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Thiagu Ranganathan is Assistant Professor, Institute of Economic Growth, Delhi, India. email: thiagu.r@iegindia.org

Amarnath Tripathi is Assistant Professor, Institute of Economic Growth, Delhi, India.

Ghanshyam Pandey is Research Assistant, Institute of Economic Growth, Delhi, India.

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ABSTRACT

The paper analyses income mobility across different social groups in India using data from the Indian Human Development Survey (IHDS) collected in 2004–05 and 2011–12. Indices signifying different notions of mobility are calculated. The paper finds that average mobility across quintiles is higher among backward castes. Persistence is higher in lower quintiles for backward castes and in higher quintiles for forward castes. We also find higher inter-temporal mobility among households belonging to Scheduled Castes (SC) and Other Backward Castes (OBC) while the positional movement is similar across different social groups. The per capita absolute income changes were highest for forward castes and the per capita directional income changes were highest for SC households. Mobility had the lowest equalising effect among households belonging to SC households and the highest equalising effect on forward-caste households.

1 INTRODUCTION

India is one of the high income-inequality countries, with a Gini coefficient of income at around 0.532 in 2004–05 (Himanshu 2015).[1] The Gini coefficient of income among Indian rural households during the same period was 0.513, which increased to 0.529 in 2011–12.[2] It is notable that during the same period, the Indian economy registered a very high economic growth.[3] There are differing views on how this economic growth and increasing inequality will reconcile in future. While some believe that inequality will decline if high growth continues over a sustained period of time (Bhagwati and Panagariya 2014), others emphasise the need to address such high and increasing inequality immediately (Weisskopf 2011). What actually happens is partly an empirical issue and only with time will we have an idea what will happen. A related concept that could provide us some leading answers to this issue is that of mobility.

Mobility is a multi-faceted concept wherein the specific context needs to be defined properly. Mobility could be measured in the intergenerational or intra-generational context. Also, mobility could be measured of various indicators. Typical indicators used to examine mobility include occupation, education, income, consumption and labour market earnings. In the Indian context, there are various studies that have investigated the intergenerational mobility of occupation, education, and income (Sharma 1970; Ramachandran 1990; Kumar et al. 2002; Jalan and Murgai 2007; Majumder 2010; Motiram and Singh 2012; Hnatkovska et al. 2013; Nandi 2013; Reddy and Swaminathan 2014; Ahsan and Chatterjee 2015; Azam and Bhatt 2015; Reddy 2015). But, very few studies have explored intra-generational mobility (Gaiha 1988; Drèze et al. 1992; Himanshu et al. 2011; Pradhan and Mukherjee 2015).

The dearth in intra-generational mobility studies could be due to at least two reasons. Unlike inequality and intergenerational mobility, intra-generational income mobility does not have clear normative interpretations. While high intra-generational income mobility could be seen as a sign of dynamism, it could also be a reflection of uncertainty associated with a constantly fluctuating income stream (Jantti and Jenkins 2013). Also, analysis of intra-generational income mobility requires longitudinal data collected over short periods, which is rarely available in the Indian context. To address the first concern, we calculate different indices that denote different notions of mobility. By examining these different indices, we try to interpret the different notions of mobility. In the Indian context, any question of mobility

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[1] According to World Bank's estimates (http://data.worldbank.org/indicator/SI.POV.GINI/countries?display=default), the Gini Index is higher than India's Gini for only about 10 countries (most of the countries are in Africa and Latin America).

[2] Among a smaller set of rural households that were not split and were common to the years 2004-05 and 2011-12, Ranganathan et al. (2016) find the Gini of rural household incomes to have increased from 0.536 to 0.557 in the same period.

[3] The average GDP growth of India during this period was 8.29%.

has to be addressed against the background of rigidities imposed along different social groups. So, we also compare mobility across different social groups. For the issue of data, we use a nationally representative longitudinal data provided in the Indian Human Development Survey (IHDS).

2 DATA AND METHODOOGY

In our analysis, we use the data collected from two rounds of the IHDS conducted in 2004–05 and 2011–12. The IHDS is a large-scale, nationally representative survey conducted under the supervision of the National Council of Applied Economic Research (NCAER) in collaboration with the University of Maryland. The survey covers almost all the states and union territories of India (except Andaman and Nicobar Islands and Lakshadweep). The survey used two-stage stratification and was conducted over a sample of 27,010 rural households (from 1,503 villages) and 13,126 urban households (over 971 urban blocks) in 2004–05. In the year 2011–12, the survey team re-interviewed around 83 per cent of the households as well as split households (if located within the same village or town). It also selected an additional replacement sample of 2,134 households in this round. Totally, the 2011-12 survey was conducted among 42,152 households. For the purpose of our analysis, we use only those rural households that were surveyed both in 2004–05 and 2011–12. Since the survey did not mention about households that were split but not in the same village, we did not include split households in our analysis. In all, 19,831 households fit the above criteria, and were included for the purpose of our analysis. The survey also collects information related to the different sources of household income (agriculture, labour, remittances, business, and other income sources) and total income.

Various indices have been used to measure mobility in the literature, but not all the indices measure the same concept of mobility. Fields (2006) identifies six notions of mobility—time independence, positional movement, share movement, income flux, directional movement of incomes, and mobility as an equaliser of long-term income—and associates the different mobility indices to these notions. We calculate an index for each of these different notions in our analysis for comparative purposes. We proceed with the analysis as follows. Firstly, we create a transition matrix indicating the probability of transitioning from a particular quintile in 2004-05 to another in 2011-12. We measure some summary statistics from these matrices. We particularly focus on the probability of households staying in the first and fifth quintile in both the years. We also measure the probability of upward mobility and downward mobility and a mobility statistic M defined by Prais (1955) and Shorrock (1978). This statistic is roughly indicative of the average probability

across all quintiles that the household will leave its quintile in 2004–05 to a different quintile in 2011–12. The statistic is calculated as follows:

$$M = \frac{5 - \sum_i p_{ii}}{4} ...(1)$$

Then, we compare these statistics estimated in our study with the mobility estimates from other studies in rural India. We then compare these statistics among different social groups in India. Following that, we calculate the following indices, which indicate the six notions of mobility.

For time independence, we calculate the following mobility index:

$$I_{time-independence} = 1 - r_{INCOME\,2004-05,\,INCOME\,2011-12} ...(2)$$

where $r_{INCOME\,2004-05,\,INCOME\,2011-12}$ is the Pearson's correlation between household's income in 2004–05 and 2011–12. This index increases as the correlation decreases indicating lesser time dependence between incomes in two periods. The changes in incomes may not be reflected in changes in positions/ranks. For positional movement, the following index is calculated:

$$I_{positional\_movement} = 1 - \rho_{INCOME\,2004-05,\,INCOME\,2011-12} ...(3)$$

where $\rho_{INCOME\,2004-05,\,INCOME\,2011-12}$ is the Spearman's rank correlation between household's income in 2004–05 and 2011–12. A higher index would imply higher mobility in positions among households. Theoretically, both the indices mentioned could vary between 0 and 2, though we would not expect these indices to go above 1. The next three indices do not have any bounds and measure the per capita changes in shares and incomes as follows:

$$I_{\text{per-capita share changes}} = \frac{1}{n} \sum \left|(s_{2011-12} - s_{2004-05}\right| ...(4)$$

$$I_{\text{per-capita income changes}} = \frac{1}{n} \sum \left|(Ln(Income_{2011-12}) - Ln(Income_{2004-05})\right| ...(5)$$

$$I_{\text{per-capita directional income changes}} = \frac{1}{n} \sum \left[(Ln(Income_{2011-12}) - Ln(Income_{2004-05})\right] ..(6)$$

where $s_{2011-12}$ is the share of the household income in total income in 2011-12, $s_{2004-05}$ is the share of household income in total income in 2004-05, $Ln(Income_{2011-12})$ is the natural logarithm of household income in 2011-12 $Ln(Income_{2004-05})$ and is the natural logarithm of the household income in 2004-05.

Another index that visualises mobility as an equaliser of long-term incomes is the following:

$$I_{\text{longer term incomes}} = 1 - (G(Income_{average}) / G(Income_{2004-05}))...(7)$$

where $Income_{average}$ is the average income of the household in the years 2004-05 and 2011-12, $G(Income_{average})$ is the Gini coefficient of average household income and $G(Income_{2004-05})$ is the Gini coefficient of the 2004-05 household income.

3 RESULTS

We categorise the rural households based on social groups as forward castes, OBCs, SCs, and STs and use real per capital household income of 2004–05 and 2011–12 as its indicator of well-being.[4] The households were thus categorised into quintiles based on the real per capital income. The characteristics of the quintiles are mentioned in Table 1.

Table 1 Income quintiles in 2004–05 and 2011–12

	Per capita nominal income (Rs) range		Mean nominal household income (Rs)	
Quintiles	2004–05	2011–12	2004–05	2011–12
Q1	<2,329	<5,909	6,710	15,907
Q2	2329–3767	5909–10230	16,329	41,305
Q3	3767–5667	10230–16100	23,205	62,317
Q4	5667–9610	16100–28411	34,005	97,172
Q5	>9,610	>28,411	91,010	272,550
Q5/Q1			13.6	17.13

Table 1 indicates that the ratio of incomes of the households in Q5 to that in Q1 has increased significantly (from 13.6 to 17.3). This indicates a rising inequality. But, this inequality could have been accompanied by mobility as well. Before we investigate this aspect, we first examine the quintile distribution among different social groups in the base year. Figure 1 indicates the same in 2004-05.

From Figure 1, we find that there are variations across quintile distributions in each social group. Of all forward-caste households, 37 per cent were in quintile 5 (Q5), while only 14 per cent were in quintile 1 (Q1). For OBC households, there were 22 per cent households in the first quintile and 18 per cent in Q5. The rest OBC households were evenly distributed among three quintiles. Among SC and ST households, there were only 13 per cent and 16 per cent households, respectively, in Q5. Given this as the base, we plot the transition matrices. The transition matrix plots the transition probability of households in a particular quintile in 2004–05 and transitioning to another quintile in 2011–12.

[4] We use average CPI-AL index for agricultural year in 2004–05 and 2011–12 to deflate the incomes of both the years to 1986–87 prices and divide it by number of members in the household to get the per capita figures.

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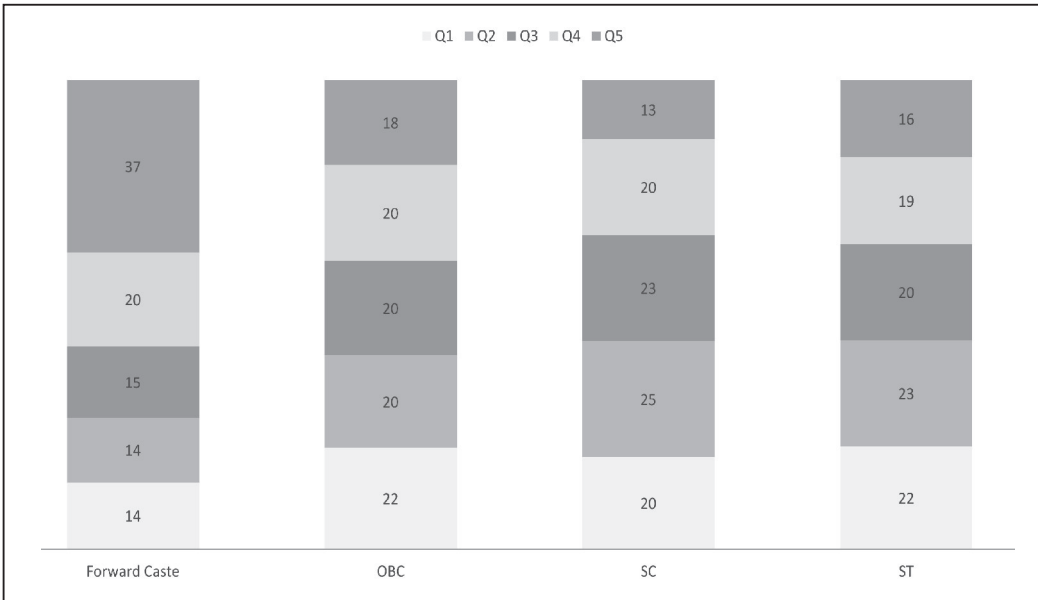**Figure 1** Quintile distribution of different social groups in 2004–05

Figure 2 presents the transition matrix.

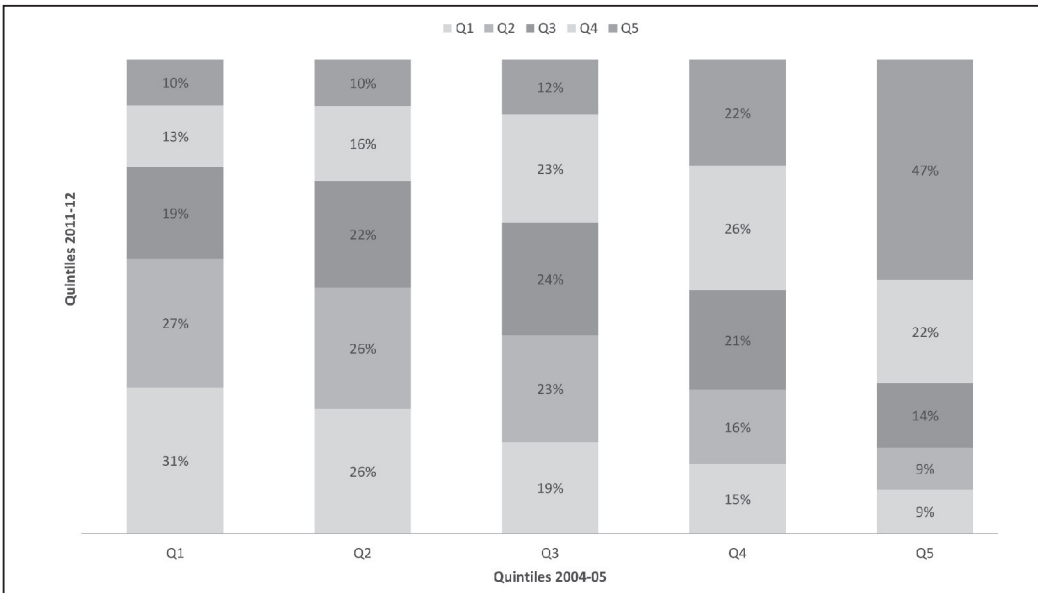**Figure 2** Transition matrix of different quintiles (2004–05 to 2011–12)

Table 2 presents related statistics of the transition matrix.

Table 2 Summary statistics of the transition matrix

Statistics	
M	86.75%
P (Q1/Q1)	31%
P (Q5/Q5)	47%
P (Upward Mobility)	34.8%
P (Downward Mobility)	34.5%

Figure 2 and Table 2 indicate high persistence at extreme quintiles and higher mobility at intermediate quintiles. It shows that, on average, M for all households is 86.75 per cent. The probability of a household in Q1 in 2004-05 remaining in Q1 in 2011–12 is 31 per cent, which is much lower than that of a household in Q5 in 2004-05 to remain in Q5. This indicates a higher persistence at the top than at the bottom. This could be because the households at the bottom quintile are more vulnerable to various risks. Overall, the probability of upward mobility is almost same as the probability of lower mobility. These statistics are related to mobility during the period of our study, from 2004–05 to 2011–12. It is not possible to know whether mobility in this period has increased or decreased over time by looking at this statistic in isolation. To understand that, we examine these summary statistics calculated for different time periods in rural India by other studies. We consider four studies in this regard. Two of these studies (Dreze, Lanjouw, and Stern (1992) and Himanshu, Bakshi, and Dufour (2011)) calculate mobility based on longitudinal data collected in Palanpur village located in the state of Uttar Pradesh. Two other studies (Gaiha (1988) and Pradhan and Mukherjee (2015)) estimate income mobility using the data collected by NCAER in the Additional Rural Incomes Survey (ARIS)/ Rural Economic and Demographic Survey (REDS) survey across 17 major states in India. The estimates from these studies are for different time intervals (ranging from 2 years to 35 years), and thus may not be exactly comparable with estimates from our current study, but we believe such a comparison is useful. Table 3 provides the comparison of our mobility estimates with those from other studies.

From Table 3, we find that the average mobility statistic, M, is the lowest in the current period except for a period between 1957–58 and 1962–63 in the study by Drèze et al 1992. Even in a short-duration study of two years by Gaiha (1988), a higher mobility is observed. The persistence at the bottom, which is indicated by the probability of being at Q1 in period 2 given a household is in Q1 in period 1, is highest in our study period. But, the studies based on ARIS/REDS data classify households into deciles and not quintiles, so the estimates in quintile case might be much higher. Similarly, we observe that persistence at top is also very high in our study period. These numbers are higher between 1957–58 and 1962–63 in the Palanpur study. Also, the persistence at the tenth quintile is quite high in the studies based on ARIS/REDS data. Both the probability of upward and downward mobility are relatively low in

our study compared to other studies and different time periods. Overall, there seems to be some signs of lesser mobility in the period of study from 2004–05 to 2011–12, though this has to be explored more rigorously.

Table 3 Mobility in rural India across different time periods

	M	P (Q1, 2011-12/Q1, 2004-05)	P (Q5, 2011-12/Q5, 2004-05)	P (Upward Mobility)	P (Downward Mobility)
Our Study (2004-05 to 2011-12)	86.7%	31%	47%	34.8%	34.5%
Drèze et al. (1992)					
Years	M	P(Q1/Q1)	P(Q5/Q5)	P (Upward)	P (Downward)
1957/58-62/63	83.7%	17%	63%	34.2%	33.2%
1962/63-74/75	89.7%	18%	38%	32%	40%
1974/75-83/84	98.7%	16%	32%	16%	42%
Himanshu et al. (2011)					
Years	M	P(Q1/Q1)	P(Q5/Q5)	P (Upward)	P (Downward)
1983-2008	96.3%	22%	30%	37.9%	39.1%
Gaiha, 1988					
Years	M	P(Q1/Q1)	P(Q10/Q10)	P (Upward)	P (Downward)
1968-70	92.5%	17%	37%	42.6%	40.1%
Pradhan and Mukherjee (2015)					
Years	M	P(Q1/Q1)	P(Q10/Q10)	P (Upward)	P (Downward)
1971-82	94.3%	19%	20%	41.9%	42.6%
1982-1999	96.0%	15%	25%	44.9%	41.6%
1999-2006	95.3%	13%	30%	45.8%	40.1%
1971-2006	96.0%	12%	33%	45.8%	40.6%

Another thing of interest is the linkage between economic growth, inequality, and mobility. To compare this, we calculated the average growth rates of gross state domestic product (GSDP) of 20 states and checked for its relation with different indices of mobility and Gini coefficient (index of income inequality). The table with this data (Table A1) and scatter plots of different variables relating growth, inequality and mobility across different states (Figures A1 – A5) are presented in Appendix 1. The rudimentary analysis indicates a potentially positive correlation between growth and average mobility statistic, M, and persistence at bottom and low correlation with persistence at top. We observe a negative correlation between growth and inequality. A negative correlation between mobility and change in inequality is also observed. These are issues that need to be analysed with more rigour. The current study focuses more on mobility across different social groups. In this regard, Figures 3a to 3d present the transition matrices of different social groups. Table 4 presents the summary of the transition matrices of the different social groups.

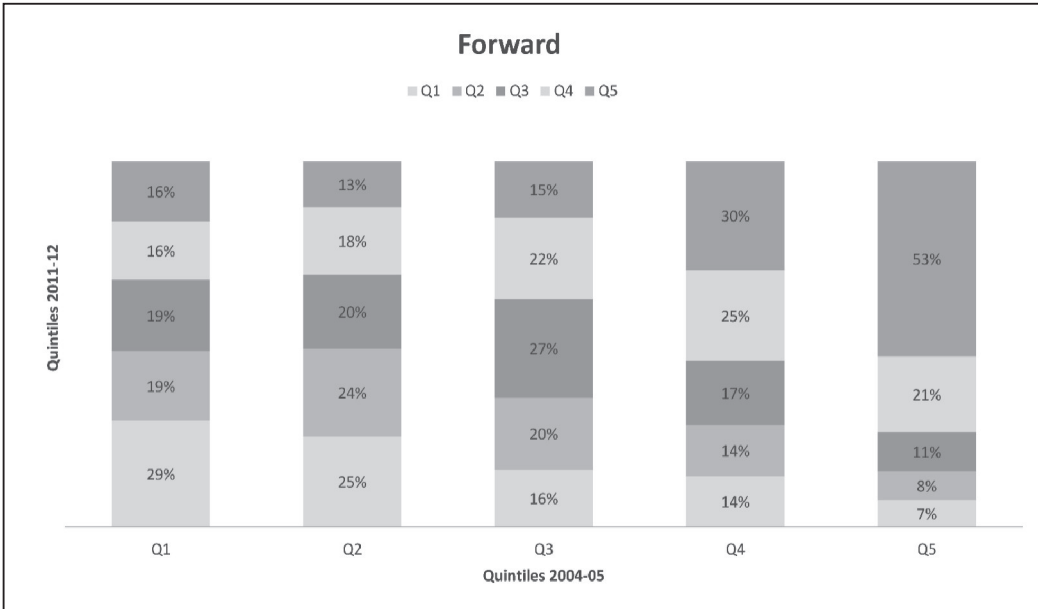**Figure 3 (a)** Transition probabilities for forward-caste households

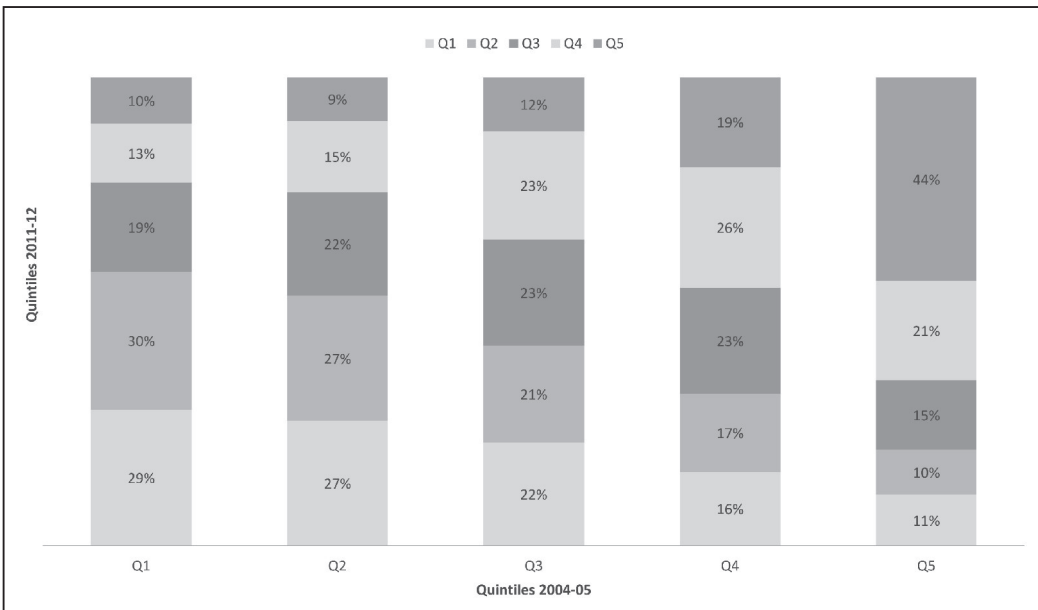**Figure 3 (b)** Transition probabilities for OBC households

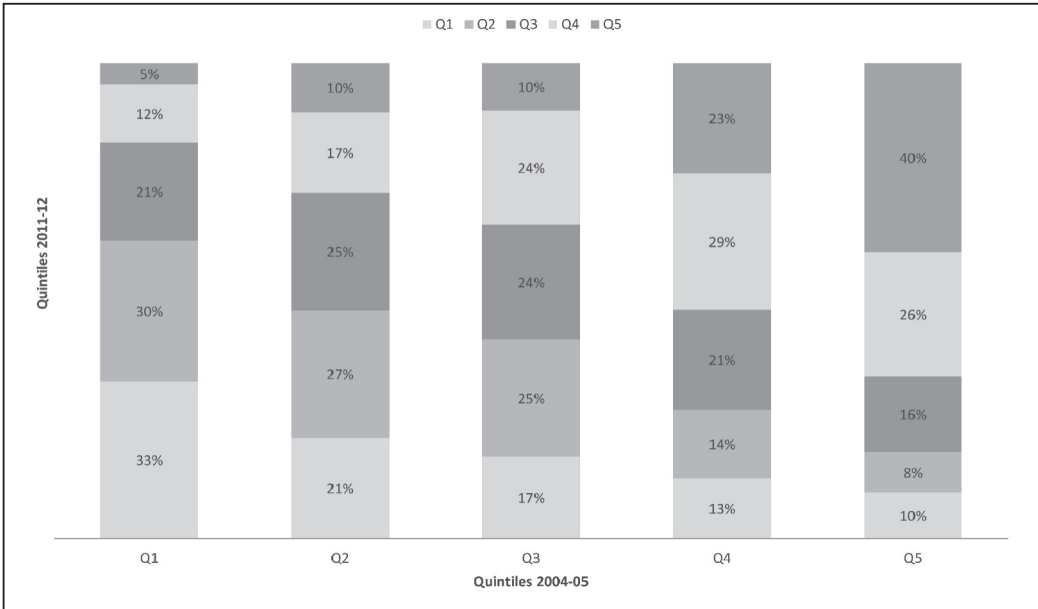**Figure 3 (c)** Transition probabilities for SC households

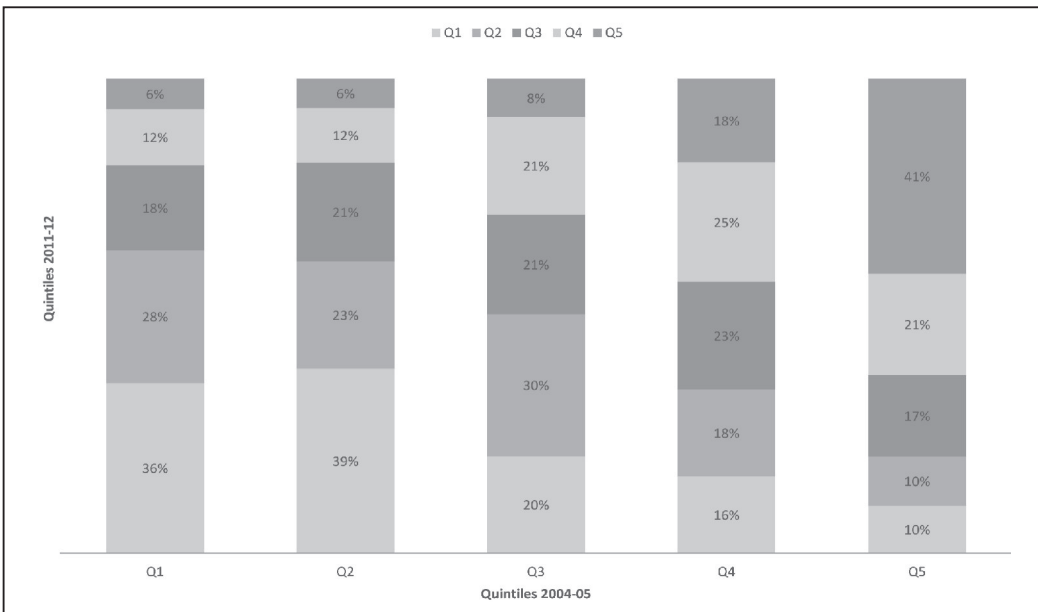

Figure 3 (d) Transition probabilities for ST households

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Table 4 Summary statistics on transition matrices

	M	P (Q1, 2011-12/ (Q1, 2004-05)	P (Q1, 2011-12/ (Q5, 2004-05	P (Upward Mobility)	P (Downward Mobility)
All India	86.7%	31%	47%	34.8%	34.5%
Forward Castes	85.5%	29%	53%	37.9%	30.4%
OBCs	88.1%	29%	44%	34.3%	36.1%
SCs	86.9%	33%	40%	35.2%	34.3%
STs	88.5%	36%	41%	29.8%	41.1%

From Figures 3a to 3d and from Table 4, we find that the average mobility statistic, *M,* is lowest for forward-caste households, and higher for lower-caste households. The probability of a household that was in the first quintile in 2004–05 staying in that quintile in 2011–12 is the lowest for forward-caste households and OBCs (29 per cent) and higher for SC (33 percent) at ST (40 per cent) households The persistence is stronger at the fifth quintile, particularly for forward-caste households. The probability of a household in the fifth quintile in 2004–05 staying at the fifth quintile in 2011–12 is 53 per cent for forward-caste households, 44 per cent for OBC households, 40 per cent for SC households, and 41 per cent for ST households. For SCs and forward castes, the probability for upward mobility is higher than probability of downward mobility, and the converse is true for STs and OBCs. In particular, for ST households, the probability of downward mobility is 11 percentage points higher than that of upward mobility. In summary, we find that there is persistence at the lowest and highest quintiles, with higher castes having a considerably higher persistence at the fifth quintile and lower castes having the same at the first quintile. But average mobility is high among backward castes. We also observe that probability of downward mobility and upward mobility are quite similar for SCs while, for STs, the probability of downward mobility is much higher than that of upward mobility. To explore mobility across different social groups further, we calculate the different indices of mobility mentioned in Section 2. Table 5 presents the indices for all households and different social groups. The state-wise variation of these indices and growth of GSDP is provided in Table A2 and Figures A6 to A12 of the Appendix.

Table 5 Mobility indices of different social groups

	$I_{\text{time-independence}}$	$I_{\text{position\_movement}}$	$I_{\text{pre-capita share change}}$	$I_{\text{per-capita income changes}}$	$I_{\text{per-capita directional income change}}$	$I_{\text{longer term inco}}$
All India	0.74	0.62	0.0036%	88%	37%	5.04%
Forward Castes	0.67	0.64	0.0052%	93%	38%	6.32%
OBCs	0.73	0.66	0.0033%	90%	37%	6.24%
SCs	0.71	0.62	0.0026%	82%	42%	4.17%
STs	0.68	0.60	0.0028%	82%	26%	5.93%

From Table 5, we observe different trends across different indices. In the mobility index that measures time independence, we observe that time independence is lower for forward-caste and ST households than for OBCs and SCs; however, positional mobility is almost the

same across different social groups. The per capita change in absolute shares was highest for forward-caste households, followed by OBCs, SCs, and STs. Per capita income changes were highest for forward-caste and lower for OBC, SC, and ST households. The per capita directional change was highest for forward-caste and SC households and lower for OBC and ST households. Mobility had the least equalising impact among SC households. The equalising impact was highest for forward castes.

On looking further into the details of the real per capita incomes of households for 2004–05 and 2011–12, we find that mean incomes of SC households increased by 65 per cent but by only 54 per cent for forward-caste households, 55 per cent for OBCs, and 40 per cent for STs. The standard deviation though increased by 155 per cent for SC households but by only 65 per cent for forward-caste households, 41 per cent for OBC households, and 21 per cent for ST households. The Gini coefficient of real per capita income of SC households increased by 7.8 per cent but by 2 per cent for forward-caste households, 3 per cent for OBC households, and 3.5 per cent for ST households. The increasing inequality among SC households has been documented by others as well (such as Singh et al. 2015), and such mobility could be in line with the structural changes in the economy. After a long time, between 2004–05 and 2011–12, there was an increase in real wages in agriculture. Since most agricultural labourers belong to SC households, it might be that they benefitted the most from it. Also, during this period, a large population shifted dependence from agricultural labour to non-farm labour. Here again, the benefits could have been higher for those who moved to casual labour; this might not have been even for all SC households as non-farm employment opportunities may not be accessible to all. Some SC households could also have benefited from affirmative action, but the effect of this is not likely to be significantly high in a short seven-year period. These conjectures are also confirmed if we look at the ratio of nominal household incomes in 2011–12 to those in 2004–05. This ratio is highest for SC households for farm income, agricultural labour income, casual labour income, salaries, and total income. But we also find that the average ranks of SCs declined in 2011–12 over 2004–05, which indicates a positional decline.

In summary, the paper finds high persistence at the top of income distribution but lower persistence at the bottom. In this context, having self-targeting welfare programmes (like the National Rural Employment Guarantee Act) might be more efficient. Also, mobility in the lower income distribution could be due to shocks caused by weather and other factors. So, mobility might not always be seen in a positive sense (Krebs et al. 2013). The paper also finds less mobility among forward castes and STs but higher downward mobility among STs compared to forward castes and vice versa. There seems to be higher mobility among OBCs across measures of various indices. We also observe a high mobility in SCs, though it seems to have caused higher inequality among SC households, and also not much positional movement. These findings have to be interpreted with caution, as they are based on only two different years, and not on each of the seven years in between. As more rounds of such surveys are conducted, we might have better picture of trends in mobility.

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APPENDIX 1

Table A1 State-wise variations in growth and mobility with change in Gini

|	Average Growth of State's GSDP (2005-06 to (2011-12) (%)	M	P (Q1/Q1)	P (Q5/Q5)	P (Up-ward)	P (Down-ward)	Gini 2004-05	Gini 2011-12	Change in Gini
J&K	6.1	91.1%	13.4%	66.5%	51.9%	21.0%	48.9%	49.1%	0.2%
Himachal	8.24	85.6%	12.8%	63.3%	48.2%	20.4%	46.5%	49.5%	3.0%
Punjab	7.19	84.7%	10.4%	67.5%	48.0%	19.8%	49.7%	56.5%	6.8%
Uttarakhand	13.74	87.2%	39.4%	39.1%	35.5%	34.2%	43.1%	44.4%	1.3%
Haryana	9.17	91.5%	11.0%	58.7%	51.3%	21.9%	46.0%	51.0%	5.0%
Rajasthan	8.41	89.3%	26.4%	43.8%	38.6%	32.9%	46.7%	47.5%	0.8%
UP	6.99	85.4%	36.6%	37.6%	26.9%	41.5%	47.9%	50.4%	2.5%
Bihar	9.32	92.4%	35.9%	30.0%	27.4%	46.6%	44.8%	47.7%	2.8%
Assam	5.74	88.6%	7.5%	44.5%	40.1%	30.7%	25.7%	48.4%	22.7%
West Bengal	6.47	85.3%	24.2%	36.9%	31.5%	36.7%	40.3%	54.2%	13.9%
Jharkhand	6.92	87.9%	35.5%	23.9%	26.8%	43.5%	45.2%	48.3%	3.1%
Orissa	7.65	80.2%	36.8%	52.0%	27.6%	36.6%	45.4%	43.2%	-2.2%
Chattisgarh	8.55	82.0%	65.1%	37.0%	17.0%	48.6%	33.5%	50.8%	17.3%
MP	8.18	89.6%	34.8%	38.8%	28.6%	43.1%	47.8%	52.6%	4.7%
Gujarat	10.01	92.0%	37.8%	48.3%	35.6%	37.9%	56.0%	61.3%	5.3%
Maharashtra	9.44	87.8%	26.3%	47.4%	40.5%	29.8%	48.4%	49.7%	1.3%
Andhra Pradesh	9.05	94.8%	28.4%	30.1%	38.5%	37.3%	43.1%	48.5%	5.5%
Karnataka	7.91	88.3%	20.9%	41.2%	42.7%	27.9%	52.6%	47.7%	-4.8%
Kerala	8.05	88.8%	26.5%	68.8%	52.1%	19.0%	54.8%	48.1%	-6.7%
Tamil Nadu	10.3	94.9%	12.1%	56.5%	56.1%	19.9%	46.3%	45.2%	-1.0%
All	8.47	86.7%	31.0%	47.0%	34.8%	34.5%	50.1%	53.4%	3.4%
Correlation with Growth	1	0.27	0.29	-0.10	0.04	0.04	0.19	-0.18	-0.29

Figure A1 Mobility and growth
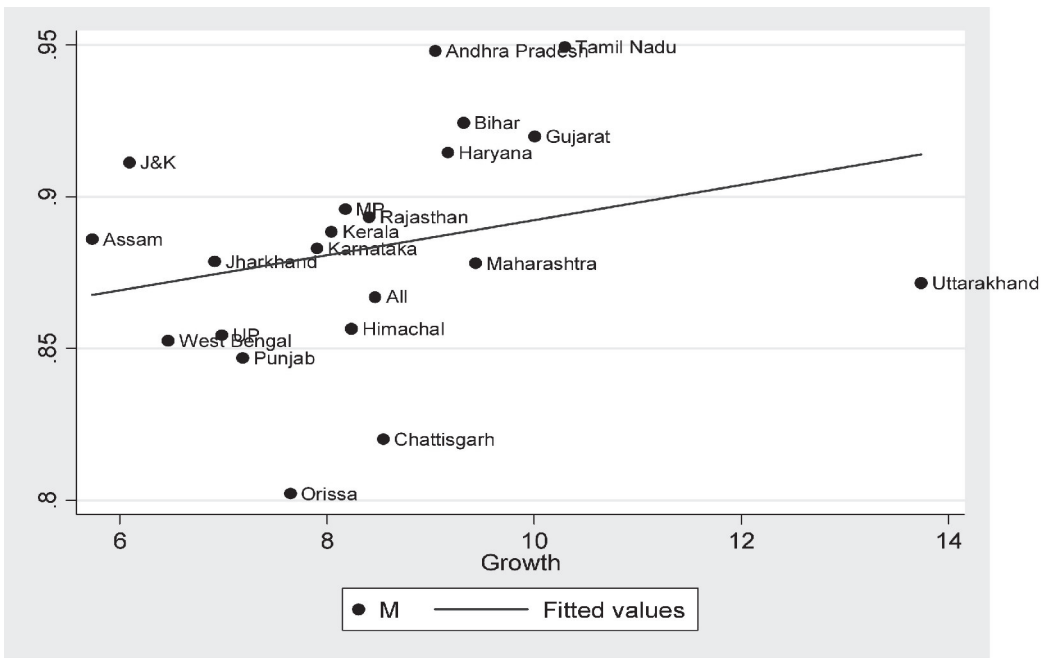
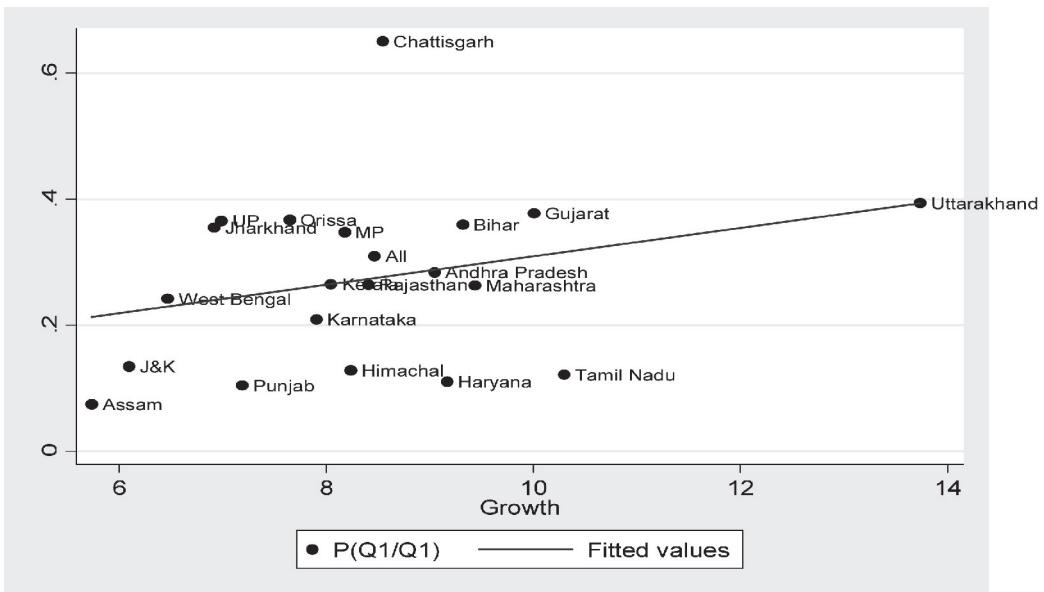**Figure A2** Persistence at Bottom and Growth

Figure A3 Persistence at top and growth
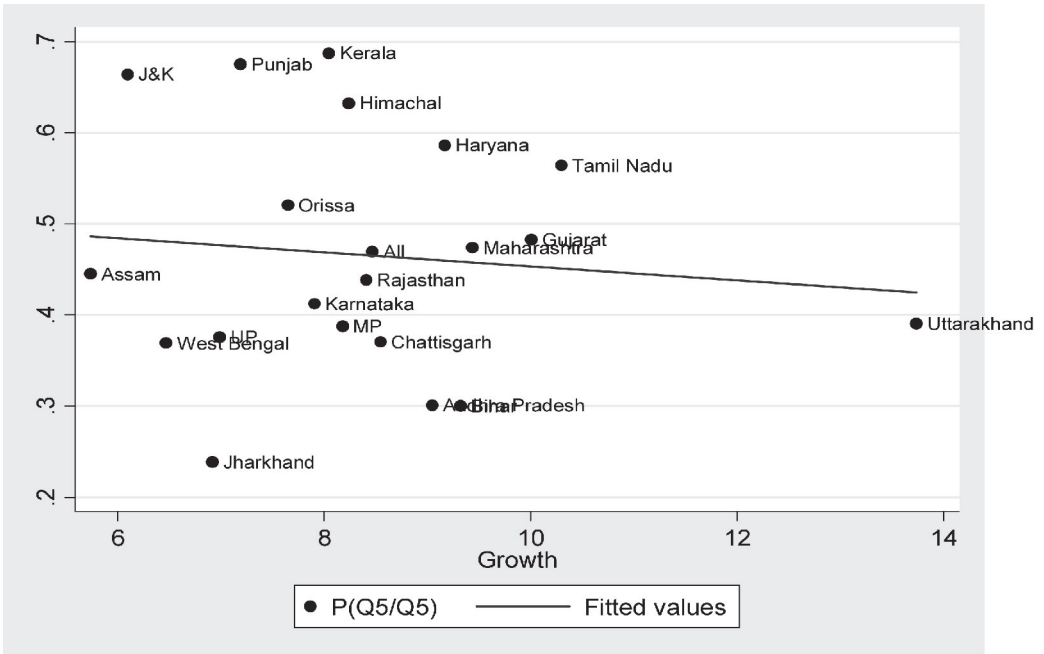

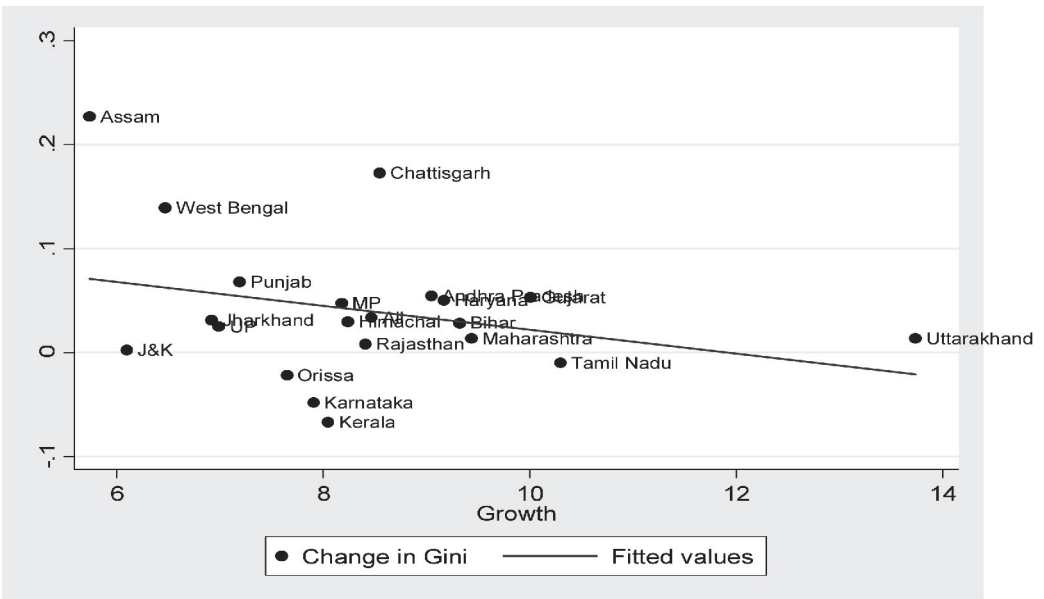
Figure A4 Growth and inequality

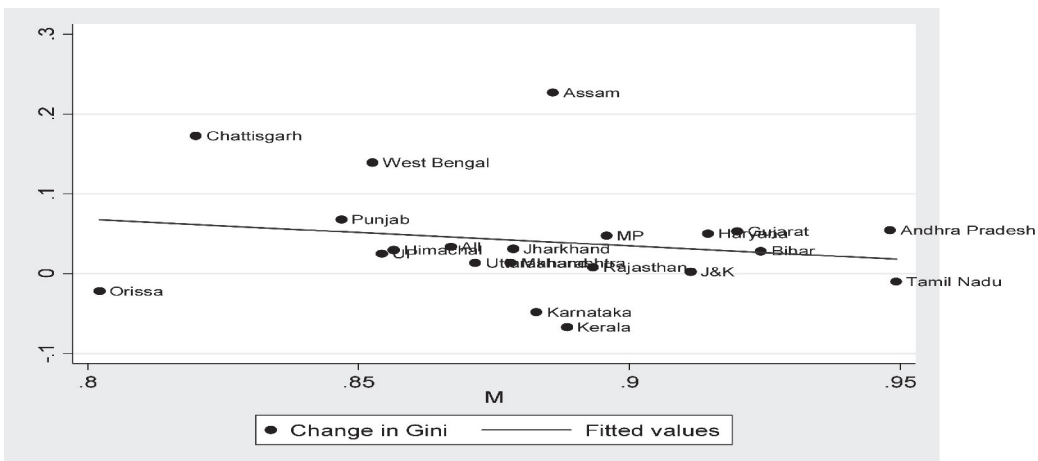

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Figure A5 Mobility and change in Gini

Table A2 State-wise variations in growth and Gini in two time periods

State	Average Growth Rate of State's GSDP (2005-06 to 2011-12) (%)	$I_{time-independence}$	$I_{positional\_movement}$	$I_{per-capita\ share\ changes}$	$I_{per-capita\ income\ changes}$	$I_{per-capita\ directional\ income\ changes}$	$I_{longer\ term\ incomes}$
J&K	6.1	0.67	0.63	0.0058%	98%	56%	8.7%
Himachal	8.24	0.53	0.60	0.0054%	76%	37%	5.2%
Punjab	7.19	0.38	0.63	0.0061%	82%	49%	-1.6%
Uttarakhand	13.74	0.54	0.67	0.0029%	82%	34%	11.7%
Haryana	9.17	0.69	0.73	0.0055%	94%	45%	3.0%
Rajasthan	8.41	0.64	0.68	0.0036%	84%	30%	10.6%
UP	6.99	0.52	0.63	0.0024%	86%	34%	6.7%
Bihar	9.32	0.56	0.71	0.0022%	85%	32%	8.0%
Assam	5.74	0.72	0.66	0.0042%	95%	45%	-75.6%
West Bengal	6.47	0.63	0.63	0.0030%	72%	26%	-10.8%
Jharkhand	6.92	0.75	0.65	0.0026%	80%	21%	9.4%
Orissa	7.65	0.69	0.54	0.0017%	76%	44%	12.9%
Chhattisgarh	8.55	0.52	0.57	0.0023%	63%	-8%	-15.1%
MP	8.18	0.64	0.65	0.0025%	85%	33%	4.5%
Gujarat	10.01	0.75	0.66	0.0049%	100%	40%	2.9%
Maharashtra	9.44	0.69	0.68	0.0039%	87%	34%	9.2%
Andhra Pradesh	9.05	0.84	0.80	0.0035%	91%	35%	4.1%
Karnataka	7.91	0.89	0.68	0.0039%	99%	58%	15.4%
Kerala	8.05	0.90	0.71	0.0096%	101%	49%	18.1%
Tamil Nadu	10.3	0.70	0.80	0.0047%	119%	83%	13.7%
All	8.47	0.74	0.62	0.0036%	88%	37%	5.0%
Correlation with Growth	1	-0.07	0.37	-0.08	0.14	0.03	0.40

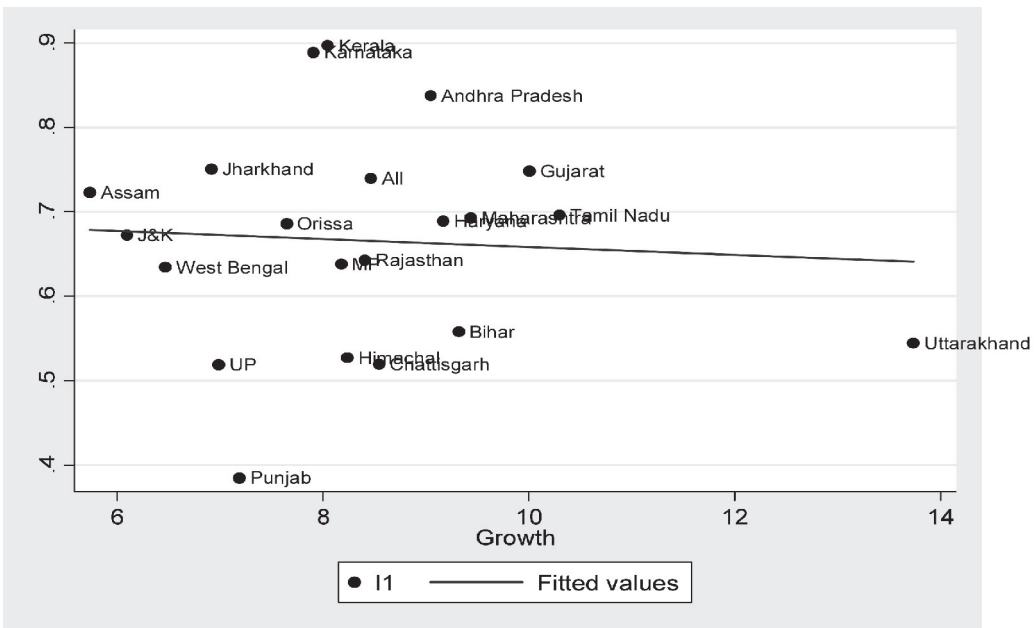**Figure A6** Growth and time independence

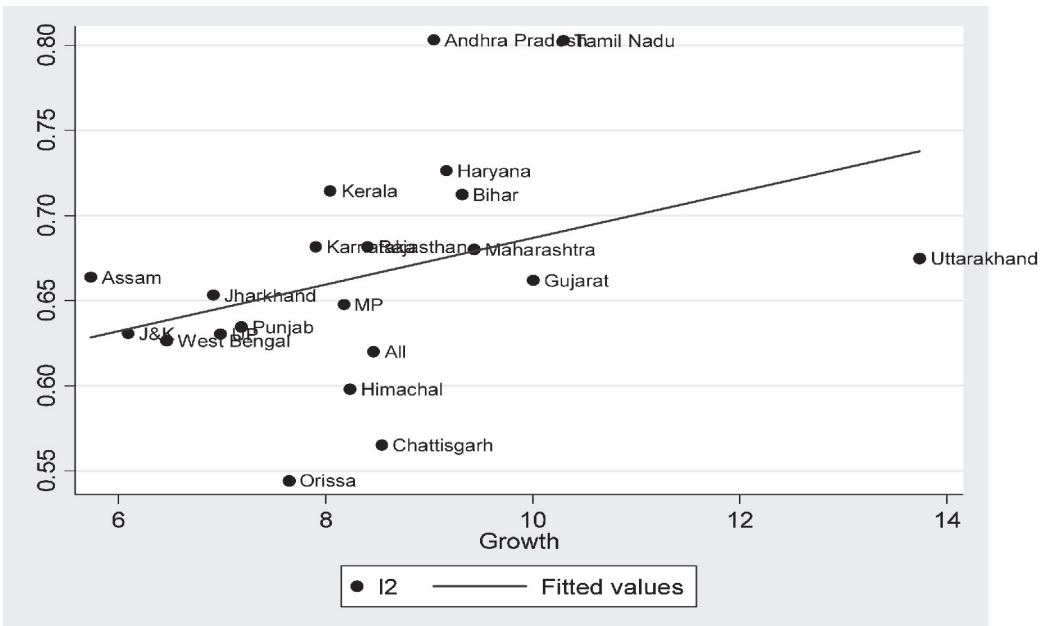**Figure A7** Growth and positional movement

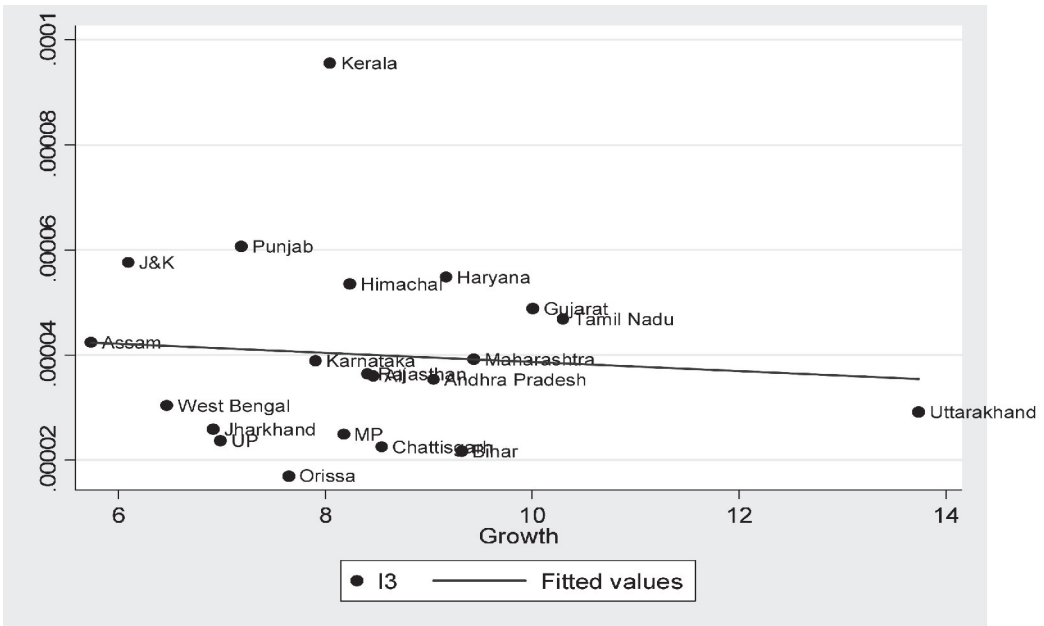**Figure A8** Growth and change in shares

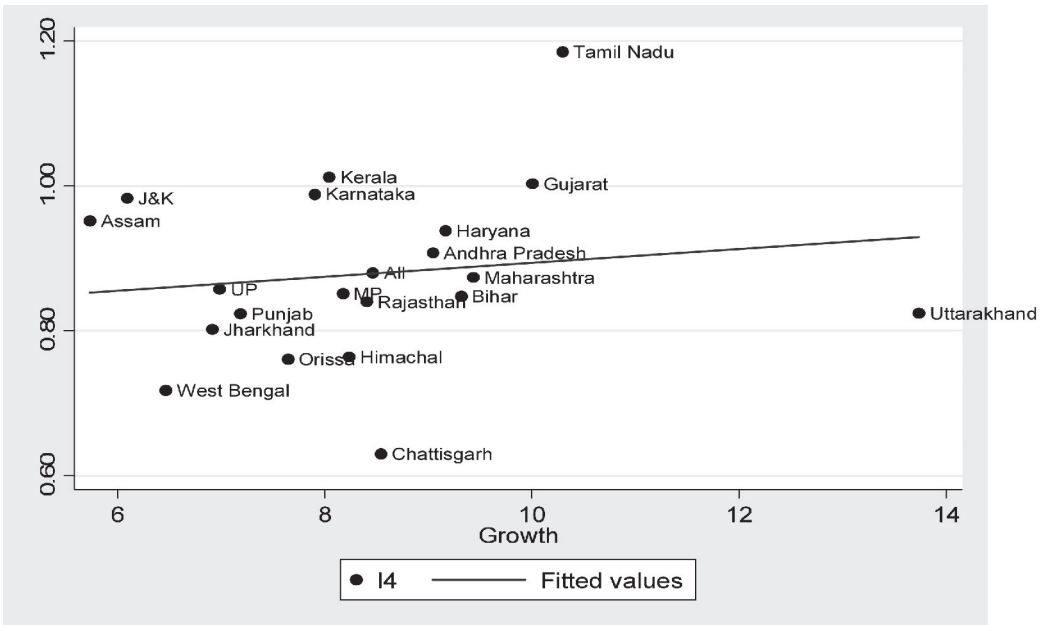**Figure A9** Growth and non-directional income changes
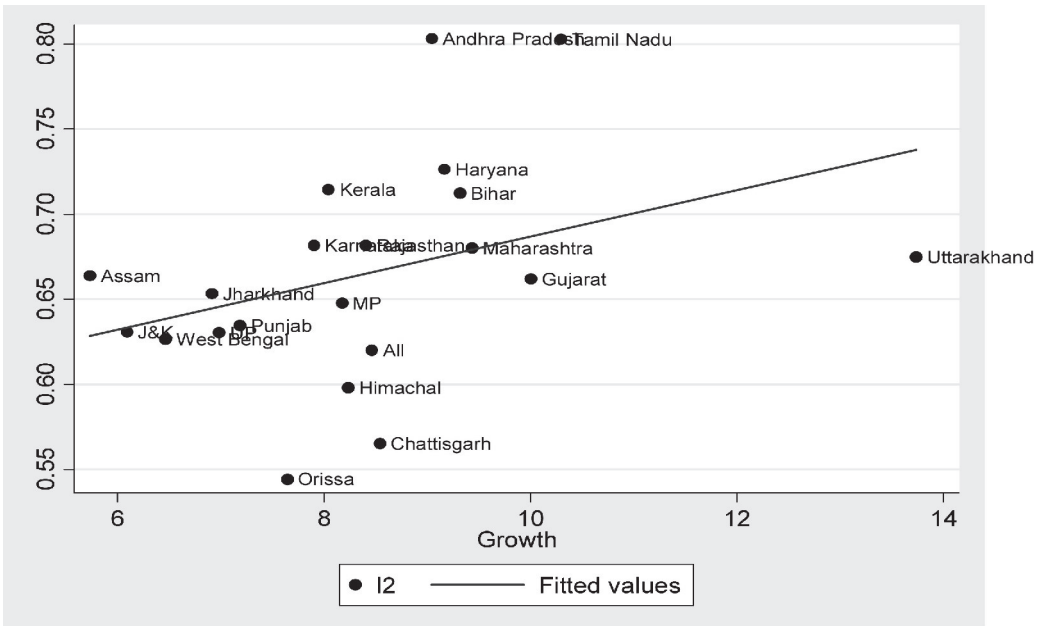
Figure A10 Growth and directional income changes

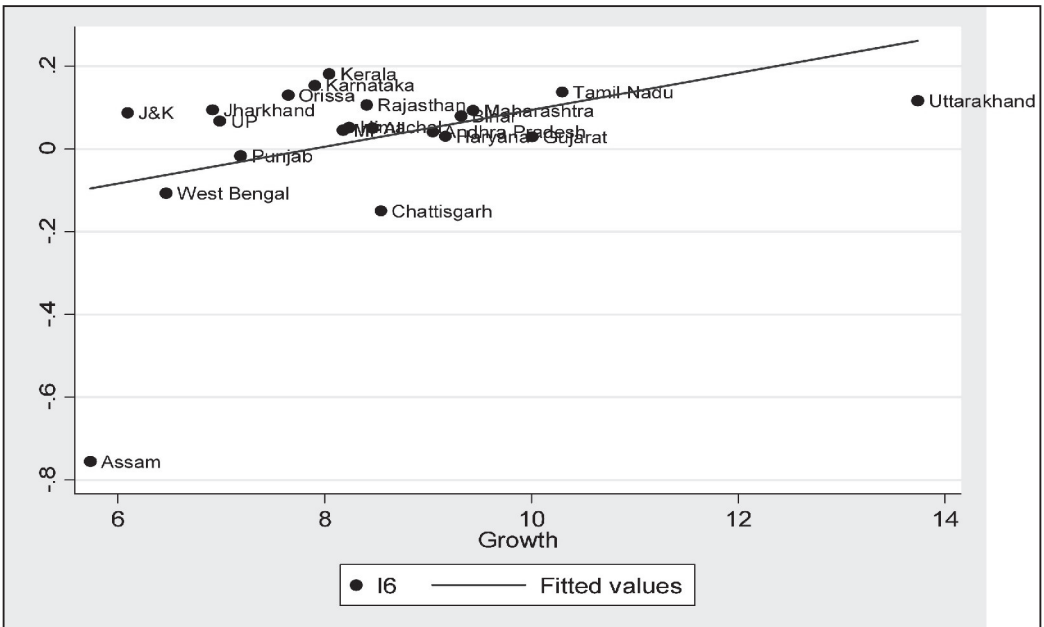**Figure A11** Growth and mobility as an equaliser of long-term incomes

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Institute of Economic Growth
University Enclave, University of Delhi
Delhi 110007, India
Tel: 27667101/288/424; Fax : 27667410
Website : www.iegindia.org

सत्यमेव परमो धर्मः