Household Income Mobility in India, 1993-2011

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Abstract

Using nationally representative longitudinal survey, we examine income mobility among rural Indian households over 1993-2004 and 2004-2011. We use both absolute and relative measures of mobility. Absolute measures of mobility suggest higher income mobility during 2004-2011 compared to 1993-2004, and each social group witnessed higher income mobility over 2004-2011. Importantly, significant differentials in income mobility exist across the Hindu castes in both the time intervals: conditional on having similar rankings in base period income distribution, the Forward Hindu Caste households have the highest probability (lowest) of upward (downward) income mobility, followed by the Other Backward Caste, Scheduled Caste, and Scheduled Tribe households. Further controlling for district and household characteristics leads to reduction in the differentials in income mobility across social groups, however, significant differentials remain. We also examine income mobility among urban households over 2004-2011. Although social group differentials in income mobility also exist in urban areas, the differentials are lower in urban areas compared to rural areas. We also find that conditional on having similar rankings in base period national income distribution, urban households have higher probability to improve their rankings in national income distribution. We find similar patterns in social group differentials in mobility over 2004-2011 using the consumption expenditure as a measure of well-being.

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1 Introduction

The period after the market oriented reforms in 1991 in India is associated with rapid economic growth, experiencing an annual average rate of real GDP growth of 6.6 percent between 1992 and 2011.[1] However, this period is also associated with increasing inequality.[2] The Gini coefficient for consumption expenditure in rural (urban) areas increased from 0.286 (0.344) in 1993-94 to 0.311 (0.390) in 2011-12. Moreover, the Gini coefficient for income in rural areas increased from 0.445 in 1993-94 to 0.531 in 2011-12.[3] Given the context of high growth and increasing inequality, it is pertinent to ask question about economic mobility as economic mobility—the rate at which individuals/households change positions in the income distribution over time—mitigates inequality. Other things being equal, an economy with rising mobility—one in which families move increasingly frequently or traverse increasingly greater distances up and down the income ladder—will result in a more equal distribution of lifetime incomes than an economy with declining mobility. Paul Krugman (1992) stated: "If income mobility were very high, the degree of inequality in any given year would be unimportant, because the distribution of lifetime income would be very even . . . An increase in income mobility tends to make the distribution of lifetime income more equal."

The importance of economic mobility is further enhanced in the Indian context because of stratified nature of Indian society based on caste and religion. Hindus who constitute about 80% of the Indian population are stratified across caste lines which originated historically based on occupation stratification.[4] The low castes in Hindu society were historically

[1] Source: http://povertydata.worldbank.org/poverty/country/IND.

[2] A number of papers examine trade liberalization in 1991 and inequality. For example, see Topolova (2007) and Krishna and Sethupathy (2011).

[3] The income information is not available for 1993-94. The Gini for consumption is calculated from 50^{th} and 68^{th} rounds of consumption expenditure surveys collected by National Sample Survey Organization in 1993-94 and 2011-12, respectively. The Gini for income is calculated from the 1993-94 Human Development Profile of India and 2011-12 India Human Development Survey.

[4] According to Hindu religious texts, the caste system divided Hindu society into Brahmins (priests), Kshatriyas (warriors), Vaisyas (traders), Sudras (menial workers), and Ati Sudras (the former untouchables who engaged in the most menial jobs) (Kijima, 2005). Traditionally some of the upper castes possessed much land and power, while the lower castes provided services to the dominant castes (Banerjee and Knight 1985).

relegated to menial occupations and faced severe social discrimination. Recognizing the social discrimination faced by lower castes, Articles 341 and 342 of the Constitution provided a list of groups officially designated as Scheduled Castes (SCs) and Scheduled Tribes (STs), and extended affirmative actions for these groups since 1950.[5] In addition to the SCs/STs, the Government of India also group a number of castes who are socially and educationally backward together as Other Backward Castes (OBCs), and has extended few affirmative policy benefits to the OBCs since early 1990s.[6] The Hindu castes excluding the SCs, STs, and OBCs are the higher Hindu castes, and classified as the Forward Hindu Castes (FHCs) in this paper. The FHCs are socially and educationally better off historically and do not get any affirmative benefits from the government. Besides caste, religion remains another dimension of social stratification. Muslims constitute the largest religious minority group in India with a population share of 14.2% in 2011, and Government of India (2006) finds that their performance on many economic and education indicators are comparable to the SCs/STs. The existence of caste-based frictions (mainly differences between the SCs/STs and others) in labor market allocations and poverty status have been documented by a number of studies (e.g. Banerjee and Knight, 1985; Gang et al., 2008; Kijima, 2006; and Hnatkovska et al., 2012).

In this paper, we use three waves of nationally representative longitudinal household survey data to examine economic mobility among rural households between 1993-94 and 2004-05, and between 2004-05 and 2011-12. We also examine economic mobility among urban households between 2004-05 and 2011-12 using two waves of longitudinal household survey. In any economic mobility study, two factors are key: the measure of mobility employed and measure of well-being. In broader terms, mobility is the pace and degree to which individuals' or families' incomes (or other measures of well-being) change over time relative to one another or relative to the overall income distribution (Bradbury, 2011). Some researchers

[5] Affirmative actions for the SCs/STs include political reservation, reservation in employment and educational institutions according to the share of these groups in population.

[6] 27% of jobs in the public sector and seats in higher education has been reserved for the OBCs.

(e.g. Shorrocks, 1978) view mobility as a re-ranking phenomenon, in which individuals switch income positions. In this approach, mobility is a purely relative concept. In the view of other researchers (e.g. Fields and Ok, 1996, 1999), mobility arises as soon as individuals move away from their initial income levels. In this approach, mobility is best characterized as an absolute concept. Consequently, there is less consensus on the measurement of mobility than on the measurement of inequality. Fields (2008) states that Income mobility connotes different ideas to different researchers, and the income mobility literature is fundamentally unsettled.

Both absolute and relative mobility measures matter, and each measure tells a different story, and those stories may be in conflict. For example, if a household grow richer over time but at a slower rate than other households, it experiences upward absolute mobility but at the same time experiencing downward relative mobility. In terms of "equality of opportunity," relative mobility remains important. In a growing economy, one would expect that all groups will see an increase in their real incomes. However, few would be content if they were also stuck on exactly the same point on the income ladder, even if they earn higher income. Moreover, if climbing up the economic ladder is associated with social identity, it will be a concern to policymakers who intend to provide equality of opportunity. In this paper, we use both absolute and relative measures of mobility and focus primarily on the differentials in mobility across social groups. We use income as a measure of well-being, however, we also check the robustness of our main findings using consumption as a measure of well-being.[7]

We address the following questions. How much movements are there across the household income distribution over the two time intervals considered? How these movements differ over 2004-2011 compared to 1993-2004? Does the income mobility differ across rural and urban areas? Does the income mobility differ across social groups, and how those differences, if any, changed over the two time intervals considered? To what extent are the differentials

[7]In data section, we provide reasons for our choice of measure of well-being.

in income mobility across social groups can be explained by households' characteristics and geographical locations?

The paper contributes to the existing literature in the following ways. First, we examine intragenerational mobility in rural India over 1993-2004 and 2004-2011 using both absolute and relative measures of mobility. We provide evidence of differentials in mobility across social groups over the two periods and how those differentials have changed between the two periods. Moreover, we control for household characteristics to examine whether the mobility differentials across social groups can be explained by the differences in household characteristics. Second, we also examine mobility and social group differentials in mobility in urban India over 2004-2011. Third, we compare mobility over 2004-2011 across urban and rural areas.

Based on non-directional absolute measures of mobility, we find larger income flux in rural areas during 2004-2011 compared to the 1993-2004 period. Importantly, larger income flux is witnessed by each social group in rural areas over 2004-2011 compared to the 1993-2004. Moreover, the historical social hierarchy in the Hindu castes is also present in income flux in rural areas in both periods: the FHC households witnessed the largest absolute movements in income followed by the OBC and SC/ST households in both periods. Similar social group differentials are also visible in urban areas over 2004-2011. In terms of relative mobility, conditional on the rankings of the households in the base period income distribution, the FHC households are more (less) likely to witness upward (downward) mobility compared to the other social groups in both periods in rural areas. This is also true in urban areas over 2004-2011. Moreover, conditional on base period incomes, the FHC households experienced the largest increase in incomes both in rupees and in percentage. The differentials witnessed across social groups conditional on base period rankings of the households' decline when we control for district fixed effects and household characteristics, however, considerable and statistically significant differentials remained in both rural and urban areas. Importantly, we find smaller conditional differentials across social groups in rural areas over 2004-2011

compared to the conditional differentials witnessed during 1993-2004. We also find that urban households have higher (lower) probability to improve (worsen) their rankings in national income distribution compared to rural households over 2004-2011.

The remainder of the paper is organized as follows. Section 2 provides a brief overview of the existing literature relevant to our study. Section 3 describes the data. Section 4 describes the empirical methodology, and Section 5 presents the results. Section 6 presents the robustness of our results to alternative measure of well-being, and Section 7 concludes.

2 Overview of relevant Literature

There exists a large intragenerational income mobility literature for developed countries (see Jäntti and Jenkins, 2015 for a review). A number of papers focus on wage earnings and examine how individuals' earnings change over time (e.g. Buchinsky and Hunt, 1999; Kopczuk et al., 2010). Another set of papers use family income, measuring the degree to which individuals' family incomes change from one point in time to another, and a subset of that research investigates how family income mobility patterns have changed over time (e.g. Bradbury, 2011; Hungerford, 2008). Many papers compare intragenerational income mobility between West Germany and the United States (e.g. Maasoumi and Trede, 2001). Aaberge et al. (2002) compares mobility in the United States with three Scandinavian countries (Denmark, Norway, and Sweden) in the 1980s.

For developing countries, the literature is growing with increasing availability of longitudinal surveys. Fields (2011) examine earning mobility in six countries: Argentina, Chile, China, Mexico, South Africa, and Ethiopia. Fields et al. (2003) examine income dynamics in Indonesia, South Africa, Spain, and Venezuela. Woolward and Klasen (2005) examine household income mobility among Africans in South Africa's province, KwaZulu-Natal, between 1993 and 1998. Lukiyanova and Oshchepkov (2012) examine income mobility in Russia during 2000–2005. Chen and Cowell (2015) examine income mobility in China, while Khor

and Pencavel (2006) examine income mobility of urban individuals in China and the US in the 1990s. In addition to income mobility studies, there exists a considerable literature in developing countries that explores poverty dynamics. Baulch and Hoddinott (2000) provide a brief survey of mobility and poverty dynamics studies in developing countries.

In the Indian context, the issue of economic mobility has generated considerable interest. A number of studies focus on poverty dynamics (e.g. Krishna and Shariff, 2011; Thorat et al., 2017; Dang and Lanjouw, 2015). Shariff and Krishna (2011) use the panel rural households from Human Development Profile of India (HDPI) and India Development Survey (IHDS) 2004-05 to study the escapes and descents into poverty between 1993-94 and 2004-05. Similarly, Thorat et al. (2017) use IHDS 2004-05 and IHDS 2011-12 to examine poverty dynamics between 2004-2012. While Krishna and Shariff (2011) use per capita income to define poverty, Thorat et al. (2017) use per capita consumption expenditure to define poverty. Dang and Lanjouw (2015) use cross section data on consumption expenditure collected by National Sample Survey (NSS) and pseudo-panel data technique to document escapes from poverty over 2004-05 and 2011-12. Another set of papers explore income dynamics (Gaiha, 1988; Ranganathan et al., 2016; and Gautam et al., 2012). Gaiha (1988) examines income mobility in rural India using transition matrices and a short panel over 1968-69 and 1970-71. Ranganathan et al. (2016) use rural sample of the India Human Development Surveys (IHDS) collected in 2004-05 and 2011-12, and calculate the transition matrix between 2004-05 and 2011-12 based on 19,831 rural households. They calculate average mobility statistics, $M(=\frac{5-\sum_i p_{ii}}{4})$, based on 5×5 transition matrix, where p_{ii} is diagonal elements of transition matrix. They report $M = 86.75\%$ for overall population, and find that the probability of upward mobility is almost the same as the probability of downward mobility (34.8% vs. 34.5%). Based on average mobility statistics, M, they conclude that average mobility is higher among the backward castes. Their estimates for M are 85.5%, 88.1%, 86.9%, and 88.5% for the Forward Castes, OBCs, SCs, and STs respectively. Gautam et al. (2012) use Rural Economic and Demographic (REDS) surveys collected in 1999 and 2007. Based on the

5,885 rural panel households, they calculate the transition matrix for quintiles using income, consumption and assets as measure of economic status.[8]

3 Data

We use three large scale household surveys collected in 1993-94, 2004-05, and 2011-12 (henceforth, 1993, 2004, and 2011, respectively). The 1993 survey, known as Human Development Profile of India (HDPI), was collected by National Council of Applied Economic Research (NCAER), and the 2004 and 2011 surveys known as India Human Development Survey- 1 and 2 (IHDS-1 and IHDS-2) were collected jointly by NCAER and the University of Maryland (see Shariff, 1999; Desai et al. 2005; and Desai and Vanneman, 2015 for details).[9] All three surveys collected information about household income from different sources (agriculture, labor, remittances, business, and other income sources), and the income definitions remained similar. All three data also report an aggregated annual household income.[10]

IHDS-1 collected information on 41,554 households (26,734 rural and 14,820 urban). The 2011 IHDS-2 attempted to re-interview the 2004 original households as well as split households (if located within the same village or town) to trace changes in their lives. IHDS-2 was unable to reconnect with 6,911 households surveyed in IHDS-1. The attrition rate was higher in urban India (4,147 households lost, about 28%) compared to rural India (2,764 households lost, about 10%). To establish a one-to-one matching of households between 2004 and 2011, we combine the split households in 2011 into a single household to match with the root household in 2004. In combining the split households as a single household, we compute income as the weighted average (by household size) of the incomes of the component

[8]They calculate upward mobility, immobility, and downward mobility based on the transition matrix, however, the summation of their reported upward, downward, and immobility is larger than 1. For example, they report 0.66 upward income mobility, 0.33 income immobility, and 0.26 income downward mobility (Figure 1 of Gautam et al.). Hence it not clear whether their transition matrices are based on rank.

[9]IHDS data is publicly available from Inter-university Consortium for Political and Social Research (ICPSR). HDPI data can be accessed from NCAER on request. See http://ihds.info/ for more details.

[10]The income measure is post tax and include any income from government scheme (transfers).

households.[11] This gives us a balanced panel of 34,643 households (23,970 rural and 10,673 urban households) between 2004 and 2011.

IHDS-1 rural sample also contain one-third of the households surveyed in the 1993 HDPI survey. The 1993 HDPI is a random sample of 33,230 households from rural India, located in 16 major states, 195 districts and 1,765 villages. According to Census 2011, these 16 major states accounts for 97.5% of the total rural population. 13,593 rural households surveyed in 1993 HDPI were randomly selected for re-interview in 2004 IHDS-1. Only about 82% of the households were contactable for re-interview resulting in a resurvey of 11,153 original households as well as 2,440 households which separated from these root households but were still living in the village (NCAER, 2011). We combine the split households' (the households which formed between 1993 and 2004 by splitting the 1993 root households) incomes weighted by household size into a single household income in 2004 to establish one-to-one matching between 1993 and 2004.[12] This gives us a balanced panel of 10,728 households between 1993 and 2004.

In any panel study, attrition remains a concern. In Online Appendix-A, we discuss the attrition rates between 2004-2011 in more detail. Following Fitzgerald et al. (1998), we use the inverse probability weight to correct for attrition (details are provided in the Online Appendix-A). The intuition behind this procedure is that it gives more weight to households who have similar initial characteristics to households that subsequently attrite than to households with characteristics that make them more likely to remain in the panel. As discussed in the Online Appendix-A, weighing by inverse probability weight does not make significant difference in our relative and absolute measures of mobility (provided in Table 2 and Table 3). We interpret these findings to mean that, as found in other contexts with high attrition (Fitzgerald et al., 1998; Alderman et al. 2001, Maluccio et al., 2009), our

[11] About 13.6 percent of 2004 rural households split to form two or more households in 2011, while 8.5 percent of 2004 urban households split to form two or more households in 2011. We find similar results by either dropping split-households from our estimation samples or keeping the split households as separate households in our estimation sample.

[12] About 8.5 percent of the 1993 root households split into two or more households between 1993 and 2004.

results do not appear to be affected by attrition biases. Hence, we carry out our analysis without correcting for the sample attrition.[13]

Using the two panels, we examine mobility patterns of rural households over two time intervals a) over 1993-2004 and b) over 2004-2011, while for urban households we examine mobility patterns over 2004-2011. The 1993-2004 rural analysis is based on the 10,728 rural households that are common between 1993 HDPI and 2004 IHDS, while the 2004-2011 rural analysis is based on the 23,970 rural households in IHDS-1 that are also surveyed in IHDS-2.[14] The 2004-2011 urban analysis is based on 10,673 households common in IHDS-1 and IHDS-2. To study the mobility differences across social groups, we consider five social groups: Forward Hindu Castes, Other Backward Castes, Scheduled Castes, Scheduled Tribes, and Muslims.[15]

To examine the mobility, our main measure of welfare is household per capita income. Some studies on economic dynamics in developing countries look at household consumption (Dercon and Krishnan, 2000; Glewwe and Hall, 1998; Maluccio et al., 2000) while others use income (Fields et al., 2003; Gunning et al., 2000; Drèze et al., 1992). The use of consumption is often justified on the grounds that smoothing makes consumption a more accurate measure of longer-term welfare and that income, particularly self-employment income, is more difficult to measure (Fields et al., 2003).[16] We use income as a measure of well-being for following reasons. First, we believe that understanding household income dynamics is key to

[13]As discussed in Online Appendix-A, we could not calculate the inverse probability weight to correct for attrition between 1993 and 2004 because of lack of complete list of 1993 households selected for re-interview in 2004. We can only speculate that given our findings about attrition between 2004 and 2011, the attrition between 1993 and 2004 probably does not change any conclusions between 1993 and 2004.

[14]We also constructed another panel over 2004-2011 by restricting to only those households that were surveyed in 1993 HDPI and IHDS-1. We examine the overall mobility over 2004-2011 using this restricted sample also, and we do not find qualitative differences in our findings over 2004-2011 using the 1993 households only vs. the larger sample common between IHDS-1 and IHDS-2, and use the larger sample in our analysis.

[15]The rest which include Christians, Sikhs, and Jains are not included as a separate social group because of small sample size, however, theses groups are included for overall population mobility estimates. For Urban sample, because of smaller sample size for ST, we combine ST with SC to define SC/ST.

[16]It is worth noting that analyses of data from India and China do not find that consumption is clearly superior to income as an indicator of longer-term economic well-being (Chaudhuri and Ravallion, 1994; Naga and Burgess, 2001).

understanding the dynamics of household economic well-being as changes in returns to characteristics (e.g. education) will be more directly reflected in income changes. Second, the IHDS/HDPI put considerable attempt to collect income from different sources particularly from self-employment. The income is summed across over fifty separate components including wages and salaries, net farm income, family business net income, property and pension incomes.[17] Third and importantly, although the aggregate consumption expenditure was collected in IHDS surveys, it was not collected in the 1993 HDPI which necessitates the use of income to examine mobility in the 1990s.[18] Nonetheless, since aggregate consumption expenditure is also available in the IHDS data, we also check the robustness of our main findings over 2004-2011 using consumption expenditure.

To derive per capita income, we divide annual household income by the household size.[19] We adjust for prices differences over time using urban and rural state wise poverty lines. We also adjust for spatial price differences using the 2011 poverty lines for urban and rural Uttar Pradesh as benchmark for urban and rural areas, respectively. Table 1 provides the sample size of each social group in our two panels. It also presents real per capita income for each social group in base year and final year of each panel. Appendix Figure A1 presents the kernel density of log income in each year. The 2004 rural income distribution is marginally left of the 1993 rural income distribution and marginally wider. The 2011 income distribution lies right of the 2004 income distribution in both rural and urban areas.

[17]For farm income, the HDPI/IHDS collected data on crop production and prices, use of crop residues, animal ownership and home-produced animal and crop products, expenses for a variety of farm inputs, and agricultural rents paid and received.

[18]The 1993 HDPI only collected food, medical, and education expenditure.

[19]Few studies in other countries adjust the household income using equivalent scale. However, no official equivalent scales are available for India. Moreover, the official poverty estimates and the majority of literature on poverty and inequality in India are based on per capita consumption expenditure.

4 Empirical Methodology

4.1 Absolute Mobility

We employ two indices of non-directional income movement suggested by Fields and Ok (1996; 1999):

$$M_0 = \frac{1}{n}\sum_{i=1}^{n}|y_{1i} - y_{0i}| \tag{1}$$

$$M_1 = \frac{1}{n}\sum_{i=1}^{n}|log(y_{1i}) - log(y_{0i})| \tag{2}$$

where n is the number of households, y_{1i} refers to i^{th} household per capita income in final year, and y_{0i} refers to i^{th} household per capita income in base year. Both of these indices treat positive and negative changes in the same manner that is as movements. M_1 treats a change in income differently depending on how rich or poor the household was initially - specifically, a given rupee change will be counted for less the richer is the income recipient household.

Fields and Ok (1999) also provide directional measures so that positive and negative changes over time are treated differently.

$$d_0 = \frac{1}{n}\sum_{i=1}^{n}(y_{1i} - y_{0i}) \tag{3}$$

$$d_1 = \frac{1}{n}\sum_{i=1}^{n}(log(y_{1i}) - log(y_{0i})) \tag{4}$$

A positive $d(y_1, y_0)$ implies total income movements have been welfare improving. Importantly, as discussed in Field and Ok (1999), the aggregate income variation (M_0 or M_1) can be written as a weighted average of the mobility in each of the subgroups. For example,

the index in equation (2) can be broken down in average movement by groups:

$$M_1 = \sum_{j=1}^{J} \left(\frac{n^j}{n} \right) \left[\frac{1}{n^j} \sum_{i=1}^{n^j} \left| log(y_{1i}^j) - log(y_{0i}^j) \right| \right] \tag{5}$$

where n is total number of households, j refers to group (can be quintiles or social groups), n^j is total number of households in group j.

4.2 Relative Mobility

4.2.1 Transition Probabilities

Let Y_1 and Y_0 are income percentile of a household in period 1 and period 0. Then the upward transition probability (hereafter UTP) is the probability that the household per capita income percentile in period 1 (Y_1) exceeds a given percentile s, in the period 1 income distribution by an amount τ, conditional on that household's income percentile in period zero (Y_0) being at or below s in the period 0 income distribution.

$$UTP_{\tau,s} = Pr(Y_1 > \tau + s | Y_0 \leq s) \tag{6}$$

For example, in a simple case where $\tau = 0$ and $s = 0.2$, the upward transition probability ($UTP_{0,20}$) would represent the probability that a household income percentile exceeds the bottom quintile in period 1, conditional on that household belonged to the bottom quintile of the income distribution in period 0. We can alternatively define downward transition probabilities ($DTP_{\tau,s}$) by altering the inequality signs:

$$DTP_{\tau,s} = Pr(Y_1 < s - \tau | Y_0 \geq s) \tag{7}$$

4.2.2 Rank Mobility

Following Bhattacharya and Mazumder (2011) and Mazumder (2014), we define upward directional rank mobility (URM) which estimates the likelihood that a household position in total income distribution in period 1 surpass the household position in total income distribution in period 0 by a given amount τ, conditional on household position in period 0 income distribution was below a given percentile s.

$$URM_{\tau,s} = Pr(Y_1 - Y_0 > \tau | Y_0 \leq s) \tag{8}$$

In the simple case where $\tau = 0$, this is the probability that the rank of a household in period 1 income distribution exceeds the rank of that household in period 0 income distribution. Similarly, the downward rank mobility (DRM) can be defined as:

$$DRM_{\tau,s} = Pr(Y_1 - Y_0 < \tau | Y_0 \geq s) \tag{9}$$

As discussed in Mazumder (2014), one of the criticism of transition probabilities is that they require using arbitrarily chosen cutoffs such as the 20th percentile. In contrast, the directional rank mobility measures simply compare the rank in one period to rank of another period. When making comparisons between population subgroups, there is an unambiguous advantage in using the rank mobility. However, Bhattacharya and Mazumder (2011) show that when using the full sample (that is, pooling all subgroups), the rank mobility measures are only meaningful if there is some cutoff, s, used to condition the sample.

The directional rank mobility is able to pick up the movement across income distribution that are neglected in transition probability. For transition probability one imposes arbitrary lower and upper cutoffs say k_1 and k_2. Thus in order to move out of this interval, a household needs to breach the bounds regardless of where they start out in the distribution. So a household in middle of the interval need to gain or lose more compared to someone who is

close to the cutoffs. In the case of social group comparison, this is important. It is plausible that the more households belonging to the disadvantaged groups will be closer to lower bound k_1, while more households belonging to Forward Hindu Castes will be closer to upper bound k_2. The directional rank mobility only requires a household to exceed or fall behind their rank in period 0 by some fixed amount τ. Bhattacharya and Mazumder (2011) develop the distribution theory for both transition probabilities and the directional rank mobility estimators and justify why the bootstrap can be used to calculate standard errors.

4.3 Conditional gaps

We also explore whether the differences in income mobility across social groups can be explained by the observed characteristics of the households. The exploration is merely descriptive in nature and not causal. The descriptive exploration analysis may yield useful clues about which factors are potentially important in mobility.[20] Bhattacharya and Mazumder (2011) develop non parametric statistical methodology for analyzing conditional transition probabilities with continuous covariates. However, conditioning mobility measures on large number of covariates is difficult to do econometrically given the small sizes that arise as more and more covariates are introduced. Therefore, we estimate linear probability model. Specifically, we estimate the following equation.

$$y_i = \alpha + \sum_{j=1}^{4} \beta_j socgroup_j + X_{i0}\gamma + \delta_d + \varepsilon_i \tag{10}$$

where y_i is equal to 1 if the household i is upward (or downward) mobile between period 0 and 1, $socgroup_j$ are indicators for the four disadvantaged social groups—OBC, SC, ST, and Muslim. The excluded group is the FHC, hence β_j picks up the gap in mobility between group j and the FHC. X_{i0} is a matrix of household covariates in period 0, while δ_d is district fixed effects. We consider both upward and downward rank and transition mobility as outcomes.

[20]Recent works by Chetty et al. (2014) and Mazumder (2014) also do not attempt to estimate causal effects.

Moreover, we also consider two continuous outcomes: change in real per capita income and change in log real per capita income as an outcome to capture directional mobility. The specific covariates used are household rank in the base period income distribution (or household income in the base period in the case of change in income and change in log income outcomes), household demographic composition, education and occupation of the household head, main income source of the household, access to productive assets, and participation in government welfare scheme. Table 5 provide the complete list of X's that are controlled.

When we control only for the rank of the household in the initial income distribution by imposing $\gamma' s = 0$ for rest of the characteristics and $\delta_d' s = 0$, β_j's pick up the unconditional gaps in mobility of each disadvantaged group compared to the FHCs, whereas when we control for all characteristics β_j's pick up the conditional gaps in mobility of each disadvantaged group compared to the FHCs.[21]

5 Results

5.1 Income mobility in rural India

Table 2 provides estimates of Fields-Ok mobility indexes. The absolute log income movements over 1993-2004 and 2004-2011 are 0.795 and 0.863, respectively.[22] These numbers are although comparable to absolute log income movements of 0.844 in Russia over 2000-2005 (Lukiyanova and Oshchepkov, 2012) and 0.847 (0.757) in China over 1993-1997 (1997-2000) (Ding and Wang, 2008), they are much larger than the absolute log income movements over 1993-1997 in UK, Germany, France, Italy, and Spain (0.373, 0.309, 0.250, 0.360, 0.390,

[21] Fields (2011) states that unconditional micro-mobility analysis focuses on how initial earnings relates to changes in earnings without holding other factors constant, whereas conditional micro-mobility studies relates initial earnings to changes in earnings controlling for other factors.

[22] Taking logs of income leads to dropping of the few households which report negative income either in period 0 or period 1. For the 1993-2004 panel, 161 households are dropped, while for the 2004-2011 panel, 134 households are dropped.

respectively) reported in Ayala and Sastre (2008).[23]

Based on both non-directional Fields-Ok indexes, the period 2004-2011 witnessed a larger income flux compared to the period 1993-2004.[24] A larger absolute income movements is also witnessed over 2004-2011 by households in each quintile. In contrast, a larger absolute log income movement is experienced in 2004-2011 only by households that belonged to bottom three quintiles of base period income distribution. Households that belonged to top two quintiles of base period income distribution experienced lower absolute log change over 2004-2011 compared to 1993-2004.

Panel B of Table 2 presents the Fields-Ok indexes for each social group. Based on both non-directional Fields-OK indexes, the income flux witnessed by the FHC households is largest in both periods compared to the other social groups. The historical Hindu caste hierarchy is also visible in the income flux: largest income flux is witnessed by the FHC households followed by the OBC and SC/ST households in both periods. It is worth noticing that a higher income flux is witnessed by each of the five social groups over 2004-2011 compared to the 1993-2004 period. Perhaps even more interestingly, as measured by directional movement, we find that the aggregate change in welfare during 1993-2004 was negative, while the aggregate change in welfare during 2004-2011 is positive.[25] This is also true for each of the five social groups. Column (9) and column (10) presents the Fields-OK non-directional indices when we use inverse probability weight to correct for attrition. As evident from the estimates, correcting for attrition only has a marginal impact on the indexes (column (9) vs. column (5) and column (10) vs. column (7)).

Next we move to our relative mobility measures with a focus on examining differences

[23] A caveat here is that the time duration is much longer in our case, and longer durations are generally associated with larger absolute movements.

[24] Admittedly, the duration of time interval is not same for the two panels. While the first panel has a gap of 11 years, the second panel only has a gap of 7 years.

[25] A decline in welfare during 1993-2004 is not corroborated in the NSS cross-section consumption datasets. Authors calculations from the NSS consumption rounds suggest that real consumption expenditure in rural India was 10.7 percent higher in 2004 compared to the 1993 real consumption expenditure. In contrast, an increase in welfare during 2004-2011 is corroborated in consumption data. NSS data suggests that the real consumption expenditure in rural India was 22.7 percent higher in 2011 compared to the 2004 real consumption expenditure.

across social groups.[26] To calculate relative mobility in rural India, we construct the empirical distribution of per capita household income for each year using the rural sample (households from all social groups), and find ranking of each household based on their position in overall rural per capita income distribution. Then we use the ranking of each household in overall rural income distribution to compute the mobility estimates for each social group. For ease of comparison, we plot the mobility measures for each social group, and the actual estimates are given in Online Appendix-B. The 95% confidence bounds derived through bootstrapping with 100 replications are also plotted.

Figure 1 plots the upward transition probabilities experienced by each social group over the two time intervals for three values of $\tau = 0, 10, 20$.[27] The left panel shows the UTPs over 1993-2004, while the right panel shows UTPs over 2004-2011. The x-axis shows the quintile of per capita household income in the base period data—1993 (2004) for mobility over 1993-2004 (2004-2011)—, while the y-axis shows the transition probability that per capita income of the household breach the upper bound of base period quintile by τ in period 1.[28] As expected if we increase the τ, the UTPs get suppressed for all social groups and in both time intervals. Similarly, as we move to the right—look at higher quintiles in the baseline period—, the upward transition probabilities fall. This is not surprising, as breaching a quintile upper bound becomes more difficult at higher quintiles compared to at lower quintiles.

[26]Relative rank mobility for $\tau = 0$ effectively looks at mobility as a zero-sum game for the entire population. However, for different social groups, it is not a zero-sum game. It is possible that a higher percentage of households from a particular group witness improvement in their rank in the overall income distribution.

[27]We choose the three values of τ to demonstrate how the differentials change when we allow for a larger jump. Notice that τ is the jump a household need to witness in its ranking to be classified as mobile. Increasing the amount of τ will suppress the mobility measures as lesser number of households will experience the larger change. At the same time, larger τ means that the number of households for which the measure is relevant also shrinks. For example, for $\tau = 50$, only the households that belonged to the bottom 50 percentile of base period income distribution could potentially improve their rank by 50 percentiles, which implies that our relevant sample shrinks to the bottom 50 percentage of households for URM ($\tau = 50$) measure. Similarly, our relevant sample shrinks to top 50 percentage of households for DRM ($\tau = 50$) measure.

[28]Note that UTP measure for $\tau = 0, 10$ is not relevant for household who belonged to top quintile in base period, hence excluded from the figure. Similarly, for $\tau = 20$, UTP is not relevant for households who reside in top two quintiles in base period as it is not possible for these households to breach upper bound of their quintile by 20 percentiles.

The advantage of the FHC households in UTP is quite clear. Within each quintile, the FHC households witnessed higher upward transition in both periods. Importantly, the gap in probability for the FHC households becomes more evident as we increase the amount of jump, τ. There exists considerable overlap in confidence intervals of UTP estimates for the OBC, SC, and Muslim households. Importantly, the ST households experienced the lowest UTPs in both time intervals.

Figure 3 plots the estimates of upward rank mobility for $\tau = 0, 10, 20$. As expected, the upward mobility estimates using the URM are larger than the estimates using the UTP measure. Overall, the URM estimates suggest advantage for the FHC households in upward mobility: conditional on being in same quintile of base period income distribution, the FHC households are more likely to improve their ranking compared to the other social groups. For space considerations, we do not present the DRM/DTP estimates here, however, the results are reported in Online Appendix-B. Conditional on being in same quintile of base period income distribution, the FHC households are less likely to move downwards compared to other social groups.

In summary, the absolute income movements suggest that the historical social hierarchy of the Hindu castes is also reflected in income flux in both time periods. Looking at the relative measures, conditional on having started in the same quintile of the base period income distribution, the FHC households witnessed higher upward and lower downward mobility in both time intervals compared to the other social groups. There is considerable overlap of confidence intervals of mobility estimates for the SC, OBC, and Muslim households.

5.2 Income mobility in urban India

Table 3 presents estimates of Fields-Ok mobility indexes for urban areas. The absolute log income movements over 2004-2011 is 0.759.[29] Moreover, the hierarchy across the Hindu

[29]As the 1993 data does not cover urban areas, we only present mobility between 2004 and 2011, and hence, we cannot comment on whether the gaps have increased or decreased over time. In addition, as stated in the data section, given the small sample size of ST households in urban India, we combine the ST

castes in absolute log income movements witnessed in rural areas is not visible in urban areas. In fact, the FHC households experienced marginally lower absolute log income movements compared to the OBC households. However, the FHC households' income was much larger than other social groups in 2004. Hence, a lower percentage change still give a larger income change in Rupees. As evident from column (1) of Table 3, the absolute income movement is much larger for the FHC households compared to the other social groups. The social hierarchy is quite clear in absolute income movements. Importantly, the directional income difference suggests that aggregate change in welfare during 2004-2011 is positive, and all social groups in urban areas gained over this time period.[30] Nonetheless, the FHC households gained about twice of the gain witnessed by the OBC and SC/ST households in Indian Rupees. This obviously suggests that the FHC households improved their position in urban income distribution.

To calculate relative mobility, we construct the empirical distribution of per capita household income for each year using the urban sample (households from all social groups), and find ranking of each household based on their position in the urban per capita income distribution. Figure 3 plots the upward rank mobility (left panel) and upward transition probabilities (right panel) for urban India over 2004-2011. The point estimates of URM/UTP suggest presence of historical Hindu caste hierarchy in terms of upward mobility: conditional on starting in the same quintile, the FHC households experienced the largest upward mobility followed by the OBC and SC/ST households. The upward mobility estimates are lowest for the Muslim households. In comparison to the URM, the advantage of the FHC households compared to the SC/ST households is more clearly witnessed in the UTPs. For space considerations, we do not present the downward mobility estimates here, however, the results are reported in Online Appendix-B. Overall, the patterns in downward mobility are

households with the SC households. Taking log of income leads to loss of 135 households from the sample because of negative incomes in either 2004 or 2011.

[30]Increase in welfare during 2004-2011 in urban areas is corroborated in NSS consumption data. NSS data suggests that the real consumption expenditure in urban India was 29.7 percent higher in 2011 compared to the 2004 real consumption expenditure.

just opposite of patterns witnessed in the upward mobility.

5.3 Urban/Rural differences in mobility over 2004-2011

As discussed in earlier section, the absolute log income movements in urban areas over 2004-2011 is 0.759 compared to 0.863 witnessed in rural areas over the same period. Thus absolute log income movements suggest lower income flux in urban areas, however, the average income in urban areas is much larger compared to average income in rural areas. Hence, we also calculate absolute movements in income by taking account of urban and rural price differences.[31] The average per capita income in urban area in 2004 (at 2011 prices) was 25,924 compared to rural per capita income of 16,174 Indian Rupees. The absolute income movement in rural areas is only 17,102 compared to 24,484 Indian Rupees in urban areas. Hence, based on absolute income movements, mobility seems larger in urban areas. Importantly, this suggests that households in urban areas are much more likely to change their rankings in national income distribution as they witnessed larger absolute movements.

The pervasive believe also suggests that the urban households have more opportunity to improve their rankings in country's income distribution, however, how much advantage is there for urban households in relative mobility is an empirical question. To address the differences in relative mobility across urban and rural areas, we construct the empirical distribution of per capita household income for each year using the pooled sample (both urban and rural), and find ranking of each household based on its position in overall national per capita income distribution. Figure 4 plots the upward and downward mobility estimates for rural and urban areas. It is evident from the Figure that a household living in urban area has a much higher probability to improve its ranking in national income distribution conditional on having started in the same quintile in the base period national income distribution. At the same time a household in urban area has lower probability to fall in national income distribution conditional on having started in the same quintile of the national income

[31] To further adjust for urban/rural prices differences, we adjust the per capita income distribution using the state-specific urban/rural poverty line with Uttar Pradesh urban poverty line as benchmark.

distribution.

5.4 Conditional mobility gaps in rural India

The mobility estimates presented earlier do not control for households or geographic differences. In this section, we explore whether the differences in household or geographic characteristics explain the gaps observed in income mobility across social groups. Table 4a presents the gaps in mobility over 1993-2004 for each social group with respect to the FHC households.[32] Column 1, 2, 3 of Table provide mobility gaps for τ=0, 10, and 20 conditional on base period rank.[33] Column 4, 5, 6 provide those gaps when the influence of districts are also controlled for by adding district fixed effects in additional to base period rank. Column 7, 8, 9 provide those gaps when households characteristics are also controlled for in addition to district fixed effects and base period rank.

Panel 1 and Panel 2 of Table 4a provide gaps in upward rank mobility and upward transition probabilities. Controlling for base period rank, the households belonging to the disadvantaged groups—OBC, SC, ST, and Muslims—are less likely to witness improvement in their rankings compared to the households from the FHCs. The disadvantage in upward mobility for the disadvantaged social groups compared to the FHC is larger in the UTP measure compare to the URM measure. This is probably because the FHC households have experienced larger gains compared to the other social groups making the breach of the upper bound of the quintile more likely. Adding district fixed effects to controls leads to a noticeable

[32]Different sample restrictions based on the rankings of the households in base period income distribution are imposed for different mobility measures so that the sample consists only those households who potentially can make a movement τ. For URM/DRM ($\tau = 0$), change in income and change in a log income, the entire sample is used. For URM ($\tau = 10$), the estimation sample is restricted to bottom 90 percent of the households since households who initially fall in the 90th and 100th percentile of base period income distribution can not improve their ranks by 10 percentiles. Similarly, for URM ($\tau = 20$), the estimation sample is restricted to bottom 80 percent of the households. For DRM ($\tau = 10$) and DRM ($\tau = 20$), bottom one and two deciles are excluded from the estimation sample. For UTP, top quintile is excluded from the estimation sample for $\tau = 0, 10$, as households who were initially in top quintile cannot make this movement. For UTP ($\tau = 20$), the estimation sample excludes top two quintiles. For DTP ($\tau = 0, 10$), bottom quintile is excluded from the estimation sample, while for DTP ($\tau = 20$), bottom two quintiles are excluded from the estimation sample.

[33]For change in income and change in log income outcomes in panel 5, base period income is controlled for in place of rank.

reduction in social group differentials in both measures of upward mobility. This suggests that more households from the disadvantaged groups live in districts which witnessed lower improvement. Adding household characteristics to the controls further reduces the upward mobility gaps for the disadvantaged group households, however, the gaps remain significant. Moreover, the historical hierarchy in the Hindu castes is also visible in income mobility. The disadvantage in the probability of conditional upward mobility for the ST households is largest followed by the SC and OBC households. Muslim households conditional upward mobility disadvantage compared to the FHC households is similar to the disadvantage for the SC households.

Panel 3 and 4 of Table 4a provide the differentials in the probability of downward mobility for the disadvantaged groups households compared to the FHC households. Overall, the households belonging to the disadvantaged groups are more likely to see a fall in their rankings compared to the FHC households conditional on the rankings in the base period. Moreover, adding district and household controls reduces the gaps, but significant gaps in downward mobility remain. The largest conditional downward mobility gap compared to the FHC households is experienced by the ST households, followed by the SC and OBC households. Shariff and Krishna (2011), who examine poverty dynamics in rural India over 1993-2004 using the same data as ours 1993-2004 panel, also finds that controlling for household characteristics and state fixed effects, the SC/ST and OBC households are less (more) likely to escape from (descent into) poverty compared to the FHC households. The differential in the probability of escape/descent compared to the FHC households is largest for the SC/ST households followed by the OBC households.

Panel 5 of Table 4a presents the gaps in changes in income over 1993-2004. As evident from column (1) and column (2), controlling for initial income, the households belonging to the disadvantaged groups experienced less increase in income in both Rupees and percentage term compared to the FHC households. Adding district and households level controls reduces the gaps in changes in income across groups, considerable and significant gaps re-

main unexplained. For example, the OBC households witnessed 7.2 log points lower income increase compared to the FHC households controlling for all factors. The disadvantage in change in income is larger for the SC and ST households.

Table 4b presents the mobility gaps over 2004-2011. Overall, the patterns in the mobility differentials across social groups over 2004-2011 are similar to the mobility differentials witnessed over 1993-2004. Conditional on having similar rankings in base period, the FHC households are more likely to experience upward mobility and less likely to experience fall in rankings compared to the households belonging to the disadvantaged social groups. Conditioning on district fixed effects and other households controls reduces the magnitude of the differentials. However, significant conditional gaps remain in both upward and downward mobility.

Comparing Table 4a and Table 4b, the conditional mobility gaps for each of the disadvantaged groups compared to the FHC households are lower over 2004-2011 compared to the conditional mobility gaps over 1993-2004. This suggests that although notable differentials in mobility across social groups are still quite important in India, the differentials have declined over 2004-2011 compared to differentials witnessed over 1993-2004.

Table 5 presents the correlates of upward and downward mobility in rural areas. For space considerations, we only present results for $\tau = 0$.[34] However, the patterns are similar for $\tau = 10, 20$. Columns (4), (9) and (5), (10) present correlates of change in income and change in log income. Higher rank for the household in the base period is associated with lower upward rank mobility and upward transition mobility, which is not surprising given that it becomes more difficult for households to improve rank if they already reside in higher ranks in the income distribution. For continuous measures, the income in base period is negatively correlated with change in income. This implies that the poorer the household the more it will grow in comparison to the richer households, holding everything else constant.[35]

[34]We skip the DRM ($\tau = 0$), as DRM ($\tau = 0$)=1-URM ($\tau = 0$).

[35]As suggested in the empirical section, this analysis is just exploratory and only suggests correlation. Endogeneity bias remains a concern for base period income coefficient. A number of papers focus entirely on the coefficient on base period income after controlling for all the characteristics. Their focus has been to

Age of the household head is positively (negatively) associated with upward (downward) mobility. In addition, age of the household head is also positively associated with income changes in both periods. Education of the household head positively (negatively) associated with upward (downward) mobility. Households with primary educated head witnessed 7.4 percent more increase in income compared to households with a below primary educated head during 1993-2004. Moreover, higher levels of education is associated with more percentage gain in income compared to below primary educated head over 1993-2004. Importantly, over 2004-2011, only households with senior secondary and tertiary educated head gained more percentage change in income compared to households with below primary educated head.

Similarly, having access to productive assets such as tractor or tube well improves probability of upward mobility. Having own animal has no statistically significant impact on upward mobility chances however the downward mobility chances are higher. There is no statistically significant difference in upward or downward mobility for the household which split between period 0 and period 1 and households which do not. Moreover, there is no statistically significant difference in change in log income between households that witnessed split vs. households that remain intact. Similarly, being benefited from government schemes has no significant impact on household chances of upward or downward mobility. The Indian government introduced a public works program in 2006 that guarantees 100 days of public work to a household in year at the minimum wage. The public works program is known as National Rural Employment Guarantee Scheme (NREGA). We find that a household which worked in NREGA is more likely to witness a fall in its ranking in the income distribution. Note that this is purely a correlation, and given the manual nature of work under NREGA, it is more likely that the households that sought NREGA works may have been already going through some income shocks.

determine the sign and magnitude of the coefficient on base period income.

5.5 Conditional mobility gaps in urban India

Table 6 presents the mobility differentials witnessed by each of the disadvantaged group households compared to the FHC households over 2004-2011 in urban areas. Controlling for base period rank, the households belonging to the disadvantaged groups—OBC, SC/ST, and Muslims—are less likely to witness improvement in their ranks compared to the households from the FHCs. Controlling for household characteristics and district fixed effects reduces the gaps in both upward and downward mobility considerably. However, significant gaps in mobility remain with one exception: the SC/ST households witnessed similar downward transition compared to the FHC households controlling for all characteristics. Importantly, the SC/ST households are more likely to fall in ranks compared to the FHC households controlling for all characteristics. Panel 5 presents the differentials in changes in real incomes and changes in log real incomes. Conditional differential in change in income is larger for the SC/ST households than the OBC households. However, conditional differential in log of change in income is larger for the OBC households than the SC/ST households. Moreover, the gaps observed in the upward mobility for the SC/ST households compared to the FHC households are larger in magnitude than the gaps observed for the OBC households. This suggests presence of the historical Hindu caste hierarchy in income mobility in urban areas, however, the hierarchy in urban areas is not as strong as the hierarchy witnessed in rural areas over the same period. It is also worth noticing that the gaps observed for Muslim households compared to the FHC households are larger in magnitude than the gaps observed for the SC/ST households in urban India over 2004-2011.

6 Robustness to alternative measure of well-being

As stated earlier, our choice of income as a measure well-being is partially necessitated by the non-availability of aggregate consumption information in the 1993 HDPI data. Although HDPI/IHDS put considerable efforts to collect income information, income data generally

is subject to measurement errors.[36] Several studies have used expenditures as a measure of well-being arguing that expenditures are measured more accurately than income as it is easier to recall expenditures on consumption than income. Our IHDS 2005 and 2011 data also contain consumption expenditure information. To examine whether the choice of well-being affects our findings regarding differences in mobility across social groups, we re-estimated Table 4b and Table 6 for rural and urban areas using real consumption expenditure as a measure of well-being. The results are presented in appendix Table A1 and Table A2.

Overall, the mobility differentials across social groups over 2004-2011 using the consumption expenditure data are similar to the mobility differentials over 2004-2011 using income data. Conditional on the rankings of the households in the initial period consumption distribution, the households belonging to the disadvantaged groups—OBC, SC, ST, and Muslims—witnessed lower probability of upward and higher probability of downward movement in both rural and urban areas compared to the FHC households. Controlling for household characteristics and district fixed effects reduces the magnitude of mobility differentials for the disadvantaged groups, however, significant differentials remain. Moreover, the Hindu caste hierarchy witnessed in mobility using income data is also present using the consumption data. Controlling for all characteristics, the differential in the probability of upward movement in rural areas for the ST households compared to the FHC households is largest followed by differential witnessed for the SC and OBC households. Similarly, in urban areas, the SC/ST households witnessed larger differentials in mobility compared to the FHC households than the OBC households.

[36]Measurement error in the welfare measure is a potential concern irrespective of measure of well-being. Unlike the regression context, where familiar analytical formulas can be derived to demonstrate how measurement error can affect estimates, it is unclear how the rank estimates are affected (Corak, 2014). Any measurement error in the income will have no effect on the estimation result if the rank is preserved in the measurement of income utilized (Bhattacharya and Mazumder, 2011). Similarly, a priori it is not clear how the measurement errors will affect the absolute measures. If a household is subject to the same measurement error in both periods, they may cancel out. Woolard and Klasen (2005) finds that although the various adjustments for presumed measurement error do affect the Gini coefficients considerably, the rigidity index---their measure of mobility---is scarcely affected. They conclude that to the extent there is measurement error in the data, it seems to be positively correlated across time and thus only has a muted impact on mobility, which was also, for example, found for longitudinal earnings data in the US (Bound and Krueger, 1991; Bound et al., 1994).

Hence, the evidence from the consumption data corroborates the patterns in mobility differentials across social groups witnessed using income data, and the combined evidence from income and consumption data is quite strong to suggest that equality of opportunity still remains a serious concern in India. We find that conditional on having similar characteristics and rankings in base period income/consumption distribution, the FHC households are more likely to move up compared to households belonging to the disadvantaged groups—OBC, SC, ST, and Muslims.

7 Conclusion

We examine income mobility among rural Indian households over 1993-2004 and 2004-2011. We also examine income mobility among urban Indian households over 2004-2011. Using both absolute and relative measures of mobility, we find significant differentials in mobility across social groups. Conditional on the rankings of the households in the base period income distribution, the households belonging to the disadvantaged groups—Other Backward Castes, Scheduled Castes, and Scheduled Tribes—are less likely to move up and more likely to move down compared to households belonging to the Forward Hindu Castes. Although the differentials are reduced when we further control for district effects and household characteristics, significant differentials remain. Although there is evidence that conditional gaps across social groups in rural areas are lower during 2004-2011 compared to conditional gaps witnessed during 1993-2004, the existence of considerable conditional gaps raises concerns about equality of opportunity.

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Table 1: Panel structure of data (number of households)

	Panel 1993-2004	Panel 2004-2011
Panel A: Sample Size		
Rural		
All	***10,728***	***23,970***
Forward Hindu Castes	2,323	4,629
Other Backward Castes	3,604	8,463
Scheduled Castes	2,647	5,396
Scheduled Tribes	1,046	2,649
Muslim	801	2,184
Others	307	653
Urban		
All		***10,673***
Forward Hindu Castes		3,139
Other Backward Castes		3,224
Scheduled Castes	***NA***	1,902
Scheduled Tribes		355
Muslim		1,642
Others		414

Panel B: Per capita annual income in Indian Rupees at 2011 prices				
	1993	**2004**	**2004**	**2011**
Rural				
All	14,326	13,128	13,335	19,781
Forward Hindu Castes	19,297	18,410	18,375	26,987
Other Backward Castes	14,598	12,540	12,781	18,697
Scheduled Castes	10,761	10,372	10,343	15,999
Scheduled Tribes	10,790	9,455	11,356	15,821
Muslim	12,699	11,215	11,670	16,701
Urban				
All			25,896	38,382
Forward Castes (FC)			36,616	54,744
Other Backward Castes		**NA**	22,766	33,164
Scheduled Castes/Tribes			21,143	31,807
Muslim			16,448	23,628

Note: NA implies not applicable. The 1993 data was restricted to rural areas.

Table 2: Absolute Mobility in Rural India

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Between 1993 and 2004				*Between 2004 and 2011*					
									Weighted	
Quintile in 1993 (2004) for 1993-2004 (2004-2011) panel	**Absolute change in income**	**Change in income**	**Absolute change in log-income**	**Change in log-income**	**Absolute change in income**	**Change in income**	**Absolute change in log-income**	**Change in log-income**	**Absolute change in income**	**Absolute change in log-income**
All	**10,883**	**-1,197**	**0.795**	**-0.126**	**14,088**	**6,452**	**0.863**	**0.366**	**14,069**	**0.863**
	(213)	(236)	(0.007)	(0.009)	(243)	(227)	(0.005)	(0.007)		
Panel A: By Quintile										
Q1	6,662	6,022	0.898	0.710	11,644	11,275	1.454	1.354	11,652	1.455
	(357)	(371)	(0.018)	(0.020)	(218)	(256)	(0.015)	(0.018)		
Q2	5,538	3,154	0.589	0.099	8,861	7,753	0.802	0.564	8,852	0.802
	(207)	(245)	(0.013)	(0.016)	(227)	(233)	(0.009)	(0.012)		
Q3	7,002	1,880	0.635	-0.129	9,196	6,777	0.669	0.278	9,209	0.669
	(211)	(247)	(0.012)	(0.020)	(249)	(248)	(0.009)	(0.012)		
Q4	9,766	-1,360	0.784	-0.442	12,511	6,778	0.669	0.031	12,512	0.668
	(223)	(353)	(0.013)	(0.020)	(351)	(396)	(0.009)	(0.013)		
Q5	25,448	-15,696	1.073	-0.886	28,233	-323	0.782	-0.298	28,118	0.781
	(822)	(812)	(0.020)	(0.024)	(898)	(960)	(0.011)	(0.015)		
Panel B: By Social Group										
FHC	16,005	-881	0.885	-0.107	19,678	8,612	0.915	0.377	19,683	0.915
	(513)	(708)	(0.015)	(0.025)	(503)	(638)	(0.011)	(0.016)		
OBC	10,854	-2,075	0.807	-0.182	13,519	5,917	0.877	0.357	13,486	0.877
	(319)	(392)	(0.012)	(0.018)	(382)	(440)	(0.009)	(0.013)		
SC	7,507	-378	0.730	-0.073	10,361	5,656	0.791	0.407	10,351	0.790
	(202)	(231)	(0.011)	(0.021)	(598)	(567)	(0.008)	(0.013)		
ST	7,511	-1,302	0.743	-0.148	11,105	4,465	0.823	0.262	11,135	0.824
	(458)	(511)	(0.021)	(0.031)	(398)	(480)	(0.015)	(0.022)		
Muslim	9,235	-1,483	0.732	-0.141	11,846	5,032	0.877	0.356	11,821	0.876
	(749)	(760)	(0.025)	(0.035)	(488)	(583)	(0.017)	(0.025)		

Note: FHC=Forward Hindu Caste; OBC=Other Backward Caste; SC=Scheduled Caste; ST=Scheduled Tribe. Standard errors derived through bootstrapping with 100 replications are in parenthesis. Quintile 1 is the poorest and 5 the richest.

Table 3: Absolute Mobility in Urban India between 2004 and 2011

	(1)	(2)	(3)	(4)	(5)	(6)
					Weighted	
Income Quintile in 2004	**Absolute change in income**	**Change in income**	**Absolute change in log-income**	**Change in log-income**	**Absolute change in income**	**Absolute change in log-income**
All	**24484**	**12498**	**0.759**	**0.337**	**24657**	**0.759**
	(530)	(574)	(0.007)	(0.010)		
Panel A: By quintile						
Q1	15380	14957	1.131	1.053	15427	1.134
	(599)	(651)	(0.020)	(0.022)		
Q2	12899	11031	0.687	0.473	12967	0.689
	(344)	(349)	(0.011)	(0.015)		
Q3	16554	11990	0.621	0.246	16533	0.621
	(622)	(778)	(0.008)	(0.015)		
Q4	24057	14185	0.637	0.090	23907	0.633
	(1127)	(1243)	(0.011)	(0.016)		
Q5	53538	10324	0.737	(0.149)	54309	0.739
	(2411)	(2614)	(0.015)	(0.023)		
Panel B: By social group						
FHC	35401	18128	0.749	0.286	35935	0.747
	(1480)	(1728)	(0.012)	(0.018)		
OBC	21282	10398	0.788	0.347	21224	0.787
	(639)	(759)	(0.011)	(0.018)		
SC/ST	19026	10664	0.735	0.396	19211	0.735
	(625)	(766)	(0.014)	(0.018)		
Muslim	15117	7180	0.750	0.334	15196	0.754
	(938)	(1019)	(0.016)	(0.023)		

Note: FHC=Forward Hindu Caste; OBC=Other Backward Caste; SC/ST=Scheduled Caste/Scheduled Tribe. Standard errors derived through bootstrapping with 100 replications are in parenthesis. Quintile 1 is the poorest and 5 the richest.

Table 4a: Mobility (between 1993 and 2004) Gaps for each social group with respect to the FHCs, Rural

.		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Controls		**Base period rank$**			**Add district fixed effects**			**Add households characteristics**		
		$\tau = 0$	$\tau = 10$	$\tau = 20$	$\tau = 0$	$\tau = 10$	$\tau = 20$	$\tau = 0$	$\tau = 10$	$\tau = 20$
Panel 1: Upward Rank Mobility										
OBC	URM	-0.112***	-0.114***	-0.112***	-0.075***	-0.067***	-0.062***	-0.053***	-0.047***	-0.043***
		(0.011)	(0.014)	(0.014)	(0.012)	(0.014)	(0.013)	(0.014)	(0.015)	(0.015)
SC	URM	-0.123***	-0.132***	-0.133***	-0.107***	-0.111***	-0.114***	-0.083***	-0.090***	-0.090***
		(0.012)	(0.013)	(0.015)	(0.013)	(0.015)	(0.013)	(0.014)	(0.015)	(0.016)
ST	URM	-0.165***	-0.184***	-0.188***	-0.136***	-0.146***	-0.135***	-0.102***	-0.115***	-0.102***
		(0.018)	(0.016)	(0.018)	(0.017)	(0.019)	(0.022)	(0.020)	(0.021)	(0.021)
Muslim	URM	-0.114***	-0.127***	-0.143***	-0.099***	-0.101***	-0.119***	-0.073***	-0.078***	-0.093***
		(0.018)	(0.017)	(0.022)	(0.020)	(0.024)	(0.021)	(0.020)	(0.021)	(0.024)
Panel 2: Upward Transition Probabilities										
OBC	UTP	-0.113***	-0.118***	-0.137***	-0.056***	-0.064***	-0.078***	-0.037**	-0.042***	-0.058***
		(0.015)	(0.013)	(0.019)	(0.018)	(0.017)	(0.019)	(0.017)	(0.015)	(0.020)
SC	UTP	-0.127***	-0.137***	-0.165***	-0.107***	-0.117***	-0.136***	-0.086***	-0.089***	-0.107***
		(0.015)	(0.014)	(0.017)	(0.016)	(0.017)	(0.017)	(0.016)	(0.016)	(0.020)
ST	UTP	-0.196***	-0.198***	-0.228***	-0.152***	-0.151***	-0.174***	-0.119***	-0.113***	-0.140***
		(0.018)	(0.017)	(0.022)	(0.024)	(0.020)	(0.025)	(0.025)	(0.021)	(0.026)
Muslim	UTP	-0.135***	-0.127***	-0.178***	-0.111***	-0.101***	-0.140***	-0.090***	-0.074***	-0.110***
		(0.021)	(0.019)	(0.026)	(0.026)	(0.026)	(0.030)	(0.023)	(0.026)	(0.025)
Panel 3: Downward Rank Mobility										
OBC	DRM	0.112***	0.129***	0.111***	0.075***	0.090***	0.072***	0.053***	0.064***	0.047***
		(0.011)	(0.012)	(0.014)	(0.014)	(0.015)	(0.013)	(0.012)	(0.013)	(0.014)
SC	DRM	0.123***	0.130***	0.122***	0.107***	0.117***	0.109***	0.083***	0.087***	0.081***
		(0.012)	(0.011)	(0.013)	(0.013)	(0.015)	(0.015)	(0.012)	(0.015)	(0.015)
ST	DRM	0.165***	0.176***	0.148***	0.136***	0.156***	0.142***	0.102***	0.112***	0.098***
		(0.015)	(0.018)	(0.019)	(0.018)	(0.020)	(0.019)	(0.019)	(0.020)	(0.020)
Muslim	DRM	0.114***	0.134***	0.105***	0.099***	0.123***	0.104***	0.073***	0.090***	0.072***
		(0.018)	(0.021)	(0.018)	(0.022)	(0.021)	(0.020)	(0.018)	(0.024)	(0.023)
Panel 4: Downward Transition Mobility										
OBC	DTP	0.129***	0.113***	0.072***	0.083***	0.075***	0.029*	0.054***	0.052***	0.007
		(0.013)	(0.012)	(0.014)	(0.015)	(0.013)	(0.015)	(0.015)	(0.014)	(0.016)
SC	DTP	0.142***	0.128***	0.110***	0.123***	0.118***	0.100***	0.087***	0.092***	0.072***
		(0.014)	(0.013)	(0.017)	(0.017)	(0.015)	(0.019)	(0.016)	(0.015)	(0.020)
ST	DTP	0.195***	0.168***	0.146***	0.168***	0.164***	0.165***	0.115***	0.122***	0.118***
		(0.019)	(0.020)	(0.023)	(0.025)	(0.021)	(0.027)	(0.024)	(0.024)	(0.026)
Muslim	DTP	0.115***	0.099***	0.075***	0.103***	0.101***	0.071**	0.065**	0.071***	0.034
		(0.024)	(0.019)	(0.022)	(0.023)	(0.024)	(0.029)	(0.025)	(0.021)	(0.025)
Panel 5: Change in real income in 1000 INR / Change in log of real income										
Dependent Variable		$y_1 - y_0$	$log(y_{1)} - log(y_0)$		$y_1 - y_0$	$log(y_{1)} - log(y_0)$		$y_1 - y_0$	$log(y_{1)} - log(y_0)$	
OBC		-5.001***	-0.195***		-3.884***	-0.088***		-2.459***	-0.072**	
		(0.634)	(0.027)		(0.714)	(0.030)		(0.602)	(0.030)	
SC		-6.459***	-0.190***		-6.070***	-0.136***		-4.016***	-0.149***	
		(0.537)	(0.026)		(0.609)	(0.033)		(0.573)	(0.031)	
ST		-7.382***	-0.264***		-6.898***	-0.197***		-4.646***	-0.169***	
		(0.626)	(0.038)		(0.738)	(0.046)		(0.714)	(0.041)	
Muslim		-5.975***	-0.203***		-5.801***	-0.146***		-3.666***	-0.175***	
		(0.728)	(0.038)		(0.669)	(0.053)		(0.698)	(0.044)	

Note: $in Panel 5 base period income is used in place of rank. Standard errors derived through bootstrapping with 100 replications are in parenthesis. *** p<0.01, ** p<0.05, * p<0.1. See Table-5 for complete set of characteristics controlled for in column (7) to (9). FHC=Forward Hindu Caste; OBC=Other Backward Caste; SC=Scheduled Caste; ST=Scheduled Tribe. Dependent variables in panel 5 are continuous variables, while for the rest of the panels, dependent variables are binary indicators. For URM ($\tau = 0$), DRM ($\tau = 0$), $y_1 - y_0$, and $\log(y_1) - \log(y_o)$ outcomes, entire sample is used. For rest of the outcomes, sample is restricted to relevant population: for UTP ($\tau = 0$), UTP ($\tau = 10$), and UTP ($\tau = 20$) *{DTP ($\tau = 0$), DTP ($\tau = 10$), and DTP ($\tau = 20$)}*, estimation sample excludes top quintile, top quintile, and top two quintiles {bottom quintile, bottom quintile, and bottom two quintiles}, respectively. Similarly, for URM ($\tau = 10$), and URM ($\tau = 20$) *{DRM ($\tau = 10$) and DRM ($\tau = 20$)}*, estimation sample excludes top decile and top two deciles {bottom decile and bottom two deciles}, respectively.

Table 4b: Mobility (between 2004 and 2011) Gaps for each social group with respect to the FHCs, Rural

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Controls		Base period rank$			Add district fixed effects			Add households characteristics		
		$\tau = 0$	$\tau = 10$	$\tau = 20$	$\tau = 0$	$\tau = 10$	$\tau = 20$	$\tau = 0$	$\tau = 10$	$\tau = 20$
Panel 1: Upward Rank Mobility										
OBC	URM	-0.076***	-0.084***	-0.081***	-0.043***	-0.047***	-0.046***	-0.023***	-0.030***	-0.024**
		(0.008)	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.008)	(0.009)	(0.010)
SC	URM	-0.073***	-0.085***	-0.095***	-0.070***	-0.076***	-0.085***	-0.036***	-0.045***	-0.046***
		(0.009)	(0.009)	(0.012)	(0.009)	(0.009)	(0.010)	(0.010)	(0.009)	(0.010)
ST	URM	-0.147***	-0.162***	-0.153***	-0.086***	-0.104***	-0.095***	-0.051***	-0.073***	-0.059***
		(0.012)	(0.011)	(0.012)	(0.012)	(0.013)	(0.013)	(0.012)	(0.014)	(0.014)
Muslim	URM	-0.086***	-0.091***	-0.091***	-0.095***	-0.096***	-0.091***	-0.064***	-0.064***	-0.049***
		(0.012)	(0.009)	(0.013)	(0.013)	(0.013)	(0.015)	(0.012)	(0.014)	(0.014)
Panel 2: Upward Transition Probabilities										
OBC	UTP	-0.085***	-0.101***	-0.103***	-0.048***	-0.066***	-0.060***	-0.029***	-0.046***	-0.035***
		(0.010)	(0.009)	(0.012)	(0.010)	(0.010)	(0.011)	(0.010)	(0.011)	(0.013)
SC	UTP	-0.094***	-0.115***	-0.125***	-0.084***	-0.106***	-0.108***	-0.052***	-0.068***	-0.063***
		(0.010)	(0.010)	(0.013)	(0.012)	(0.010)	(0.011)	(0.012)	(0.011)	(0.012)
ST	UTP	-0.167***	-0.163***	-0.187***	-0.096***	-0.107***	-0.121***	-0.064***	-0.073***	-0.079***
		(0.012)	(0.011)	(0.014)	(0.013)	(0.013)	(0.015)	(0.014)	(0.015)	(0.016)
Muslim	UTP	-0.090***	-0.115***	-0.121***	-0.096***	-0.112***	-0.111***	-0.064***	-0.071***	-0.061***
		(0.014)	(0.014)	(0.016)	(0.015)	(0.015)	(0.017)	(0.014)	(0.015)	(0.016)
Panel 3: Downward Rank Mobility										
OBC	DRM	0.076***	0.089***	0.081***	0.044***	0.054***	0.051***	0.023**	0.030***	0.032***
		(0.009)	(0.009)	(0.009)	(0.008)	(0.009)	(0.011)	(0.009)	(0.010)	(0.010)
SC	DRM	0.074***	0.080***	0.065***	0.071***	0.079***	0.067***	0.037***	0.045***	0.042***
		(0.010)	(0.008)	(0.011)	(0.008)	(0.010)	(0.010)	(0.011)	(0.010)	(0.012)
ST	DRM	0.147***	0.161***	0.145***	0.087***	0.089***	0.086***	0.051***	0.051***	0.054***
		(0.010)	(0.012)	(0.012)	(0.013)	(0.013)	(0.014)	(0.013)	(0.014)	(0.015)
Muslim	DRM	0.086***	0.095***	0.084***	0.095***	0.105***	0.096***	0.064***	0.074***	0.073***
		(0.011)	(0.012)	(0.012)	(0.013)	(0.013)	(0.015)	(0.014)	(0.013)	(0.015)
Panel 4: Downward Transition Mobility										
OBC	DTP	0.086***	0.083***	0.076***	0.051***	0.054***	0.048***	0.026***	0.033***	0.030***
		(0.009)	(0.008)	(0.010)	(0.012)	(0.011)	(0.010)	(0.010)	(0.010)	(0.011)
SC	DTP	0.065***	0.057***	0.056***	0.065***	0.058***	0.061***	0.030***	0.032***	0.038***
		(0.010)	(0.010)	(0.011)	(0.012)	(0.010)	(0.011)	(0.011)	(0.012)	(0.012)
ST	DTP	0.165***	0.144***	0.127***	0.093***	0.086***	0.085***	0.051***	0.052***	0.054***
		(0.014)	(0.014)	(0.014)	(0.016)	(0.016)	(0.019)	(0.017)	(0.017)	(0.018)
Muslim	DTP	0.098***	0.083***	0.094***	0.113***	0.095***	0.109***	0.079***	0.070***	0.087***
		(0.014)	(0.013)	(0.014)	(0.014)	(0.015)	(0.018)	(0.017)	(0.016)	(0.020)
Panel 5: Change in real income in 1000 INR / Change in log of real income										
Dependent variable		$y_1 - y_0$	$log(y_{1)} - log(y_0)$		$y_1 - y_0$	$log(y_{1)} - log(y_0)$		$y_1 - y_0$	$log(y_{1)} - log(y_0)$	
OBC		-6.526***	-0.106***		-4.909***	-0.068***		-2.116***	-0.045**	
		(0.711)	(0.024)		(0.766)	(0.025)		(0.675)	(0.020)	
SC		-8.442***	-0.097***		-8.118***	-0.102***		-3.150***	-0.057**	
		(0.935)	(0.027)		(0.918)	(0.028)		(0.858)	(0.023)	
ST		-8.945***	-0.225***		-7.965***	-0.119***		-3.315***	-0.079***	
		(0.752)	(0.028)		(0.857)	(0.035)		(0.743)	(0.028)	
Muslim		-8.165***	-0.128***		-8.296***	-0.140***		-3.607***	-0.128***	
		(0.848)	(0.032)		(0.893)	(0.040)		(0.849)	(0.034)	

Note: $in Panel 5 base period income is used in place of rank. Standard errors derived through bootstrapping with 100 replications are in parenthesis. *** p<0.01, ** p<0.05, * p<0.1. See Table-5 for complete set of characteristics controlled for in column (7) to (9). FHC=Forward Hindu Caste; OBC=Other Backward Caste; SC=Scheduled Caste; ST=Scheduled Tribe. Dependent variables in panel 5 are continuous variables, while for the rest of the panels, dependent variables are binary indicators. For URM ($\tau = 0$), DRM ($\tau = 0$), $y_1 - y_0$, and $\log(y_1) - \log(y_o)$ outcomes, entire sample is used. For rest of the outcomes, sample is restricted to relevant population: for UTP ($\tau = 0$), UTP ($\tau = 10$), and UTP ($\tau = 20$) *{DTP ($\tau = 0$), DTP ($\tau = 10$), and DTP ($\tau = 20$)}*, estimation sample excludes top quintile, top quintile, and top two quintiles {bottom quintile, bottom quintile, and bottom two quintiles}, respectively. Similarly, for URM ($\tau = 10$), and URM ($\tau = 20$) *{DRM ($\tau = 10$) and DRM ($\tau = 20$)}*, estimation sample excludes top decile and top two deciles {bottom decile and bottom two deciles}, respectively.

Table 5: Correlates of mobility, Rural India

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Between 1993 and 2004					Between 2004 and 2011				
Dependent variable	**URM** $\tau = 0$	**UTP** $\tau = 0$	**DTP** $\tau = 0$	$y_1 - y_0$	$log(y_1) - log(y_0)$	**URM** $\tau = 0$	**UTP** $\tau = 0$	**DTP** $\tau = 0$	$y_1 - y_0$	$log(y_1) - log(y_0)$
OBC	-0.053***	-0.037**	0.054***	-2.459***	-0.072**	-0.023***	-0.029***	0.026***	-2.116***	-0.045**
	(0.014)	(0.017)	(0.015)	(0.602)	(0.030)	(0.008)	(0.010)	(0.010)	(0.675)	(0.020)
SC	-0.083***	-0.086***	0.087***	-4.016***	-0.149***	-0.036***	-0.052***	0.030***	-3.150***	-0.057**
	(0.014)	(0.016)	(0.016)	(0.573)	(0.031)	(0.010)	(0.012)	(0.011)	(0.858)	(0.023)
ST	-0.102***	-0.119***	0.115***	-4.646***	-0.169***	-0.051***	-0.064***	0.051***	-3.315***	-0.079***
	(0.020)	(0.025)	(0.024)	(0.714)	(0.041)	(0.012)	(0.014)	(0.017)	(0.743)	(0.028)
Muslim	-0.073***	-0.090***	0.065**	-3.666***	-0.175***	-0.064***	-0.064***	0.079***	-3.607***	-0.128***
	(0.020)	(0.023)	(0.025)	(0.698)	(0.044)	(0.012)	(0.014)	(0.017)	(0.849)	(0.034)
Others	-0.030	0.003	0.017	0.706	0.111	0.023	0.012	-0.036	5.081**	0.047
	(0.030)	(0.037)	(0.034)	(1.384)	(0.072)	(0.022)	(0.028)	(0.025)	(2.573)	(0.048)
Household rank in period 0	-0.009***	-0.009***	0.008***			-0.010***	-0.009***	0.007***		
	(0.000)	(0.000)	(0.000)			(0.000)	(0.000)	(0.000)		
Real income in period 0 (in 1000)				-0.881***	-0.025***				-0.821***	-0.015***
				(0.013)	(0.001)				(0.010)	(0.000)
Female head	0.025	0.010	-0.021	0.720	0.006	0.019*	0.014	-0.034***	0.648	0.070***
	(0.021)	(0.025)	(0.026)	(0.925)	(0.043)	(0.011)	(0.012)	(0.013)	(0.614)	(0.025)
Head's age	0.011***	0.013***	-0.014***	0.260***	0.020***	0.010***	0.010***	-0.011***	0.475***	0.020***
	(0.002)	(0.002)	(0.002)	(0.074)	(0.004)	(0.001)	(0.002)	(0.002)	(0.090)	(0.003)
Head's age square	-0.000***	-0.000***	0.000***	-0.002***	-0.000***	-0.000***	-0.000***	0.000***	-0.004***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
Head's education: Primary	0.032**	0.030**	-0.062***	1.971***	0.074***	0.019**	0.007	-0.026***	1.044**	0.011
	(0.014)	(0.014)	(0.016)	(0.499)	(0.026)	(0.009)	(0.009)	(0.009)	(0.496)	(0.018)
Middle	0.069***	0.035**	-0.081***	3.129***	0.068**	0.037***	0.033***	-0.048***	3.440***	0.016
	(0.013)	(0.016)	(0.018)	(0.781)	(0.033)	(0.010)	(0.012)	(0.009)	(0.677)	(0.021)
Secondary	0.080***	0.092***	-0.111***	5.137***	0.130***	0.077***	0.084***	-0.087***	5.109***	0.057*
	(0.016)	(0.022)	(0.018)	(1.214)	(0.040)	(0.010)	(0.015)	(0.012)	(0.808)	(0.031)
Senior Secondary	0.135***	0.111***	-0.142***	5.037***	0.187***	0.102***	0.099***	-0.148***	12.593***	0.125***
	(0.031)	(0.040)	(0.038)	(1.262)	(0.065)	(0.018)	(0.022)	(0.019)	(2.160)	(0.048)
Tertiary	0.176***	0.142***	-0.202***	17.801***	0.310***	0.145***	0.139***	-0.225***	24.447***	0.316***
	(0.032)	(0.048)	(0.033)	(3.608)	(0.076)	(0.019)	(0.034)	(0.019)	(2.348)	(0.078)
Head's occupation: Farmer	0.010	0.005	-0.008	-0.193	0.013	-0.029***	-0.029***	0.038***	-2.221***	-0.053**
	(0.015)	(0.018)	(0.014)	(0.615)	(0.031)	(0.009)	(0.011)	(0.010)	(0.547)	(0.021)
Salaried	0.041*	0.056*	-0.050**	2.534**	0.034	-0.003	-0.008	-0.018	-1.193	-0.184***
	(0.025)	(0.030)	(0.024)	(1.222)	(0.050)	(0.011)	(0.015)	(0.014)	(0.794)	(0.029)
Non-agriculture labor	-0.013	0.005	0.024	-0.646	-0.104**	-0.006	-0.011	-0.000	-0.605	-0.114***
	(0.019)	(0.023)	(0.022)	(0.521)	(0.042)	(0.010)	(0.010)	(0.012)	(0.555)	(0.021)
Cultivate land (1/0)	-0.036***	-0.037***	0.043**	-0.143	-0.261***	0.003	0.014	-0.013	1.593**	0.053***
	(0.014)	(0.014)	(0.018)	(0.503)	(0.026)	(0.009)	(0.009)	(0.012)	(0.695)	(0.020)
Amount of land cultivated	-0.000	-0.000	-0.003***	0.016	0.001	0.018***	0.013**	-0.032***	2.871***	0.020
	(0.000)	(0.001)	(0.001)	(0.045)	(0.002)	(0.005)	(0.006)	(0.006)	(0.735)	(0.013)
Dependency ratio	0.010	-0.000	0.005	0.752	0.141***	-0.009	-0.022**	0.018*	-1.054**	0.074***
	(0.012)	(0.015)	(0.016)	(0.564)	(0.027)	(0.008)	(0.009)	(0.010)	(0.519)	(0.020)

Household Size	0.004	0.000	-0.007	-0.272	0.009	-0.000	-0.005	-0.003	-0.288	0.024***
	(0.004)	(0.006)	(0.005)	(0.179)	(0.009)	(0.003)	(0.003)	(0.004)	(0.193)	(0.007)
Number of adult males	0.000	0.002	-0.000	0.417	0.025	0.012**	0.016***	-0.006	0.359	-0.006
	(0.008)	(0.011)	(0.011)	(0.400)	(0.020)	(0.006)	(0.006)	(0.007)	(0.444)	(0.013)
Number of adult females	-0.000	-0.002	0.007	0.270	0.029	0.005	0.004	0.003	0.481	0.034**
	(0.009)	(0.012)	(0.010)	(0.372)	(0.020)	(0.006)	(0.007)	(0.007)	(0.392)	(0.015)
Main source income: Cultivation	0.001	0.006	0.031**	-0.112	-0.054*	-0.011	-0.016	0.040***	-0.764	0.112***
	(0.015)	(0.015)	(0.016)	(0.519)	(0.030)	(0.009)	(0.011)	(0.010)	(0.769)	(0.020)
Non-agriculture labor wage	-0.001	-0.023	0.023	-0.673	0.026	-0.007	-0.003	0.010	-1.356***	0.042*
	(0.019)	(0.022)	(0.025)	(0.482)	(0.038)	(0.009)	(0.010)	(0.011)	(0.434)	(0.022)
Salary	0.125***	0.151***	-0.093***	2.862***	0.011	0.093***	0.072***	-0.114***	6.999***	0.106***
	(0.021)	(0.028)	(0.021)	(0.910)	(0.049)	(0.013)	(0.017)	(0.014)	(1.052)	(0.033)
Own tractor	0.040	0.090**	-0.088***	8.123***	0.258***	0.086***	0.117***	-0.149***	14.656***	-0.053
	(0.026)	(0.039)	(0.029)	(2.214)	(0.067)	(0.018)	(0.023)	(0.022)	(2.370)	(0.071)
Own tube well	0.075***	0.076***	-0.071***	2.708***	0.064**	0.040***	0.059***	-0.035***	1.789*	0.001
	(0.017)	(0.020)	(0.017)	(0.999)	(0.031)	(0.012)	(0.013)	(0.011)	(0.968)	(0.030)
Own animal	-0.017	-0.008	0.021*	0.127	-0.036*	-0.008	0.004	0.016**	0.101	-0.185***
	(0.012)	(0.011)	(0.013)	(0.412)	(0.020)	(0.007)	(0.007)	(0.008)	(0.465)	(0.016)
Participated in government scheme	0.003	0.027*	-0.020	0.478	0.014					
	(0.014)	(0.015)	(0.014)	(0.711)	(0.024)					
Split between period 0 and 1	0.000	-0.002	-0.004	-0.913**	0.013	-0.018*	0.002	0.012	-3.074***	-0.033
	(0.014)	(0.014)	(0.012)	(0.409)	(0.026)	(0.010)	(0.010)	(0.011)	(0.547)	(0.024)
Participated in NREGA						-0.039***	-0.028***	0.067***	-3.916***	-0.018
						(0.008)	(0.007)	(0.010)	(0.648)	(0.019)
Constant	0.735***	0.541***	0.304***	4.499***	-0.219**	0.705***	0.583***	0.300***	5.476**	-0.037
	(0.052)	(0.061)	(0.065)	(1.629)	(0.102)	(0.040)	(0.037)	(0.043)	(2.376)	(0.091)
Observations	10,728	8,583	8,577	10,728	10,540	23,969	19,176	19,175	23,969	23,124
R-squared	0.326	0.234	0.208	0.403	0.288	0.290	0.227	0.171	0.245	0.190

Note: All models control district fixed effects. Standard errors derived through bootstrapping with 100 replications are in parenthesis. *** p<0.01, ** p<0.05, * p<0.1. FHC=Forward Hindu Caste; OBC=Other Backward Caste; SC=Scheduled Caste; ST=Scheduled Tribe. For URM ($\tau = 0$), $y_1 - y_0$, and $\log(y_1) - \log(y_o)$ outcomes, the estimation sample include the entire sample. For UTP ($\tau = 0$) outcome, the estimation sample excludes top quintile, whereas for DTP ($\tau = 0$)) outcome, the estimation sample excludes the bottom quintile.

Table 6: Mobility (between 2004 and 2011) Gaps for each social group with respect to the FHCs, Urban

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Controls		Base period rank[$]			Add district fixed effects			Add households characteristics		
		$\tau = 0$	$\tau = 10$	$\tau = 20$	$\tau = 0$	$\tau = 10$	$\tau = 20$	$\tau = 0$	$\tau = 10$	$\tau = 20$
Panel 1: Upward Rank Mobility										
OBC	URM	-0.069***	-0.061***	-0.052***	-0.066***	-0.054***	-0.045***	-0.038***	-0.023*	-0.017
		(0.013)	(0.013)	(0.012)	(0.014)	(0.015)	(0.013)	(0.013)	(0.012)	(0.013)
SC/ST	URM	-0.065***	-0.079***	-0.075***	-0.076***	-0.087***	-0.082***	-0.041***	-0.037***	-0.035**
		(0.013)	(0.013)	(0.013)	(0.014)	(0.014)	(0.012)	(0.014)	(0.013)	(0.014)
Muslim	URM	-0.146***	-0.153***	-0.141***	-0.128***	-0.138***	-0.121***	-0.079***	-0.077***	-0.066***
		(0.016)	(0.015)	(0.013)	(0.016)	(0.017)	(0.016)	(0.015)	(0.014)	(0.016)
Panel 2: Upward Transition Probabilities										
OBC	UTP	-0.054***	-0.063***	-0.069***	-0.045***	-0.058***	-0.059***	-0.014	-0.029**	-0.033**
		(0.013)	(0.013)	(0.016)	(0.016)	(0.014)	(0.015)	(0.016)	(0.014)	(0.017)
SC/ST	UTP	-0.078***	-0.087***	-0.093***	-0.085***	-0.090***	-0.088***	-0.037**	-0.043***	-0.046***
		(0.016)	(0.014)	(0.014)	(0.017)	(0.014)	(0.017)	(0.016)	(0.013)	(0.017)
Muslim	UTP	-0.151***	-0.141***	-0.161***	-0.133***	-0.127***	-0.136***	-0.077***	-0.071***	-0.088***
		(0.016)	(0.015)	(0.017)	(0.020)	(0.016)	(0.016)	(0.018)	(0.016)	(0.018)
Panel 3: Downward Rank Mobility										
OBC	DRM	0.069***	0.079***	0.077***	0.066***	0.064***	0.061***	0.038***	0.036***	0.036***
		(0.012)	(0.013)	(0.011)	(0.012)	(0.014)	(0.013)	(0.012)	(0.014)	(0.013)
SC/ST	DRM	0.065***	0.052***	0.049***	0.076***	0.052***	0.048***	0.041***	0.022*	0.024*
		(0.013)	(0.015)	(0.013)	(0.013)	(0.012)	(0.014)	(0.014)	(0.013)	(0.014)
Muslim	DRM	0.146***	0.147***	0.151***	0.128***	0.130***	0.136***	0.080***	0.083***	0.091***
		(0.013)	(0.017)	(0.016)	(0.017)	(0.018)	(0.018)	(0.016)	(0.018)	(0.017)
Panel 4: Downward Transition Mobility										
OBC	DTP	0.077***	0.077***	0.079***	0.063***	0.058***	0.058***	0.031**	0.033**	0.038***
		(0.013)	(0.011)	(0.011)	(0.015)	(0.012)	(0.015)	(0.015)	(0.014)	(0.014)
SC/ST	DTP	0.046***	0.049***	0.039***	0.046***	0.045***	0.041***	0.008	0.019	0.022*
		(0.015)	(0.013)	(0.014)	(0.014)	(0.014)	(0.015)	(0.016)	(0.015)	(0.013)
Muslim	DTP	0.167***	0.146***	0.166***	0.159***	0.133***	0.150***	0.103***	0.089***	0.104***
		(0.017)	(0.017)	(0.020)	(0.021)	(0.018)	(0.024)	(0.021)	(0.018)	(0.024)
Panel 5: Change in real income in 1000 INR / Change in log of real income										
Dependent variable		$y_1 - y_0$	$log(y_{1)} - log(y_0)$		$y_1 - y_0$	$log(y_{1)} - log(y_0)$		$y_1 - y_0$	$log(y_{1)} - log(y_0)$	
OBC		-14.059***	-0.084***		-11.706***	-0.085***		-6.484***	-0.052**	
		(1.687)	(0.025)		(1.620)	(0.026)		(1.214)	(0.024)	
SC/ST		-14.531***	-0.053*		-13.830***	-0.069***		-6.770***	-0.040	
		(1.920)	(0.029)		(1.652)	(0.026)		(1.492)	(0.027)	
Muslim		-20.151***	-0.165***		-17.357***	-0.157***		-7.750***	-0.123***	
		(2.066)	(0.033)		(1.674)	(0.035)		(1.644)	(0.029)	

Note: [$]in Panel 5 base period income is used in place of rank. Standard errors derived through bootstrapping with 100 replications are in parenthesis. *** p<0.01, ** p<0.05, * p<0.1. See Table-5 for complete set of characteristics controlled for in column (7) to (9). FHC=Forward Hindu Caste; OBC=Other Backward Caste; SC/ST=Scheduled Caste/Tribe. Dependent variables in panel 5 are continuous variables, while for the rest of the panels, dependent variables are binary indicators. For URM ($\tau = 0$), DRM ($\tau = 0$), $y_1 - y_0$, and $\log(y_1) - \log(y_0)$ outcomes, entire sample is used. For rest of the outcomes, sample is restricted to relevant population: for UTP ($\tau = 0$), UTP ($\tau = 10$), and UTP ($\tau = 20$) *{DTP ($\tau = 0$), DTP ($\tau = 10$), and DTP ($\tau = 20$)}*, estimation sample excludes top quintile, top quintile, and top two quintiles {bottom quintile, bottom quintile, and bottom two quintiles}, respectively. Similarly, for URM ($\tau = 10$), and URM ($\tau = 20$) *{DRM ($\tau = 10$) and DRM ($\tau = 20$)}*, estimation sample excludes top decile and top two deciles {bottom decile and bottom two deciles}, respectively.

Table A1: Mobility (between 2004 and 2011) Gaps for each social group with respect to the FHCs based on *per capita consumption expenditure*, Rural

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Controls		Base period rank$			Add district fixed effects			Add households characteristics		
		$\tau = 0$	$\tau = 10$	$\tau = 20$	$\tau = 0$	$\tau = 10$	$\tau = 20$	$\tau = 0$	$\tau = 10$	$\tau = 20$
Panel 1: Upward Rank Mobility										
OBC	URM	-0.061***	-0.062***	-0.061***	-0.059***	-0.053***	-0.058***	-0.039***	-0.035***	-0.038***
		(0.008)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)	(0.009)	(0.010)	(0.010)
SC	URM	-0.151***	-0.144***	-0.135***	-0.153***	-0.144***	-0.140***	-0.111***	-0.107***	-0.103***
		(0.009)	(0.010)	(0.010)	(0.009)	(0.010)	(0.011)	(0.010)	(0.010)	(0.011)
ST	URM	-0.157***	-0.190***	-0.191***	-0.157***	-0.172***	-0.181***	-0.122***	-0.139***	-0.149***
		(0.011)	(0.012)	(0.012)	(0.013)	(0.014)	(0.014)	(0.013)	(0.014)	(0.014)
Muslim	URM	-0.102***	-0.087***	-0.104***	-0.129***	-0.114***	-0.126***	-0.094***	-0.078***	-0.090***
		(0.012)	(0.013)	(0.013)	(0.013)	(0.014)	(0.015)	(0.013)	(0.014)	(0.015)
Panel 2: Upward Transition Probabilities										
OBC	UTP	-0.070***	-0.050***	-0.057***	-0.064***	-0.046***	-0.051***	-0.042***	-0.026***	-0.029**
		(0.010)	(0.010)	(0.012)	(0.011)	(0.010)	(0.012)	(0.011)	(0.010)	(0.012)
SC	UTP	-0.160***	-0.126***	-0.132***	-0.164***	-0.131***	-0.136***	-0.121***	-0.093***	-0.097***
		(0.011)	(0.010)	(0.012)	(0.011)	(0.011)	(0.013)	(0.012)	(0.011)	(0.013)
ST	UTP	-0.219***	-0.190***	-0.189***	-0.207***	-0.176***	-0.178***	-0.170***	-0.143***	-0.143***
		(0.013)	(0.012)	(0.014)	(0.015)	(0.014)	(0.016)	(0.015)	(0.014)	(0.016)
Muslim	UTP	-0.107***	-0.092***	-0.114***	-0.139***	-0.122***	-0.133***	-0.098***	-0.083***	-0.095***
		(0.014)	(0.013)	(0.015)	(0.016)	(0.015)	(0.017)	(0.016)	(0.015)	(0.017)
Panel 3: Downward Rank Mobility										
OBC	DRM	0.061***	0.079***	0.083***	0.059***	0.074***	0.075***	0.039***	0.048***	0.048***
		(0.008)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
SC	DRM	0.151***	0.165***	0.165***	0.153***	0.168***	0.168***	0.111***	0.118***	0.113***
		(0.009)	(0.010)	(0.010)	(0.009)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
ST	DRM	0.157***	0.168***	0.168***	0.157***	0.165***	0.156***	0.122***	0.123***	0.113***
		(0.011)	(0.013)	(0.013)	(0.013)	(0.014)	(0.015)	(0.013)	(0.014)	(0.015)
Muslim	DRM	0.101***	0.115***	0.106***	0.128***	0.144***	0.149***	0.093***	0.098***	0.099***
		(0.012)	(0.012)	(0.013)	(0.013)	(0.014)	(0.014)	(0.013)	(0.014)	(0.014)
Panel 4: Downward Transition Mobility										
OBC	DTP	0.077***	0.082***	0.081***	0.071***	0.075***	0.066***	0.042***	0.048***	0.039***
		(0.009)	(0.009)	(0.009)	(0.010)	(0.009)	(0.010)	(0.010)	(0.009)	(0.010)
SC	DTP	0.174***	0.162***	0.166***	0.176***	0.167***	0.164***	0.119***	0.112***	0.105***
		(0.011)	(0.010)	(0.011)	(0.011)	(0.010)	(0.011)	(0.011)	(0.011)	(0.012)
ST	DTP	0.177***	0.170***	0.181***	0.175***	0.161***	0.154***	0.128***	0.117***	0.108***
		(0.015)	(0.014)	(0.016)	(0.017)	(0.015)	(0.018)	(0.016)	(0.015)	(0.018)
Muslim	DTP	0.115***	0.106***	0.101***	0.151***	0.147***	0.149***	0.100***	0.097***	0.095***
		(0.014)	(0.013)	(0.014)	(0.015)	(0.014)	(0.016)	(0.015)	(0.014)	(0.016)
Panel 5: Change in real income in 1000 INR / Change in log of real income										
Dependent variable		$y_1 - y_0$	$log(y_1) - log(y_0)$		$y_1 - y_0$	$log(y_1) - log(y_0)$		$y_1 - y_0$	$log(y_1) - log(y_0)$	
OBC		-4.000***	-0.066***		-3.622***	-0.062***		-2.135***	-0.048***	
		(0.383)	(0.011)		(0.415)	(0.012)		(0.413)	(0.012)	
SC		-7.388***	-0.169***		-7.511***	-0.152***		-4.761***	-0.126***	
		(0.422)	(0.012)		(0.437)	(0.012)		(0.453)	(0.013)	
ST		-7.798***	-0.086***		-6.799***	-0.126***		-4.226***	-0.096***	
		(0.515)	(0.015)		(0.603)	(0.017)		(0.604)	(0.017)	
Muslim		-4.746***	-0.105***		-5.733***	-0.132***		-3.022***	-0.133***	
		(0.543)	(0.016)		(0.618)	(0.018)		(0.623)	(0.018)	

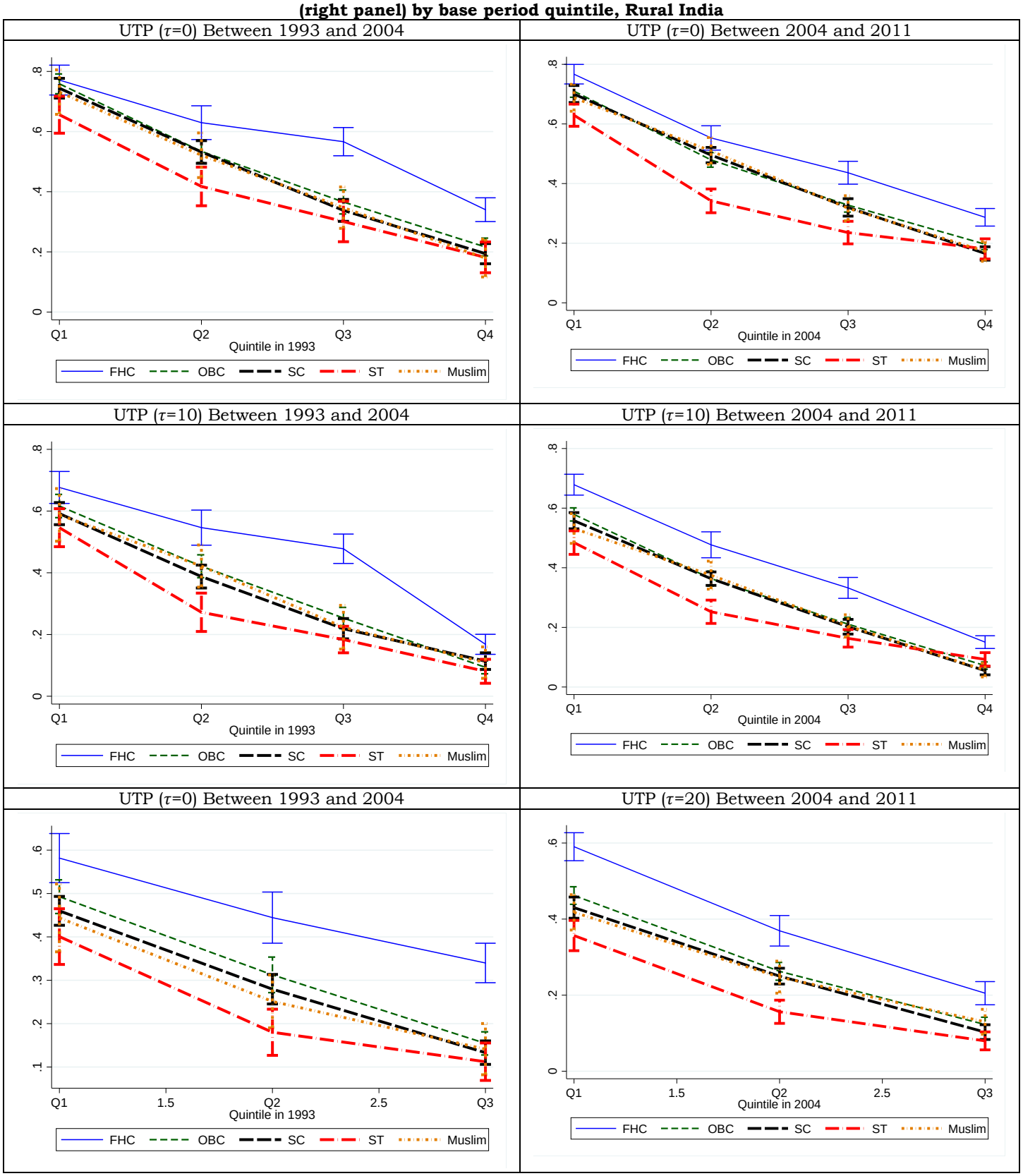
Note: $in Panel 5 base period income is used in place of rank. Standard errors derived through bootstrapping with 100 replications are in parenthesis. *** p<0.01, ** p<0.05, * p<0.1. See Table-5 for complete set of characteristics controlled for in column (7) to (9). FHC=Forward Hindu Caste; OBC=Other Backward Caste; SC=Scheduled Caste; ST=Scheduled Tribe. Dependent variables in panel 5 are continuous variables, while for the rest of the panels, dependent variables are binary indicators. For URM ($\tau = 0$), DRM ($\tau = 0$), $y_1 - y_0$, and $\log(y_1) - \log(y_0)$ outcomes, entire sample is used. For rest of the outcomes, sample is restricted to relevant population: for UTP ($\tau = 0$), UTP ($\tau = 10$), and UTP ($\tau = 20$) *{DTP ($\tau = 0$), DTP ($\tau = 10$), and DTP ($\tau = 20$)}*, estimation sample excludes top quintile, top quintile, and top two quintiles {bottom quintile, bottom quintile, and bottom two quintiles}, respectively. Similarly, for URM ($\tau = 10$), and URM ($\tau = 20$) *{DRM ($\tau = 10$) and DRM ($\tau = 20$)}*, estimation sample excludes top decile and top two deciles {bottom decile and bottom two deciles}, respectively.

Table A2: Mobility (between 2004 and 2011) Gaps for each social group with respect to the FHCs based on *per capita consumption expenditure*, Urban

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Controls		Base period rank[$]			Add district fixed effects			Add households characteristics		
		$\tau = 0$	$\tau = 10$	$\tau = 20$	$\tau = 0$	$\tau = 10$	$\tau = 20$	$\tau = 0$	$\tau = 10$	$\tau = 20$
Panel 1: Upward Rank Mobility										
OBC	URM	-0.088***	-0.063***	-0.050***	-0.079***	-0.054***	-0.046***	-0.049***	-0.027**	-0.029**
		(0.012)	(0.013)	(0.013)	(0.013)	(0.014)	(0.014)	(0.013)	(0.014)	(0.014)
SC/ST	URM	-0.137***	-0.136***	-0.121***	-0.127***	-0.127***	-0.118***	-0.083***	-0.081***	-0.084***
		(0.013)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.015)	(0.015)
Muslim	URM	-0.142***	-0.137***	-0.134***	-0.160***	-0.141***	-0.136***	-0.097***	-0.078***	-0.091***
		(0.015)	(0.015)	(0.015)	(0.016)	(0.017)	(0.017)	(0.016)	(0.017)	(0.017)
Panel 2: Upward Transition Probabilities										
OBC	UTP	-0.074***	-0.056***	-0.053***	-0.062***	-0.050***	-0.044***	-0.032**	-0.029**	-0.029*
		(0.014)	(0.013)	(0.015)	(0.015)	(0.014)	(0.016)	(0.015)	(0.014)	(0.016)
SC/ST	UTP	-0.158***	-0.128***	-0.123***	-0.147***	-0.125***	-0.107***	-0.098***	-0.088***	-0.078***
		(0.015)	(0.014)	(0.016)	(0.016)	(0.015)	(0.016)	(0.016)	(0.015)	(0.017)
Muslim	UTP	-0.161***	-0.149***	-0.139***	-0.160***	-0.145***	-0.128***	-0.092***	-0.096***	-0.089***
		(0.017)	(0.015)	(0.017)	(0.018)	(0.017)	(0.018)	(0.019)	(0.017)	(0.019)
Panel 3: Downward Rank Mobility										
OBC	DRM	0.088***	0.086***	0.089***	0.079***	0.078***	0.085***	0.048***	0.045***	0.052***
		(0.012)	(0.012)	(0.012)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
SC/ST	DRM	0.137***	0.124***	0.118***	0.126***	0.113***	0.103***	0.083***	0.068***	0.059***
		(0.013)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Muslim	DRM	0.141***	0.144***	0.125***	0.159***	0.153***	0.141***	0.096***	0.081***	0.071***
		(0.015)	(0.016)	(0.016)	(0.016)	(0.017)	(0.017)	(0.016)	(0.017)	(0.018)
Panel 4: Downward Transition Mobility										
OBC	DTP	0.092***	0.076***	0.088***	0.083***	0.066***	0.085***	0.048***	0.034***	0.052***
		(0.013)	(0.012)	(0.013)	(0.014)	(0.013)	(0.014)	(0.014)	(0.013)	(0.014)
SC/ST	DTP	0.140***	0.113***	0.116***	0.121***	0.096***	0.101***	0.073***	0.055***	0.057***
		(0.015)	(0.014)	(0.015)	(0.016)	(0.014)	(0.016)	(0.016)	(0.014)	(0.016)
Muslim	DTP	0.153***	0.112***	0.115***	0.161***	0.116***	0.119***	0.083***	0.045**	0.045**
		(0.017)	(0.016)	(0.018)	(0.019)	(0.018)	(0.020)	(0.019)	(0.018)	(0.020)
Panel 5: Change in real income in 1000 INR / Change in log of real income										
Dependent variable		$y_1 - y_0$	$log(y_{1)} - log(y_0)$		$y_1 - y_0$	$log(y_{1)} - log(y_0)$		$y_1 - y_0$	$log(y_{1)} - log(y_0)$	
OBC		-5.708***	-0.073***		-5.651***	-0.068***		-2.139**	-0.035**	
		(0.902)	(0.015)		(0.996)	(0.016)		(0.994)	(0.016)	
SC/ST		-9.406***	-0.135***		-9.192***	-0.120***		-4.354***	-0.081***	
		(0.998)	(0.017)		(1.057)	(0.017)		(1.079)	(0.018)	
Muslim		-10.385***	-0.125***		-10.719***	-0.141***		-3.964***	-0.095***	
		(1.102)	(0.018)		(1.246)	(0.020)		(1.274)	(0.021)	

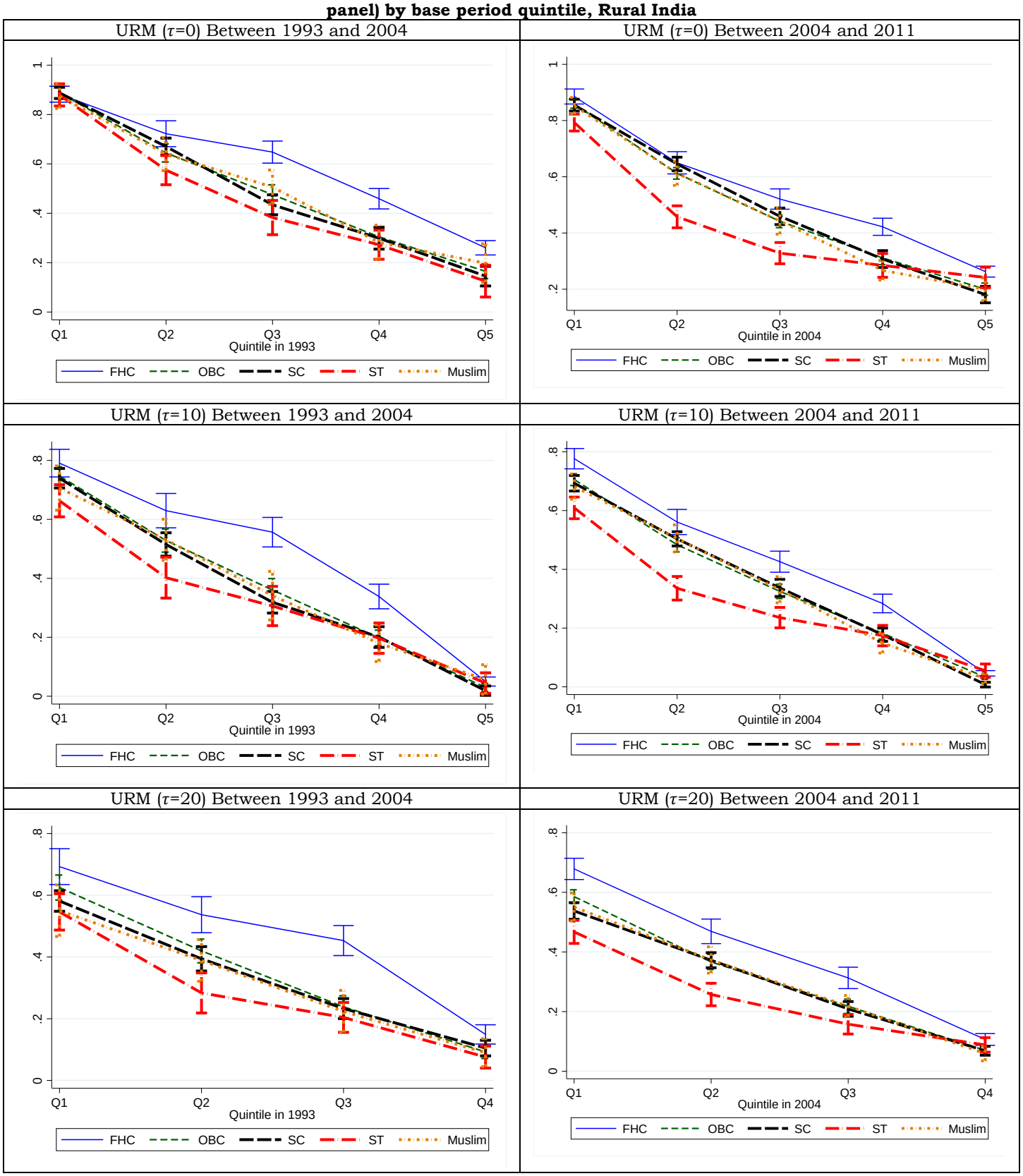
Note: [$]in Panel 5 base period income is used in place of rank. Standard errors derived through bootstrapping with 100 replications are in parenthesis. *** p<0.01, ** p<0.05, * p<0.1. See Table-5 for complete set of characteristics controlled for in column (7) to (9). FHC=Forward Hindu Caste; OBC=Other Backward Caste; SC/ST=Scheduled Caste/Tribe. Dependent variables in panel 5 are continuous variables, while for the rest of the panels, dependent variables are binary indicators. For URM ($\tau = 0$), DRM ($\tau = 0$), $y_1 - y_0$, and $\log(y_1) - \log(y_o)$ outcomes, entire sample is used. For rest of the outcomes, sample is restricted to relevant population: for UTP ($\tau = 0$), UTP ($\tau = 10$), and UTP ($\tau = 20$) *{DTP ($\tau = 0$), DTP ($\tau = 10$), and DTP ($\tau = 20$)}*, estimation sample excludes top quintile, top quintile, and top two quintiles {bottom quintile, bottom quintile, and bottom two quintiles}, respectively. Similarly, for URM ($\tau = 10$), and URM ($\tau = 20$) *{DRM ($\tau = 10$) and DRM ($\tau = 20$)}*, estimation sample excludes top decile and top two deciles {bottom decile and bottom two deciles}, respectively.

Figure 1: Upward Transition Probability (UTP) between 1993 and 2004 (left panel) and between 2004 and 2011 (right panel) by base period quintile, Rural India



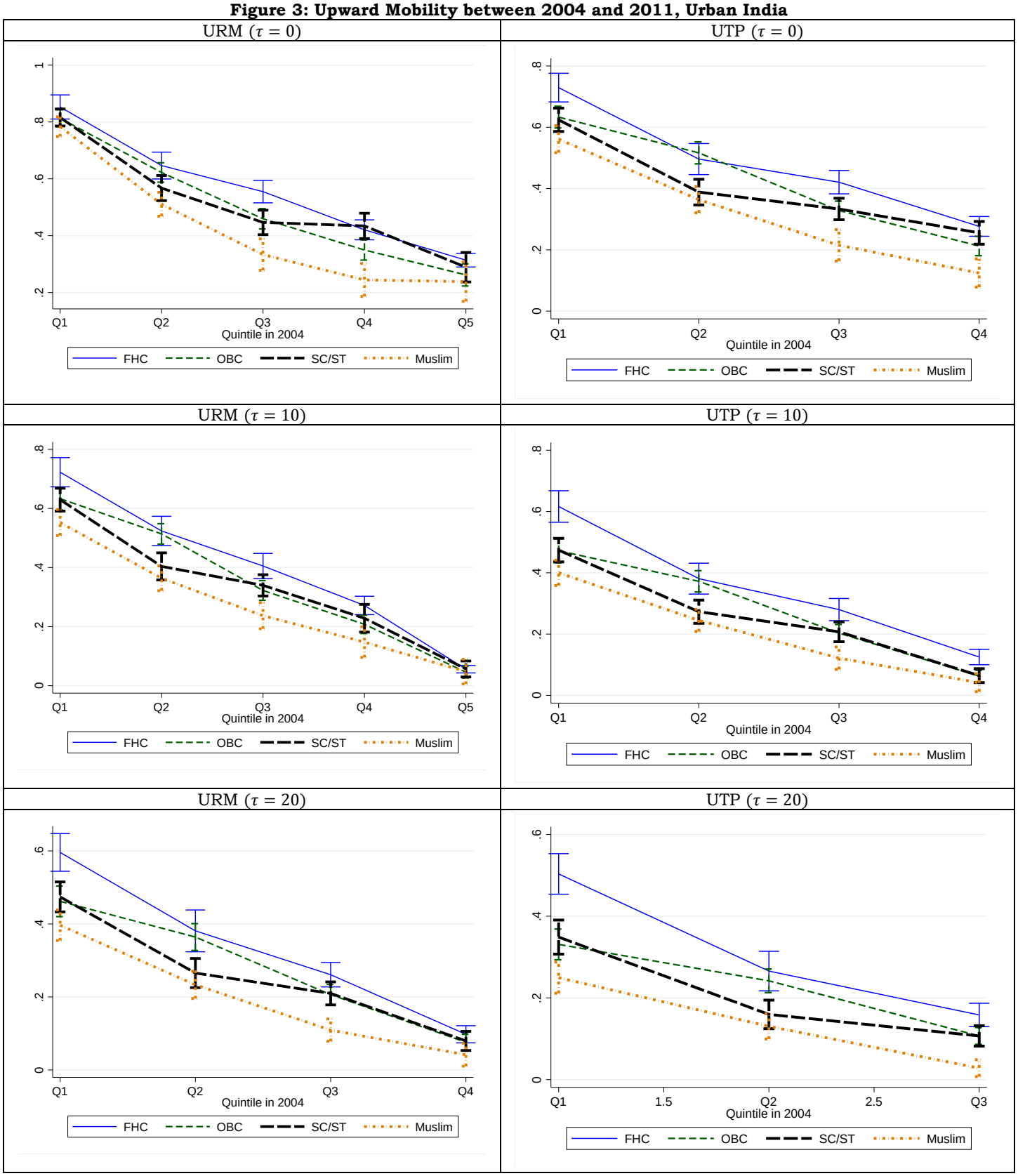
Note: The bounds represent 95% confidence interval derived through bootstrapping with 100 replications. FHC=Forward Hindu Caste; OBC=Other Backward Caste; SC=Scheduled Caste; ST=Scheduled Tribe. The quintiles for which the calculated measure is not relevant is excluded from the graphs. Quintile 1 is the poorest and 5 the richest.

Figure 2: Upward Rank Mobility (URM) between 1993 and 2004 (left panel) and between 2004 and 2011 (right panel) by base period quintile, Rural India



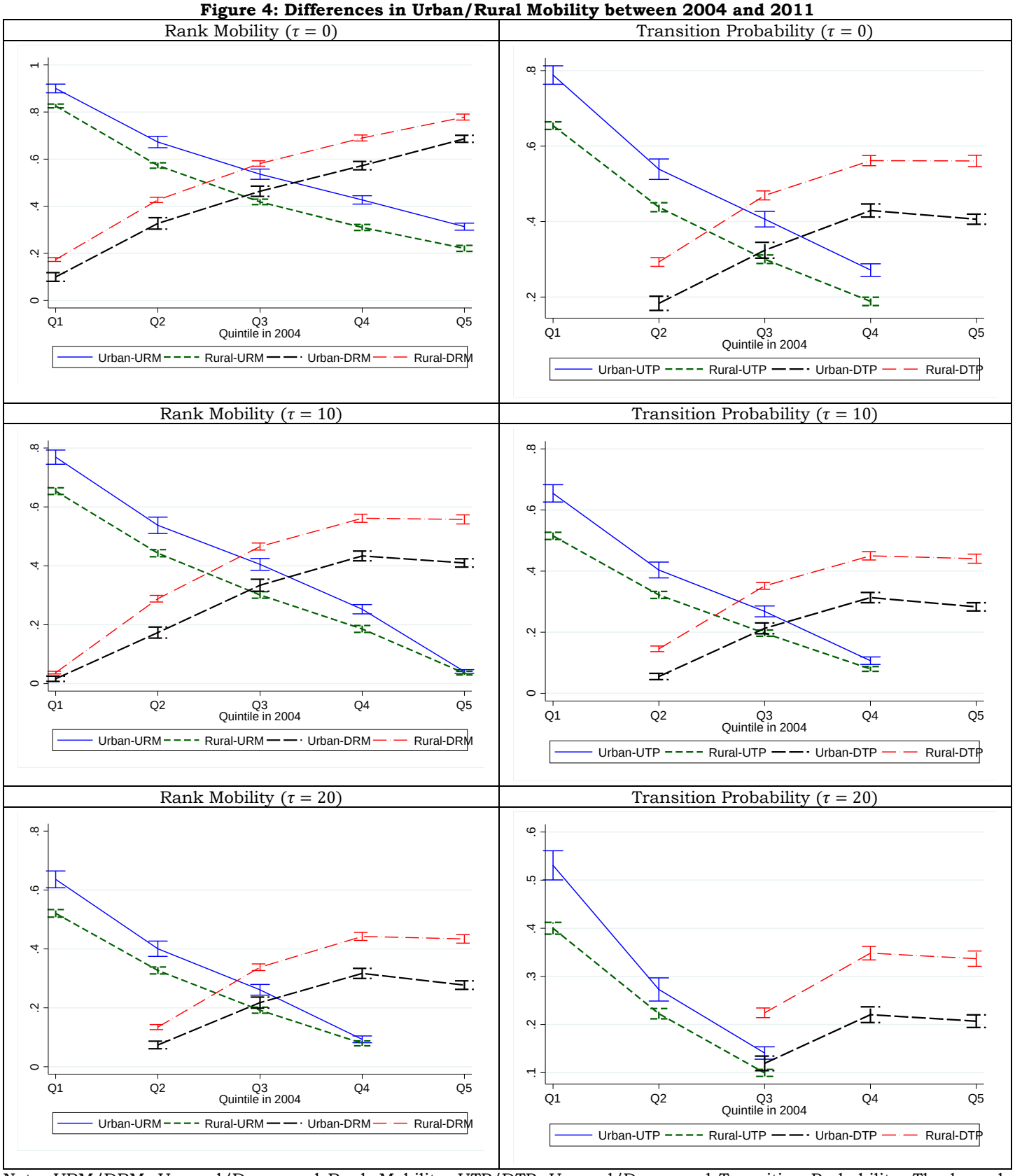
Note: The bounds represent 95% confidence interval derived through bootstrapping with 100 replications. FHC=Forward Hindu Caste; OBC=Other Backward Caste; SC=Scheduled Caste; ST=Scheduled Tribe. The quintiles for which the calculated measure is not relevant is excluded from the graphs. Quintile 1 is the poorest and 5 the richest.

Figure 3: Upward Mobility between 2004 and 2011, Urban India



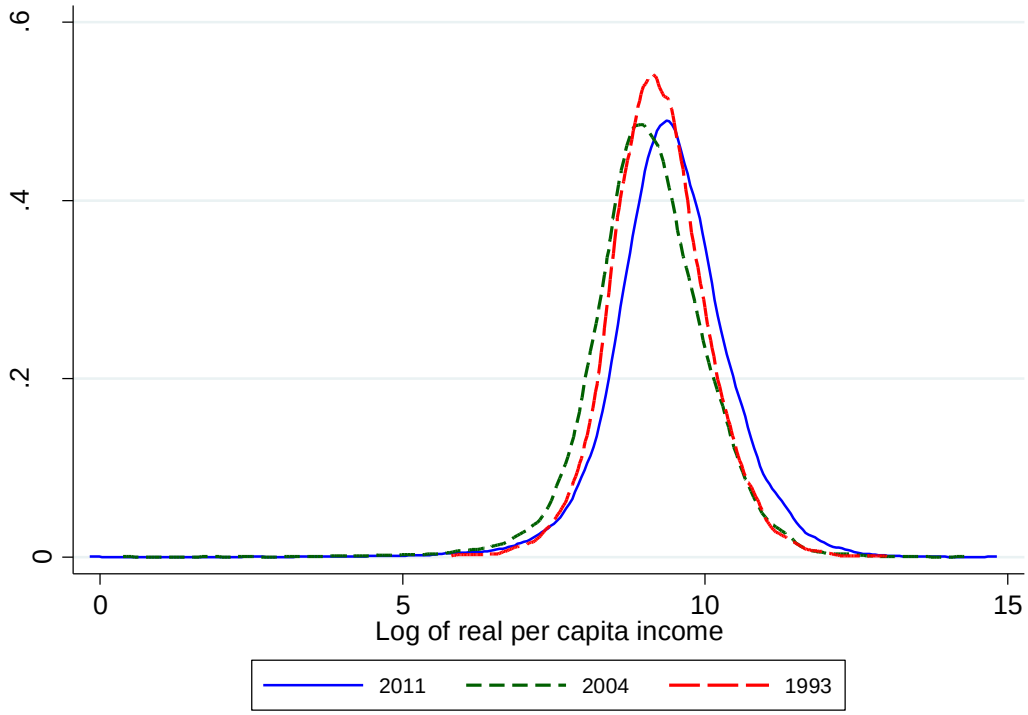
Note: URM: Upward Rank Mobility, UTP: Upward Transition Probability. The bounds represent 95% confidence interval derived through bootstrapping with 100 replications. FHC=Forward Hindu Caste; OBC=Other Backward Caste; SC=Scheduled Caste; ST=Scheduled Tribe. The quintiles for which the calculated measure is not relevant is excluded from the graphs. Quintile 1 is the poorest and 5 the richest.

Figure 4: Differences in Urban/Rural Mobility between 2004 and 2011

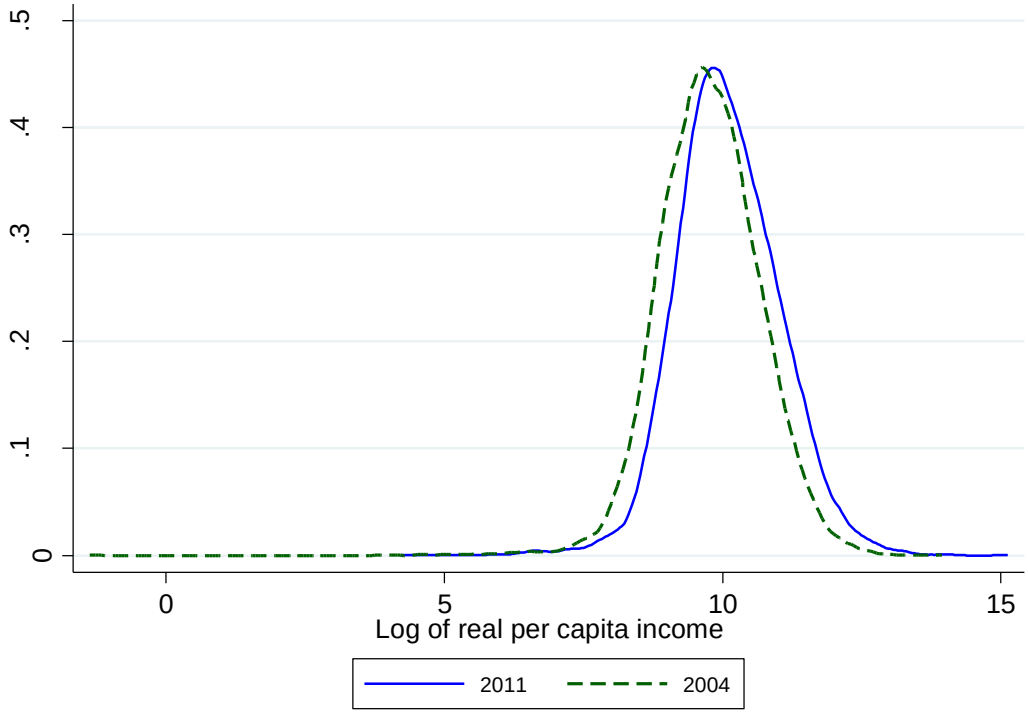


Note: URM/DRM: Upward/Downward Rank Mobility, UTP/DTP: Upward/Downward Transition Probability. The bounds represent 95% confidence interval derived through bootstrapping with 100 replications. The missing data points are not relevant for the calculated measure in given quintile. Quintile 1 is the poorest and 5 the richest.

Figure A1: Kernel density plot for log of income per capita
Panel A: Rural India



Panel B: Urban India



Online Appendix: A
Attrition between 2004 and 2011

The 2004 IHDS collected information on 41,554 households (26,734 rural and 14,820 urban). The 2011 IHDS attempted to re-interview the 2004 original households as well as split households (if located within the same village or town) to trace changes in their lives. Table-1 provides information about the attrition rate in rural and urban areas. The attrition rate was higher in urban India (4147 households lost, about 28%) compared to rural India (2764 households lost, about 10%).[1]

Table-1 Attrition rates between 2004-2011

		Resurveyed in 2011		
		No	***Yes***	
Households surveyed in 2004-05	Rural	2,764	23,970	26,734
		(10.34)	(89.66)	(100)
	Urban	4,147	10,673	14,820
		(27.98)	(72.02)	(100)
	All	6,911	34,643	41,554
		(16.63)	(83.37)	(100)

Note: Percentages are in parenthesis.

Since, our main focus is on comparison of mobility across social groups, the estimates will be biased if attrition rates differ across social groups. Table 2 reports attrition rates of different social groups compared to the attrition rates for Forward Hindu Castes (FHC) in rural and urban areas separately. As evident from Panel A of Table 2, there is little evidence that the attrition rates differ across social groups in rural areas. Only in the top quintile, we find that Scheduled Caste (SC) households are more likely to drop out compared to FHC households. In contrast to rural areas, we find that the disadvantaged social group households in urban areas are less likely to drop out compared to FHC households (column (1), Panel B of Table 2). The differences in attrition is evident in each quintile in urban areas.

[1] One of the reason for higher attrition in urban areas are loss of households living in rental houses in 2004-05. As households keep changing the rental houses, the probability of residing in same rental household after seven years is low. For example, in urban India, 3397 households out of 14820 households surveyed in 2004-05 reported living in rental houses. 1722 of those houses were lost in 2011-12 survey (more than 50% in this group).

Table 2: Attrition probability for social groups in each quintile

	(1) All	(2) Q1	(3) Q2	(4) Q3	(5) Q4	(6) Q5
Dependent Variable=Attrition=1, Else=0						
Method: OLS						
Panel A: Rural						
OBC	-0.004	-0.015	0.008	0.016	-0.012	0.016
	(0.009)	(0.014)	(0.013)	(0.012)	(0.015)	(0.014)
SC	-0.006	-0.026*	-0.001	0.009	0.007	0.038**
	(0.008)	(0.013)	(0.012)	(0.013)	(0.015)	(0.017)
ST	0.024	0.010	0.023	0.046	0.019	0.068
	(0.023)	(0.024)	(0.026)	(0.029)	(0.025)	(0.043)
Muslim	0.025	-0.019	0.043*	0.034	0.040	0.074
	(0.020)	(0.017)	(0.025)	(0.021)	(0.028)	(0.046)
Constant	0.100***	0.098***	0.070***	0.074***	0.111***	0.119***
	(0.008)	(0.011)	(0.011)	(0.010)	(0.013)	(0.011)
Observations	26,734	5,347	5,349	5,344	5,347	5,346
R-squared	0.002	0.002	0.003	0.005	0.003	0.005
Panel B: Urban						
OBC	-0.060***	-0.107***	-0.055**	-0.009	-0.025	0.013
	(0.020)	(0.029)	(0.025)	(0.025)	(0.033)	(0.029)
SC	-0.108***	-0.133***	-0.073***	-0.032	-0.085***	-0.107***
	(0.018)	(0.030)	(0.026)	(0.028)	(0.025)	(0.038)
ST	-0.020	-0.098**	-0.107**	-0.101*	-0.030	0.125*
	(0.049)	(0.045)	(0.043)	(0.052)	(0.066)	(0.072)
Muslim	-0.059**	-0.062*	-0.045*	-0.027	-0.006	0.067
	(0.024)	(0.032)	(0.025)	(0.034)	(0.043)	(0.059)
Constant	0.324***	0.290***	0.282***	0.280***	0.331***	0.372***
	(0.025)	(0.027)	(0.022)	(0.026)	(0.034)	(0.032)
Observations	14,820	2,964	2,967	2,965	2,960	2,964
R-squared	0.008	0.012	0.005	0.003	0.005	0.012

Note: The excluded category is Higher Hindu Castes. SC: Scheduled Castes, ST: Scheduled Tribes, OBC: Other Backward Castes. An indicator for other social group is also included but not reported here. Standard errors are clustered at district level.

Following Fitzgerald et al. (1998), we use the inverse probability weight to correct for attrition. The estimation of inverse probability weights relies on an auxiliary variable(s) which can be related to both attrition and the outcome variable. The intuition behind

this procedure is that it gives more weight to households who have similar initial characteristics to households that subsequently attrite than to households with characteristics that make them more likely to remain in the panel. Details on the implementation of this procedure can be found in Baluch and Quisumbing (2011). We create the ratio of predicted values from the restricted regression and unrestricted regression of reversed attrition probit where the dependent variable, RA = 1 if nonattrition. The unrestricted regression includes the explanatory variables and the auxiliary variables, while the restricted regression excludes the auxiliary variables. The explanatory variables include household demographic composition, education and occupation of the household head, main income source of the household, access to productive assets, and participation in government welfare scheme (See Table 5 in main text for complete list of explanatory variables).

The auxiliary variables include measures of quality of interview from 2004-05 as captured by the interviewer observation regarding respondent behavior--- indicators for a lot of difficulty in conveying purpose of interview, a lot of difficulty in respondent understanding questions, respondent not providing clear answers, whether respondent has little knowledge of consumption expenditure, and respondent not being confidant. In addition, the auxiliary variables also include number of years' household was living in that place as captured in 2004-05 survey, and whether the house was rental in 2004-05. In the case of rural sample, auxiliary variables also include number of years a village has experienced flooding and drought during 2006-2011 as captured the village survey in 2011-12.

While we do not formally have adjustments to correct for selection on unobservable characteristics, by including the large number of endogenous observables indicated above, which are likely to be correlated with unobservables, we expect that we are reducing the scope for attrition bias due to unobservables, as well (Maluccio et al., 2009). Table 3 provides the distribution of weights for rural and urban areas.

Table 3: Distribution of inverse probability weight

	1%	*5%*	*10%*	*25%*	*50%*	*75%*	*90%*	*95%*	*99%*	*Min*	*Max*	*Mean*
Rural	0.918	0.962	0.975	0.990	0.998	1.003	1.020	1.045	1.241	0.700	2.148	1.002
Urban	0.679	0.797	0.846	0.917	0.976	1.054	1.357	1.567	1.978	0.407	9.381	1.042

Table 4 and Table 5 presents upward and downward rank mobility for each social group by quintiles. A simple comparison of weighted and unweighted estimates suggest that application of these weights only slightly change the estimates compared to the estimates that do not correct for attrition, and the magnitude of change is very small. We interpret these findings to mean that, as found in other contexts with high attrition (Fitzgerald, Gottschalk and Moffitt 1998; Alderman et al. 2001, Maluccio et al., 2009) our results do not appear to be driven by attrition biases.

Table 4: Upward Rank Mobility ($\tau = 0$),

	Unweighted					*Weighted by inverse propensity*				
	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
Panel A: Rural										
FC	0.876	0.643	0.517	0.416	0.236	0.875	0.639	0.516	0.415	0.234
OBC	0.848	0.607	0.435	0.306	0.189	0.849	0.604	0.435	0.308	0.187
SC	0.847	0.640	0.450	0.297	0.175	0.848	0.644	0.453	0.300	0.174
ST	0.783	0.450	0.325	0.278	0.227	0.775	0.446	0.326	0.281	0.226
Muslim	0.840	0.610	0.441	0.262	0.191	0.840	0.614	0.438	0.262	0.191
All	0.843	0.604	0.446	0.330	0.211	0.843	0.604	0.446	0.331	0.210
Panel B: urban										
FC	0.849	0.647	0.548	0.416	0.291	0.857	0.652	0.558	0.416	0.291
OBC	0.804	0.620	0.447	0.341	0.252	0.805	0.624	0.447	0.337	0.249
SC	0.802	0.560	0.433	0.411	0.234	0.805	0.562	0.437	0.422	0.241
ST	0.857	0.571	0.485	0.514	0.342	0.861	0.560	0.503	0.526	0.354
Muslim	0.771	0.501	0.330	0.244	0.206	0.771	0.499	0.327	0.237	0.209
Total	0.803	0.590	0.462	0.383	0.270	0.805	0.592	0.465	0.383	0.271

Table 5: Downward Rank Mobility ($\tau = 0$)

	Unweighted					Weighted by inverse propensity				
	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
Panel A; Rural										
FHC	0.109	0.350	0.475	0.571	0.716	0.110	0.354	0.476	0.572	0.717
OBC	0.133	0.383	0.550	0.680	0.778	0.131	0.386	0.550	0.678	0.779
SC	0.135	0.349	0.533	0.682	0.800	0.136	0.344	0.530	0.679	0.802
ST	0.198	0.536	0.666	0.709	0.748	0.205	0.538	0.667	0.706	0.748
Muslim	0.135	0.382	0.540	0.726	0.787	0.135	0.377	0.542	0.726	0.786
All	0.138	0.386	0.540	0.655	0.755	0.139	0.386	0.540	0.654	0.755
Panel B; Urban										

FC	0.140	0.343	0.440	0.571	0.664	0.133	0.339	0.430	0.571	0.663
OBC	0.173	0.371	0.532	0.646	0.724	0.172	0.366	0.531	0.651	0.729
SC	0.184	0.424	0.548	0.574	0.707	0.181	0.422	0.544	0.564	0.703
ST	0.100	0.414	0.515	0.457	0.633	0.094	0.426	0.497	0.436	0.619
Muslim	0.196	0.480	0.664	0.756	0.746	0.195	0.481	0.667	0.763	0.741
All	0.174	0.397	0.523	0.604	0.690	0.172	0.395	0.520	0.604	0.689

Attrition between 1993 and 2004

13,593 rural households surveyed in 1993 HDPI were randomly selected for re-interview in 2004 IHDS. Only about 82% of the households were contactable for re-interview resulting in a resurvey of 11,153 original households as well as 2,440 households which separated from these root households but were still living in the village (NCAER, 2011). Unfortunately, the list of 13,593 rural households from the 1993 HDPI that were randomly selected for re-interview is not publicly available. Hence we could not calculate the inverse probability weight to correct for attrition between 1993 and 2004. We can only speculate that given our finding about attrition between 2004 and 2011, the attrition between 1993 and 2004 probably does not change any conclusions.

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Table-1: Upward Rank Mobility (URM) by Quintile, Rural India

Quintile in 2004	All		FHC		OBC		SC		ST		Muslim	
Panel A: Between 2004 and 2011												
	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$
Q1	0.853	0.572	0.886	0.679	0.859	0.586	0.855	0.538	0.793	0.467	0.852	0.551
	(0.005)	(0.007)	(0.014)	(0.018)	(0.008)	(0.012)	(0.011)	(0.014)	(0.015)	(0.020)	(0.015)	(0.024)
Q2	0.609	0.372	0.650	0.469	0.612	0.367	0.646	0.372	0.458	0.257	0.612	0.373
	(0.005)	(0.007)	(0.020)	(0.021)	(0.010)	(0.013)	(0.012)	(0.013)	(0.020)	(0.019)	(0.022)	(0.023)
Q3	0.452	0.228	0.521	0.313	0.442	0.218	0.459	0.209	0.328	0.158	0.443	0.218
	(0.006)	(0.006)	(0.018)	(0.018)	(0.012)	(0.012)	(0.015)	(0.013)	(0.019)	(0.017)	(0.024)	(0.018)
Q4	0.336	0.082	0.422	0.107	0.311	0.070	0.307	0.069	0.285	0.088	0.267	0.059
	(0.006)	(0.004)	(0.016)	(0.010)	(0.012)	(0.007)	(0.015)	(0.008)	(0.022)	(0.012)	(0.018)	(0.012)
Q5	0.226	NA	0.263	NA	0.200	NA	0.181	NA	0.242	NA	0.199	NA
	(0.005)		(0.010)		(0.011)		(0.015)		(0.019)		(0.021)	
Panel B: Between 1993 and 2004												
Quintile in 1993	All		FHC		OBC		SC		ST		Muslim	
	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$
Q1	0.886	0.609	0.882	0.693	0.888	0.625	0.888	0.581	0.879	0.546	0.875	0.550
	(0.006)	(0.011)	(0.017)	(0.030)	(0.012)	(0.021)	(0.012)	(0.017)	(0.023)	(0.030)	(0.026)	(0.043)
Q2	0.657	0.413	0.722	0.537	0.644	0.420	0.670	0.394	0.575	0.284	0.640	0.389
	(0.009)	(0.010)	(0.027)	(0.030)	(0.019)	(0.020)	(0.017)	(0.020)	(0.030)	(0.033)	(0.034)	(0.034)
Q3	0.497	0.281	0.648	0.453	0.476	0.238	0.434	0.233	0.383	0.204	0.506	0.224
	(0.009)	(0.009)	(0.023)	(0.025)	(0.020)	(0.018)	(0.021)	(0.017)	(0.035)	(0.025)	(0.035)	(0.035)
Q4	0.341	0.109	0.459	0.149	0.305	0.092	0.299	0.105	0.273	0.076	0.282	0.090
	(0.010)	(0.006)	(0.021)	(0.016)	(0.016)	(0.011)	(0.023)	(0.013)	(0.030)	(0.018)	(0.036)	(0.023)
Q5	0.198	NA	0.260	NA	0.165	NA	0.146	NA	0.125	NA	0.198	NA
	(0.007)		(0.015)		(0.015)		(0.020)		(0.033)		(0.040)	

Note: Standard errors derived through bootstrapping with 100 replications are in parenthesis. FHC=Forward Hindu Caste; OBC=Other Backward Caste; SC=Scheduled Caste; ST=Scheduled Tribe. NA: Not relevant for the measure.

Table-2: Upward Transition Probabilities(UTP) by Quintile, Rural India

Panel A: Between 2004 and 2011

Quintile in 2004	All		FHC		OBC		SC		ST		Muslim	
	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$
Q1	0.705	0.459	0.767	0.590	0.710	0.462	0.700	0.430	0.629	0.357	0.688	0.418
	(0.006)	(0.007)	(0.017)	(0.019)	(0.010)	(0.012)	(0.015)	(0.014)	(0.019)	(0.020)	(0.023)	(0.024)
Q2	0.483	0.263	0.553	0.369	0.479	0.263	0.496	0.250	0.342	0.156	0.509	0.247
	(0.007)	(0.005)	(0.021)	(0.020)	(0.012)	(0.012)	(0.013)	(0.011)	(0.020)	(0.016)	(0.023)	(0.022)
Q3	0.337	0.130	0.436	0.205	0.328	0.123	0.320	0.103	0.236	0.080	0.317	0.130
	(0.006)	(0.005)	(0.020)	(0.016)	(0.012)	(0.010)	(0.015)	(0.010)	(0.019)	(0.012)	(0.022)	(0.017)
Q4	0.213	NA	0.287	NA	0.197	NA	0.166	NA	0.181	NA	0.173	NA
	(0.005)		(0.015)		(0.009)		(0.011)		(0.017)		(0.017)	
Q5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Panel B: Between 1993 and 2004

Quintile in 1993	All		FHC		OBC		SC		ST		Muslim	
	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$
Q1	0.743	0.485	0.771	0.582	0.759	0.493	0.744	0.460	0.656	0.401	0.731	0.444
	(0.009)	(0.011)	(0.025)	(0.029)	(0.017)	(0.020)	(0.017)	(0.017)	(0.031)	(0.033)	(0.038)	(0.040)
Q2	0.536	0.304	0.630	0.444	0.534	0.313	0.532	0.279	0.418	0.180	0.521	0.251
	(0.010)	(0.010)	(0.029)	(0.030)	(0.019)	(0.021)	(0.019)	(0.017)	(0.033)	(0.027)	(0.038)	(0.031)
Q3	0.397	0.184	0.567	0.340	0.366	0.154	0.338	0.133	0.301	0.112	0.347	0.141
	(0.010)	(0.008)	(0.024)	(0.023)	(0.020)	(0.014)	(0.019)	(0.014)	(0.034)	(0.022)	(0.035)	(0.030)
Q4	0.240	NA	0.340	NA	0.216	NA	0.194	NA	0.182	NA	0.179	NA
	(0.009)		(0.020)		(0.015)		(0.017)		(0.026)		(0.032)	
Q5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note: Standard errors derived through bootstrapping with 100 replications are in parenthesis. FHC=Forward Hindu Caste; OBC=Other Backward Caste; SC=Scheduled Caste; ST=Scheduled Tribe. NA: Not relevant for the measure.

Table-3: Downward Rank Mobility (DRM) by Quintile, Rural India

Panel A: Between 2004 and 2011

Quintile in 2004	All		FHC		OBC		SC		ST		Muslim	
	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$
Q1	0.147	NA	0.113	NA	0.141	NA	0.145	NA	0.207	NA	0.148	NA
	(0.005)		(0.014)		(0.008)		(0.011)		(0.015)		(0.015)	
Q2	0.391	0.121	0.350	0.111	0.388	0.132	0.354	0.092	0.542	0.191	0.388	0.101
	(0.005)	(0.005)	(0.020)	(0.013)	(0.010)	(0.008)	(0.012)	(0.008)	(0.020)	(0.015)	(0.022)	(0.015)
Q3	0.548	0.310	0.479	0.265	0.558	0.318	0.541	0.289	0.672	0.438	0.557	0.302
	(0.006)	(0.006)	(0.018)	(0.015)	(0.011)	(0.011)	(0.015)	(0.013)	(0.019)	(0.021)	(0.024)	(0.022)
Q4	0.664	0.425	0.578	0.350	0.689	0.458	0.693	0.415	0.715	0.508	0.733	0.473
	(0.006)	(0.007)	(0.016)	(0.015)	(0.012)	(0.013)	(0.015)	(0.014)	(0.022)	(0.021)	(0.018)	(0.022)
Q5	0.773	0.405	0.737	0.349	0.800	0.422	0.819	0.481	0.758	0.439	0.801	0.478
	(0.005)	(0.007)	(0.010)	(0.011)	(0.011)	(0.011)	(0.015)	(0.020)	(0.019)	(0.023)	(0.021)	(0.028)

Panel B: Between 1993 and 2004

Quintile in 1993	All		FHC		OBC		SC		ST		Muslim	
	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$
Q1	0.114	NA	0.118	NA	0.112	NA	0.112	NA	0.121	NA	0.125	NA
	(0.006)		(0.016)		(0.012)		(0.012)		(0.023)		(0.026)	
Q2	0.343	0.102	0.278	0.083	0.356	0.124	0.330	0.083	0.425	0.115	0.360	0.109
	(0.009)	(0.007)	(0.027)	(0.015)	(0.019)	(0.014)	(0.018)	(0.011)	(0.030)	(0.021)	(0.034)	(0.021)
Q3	0.503	0.278	0.352	0.187	0.524	0.295	0.566	0.303	0.617	0.362	0.494	0.265
	(0.009)	(0.009)	(0.023)	(0.021)	(0.020)	(0.018)	(0.021)	(0.021)	(0.035)	(0.034)	(0.035)	(0.032)
Q4	0.659	0.456	0.541	0.369	0.695	0.483	0.701	0.496	0.727	0.510	0.718	0.519
	(0.010)	(0.012)	(0.021)	(0.022)	(0.016)	(0.017)	(0.023)	(0.026)	(0.030)	(0.033)	(0.036)	(0.039)
Q5	0.802	0.521	0.740	0.442	0.835	0.560	0.854	0.642	0.875	0.616	0.802	0.509
	(0.007)	(0.009)	(0.015)	(0.019)	(0.015)	(0.017)	(0.020)	(0.030)	(0.033)	(0.048)	(0.040)	(0.043)

Note: Standard errors derived through bootstrapping with 100 replications are in parenthesis. FHC=Forward Hindu Caste; OBC=Other Backward Caste; SC=Scheduled Caste; ST=Scheduled Tribe. NA: Not relevant for the measure.

Table-4: Downward Transition Probability (DTP) by Quintile, Rural India

Quintile in 2004	All		FHC		OBC		SC		ST		Muslim	
Panel A: Between 2004 and 2011												
	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$
Q1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q2	0.264	NA	0.241	NA	0.276	NA	0.211	NA	0.407	NA	0.233	NA
	(0.006)		(0.019)		(0.010)		(0.012)		(0.020)		(0.020)	
Q3	0.433	0.196	0.379	0.175	0.434	0.199	0.422	0.164	0.581	0.301	0.434	0.209
	(0.007)	(0.005)	(0.017)	(0.013)	(0.013)	(0.009)	(0.014)	(0.010)	(0.023)	(0.023)	(0.026)	(0.020)
Q4	0.538	0.329	0.450	0.260	0.569	0.366	0.544	0.317	0.609	0.386	0.619	0.364
	(0.006)	(0.006)	(0.018)	(0.015)	(0.012)	(0.012)	(0.014)	(0.014)	(0.021)	(0.022)	(0.021)	(0.024)
Q5	0.541	0.318	0.475	0.252	0.574	0.338	0.628	0.389	0.541	0.359	0.632	0.385
	(0.006)	(0.007)	(0.011)	(0.010)	(0.011)	(0.011)	(0.018)	(0.019)	(0.024)	(0.023)	(0.025)	(0.027)
Panel B: Between 1993 and 2004												
Quintile in 1993	All		FHC		OBC		SC		ST		Muslim	
	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	dtp_205
Q1	.	.	.	.	.	.	.	.	.	.	.	.
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Q2	0.228	.	0.194	.	0.243	.	0.212	.	0.287	.	0.227	.
	(0.008)	(.)	(0.021)	(.)	(0.017)	(.)	(0.017)	(.)	(0.028)	(.)	(0.028)	(.)
Q3	0.398	0.181	0.268	0.138	0.419	0.184	0.441	0.191	0.520	0.250	0.382	0.176
	(0.009)	(0.008)	(0.023)	(0.019)	(0.019)	(0.015)	(0.020)	(0.017)	(0.036)	(0.031)	(0.035)	(0.029)
Q4	0.556	0.351	0.436	0.294	0.583	0.360	0.609	0.386	0.646	0.419	0.622	0.385
	(0.010)	(0.009)	(0.021)	(0.018)	(0.017)	(0.016)	(0.026)	(0.025)	(0.032)	(0.034)	(0.037)	(0.040)
Q5	0.641	0.421	0.553	0.353	0.692	0.444	0.753	0.544	0.741	0.536	0.632	0.415
	(0.009)	(0.009)	(0.019)	(0.018)	(0.016)	(0.018)	(0.026)	(0.028)	(0.042)	(0.051)	(0.045)	(0.047)

Note: Standard errors derived through bootstrapping with 100 replications are in parenthesis. FHC=Forward Hindu Caste; OBC=Other Backward Caste; SC=Scheduled Caste; ST=Scheduled Tribe. NA: Not relevant for the measure.

Table-5: Upward Mobility 2004-2011, Urban India

Panel A: Upward Rank Mobility (URM)

Quintile in 2004	All		FHC		OBC		SC/ST		Muslim	
	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$
Q1	0.812	0.468	0.853	0.596	0.813	0.462	0.816	0.474	0.783	0.396
	(0.008)	(0.012)	(0.022)	(0.026)	(0.015)	(0.021)	(0.015)	(0.021)	(0.018)	(0.021)
Q2	0.594	0.323	0.647	0.381	0.622	0.364	0.567	0.265	0.510	0.233
	(0.010)	(0.011)	(0.024)	(0.029)	(0.017)	(0.019)	(0.023)	(0.020)	(0.021)	(0.019)
Q3	0.470	0.213	0.555	0.261	0.459	0.206	0.447	0.210	0.333	0.109
	(0.009)	(0.008)	(0.020)	(0.017)	(0.018)	(0.014)	(0.022)	(0.016)	(0.028)	(0.016)
Q4	0.388	0.086	0.421	0.098	0.349	0.076	0.434	0.079	0.244	0.041
	(0.010)	(0.006)	(0.018)	(0.012)	(0.018)	(0.011)	(0.023)	(0.013)	(0.030)	(0.016)
Q5	0.290	NA	0.314	NA	0.262	NA	0.289	NA	0.238	NA
	(0.008)		(0.012)		(0.020)		(0.026)		(0.035)	

Panel B: Upward Transition Probability (UTP)

Quintile in 2004	All		FHC		OBC		SC/ST		Muslim	
	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$
Q1	0.628	0.339	0.729	0.503	0.633	0.331	0.624	0.349	0.561	0.250
	(0.010)	(0.011)	(0.024)	(0.025)	(0.018)	(0.019)	(0.019)	(0.021)	(0.023)	(0.019)
Q2	0.455	0.209	0.496	0.266	0.516	0.242	0.388	0.160	0.364	0.131
	(0.010)	(0.009)	(0.026)	(0.025)	(0.018)	(0.015)	(0.021)	(0.018)	(0.022)	(0.016)
Q3	0.344	0.114	0.421	0.158	0.328	0.107	0.333	0.107	0.215	0.028
	(0.008)	(0.006)	(0.019)	(0.015)	(0.016)	(0.011)	(0.018)	(0.013)	(0.026)	(0.011)
Q4	0.241	NA	0.277	NA	0.213	NA	0.256	NA	0.124	NA
	(0.009)		(0.016)		(0.016)		(0.019)		(0.023)	
Q5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note: Standard errors derived through bootstrapping with 100 replications are in parenthesis. FHC=Forward Hindu Caste; OBC=Other Backward Caste; SC/ST=Scheduled Caste/Tribe. NA: Not relevant for the measure.

Table-6: Downward Transition Probability (DTP) 2004-2011, Urban India

Panel A: Downward Rank Mobility (DRM)

Quintile in 2004	All		FHC		OBC		SC/ST		Muslim	
	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$
Q1	0.188	NA	0.147	NA	0.187	NA	0.184	NA	0.217	NA
	(0.008)		(0.022)		(0.015)		(0.015)		(0.018)	
Q2	0.406	0.113	0.353	0.088	0.376	0.118	0.433	0.115	0.490	0.133
	(0.010)	(0.006)	(0.024)	(0.015)	(0.017)	(0.012)	(0.022)	(0.014)	(0.021)	(0.016)
Q3	0.530	0.287	0.445	0.231	0.541	0.304	0.553	0.270	0.667	0.405
	(0.009)	(0.009)	(0.020)	(0.020)	(0.018)	(0.017)	(0.022)	(0.020)	(0.028)	(0.026)
Q4	0.612	0.348	0.579	0.309	0.651	0.375	0.563	0.320	0.756	0.512
	(0.010)	(0.009)	(0.018)	(0.016)	(0.018)	(0.019)	(0.023)	(0.021)	(0.030)	(0.033)
Q5	0.709	0.331	0.685	0.285	0.738	0.379	0.711	0.352	0.762	0.484
	(0.008)	(0.010)	(0.012)	(0.012)	(0.020)	(0.021)	(0.026)	(0.028)	(0.035)	(0.046)

Panel A: Downward Transition Probabilities (DTP)

Quintile in 2004	All		FHC		OBC		SC/ST		Muslim	
	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$	$\tau = 0$	$\tau = 20$
Q1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q2	0.260	NA	0.218	NA	0.261	NA	0.260	NA	0.319	NA
	(0.008)		(0.021)		(0.017)		(0.018)		(0.021)	
Q3	0.403	0.186	0.325	0.144	0.416	0.202	0.405	0.176	0.551	0.271
	(0.009)	(0.007)	(0.021)	(0.014)	(0.017)	(0.014)	(0.023)	(0.018)	(0.026)	(0.020)
Q4	0.464	0.254	0.419	0.209	0.504	0.280	0.422	0.233	0.636	0.406
	(0.010)	(0.009)	(0.018)	(0.015)	(0.019)	(0.017)	(0.020)	(0.019)	(0.034)	(0.033)
Q5	0.472	0.245	0.428	0.196	0.516	0.300	0.488	0.266	0.611	0.405
	(0.009)	(0.009)	(0.015)	(0.011)	(0.022)	(0.019)	(0.026)	(0.025)	(0.043)	(0.044)

Note: Standard errors derived through bootstrapping with 100 replications are in parenthesis. FHC=Forward Hindu Caste; OBC=Other Backward Caste; SC/ST=Scheduled Caste/Scheduled Tribe. NA: Not relevant for the measure.