, the difference in the per capita floor area has increased over the years. For instance, in the rural sector, difference in the per capita floor area for households from these two communities has increased from 9.24 sq ft in 2008-09 to 13.42 sq ft in 2012 (Table 7).

Gender of the household head has significant impact on access to the basic amenities in the rural sector. If the household head is male then the household has 2.2 percent higher probability of having access to the drinking water as compared to the female headed household in the rural sector (Table 8). Similarly, the probability of having access to electricity and latrine is also higher of the male headed rural household as opposed to the female headed household.

Concluding Remarks

The paper examines distribution of housing and basic amenities in India. Using the NSSO data for two years 2008-09 and 2012, we find that the distribution is unequal with poor sections having lower access to the basic amenities. At the same time, there is improvement

in both access and distribution of housing amenities over the years. This analysis suggests that access to basic amenities, such as drinking water and sanitation, is highly correlated with the economic status of household.

This finding is also supported by the multivariate analysis which examines the determinants of housing conditions in rural and urban. Economic and social backgrounds of the household are the major determinants of the housing conditions in both rural and urban India. Poor households and socially deprived classes have less probability of having access to the basic amenities such as drinking water and electricity. Since access to these facilities is necessary to lead a healthy life, policies are required to improve the access to these sections of society.

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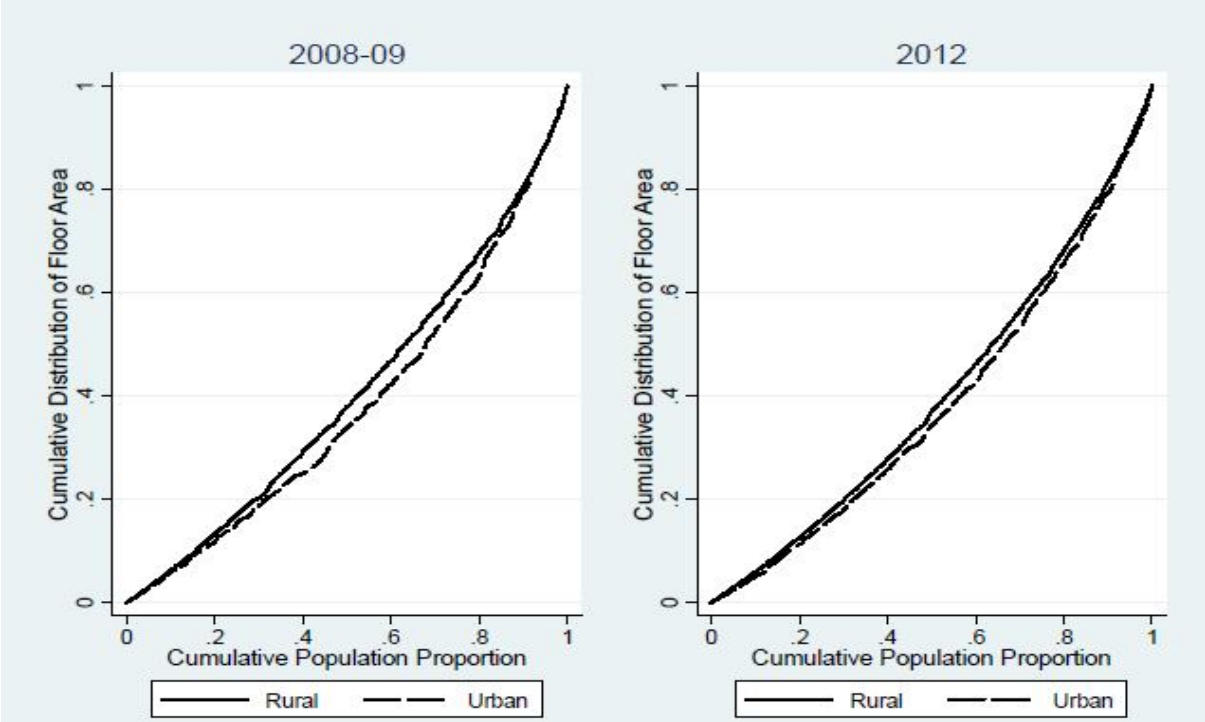
Figure 1: Inequality in Per Capita Floor Area



Note: Estimation based on 65th and 69th round of India's National Sample Survey on housing conditions and amenities

Figure 2: Inequality in Access to Drinking Water

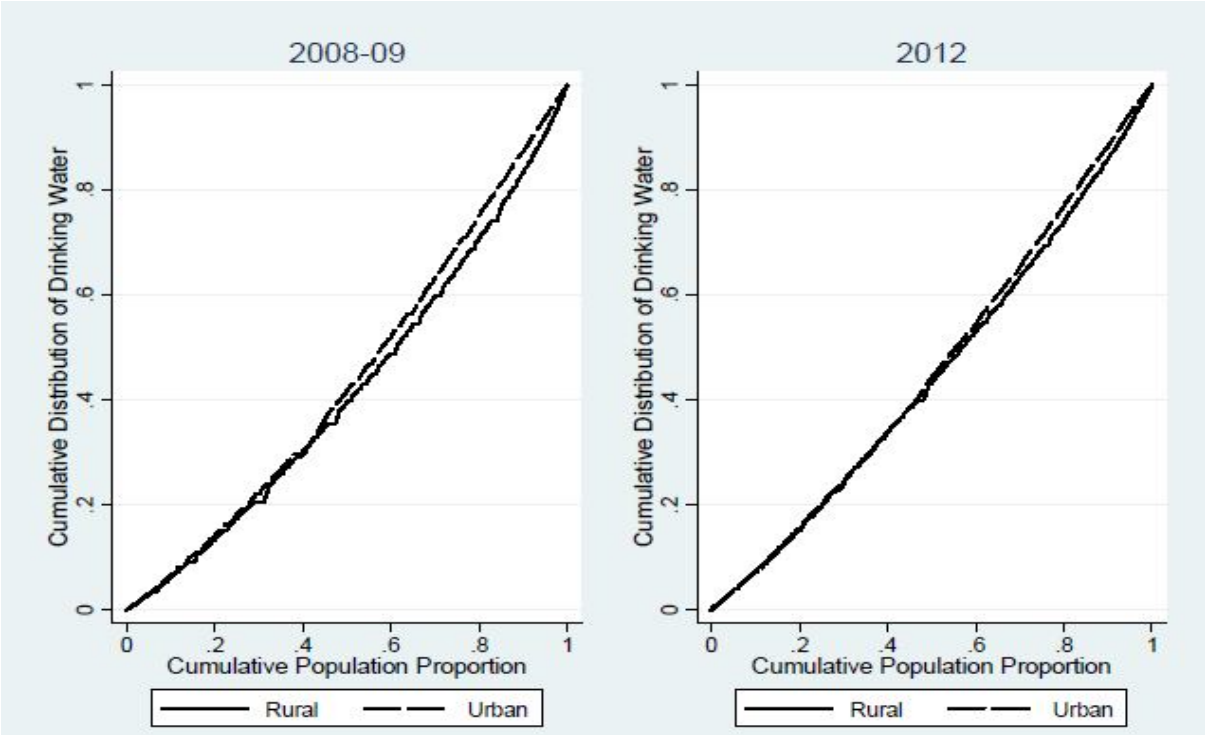


Figure 3: Inequality in Access to Toilet Facility

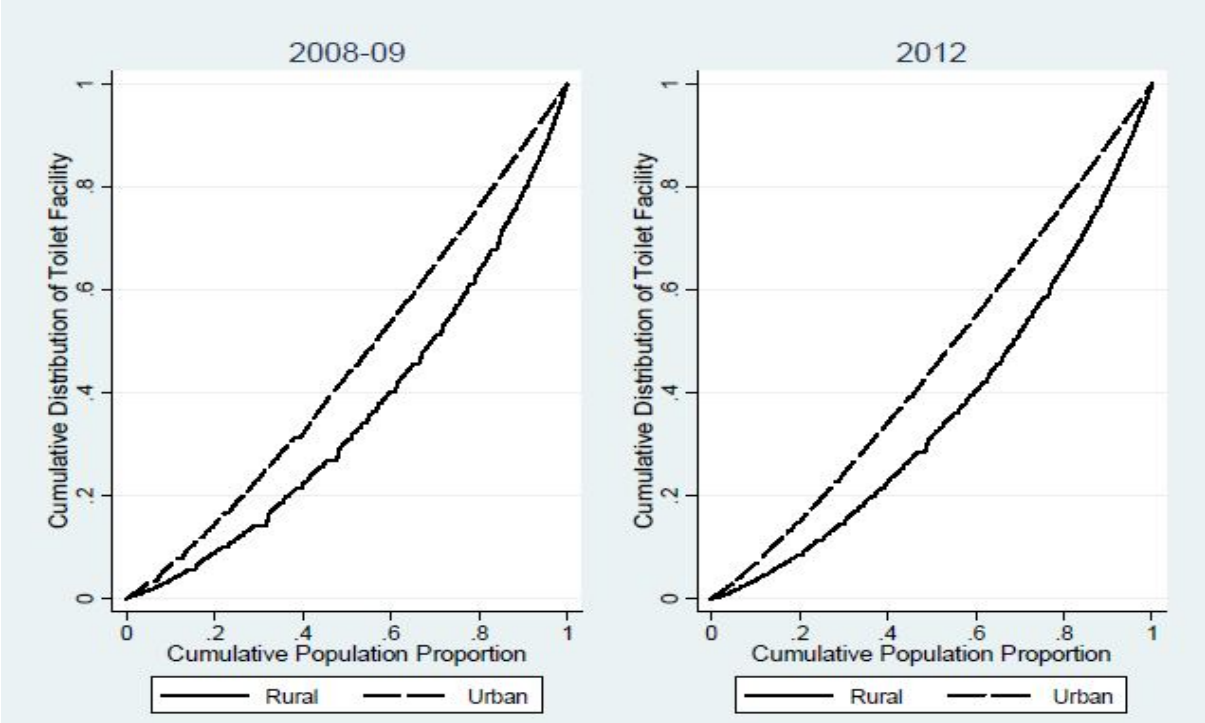


Figure 4: Inequality in Access to Electricity

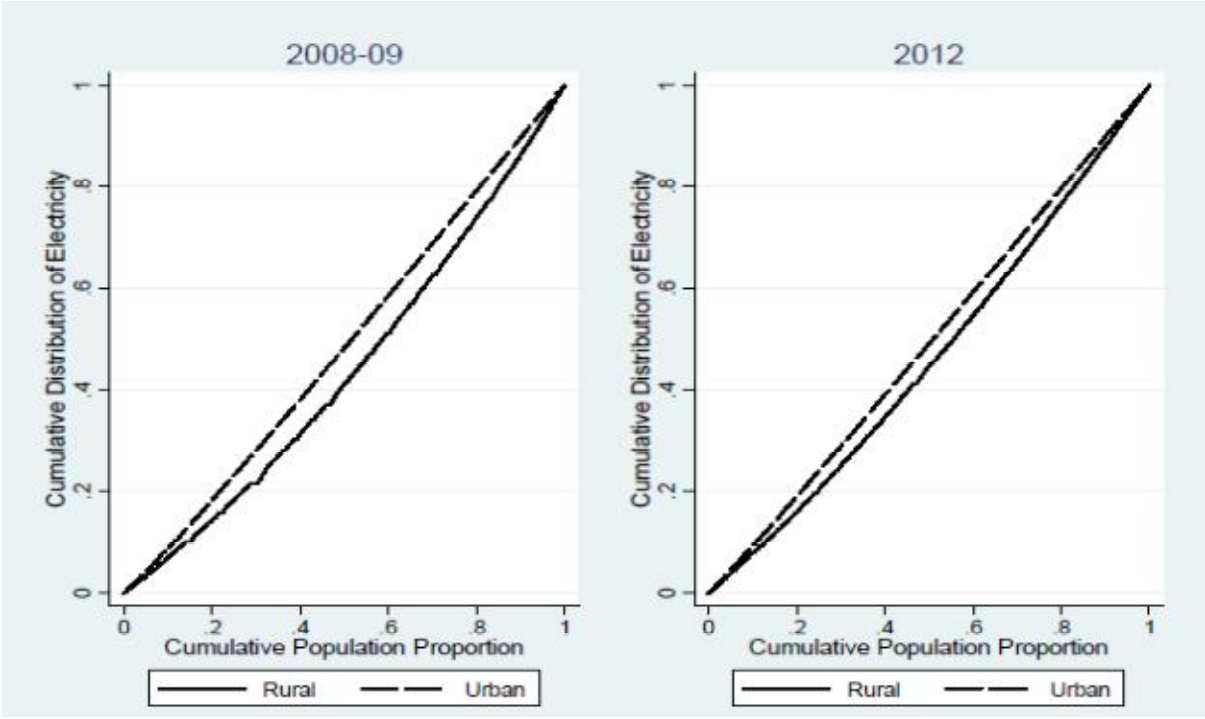


Table 1: Description of Variables

Variable Name	Description of Variables
Floor Area per Capita	In Sq Feet ; Total floor area in sq. ft. divided by no. of members in household
Availability of Electricity	1 if Electricity is available for domestic use ; 0 if it is not
Latrine Facility	1 if exclusive use or shared with nearby households; 0 if community/ public use, absence of latrine facility or other cases
Access to water source	1 if exclusive source or common source of nearby households; 0 if community/ public source or other cases
Log MPCE	Monthly per capita expenditure of household in log terms (in Rs.)
Caste (Base: General)	= 1 if household belongs to general category (traditionally non-deprived castes); = 0 otherwise
ST	= 1 if household belongs to Scheduled Tribes; = 0 otherwise
SC	= 1 if household belongs to Scheduled Castes; = 0 otherwise
OBC	= 1 if household belongs to Other Backward Classes; = 0 otherwise
Religion (Base: Hindu)	= 1 if household belongs to Hindu community; = 0 otherwise
Muslim	= 1 if household belongs to Muslim community; = 0 otherwise
Others	= 1 if household belongs to any other community; = 0 otherwise
Gender (Male)	= 1 if head of the household is Male; = 0 otherwise
Household Size	Number of household members
Occupation (Base: Self Employed)	= 1 if main source of income for household is from self-employment; = 0 otherwise
Salaried	= 1 if main source of income for household is fixed salary; = 0 otherwise
Labourer	= 1 if main source of income for household is labour income; = 0 otherwise

Table 2: Access to and Inequality in Housing and Basic Amenities

STATE	Rural				Urban			
	2008-09		2012		2008-09		2012	
	Mean	***CI***	***Mean***	***CI***	***Mean***	***CI***	***Mean***	***CI***
Floor Area	105.39	0.184	106.0	0.191	125.94	0.230	124.9	0.227
Drinking Water	0.394	0.255	0.443	0.176	0.717	0.390	0.721	0.281
Toilet	0.336	0.413	0.390	0.437	0.822	0.520	0.854	0.540
Electricity	0.660	0.353	0.800	0.377	0.961	0.641	0.980	0.667

Table 3: Inequality in Per Capita Floor Area across States

STATE	Rural				Urban			
	2008-09		2012		2008-09		2012	
	Mean	*CI*	*Mean*	*CI*	*Mean*	*CI*	*Mean*	*CI*
A.P.	85.2	0.177	128.2	0.140	111.6	0.204	145.3	0.247
Arunachal	122.8	0.192	195.1	0.115	95.9	0.091	134.2	0.141
Assam	129.2	0.121	143.9	0.147	163.9	0.110	112.5	0.085
Bihar	102.1	0.217	129.8	0.181	117.8	0.223	145.5	0.235
Chhattisgarh	114.1	0.141	126.6	0.147	99.5	0.223	140.0	0.156
Delhi	140.2	0.224	91.2	-0.003	119.7	0.339	88.9	0.266
Goa	142.8	0.215	105.4	0.215	150.7	0.131	111.5	0.304
Gujarat	119.2	0.201	92.4	0.207	137.7	0.243	110.7	0.243
Haryana	117.1	0.218	73.5	0.166	127.9	0.256	93.0	0.210
H.P.	151.2	0.178	152.0	0.223	163.9	0.226	134.5	0.213
J&K	127.7	0.114	88.5	0.193	131.3	0.156	141.8	0.162
Jharkhand	91.8	0.135	152.5	0.163	108.8	0.212	143.6	0.157
Karnataka	100.8	0.215	145.4	0.169	145.3	0.289	166.0	0.232
Kerala	184.2	0.253	142.6	0.226	189.6	0.228	142.8	0.234
M.P.	112.4	0.166	124.9	0.153	128.9	0.157	141.7	0.196
Maharashtra	103.9	0.118	110.2	0.139	107.4	0.237	123.2	0.234
Manipur	141.7	0.088	129.2	0.078	160.8	0.024	169.8	0.072
Meghalaya	93.0	0.123	90.1	0.146	126.9	0.220	116.1	0.129
Mizoram	103.0	0.155	95.9	0.164	126.2	0.148	104.3	0.151
Nagaland	99.8	0.067	90.6	0.082	108.8	0.103	126.6	0.095
Orissa	89.5	0.129	137.4	0.148	112.6	0.268	121.5	0.245
Punjab	136.9	0.265	105.6	0.249	135.8	0.198	130.4	0.184
Rajasthan	109.1	0.202	126.7	0.207	160.3	0.227	139.2	0.236
Sikkim	126.5	0.163	109.4	0.157	162.5	0.161	107.0	0.198
Tamil Nadu	103.5	0.131	100.7	0.159	131.5	0.189	120.4	0.196
Tripura	101.3	0.145	102.7	0.111	123.4	0.174	134.1	0.172
U. P.	99.1	0.201	181.3	0.204	112.8	0.269	200.5	0.271
Uttaranchal	110.8	0.213	206.4	0.191	125.6	0.254	222.1	0.260
West Bengal	81.9	0.158	113.3	0.162	115.3	0.281	134.9	0.270

Table 4: Inequality in Access to Drinking Water across States

States	Rural				Urban			
	2008-09		2012		2008-09		2012	
	Mean	*CI*	*Mean*	*CI*	*Mean*	*CI*	*Mean*	*CI*
A.P.	0.308	0.190	0.343	0.020	0.645	0.236	0.657	0.015
Arunachal	0.564	0.111	0.436	0.238	0.828	0.348	0.935	0.510
Assam	0.644	0.318	0.797	0.041	0.879	0.262	0.897	0.428
Bihar	0.591	0.266	0.710	0.249	0.803	0.436	0.865	0.535
Chhattisgarh	0.228	0.055	0.155	0.267	0.519	0.623	0.613	0.626
Delhi	0.666	0.203	0.784	-0.415	0.842	0.527	0.850	0.425
Goa	0.827	0.344	0.792	-0.007	0.931	0.662	0.994	0.661
Gujarat	0.488	0.171	0.537	0.180	0.864	0.305	0.806	0.326
Haryana	0.599	0.260	0.735	0.027	0.809	0.483	0.846	0.495
H.P.	0.493	0.366	0.520	0.248	0.810	0.274	0.905	0.511
J&K	0.545	0.296	0.472	0.172	0.898	0.162	0.883	0.212
Jharkhand	0.144	0.366	0.183	0.166	0.642	0.586	0.689	0.433
Karnataka	0.296	0.373	0.341	0.206	0.717	0.597	0.712	0.211
Kerala	0.733	0.279	0.708	0.222	0.767	0.355	0.795	0.347
M.P.	0.147	0.314	0.184	0.402	0.547	0.483	0.693	0.468
Maharashtra	0.391	0.239	0.466	0.239	0.751	0.481	0.847	0.572
Manipur	0.217	0.145	0.091	0.352	0.494	0.489	0.381	0.278
Meghalaya	0.158	0.263	0.231	0.040	0.801	0.433	0.733	0.443
Mizoram	0.128	0.599	0.184	0.324	0.689	0.360	0.821	0.480
Nagaland	0.594	0.167	0.332	0.143	0.639	0.000	0.843	0.560
Orissa	0.137	0.293	0.188	0.200	0.560	0.666	0.730	0.696
Punjab	0.809	0.428	0.848	0.214	0.948	0.380	0.896	0.255
Rajasthan	0.298	0.211	0.377	0.273	0.901	0.415	0.767	0.298
Sikkim	0.626	0.105	0.800	0.167	0.968	0.130	0.961	0.692
Tamil Nadu	0.219	0.319	0.294	0.218	0.547	0.236	0.507	0.135
Tripura	0.345	0.382	0.307	0.091	0.784	0.558	0.590	0.311
U. P.	0.512	0.176	0.560	0.094	0.810	0.328	0.769	0.253
Uttaranchal	0.465	0.399	0.560	0.580	0.861	0.339	0.856	0.523
West Bengal	0.272	0.203	0.289	0.223	0.519	0.414	0.492	0.407

Table 5: Inequality in Access to Toilet Facility across Indian States

STATE	Rural				Urban			
	2008-09		2012		2008-09		2012	
	Mean	***CI***	***Mean***	***CI***	***Mean***	***CI***	***Mean***	***CI***
A.P.	0.348	0.313	0.448	0.374	0.872	0.534	0.928	0.218
Arunachal	0.821	-0.006	0.603	-0.005	0.996	0.320	0.923	0.725
Assam	0.858	0.374	0.846	0.135	0.975	0.444	0.932	0.675
Bihar	0.194	0.322	0.253	0.322	0.700	0.502	0.980	0.701
Chattisgarh	0.160	0.275	0.233	0.313	0.572	0.672	0.977	0.815
Delhi	0.870	0.595	1.000	-	0.872	0.689	0.961	0.425
Goa	0.619	0.343	0.813	0.027	0.831	0.653	0.831	0.459
Gujarat	0.318	0.401	0.410	0.480	0.884	0.611	0.874	0.596
Haryana	0.545	0.407	0.736	0.226	0.912	0.530	0.786	0.616
H.P.	0.529	0.460	0.718	0.205	0.899	0.426	0.968	0.720
J&K	0.590	-0.014	0.551	0.154	0.879	0.128	1.000	-
Jharkhand	0.152	0.326	0.089	0.393	0.742	0.644	0.995	0.869
Karnataka	0.243	0.480	0.280	0.386	0.847	0.717	0.997	0.625
Kerala	0.941	0.381	0.960	0.215	0.985	0.602	0.999	0.810
M.P.	0.139	0.458	0.205	0.364	0.729	0.607	0.701	0.235
Maharashtra	0.342	0.337	0.412	0.378	0.702	0.355	0.998	0.321
Manipur	0.984	0.364	0.983	0.413	1.000	-	0.976	0.451
Meghalaya	0.886	0.226	0.953	-0.198	0.998	0.263	0.880	0.544
Mizoram	0.988	0.470	0.983	0.090	1.000	-0.549	0.817	0.662
Nagaland	0.956	0.517	0.990	0.200	0.957	0.353	0.811	0.722
Orissa	0.113	0.457	0.182	0.341	0.688	0.664	0.678	0.723
Punjab	0.625	0.450	0.770	0.452	0.934	0.424	0.844	0.616
Rajasthan	0.177	0.437	0.267	0.476	0.871	0.598	0.898	0.696
Sikkim	0.975	0.335	0.983	0.034	0.984	0.720	0.723	0.455
Tamil Nadu	0.250	0.349	0.313	0.440	0.788	0.628	0.914	0.527
Tripura	0.963	0.276	0.849	0.011	0.991	0.748	0.888	0.769
U. P.	0.201	0.309	0.243	0.305	0.839	0.500	0.816	0.532
Uttaranchal	0.460	0.390	0.788	0.611	0.912	0.397	0.983	0.427
West Bengal	0.566	0.231	0.558	0.378	0.892	0.489	0.787	0.612

Table 6: Inequality in Access to Electricity across Indian States

STATE	Rural				Urban			
	2008-09		2012		2008-09		2012	
	Mean	***CI***	***Mean***	***CI***	***Mean***	***CI***	***Mean***	***CI***
A.P.	0.932	0.222	0.983	0.366	0.975	0.578	0.993	0.618
Arunachal	0.779	0.108	0.667	-0.100	0.985	0.146	0.981	0.251
Assam	0.403	0.424	0.708	0.350	0.946	0.510	0.989	0.852
Bihar	0.245	0.226	0.468	0.084	0.795	0.486	0.892	0.526
Chattisgarh	0.811	0.318	0.878	0.215	0.967	0.368	0.991	0.630
Delhi	0.960	0.641	0.971	-0.503	0.986	0.316	0.999	0.056
Goa	0.995	0.342	0.998	0.291	0.973	0.754	1.000	-
Gujarat	0.898	0.180	0.959	0.410	0.990	0.513	0.989	0.459
Haryana	0.934	0.469	0.996	0.779	0.983	0.640	0.993	0.514
H.P.	0.986	0.552	0.998	0.420	0.994	0.229	0.997	-0.136
J&K	0.959	0.051	0.955	0.097	0.975	0.445	0.999	0.494
Jharkhand	0.430	0.303	0.626	0.161	0.939	0.568	0.944	0.532
Karnataka	0.941	0.233	0.953	0.242	0.979	0.614	0.995	0.720
Kerala	0.928	0.387	0.967	0.324	0.979	0.591	0.987	0.670
M.P.	0.813	0.151	0.844	0.149	0.969	0.552	0.994	0.342
Maharashtra	0.819	0.225	0.934	0.300	0.985	0.586	0.991	0.601
Manipur	0.869	0.370	0.948	0.152	0.995	0.619	0.994	0.531
Meghalaya	0.698	-0.190	0.796	0.389	0.993	0.701	0.983	0.581
Mizoram	0.819	0.462	0.908	0.413	0.998	-0.287	1.000	0.998
Nagaland	0.990	-0.533	0.997	0.514	1.000	-	0.995	0.211
Orissa	0.449	0.420	0.753	0.258	0.901	0.606	0.973	0.789
Punjab	0.965	0.461	0.993	0.536	0.993	0.663	0.997	0.589
Rajasthan	0.638	0.238	0.832	0.351	0.970	0.616	0.984	0.527
Sikkim	0.958	0.313	0.991	0.308	0.994	0.209	1.000	-
Tamil Nadu	0.926	0.230	0.973	0.228	0.978	0.636	0.988	0.563
Tripura	0.661	0.385	0.898	0.157	0.953	0.747	0.989	0.660
U. P.	0.375	0.256	0.557	0.183	0.898	0.550	0.924	0.610
Uttaranchal	0.855	0.270	0.964	0.350	0.986	0.614	0.991	0.850
West Bengal	0.494	0.283	0.818	0.221	0.933	0.650	0.968	0.579

Table 7: Determinants of Per Capita Floor Area

STATE	Rural				Urban			
	2008-09		2012		2008-09		2012	
	Coeff.	*P-value*	*Coeff.*	*P-value*	*Coeff.*	*P-value*	*Coeff.*	*P-value*
Log MPCE	55.151	0.000	45.482	0.000	69.688	0.000	68.165	0.000
Caste (Base: General)								
ST	-9.238	0.000	-12.107	0.000	5.557	0.514	-8.820	0.040
SC	-18.068	0.000	-20.893	0.000	-25.168	0.000	-28.133	0.000
OBC	-12.715	0.000	-8.693	0.000	-15.317	0.000	-15.729	0.000
Religion (Base: Hindu)								
Muslim	-9.558	0.000	-13.415	0.000	-4.117	0.161	-12.566	0.000
Others	9.184	0.001	9.544	0.037	19.977	0.009	16.576	0.000
Gender (Male)	-20.581	0.000	-22.296	0.000	-28.961	0.000	-24.280	0.000
Household size	-9.206	0.000	-9.718	0.000	-10.906	0.000	-8.863	0.000
Occupation (Base: Self Employed)								
Salaried	11.794	0.000	-2.172	0.278	-11.699	0.000	-7.594	0.000
Labourer	-23.350	0.000	-23.084	0.000	10.247	0.000	-1.233	0.656
Number of obs	96298		52687		54661		41200	
F(48, 49137)	204.01		159.61		103.63		102.68	
Prob > F	0.000		0.000		0.000		0.000	
R-squared	0.25		0.277		0.229		0.293	

Table 8: Determinants of Access to Drinking Water

STATE	Rural				Urban			
	2008-09		2012		2008-09		2012	
	dy/dx	*P-value*	*dy/dx*	*P-value*	*dy/dx*	*P-value*	*dy/dx*	*P-value*
Log MPCE	0.165	0.000	0.117	0.000	0.190	0.000	0.152	0.000
Caste (Base: General)								
ST	-0.164	0.000	-0.158	0.000	-0.044	0.036	-0.097	0.000
SC	-0.113	0.000	-0.087	0.000	-0.122	0.000	-0.095	0.000
OBC	-0.043	0.000	-0.017	0.052	-0.018	0.050	-0.034	0.004
Religion (Base: Hindu)								
Muslim	0.027	0.000	0.050	0.000	-0.018	0.090	0.000	0.984
Others	0.057	0.000	0.017	0.354	0.021	0.192	0.000	0.982
Gender (Male)	0.030	0.000	0.022	0.040	-0.031	0.011	0.000	0.992
Household Size	0.020	0.000	0.017	0.000	0.010	0.000	0.009	0.000
Occupation (Base: Self Employed)								
Salaried	0.065	0.000	0.062	0.000	0.020	0.018	-0.024	0.024
Labourer	-0.141	0.000	-0.109	0.000	-0.033	0.001	-0.029	0.008
Observations	96314		52699		54667		41196	
Wald chi2	8302.34		4325.96		2642.61		1894.71	
Prob > chid2	0.000		0.000		0.000		0.000	
Pseudo R^2	0.179		0.162		0.158		0.121	

Table 9: Determinants of Availability of Electricity

STATE	Rural				Urban			
	2008-09		2012		2008-09		2012	
	Coeff.	*P-value*	*Coeff.*	*P-value*	*Coeff.*	*P-value*	*Coeff.*	*P-value*
Log MPCE	0.160	0.000	0.107	0.000	0.065	0.000	0.036	0.000
Caste (Base: General)								
ST	-0.165	0.000	-0.110	0.000	-0.032	0.000	-0.026	0.000
SC	-0.076	0.000	-0.062	0.000	-0.029	0.000	-0.019	0.000
OBC	-0.049	0.000	-0.051	0.000	-0.014	0.000	-0.009	0.004
Religion (Base: Hindu)								
Muslim	-0.050	0.000	-0.022	0.006	-0.015	0.000	-0.004	0.199
Others	-0.004	0.745	0.042	0.010	0.005	0.532	0.011	0.016
Gender (Male)	0.053	0.000	0.045	0.000	-0.001	0.881	0.001	0.759
Household Size	0.020	0.000	0.017	0.000	0.005	0.000	0.003	0.000
Occupation (Base: Self Employed)								
Salaried	0.055	0.000	0.027	0.000	0.010	0.005	0.010	0.004
Labourer	-0.093	0.000	-0.060	0.000	-0.015	0.000	-0.006	0.033
Observations	96335		52706		54302		40771	
Wald chi2	11816.34		4865.7		1376.24		810.27	
Prob > chid2	0.000		0.000		0.000		0.000	
Pseudo R^2	0.316		0.264		0.253		0.270	

Table 10: Determinants of Access to Latrine

STATE	Rural				Urban			
	2008-09		2012		2008-09		2012	
	Coeff.	*P-value*	*Coeff.*	*P-value*	*Coeff.*	*P-value*	*Coeff.*	*P-value*
Log MPCE	0.203	0.000	0.222	0.000	0.214	0.000	0.193	0.000
Caste (Base: General)								
ST	-0.143	0.000	-0.168	0.000	-0.039	0.045	-0.090	0.000
SC	-0.115	0.000	-0.135	0.000	-0.108	0.000	-0.116	0.000
OBC	-0.078	0.000	-0.082	0.000	-0.033	0.000	-0.047	0.000
Religion (Base: Hindu)								
Muslim	0.026	0.000	0.058	0.000	0.006	0.437	-0.001	0.936
Others	0.073	0.000	0.099	0.000	0.063	0.000	0.064	0.000
Gender (Male)	0.040	0.000	0.027	0.005	-0.012	0.229	-0.013	0.128
Household Size	0.018	0.000	0.018	0.000	0.013	0.000	0.008	0.000
Occupation (Base: Self Employed)								
Salaried	0.125	0.000	0.110	0.000	0.025	0.001	0.009	0.230
Labourer	-0.112	0.000	-0.121	0.000	-0.038	0.000	-0.046	0.000
Observations	96328		52596		53534		40831	
Wald chi2	13189.52		6548.25		2191.96		2544.23	
Prob > chid2	0.000		0.000		0.000		0.000	
Pseudo R^2	0.281		0.270		0.225		0.259	