(Work in progress– September 2008 – no citations, please)

Caste dominance and inclusive growth: Evidence from a panel data set for India

Amaresh Dubey*, Vegard Iversen[£], Adriaan Kalwij[$], Bereket Kebede** and Arjan Verschoor**

* Jawaharlal Nehru University, £IDPM, University of Manchester; Indian Statistical Institute, Planning Unit (Visitor) , $ University of Utrecht, ** University of East Anglia

ABSTRACT

Using a unique panel data set for rural India for the period 1993/94 – 2004/05 we test the hypothesis that disadvantaged groups (Scheduled Castes, Scheduled Tribes and Muslims) fare worse in terms of income growth and poverty reduction when they live in villages that are dominated by forward castes. We consider dominance in the sense of numerical dominance, having a political majority, an economic majority, and both a political and an economic majority. Scheduled Castes and Muslims in particular perform much better when they live in villages that are dominated by their own group than when they live in villages that are dominated by forward castes. This result is robust to controlling for household demographic, occupational and educational characteristics and village infrastructure variables. However, the quantitative contribution of these effects to a measure of inclusive growth is relatively small. The main reason for this is that it is the relatively richer, not the poorer, households belonging to disadvantaged groups that are mainly affected by the type of village they live in.

I. INTRODUCTION

For eradicating poverty as thoroughly as possible, development policy ought to pursue both economic growth and equity. Economic growth is on average "good for the poor" (Dollar and Kraay 2002), but translates into poverty reduction at a variable rate.[1] Crucially, the rate at which economic growth translates into poverty reduction is determined by initial inequality, i.e. by the inequality that is in place at the onset of a growth episode (Ravallion 1997, 2001).

The policy implications of Ravallion's research finding that inequality determines the pro-poorness of growth were anticipated by the World Development Report of 1990, which argues that a more equitable distribution of (especially human) capital and access to (especially physical) infrastructure provide the opportunities for poor people to take advantage of economic growth (World Bank 1990). The World Development Report of 2000/2001 added the consideration that political participation of the poor is

[1] For example, Kalwij and Verschoor (forthcoming) estimate region and time-specific income elasticities of the $2/day poverty headcount indicator. For the mid 1990s they find that the income elasticity of poverty equals -1.31 on average and ranges from -0.71 for Sub-Saharan Africa to -2.27 for the Middle East and North Africa.

necessary for such equity-driven economic participation to materialise, and the World Development Report of 2006 added that the influence of "pre-determined background variables" such as gender, ethnicity, caste, religion and parental education may preclude both political and (therefore) economic participation, and thus perpetuate inequalities over time (World Bank 2001, 2005).

In this study we are concerned with identifying the impact of pre-determined background variables and initial inequality in the distribution of assets and access to physical and social infrastructure on the degree in which households in India participate in economic growth. Cross-country studies of the impact of inequality on pro-poor growth, such as the studies by Ravallion cited above, are severely restricted by data availability in the types of inequality they are able to consider. In practice, the Gini coefficient of income inequality is used, which thus stands for the myriad and varied inequalities that matter for participation in growth. As a result, policy implications are not obvious.[2]

For India, state-level panel data studies have considered a larger number of initial conditions than cross-country studies have been able to do. Datt and Ravallion (1998) estimate the impact of landlessness, illiteracy and infrastructure at the state level around 1960 on rates of poverty change between 1960 and the mid 1990s. In their specification, initial conditions enter additively, so that they have an impact on poverty beyond that of growth (in farm yields and non-farm output). In Ravallion and Datt (2002), similar initial conditions enter multiplicatively, so that they impact on the rate at which growth (in non-farm output) translates into poverty reduction.[3] This specification comes closer to the idea embodied in World Bank (1990) and Ravallion (1997, 2001) that initial unequal conditions, rather than primarily having an independent effect (so beyond economic growth), exert their influence first and foremost through determining the opportunities of poor people to take advantage of growth.

[2] Another potentially serious problem is that Gini proxies for population density in the vicinity of the poverty line and may thus capture something quite unrelated to economic and social inequality. Ceteris paribus, the higher initial Gini, the lower is the population density at the poverty line, and the lower is therefore the (absolute value of) the income elasticity of poverty (Bourguignon 2003, Epaulard 2003, Kalwij and Verschoor 2007).

[3] They consider this only for non-farm output because for farm yields they are not able to reject the null hypothesis of constant elasticities with respect to poverty across states.

From a policy perspective, Datt and Ravallion's cross-state studies for India offer a clear advantage on Ravallion's cross-country studies in that they take a step closer to the identification of inequalities amenable to policy manipulation such as unequal access to education, land and irrigation.[4] At the same time, these state-level studies for India do not consider continuous and refined distribution of capital variables (they use illiteracy and landlessness rates); infrastructure and social services available at the local (village) level; and pre-determined background variables such as caste, ethnicity, gender and parental education that in recent thinking on the persistence of inequality have acquired such a prominent place.

In this study, we take advantage of a large panel data set for rural India to investigate the impact of detailed initial conditions and pre-determined background variables on participation in growth. For reasons to be explained presently, we are particularly interested in the impact of the social composition of the village that respondents live in on their ability to participate in economic growth, controlling for other village and household characteristics, which the dataset we use allows us to do. We also develop a methodology that enables us to compute the contribution of each of the above mentioned factors to a well-known measure of pro-poor growth.

In India, individuals of Scheduled Caste (Dalit) and Tribal backgrounds receive lower returns on their human capital than others (e.g. Kijima 2006; Gang et al 2008). These contrasting returns have been estimated to account for as much as 50 percent of the difference in mean living standards between SC/STs and other groups (Kijima 2006). There are two alternative explanations for such disadvantage – "the oppression hypothesis" focuses on discrimination in the labour market (e.g. Banerjee and Knight 1985; Kingdon 1998 and 2002, Deshpande 2001; Barooah 2005; Iversen and Raghavendra 2006; Thorat and Attewell 2007), on identity-based restrictions in credit, insurance and other transactions and in the access to public programmes and services

[4] For the factor irrigation, state-level studies are arguably not appropriate because state boundaries do not typically correspond with those of agro-ecological zones. Palmer-Jones and Sen (2003) present evidence of irrigation rates varying in a predictable fashion across such zones and themselves co-determining agricultural growth and poverty reduction. Their analysis suggests that irrigation is not an exogenous factor in a poverty model but rather itself influenced by initial agro-ecological conditions and policy interventions appropriate for those conditions. This is not a line of analysis that we pursue in this paper.

(e.g. Nambissan 1996; Thorat and Lee 2006). While the main research focus has been on the labour market, a recent survey of untouchability in rural India found that in 45-50 percent of the villages covered, Dalits were prevented from selling milk to cooperatives (Shah et al 2006). Further, in 30-40 percent of these villages, Dalits were banned from participating in local markets and from entering village shops (ibid.).[5] Hence a number of powerful mechanisms for differential treatment in other markets than those involving labour and that have potentially important overall effects are regularly overlooked. The drawbacks experienced by other minority communities are possibly less dramatic, yet the labour market disadvantages of Muslims appear to have intensified in recent years (Dutta 2006).

The second and less obvious explanation for the absence or slow progress of members of disadvantaged communities is promulgated by what we will call the enclave hypothesis: rather than being caused by external forces, occupational and other upwards mobility is restricted by factors internal to the disadvantaged community in question. For instance, Munshi and Rosenzweig's (2006) recent study from Dadar, Mumbai reports that low caste urban households, when making educational decisions on behalf of their sons, prioritise local Marathi schools over higher returns education in English as this maintains access to community or jati-based networks. The result is a lowering of upwards occupational mobility and the persistence of disparities across generations of young men. In other words, the density of jati-based or other networks prevents lower caste communities from taking due advantage of new and emerging economic opportunities in a globalizing economy. Cultural practices and valuing of traditional occupations could, of course, have very similar effects. One important empirical shortcoming in Munshi and Rosenzweig's (2006) analysis and which raises doubts about the validity of their preferred explanation for schooling choice among the lower castes in Dadar is that a source of exogenous variation in labour market discrimination is missing from their data. This, in turn, implies that they are unable to control for the impact of particular patterns of labour market discrimination on parental schooling choice for boys.[6] Hence, the empirical robustness of their "internal

[5] As noted by Toft Madsen (1991), Mayer (1997), Parry (1999), Iversen and Raghavendra (2006) and others, traditional notions of purity and pollution makes the connection between caste identity and the handling, preparation and serving of food particularly sensitive in India. See also Harris White and Basile (2005).

[6] The precise mechanism would be that lower caste men with post primary education suffer a disadvantage in regular salaried jobs in urban areas; this is consistent with findings reported by Das (2006).

to the community" explanation for parental preference for Marathi schooling and the consequent limited upwards mobility of lower caste households in Dadar is in doubt.

Irrespective of whether one subscribes to the external oppression or the enclave hypothesis, either makes poverty more persistent and harder to escape. However, in terms of the role of policy for relaxing poverty traps, the contrasts could hardly have been more distinct. Whereas the external oppression hypothesis calls for broad society-wide attitudinal change, the latter requires change from within. In contrast to Munshi and Rosenzweig (2006) the analysis we are able to present facilitates a separate identification of the contributions of the external oppression and the enclave hypothesis to poverty and poverty persistence among disadvantaged communities in rural India.

While our data do not allow for a precise identification of the impacts of discrimination in a particular market, of a specific cultural practice or of network density within a particular community directly, what we are able to do and that is unique and almost as good is the following: we combine data from a panel of households with information on village level social structure and land ownership, and use the latter to construct variables that facilitate testing of hypotheses about how the social and economic makeup of communities, manifested in different types of political or economic dominance and possibly accentuated by the fact that the numerically or economically dominant social group also happens to be an upper or locally forward caste, contribute to identity-based poverty and its persistence in rural India; in short, we present the first comprehensive and systematic empirical attempt to test for the existence and the relative importance of economic and political dominance, separately or in tandem, as causes of "oppression" driven identity-based rural poverty traps. We also extensively test the hypothesis that the economic and other progress of disadvantaged communities is held back by factors internal to the disadvantaged community itself. The question we seek to answer is whether Munshi and Rosenzweig's (2006) preferred explanation that urban lower caste households are held back by community-based networks or other internal factors is echoed among rural households of SC, Muslim or ST-background in India.

The remainder of the paper is organised as follows. Section II describes the methodology, Section III the data set and key hypotheses to be tested, Section IV presents a selection of descriptive statistics, Section V contains the key results, and Section VI concludes.

II METHODOLOGY

We consider a class of additively separable poverty measures $P(z,x)$ where z is the poverty line, x the income variable and the degree of poverty

$$\theta = \int_0^z P(z,x)\, f(x) dx \,. \qquad (1)$$

The specific poverty measures that we will focus on are the Foster, Greer and Thorbecke (FGT) class of measures and the Watts measure:

Poverty measure	$P(z,x)$	Source
Watts	$\ln z - \ln x$	Watts (1968)
FGT0, FGT1, FGT2	$\left(\frac{z-x}{z}\right)^{\alpha}$ $for\ \alpha = 0,1,2$	Foster, Greer and Thorbecke (1984)

The FGT class of measures is attractive because of its widespread use and intuitively appealing interpretation. FGT0 is of course the headcount indicator, FGT1 is the normalised poverty gap per capita, and FGT2 is the normalised poverty gap squared per capita, which is sensitive to the distribution of incomes among the poor. The Watts measure is a poverty gap measure defined for the log of income and is (for that reason) also distribution-sensitive. It is the single poverty measure that satisfies all desirable axioms on which there exists broad agreement (Zheng 1993). The most important reason that we consider it here is for its correspondence with a popular pro-poor growth measure.[7] We will elaborate on this later in the section.

[7] See Ravallion and Chen (2003) and below for the exact correspondence. An additional particularly attractive feature of the Watts measure is that it may be decomposed into the various factors that cause income to change (cf. Dercon 2006). This feature derives from the fact that its individual "loss-from-poverty" function is linear in changes in log income, as will become clear below.

We wish to decompose changes in poverty into effects due to income growth and distributional changes

$$\frac{d\theta}{\theta} = \eta_\theta \frac{d\mu}{\mu} + \varepsilon_\theta \frac{dG}{G}, \qquad (2)$$

where μ is mean income, η_θ the (partial) income elasticity of poverty, G an inequality index, and ε_θ the (partial) inequality elasticity of poverty.[8]

For the poverty measures considered θ is fully characterised by the poverty line z, mean income μ and the Lorenz curve L(p), which denotes the share in total income of the pth percentile:

$$\theta = \theta(z, \mu, L(p)). \qquad (3)$$

If we have household surveys for at least two periods, poverty may be decomposed into growth and redistribution components. For most poverty measures, the decomposition procedure suggested by Datt and Ravallion (1992) leaves a residual,[9] which they interpret as the interaction of growth and redistribution effects. Following (distinct) axiomatic approaches, Kakwani (2000) and Shorrocks (1999) propose the following exact decomposition:[10]

Income component	$\frac{1}{2}[\theta(\mu_1, L_0, z) - \theta(\mu_0, L_0, z)] + \frac{1}{2}[\theta(\mu_1, L_1, z) - \theta(\mu_0, L_1, z)]$
Redistribution component	$\frac{1}{2}[\theta(\mu_0, L_1, z) - \theta(\mu_0, L_0, z)] + \frac{1}{2}[\theta(\mu_1, L_1, z) - \theta(\mu_1, L_0, z)]$

[8] The term partial indicates that responsiveness to income (inequality) changes are measured with inequality (income) held constant. η_θ is therefore also often termed the distribution-neutral income elasticity of poverty.

[9] Exceptions are poverty measures that are linear combinations of the Watts measure and the poverty gap measure – see Tsui (1996).

[10] Shorrocks (1999) proposes a unified framework for decomposition procedures for distributional analysis based on the Shapley value; see Kolenikov and Shorrocks (2005) for an application to poverty changes in Russia.

The income component is the simulated poverty change that results from holding distribution, i.e. the Lorenz curve, constant and varying mean income in line with actual income growth. Likewise, the redistribution component is the simulated poverty change that results from holding mean income constant and varying the Lorenz curve in line with actual distributional changes. Unlike in the Datt and Ravallion (1992) decomposition procedure, the arbitrariness of holding the initial distribution (mean income) constant instead of the final one is resolved in the decomposition suggested by Kakwani (2000) and Shorrocks (1999) by doing both and giving equal weight to both.

Obviously, some of the terms used for the decomposition are counterfactual poverty measures: mean income of one period is inserted in the Lorenz curve of the other period. One thus needs to fit a Lorenz curve. The procedure followed so far in a large number of studies (following Datt and Ravallion 1992 and Kakwani 1993) is to fit a parametrically specified Lorenz curve, of either the Beta or the GQ variety, or to assume that income is lognormally distributed and construct a Lorenz curve accordingly (see Kolenikov and Shorrocks 2005).[11]

The decomposition implies a number of important poverty elasticities w.r.t. changes in mean income, measured as $\hat{\gamma} = \ln(\mu_1) - \ln(\mu_0)$, and pro-poor growth measures, the empirical approximations of which are as follows (cf. Kakwani et al. 2003, 2004):

	Poverty elasticities/pro-poor growth (PPG) measures:
Total income elasticity of poverty	$\hat{\delta} = (\ln[\theta(z, \mu_1, L_1) - \ln[\theta(z, \mu_0, L_0)]/\hat{\gamma}$
Partial income elasticity of poverty	$\hat{\eta} = \frac{1}{2}[\ln(\theta(z, \mu_1, L_0) - \ln(\theta(z, \mu_0, L_0)$ $+ \ln(\theta(z, \mu_1, L_1) - \ln(\theta(z, \mu_0, L_1]/\hat{\gamma}$
Poverty-equivalent growth rate (PEGR)	$\hat{\gamma}^* = (\hat{\delta}/\hat{\eta})\hat{\gamma}$
Ravallion and Chen (2003) PPG	$\hat{\gamma}^*$ *for* $P(z, x) = \ln(z) - \ln(x)$

[11] Bigsten et al. (2003) for Ethiopia and Gibson (2000) for Papua New Guinea are representative examples of studies for individual countries that apply the Datt and Ravallion decomposition methodology by fitting a parametric specification of the Lorenz curve. Kraay (2004) does the same for all countries in the World Bank Poverty Monitoring Database. Of recent, studies have adopted non-parametric approaches for fitting a Lorenz curve and subsequent decompositions; see e.g. Contreras (2003) for Chile and Alwang et al. (2002) for Zimbabwe.

The total income elasticity of poverty measures the responsiveness of poverty to changes in mean income consistent with actual distributional changes, whilst the partial income elasticity of poverty holds distribution constant – it is therefore also often termed the distribution-neutral income elasticity of poverty. In line with the suggested decomposition procedure, one poverty change (per unit of economic growth) is simulated that results from holding the initial distribution constant, another from holding the final constant, and equal weight is given to both. The PEGR, as proposed by Kakwani et al. (2003), is the growth rate that would have produced the observed poverty change if growth had been distribution-neutral. It is defined for any additively separable poverty measure; for the Watts measure it is equal to Ravallion and Chen's PPG measure. Because of the close correspondence between the Watts measure and Ravallion and Chen's PPG measure, the latter has some attractive properties that we will exploit in this study, as will become clear below.

For the descriptive part of our study, in which we simply document what happened between two survey rounds in rural India to poverty of selected regions and groups, and establish the degree of pro-poor growth for those same categories, we exploit the cross-section aspect of our data set and make use of the measures presented above. For explaining variation across groups and regions in the degree of pro-poor growth, we exploit the fact that we have panel data, that the individual "loss-from-poverty" function in the Watts measure is linear in changes in the log of income, and that the Ravallion and Chen PPG measure may be written in terms of changes in the Watts measure over time, as follows.

We start by estimating the contribution of individual factors to changes over time in income for individual households (Equations 4 and 5 are inspired by Dercon 2006).

$$\Delta \ln x_{ht} = \beta_0 + \sum_{i=1}^{k} \beta_i \ln I_{hit} + \sum_{j=k+1}^{l} \beta_j \Delta \ln K_{hjt} + u_{ht}, \qquad (4)$$

where *h* is a subscript for individual households, there are *k* relevant initial conditions and pre-determined background variables, denoted by *I*, and (l-k) time-varying factors that impact on household income, denoted by *K*. Heterogeneity in household income

changes follows from variation across households in *I* and *K* and from including household fixed effects. The household-specific error term, u_{ht}, thus captures the effects of both omitted variables and idiosyncratic shocks.

We will compute the contribution of each factor that impacts on income to a measure of pro-poor growth, separately for chronic and transient poverty. For additively separable poverty measures we may write

$$\theta_1 - \theta_0 = \sum_{g=1}^{3} s_g(\theta_{1g} - \theta_{0g}), \tag{5}$$

where *t=1* is a time period after *t=0* and s_g denotes the contribution to the change in aggregate poverty of three categories of households: those who stay poor (*g=1*), those who have become poor (*g=2*), and those who are no longer poor (*g=3*). s_g is computed as the sum of changes in "losses from poverty" for households belonging to a particular category divided by the total sum of changes in losses from poverty. For example, in the case of the Watts measure, the change in a household's loss from poverty is equal to minus the change in the log of income counting up to or from the log of the poverty line (as the case may be), and the computation of s_1, s_2 and s_3 is a straightforward matter. Note that the definition of s_g implies that changes above the poverty line are not taken into account.

A change in a household's income is equal to $\sum_{i=1}^{k} \beta_i \ln I_{hit}$ for initial conditions, plus $\sum_{j=k+1}^{l} \beta_j \Delta \ln K_{hjt}$ for time-varying characteristics, plus u_{ht} for idiosyncratic shocks and omitted variables. For additively separable poverty measures for which the individual loss-from-poverty function is linear in the (log of) income changes, it is possible to separately compute the contribution of each factor that impacts on income changes to the aggregate poverty measure. The Watts measure is one such measure[12]. Summing

[12] Dercon (2006) obtains a similar decomposition as the one about to be described (Equation 6) for the normalised poverty gap.

across households and poverty groups we may thus write changes in the Watts measure over time as

$$W_1 - W_0 = \frac{1}{n}\sum_{g=1}^{3} s_g \sum_{h=1}^{q^*}\sum_{i=1}^{k} \beta_i \ln I_{hio} + \frac{1}{n}\sum_{g=1}^{3} s_g \sum_{h=1}^{q^*}\sum_{j=k+1}^{l} \beta_j \Delta \ln K_{hj} + \frac{1}{n}\sum_{g=1}^{3} s_g \sum_{h=1}^{q^*} u_h \,, \qquad (6)$$

where n denotes the total number of households in the panel, and q^* the number of people who are poor in either period; and households are understood to be ordered consecutively so that the poor in both periods are followed by those who have become poor by those who are no longer poor by those who were never poor. Dividing (6) on both sides by $W_1 - W_0$ gives the relative contribution of each factor to changes in the Watts measure.

Finally we obtain a decomposition of a pro-poor growth measure. Ravallion and Chen (2003) show that their PPG measure may be expressed as

$$\hat{\gamma}_W^* = \frac{W_1 - W_0}{W_1^* - W_0}\hat{\gamma} \,, \qquad (7)$$

where W_1^* is the Watts measure in period 1 that would have resulted from distribution-neutral growth, i.e. if every household's income had changed at the same rate – its computation is straightforward. Multiply both sides of (6) by the ratio of the actual growth rate to the counterfactual distribution-neutral change in the Watts measure, $\xi = \hat{\gamma}/(W_1^* - W_0)$, and we obtain a decomposition of Ravallion and Chen's PPG measure into the various factors determining income changes:

$$\hat{\gamma}_W^* = \frac{\xi}{n}\sum_{g=1}^{3} s_g \sum_{h=1}^{q^*}\sum_{i=1}^{k} \beta_i \ln I_{hio} + \frac{\xi}{n}\sum_{g=1}^{3} s_g \sum_{h=1}^{q^*}\sum_{j=k+1}^{l} \beta_j \Delta \ln K_{hj} + \frac{\xi}{n}\sum_{g=1}^{3} s_g \sum_{h=1}^{q^*} u_h \,. \qquad (8)$$

Equation (8) permits a wide variety of decompositions. We may for example compute the joint contribution of all individual conditions and pre-determined background variables to PPG, or the joint contribution of all time-varying factors; we may do so for individual factors, for chronic and transient poverty separately, and so forth. In

Section 5 we will carry out decompositions informed by theory and context so as to better understand the variation across regions and groups in the degree of pro-poor growth documented in Section 4.

III DATA SET, KEY HYPOTHESES AND VARIABLES USED

Data set

The data reported on here are derived from two large-scale household surveys that cover most of the territory of India. The first round, HDPI-I, took place in 1993/94 and was carried out by India's National Council of Applied Economic Research (NCAER) on behalf of UNDP. The second round, HDPI-II, took place in 2004/05 and was carried out by NCAER on behalf of the University of Maryland. The primary purpose of the surveys was to collect detailed information on a large range of human development indicators, including income, which is the variable reported on here. The main attraction of the data for our purposes is that a village questionnaire was administered in round 2, which enables the construction of the social composition variables to be described presently, and allows us to control for village infrastructure.

The subdivision of social groups in the household questionnaires for both survey rounds allows us to consider Scheduled Castes, Scheduled Tribes, Muslims, upper-caste Hindus, and Others in the analysis. However, the village questionnaire identifies the sub-caste of the four dominant groups in the village precisely, which we combine with knowledge of the relative status by region of castes to construct the social composition variables described below.

About one-third of households in the first round have been resurveyed in the second round, which leaves us with a usable panel of 9,251 households. The panel is in its base year meant to be representative for the rural areas of 14 of India's 17 major states: Andhra Pradesh, Bihar, Gujarat, Haryana, Himachal Pradesh, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal, with the remaining states and smaller territories, although usually covered in at least one of the two cross sections, not part of the usable panel.

The sampling strategy of the resurvey uses a residence-based sampling rule, which is known to create biases, and in particular to underestimates of economic mobility

(Rosenzweig 2003, Baulch and Hoddinott 2000). We deal with the problem by assuming that the income mobity of all social groups is equally affected by it, and by focussing primarily on the comparison between groups rather than on estimates of absolute mobility.

Testing the "external oppression" and the "enclave" hypothesis for poverty and poverty persistence

To test the main hypotheses we estimate level and income-growth regressions using extensive demographic, educational, occupational and village infrastructure controls. We use village level information on social structure to construct new variables; the raw data include information on social composition, on the numerically dominant social group, on the percentage of the village population this dominant group comprises and on the percentage of local land the numerically dominant group controls. We use this information to construct new dummy variables to account and test for alternative forms of dominance at the village level.

The first, *political* dominance reflects that the dominant social group has an absolute political majority (i.e. comprising more than 50 percent of the local population) which is important in rural India where the 73rd constitutional amendment contributed to strengthen local democracy considerably. The second notion of dominance that we introduce is *economic* and represents the dominant social group owning more than 50 percent of the local land. We next introduce a combination of political and economic dominance whereby the dominant social group both forms an absolute majority and owns more than 50 percent of the village land. Further and in order to capture the possible impacts of the dominant group having a high rank in the local caste hierarchy, it is vital to clarify whether minority communities, be it SC, Muslim or ST are at a particular advantage in villages where the dominant social group also belongs to a high status forward caste community. The local forward caste group comprises Brahmins plus, and with some carefully crafted fine-tuning, groups making up the local landowning classes plus other social groups enjoying high ritual status.[13] In short, therefore, we are well situated for comprehensively testing the clout of the external oppression hypothesis and examine whether political, economic or social

[13] E.g Jats in Haryana, Himachal Pradesh and Punjab, Rajputs in different parts of North-India, Marathas in Maharashtra, Patels in parts of Gujarat, Lingayats, Vokkaligas and Bunts in Karnataka, Reddys in Andhra Pradesh and so forth.

status-based (ritual) dominance in isolation or in one combination or the other tighten identity-based poverty traps by decelerating the progress of minority communities.

The main hypotheses the external oppression explanation for identity-based poverty persistence throw up is that SCs, Muslims and Tribals do less well (a) in communities with a politically dominant social group, (b) in communities with an economically dominant social group, (c) in communities with a politically and economically dominant social group and finally, (d) in communities where the dominant group, politically, economically or in tandem also belongs to a forward caste. The a priori expectation would be that the effects of dominance on poverty persistence intensifies as one moves from general to upper-caste dominance, whereas the question of whether economic or political power is more important to start with should be treated as open – we would expect, though, that the combination of the two represents a particularly powerful oppressive mechanism.

Turning next to the enclave hypothesis and the idea that upwards mobility is curtailed from within the disadvantaged community itself either as a result of particularly dense social networks or for other reasons, we test for impacts on the level and persistence of poverty among minority communities, i.e. SCs, Muslims and Tribals of living in villages where (a) the minority community in question has a political majority which should be expected to curtail progress, (b) where the minority community in question owns more than 50 percent of the local land or (c) where the minority community combines political and economic power by comprising more than 50 percent of the local population and owning more than 50 percent of the village land.

IV DESCRIPTIVE STATISTICS

We next show in five different ways that the basic patterns in the data are on the whole consistent with the hypothesis that disadvantaged groups, especially Scheduled Castes, perform worse when forward castes are more powerful. In the narrative the heterogeneous group ‘Others’ is ignored, as are all figures computed using less than 100 observations (indicated as such in the Tables). Also, since mean income figures are highly sensitive to outliers, the discussion will typically refer to the median.

First, on the whole, Scheduled Castes have performed relatively well. Their annual growth of real income per capita of 1.2 percent exceeds that of upper-caste Hindus (1.0 percent), Muslims (0.6) and Scheduled Tribes (-0.2) (Table 1). But this masks considerable regional differences. Of particular relevance here is that in the part of North India that is poor and characterised by strong social divides (see the note underneath the Table), Scheduled Castes experienced negative annual income growth of -0.7 percent, which is lower than that for Muslims (0.1 percent) and upper-caste Hindus (0.4). Over the 11 years between the two survey rounds, real income per capita for Scheduled Castes thus grew by 14 percent in India, but fell by 8 percent in that part of India where the hypothesis advanced here would have predicted their relatively poor performance.

Table 1 about here

Second, poverty changes between the two survey rounds tell the same story (Table 2). For India, the poverty headcount ratio fell by about 4 percentage points for Scheduled Castes, 3 for Muslims, 2 for upper-caste Hindus, and rose by 1 percentage point for Scheduled Tribes. But for the cluster of States in the North that is poor and socially divided, poverty rose for Scheduled Castes from an already high 47 percent to 55 percent, an increase by 8 percentage points, which is higher than for Muslims and upper-caste Hindus in that part of India, both of whom experienced a rise in the incidence of poverty of about 3 percentage points.[14]

Table 2 about here

Third, the fact that panel data are used allows us to check and confirm this suggestion of escape from poverty being relatively difficult for Scheduled Castes when identity divides are more pronounced. Table 3 contains poverty transition matrices for social groups by State cluster. In the sample as a whole, some 20 percent exited poverty, 17 percent entered poverty, 15 percent stayed poor and about half (48 percent) was not

[14] Note though that Muslims have a sharper increase in distribution-sensitive poverty indicators than upper-caste Hindus.

poor in either round.[15] Poverty persistence (poor in both rounds) is largest for Scheduled Tribes, but this should not be taken as an indicator of economic mobility, since it is sensitive to initial levels of the incidence of poverty.

A useful alternative indicator is obtained by dividing the percentage of people that exited poverty by the percentage that stayed poor. For the sample as a whole, this ratio equals 1.34, for Scheduled Castes 1.28, for Scheduled Tribes 0.78 and for Muslims 1.08. It follows that for the sample as a whole, the group that exited poverty is 34 percent larger than the group that stayed in poverty; and for Scheduled Castes this group is 28 percent larger. However, in that part of North India that is poor and characterised by strong identity divides, the ratio for Scheduled Castes of the percentages of people that exited from poverty and stayed in poverty is equal to 0.91; the former group is thus some 10 percent smaller than the latter.

Table 3 about here

Fourth, the point of relatively higher poverty persistence of disadvantaged groups when social divides are stronger can be made by decomposing the poverty changes of Table 2 into effects due to growth and changes in distribution (Table 4). The first thing to note is that both growth and distribution effects are large, and that the latter tend to offset the former. If growth had been distribution-neutral, some 30 percentage points reduction in the poverty headcount ratio would have resulted, both for the sample as a whole and for individual social groups. But distribution effects are not much smaller and operate in the opposite direction. So, for example, Scheduled Castes in the sample as a whole would have experienced 35 percentage points reduction in the poverty headcount ratio if the income growth they experienced would have been at a uniform rate, but a worsening distribution (assuming no growth) corresponds with an increase of 31 percentage points – resulting in the reduction by 4 percentage points noted earlier. Moreover, whereas typically the growth effect exceeds the distribution effect, for Scheduled Castes and Muslims in the poor Northern States with strong social divides the opposite is true: 24 versus 32 for the

[15] The order of magnitude of the economic mobility that these figures suggest is in line with estimates of economic mobility found in other datasets for India (Swaminathan 1991a, 1991b; Gaiha 1988; Lanjouw and Stern (1991, 1993) and elsewhere (see the studies reviewed in Baulch and Hoddinott 2000).

former and 28 versus 32 percentage points for the latter; suggesting as before that the poor from disadvantaged groups in regions where identity divides are strong have performed relatively poorly.

Table 4 about here

However, some caution is needed before reaching that conclusion, since the analysis above does not make use of distribution-sensitive measures. Tables 5, 6 and 7 and Figures 1, 2 and 3 show for social groups by State cluster Ravallion and Chen's pro-poor growth (PPG) measure (see Section 2), which is the growth rate required to bring about the change in the Watts poverty measure (a distribution-sensitive measure) if growth had been distribution-neutral. The larger is the discrepancy between the actual growth rate and this counterfactual one, the less pro-poor has growth been. For each social group for the sample as a whole, the actual growth rate exceeds the PPG measure (Table 6 and Figure 1), which is as expected given the growth-distribution decomposition presented above. The discrepancy is starkest for disadvantaged groups, for Scheduled Tribes and Muslims more so than for Scheduled Castes. However, for Scheduled Castes in poor North India with strong social divides, the poverty-equivalent growth rate exceeds the actual growth rate (Table 5 and Figure 3), which suggests an improved distribution – contrary to what the growth-distribution decomposition carried out above suggests. The discrepancy between an analysis that makes use of the poverty headcount ratio and one that relies on the Watts measure can be understood by examining growth incidence curves (GICs) (Tables A1 and A2). Whereas for Scheduled Castes as a whole, the higher percentiles clearly experienced much higher income growth than the lower percentiles, the opposite pattern prevails in poor North India with strong social divides (the GIC for Scheduled Castes in this part of India cannot be reliably computed because of the size of this group in the sample). Since Ravallion and Chen's PPG measure is based on the distribution-sensitive Watts measure, it probably registers the relatively good performance of the *very poorest* members of the Scheduled Castes. Clearly, from the analysis above, this is not typically a group that crosses the poverty line.

Tables 5, 6 and 7, and Figures 1, 2 and 3 about here

Fifth, Scheduled Castes perform particularly poorly in villages dominated by forward castes. The overall picture sketched so far is one of an *overall* relatively good performance of disadvantaged groups other than Scheduled Tribes, but a relatively poor one, especially of poor members of Scheduled Castes with middling levels of income (compared to the other poor) in places where identity divides are strong. The hypothesis advanced here is that local elites tend to hold back disadvantaged groups, for the reasons outlined in Section 3. Table 8 shows that in villages where a forward caste that has regionally the highest status (as defined in Section 3) is numerically dominant, Scheduled Castes experience annual real income per capita growth of 1.2 percent, whereas they experience more than double that, 2.5 percent, when they themselves are numerically dominant. The contrast is even starker when both political and economic dominance are considered (see the notes underneath the table for the precise definition used). Where forward castes in the sense explained dominate a village in that sense, Scheduled Castes on average saw 1.9 percent annual growth, but when Scheduled Castes themselves have the political and economic majority they saw 4.5 percent annual growth. This is consistent with our key hypothesis but clearly, individual and village characteristics are not yet controlled for, which is the next step.

V RESULTS

Level regressions

We first consider the main hypotheses using GLS level regressions with results reported in Table 9 and where the natural logarithm of per capita household income is the dependent variable. Controlling for a wide range of household demographic, educational and occupational characteristics and village level infrastructure, the per capita income of SC households in a village with a dominant social group is lower than that of upper caste Hindus. This negative coefficient is statistically significant for political and economic dominance as well as for a combination of the two. As expected, the negative effect is strongest in the latter case, but not by much. The results for Scheduled Tribe households are similar, with one important difference; the negative effects are more pronounced. Again and in tune with intuition, the strongest negative effects appear for a combination of political and economic power. Note, however, that the differences between alternative permutations of power are less pronounced than one might perhaps have expected. Notice also that the intensity of

disadvantage for both Scheduled Caste and Scheduled Tribe households is stronger under political than economic dominance. Interestingly, the results for Muslims are strikingly different, as there is no difference in levels of household per capita income for any local permutation of power compared to upper caste Hindus. Finally, and in contrast to all other groups, households that belong to the broad category *others* benefit during dominance compared to upper caste Hindus, for all types of dominance considered.

Table 9 about here

We now look at the determinants of per capita income levels using a weak version of caste dominance, represented by the dominance of an advantaged social group which is made up of all households that are not SC, ST or Muslim. The main conclusion that we arrive at is that villages dominated by this broad category, economically, politically or otherwise, are surprisingly egalitarian with there being no additional social effects.

We next consider the results when the dominant social group also belongs to a local forward caste. We first note that the dummy for a forward caste dominated village has a positive sign and is statistically significant and most strongly pronounced when land ownership is concentrated – this may correspond with villages of this type being politically well connected. How does this strong measure of dominance affect the income levels of different social groups? For STs and others, none of the permutations of power that we consider affects household income per capita differently from how it affects upper caste Hindus. For SCs in a forward caste village, the overall positive village effect is dampened when the dominance by the forward caste is economic, but not when the forward caste is politically dominant. Further, similar economic power has a more strongly negative effect on Muslim households for whom the gain from being in a forward caste village is wiped out, with the net effect being negative. We consider the income levels of different social groups in villages politically or economically dominated by their own social group, we thus test the enclave hypotheses on income per capita levels. Compared to other villages and sticking to using upper caste Hindus as reference group, how do different social groups fare when they make up the political majority, dominate land ownership or a combination

of the two? Interestingly, there are no differences between STs, SCs or other groups compared to upper caste Hindus in this respect. However, Muslims fare worse in villages where they dominate land ownership, which is surprising.

Growth regressions

We next focus on the income growth regressions, with results presented in table 10. Starting with the case of general dominance, politically, economically or in tandem, the growth in per capita income of households belonging to different social groups compared to upper caste Hindus is indistinguishable for all combinations of economic and political power with the exception of the case of a political majority where Scheduled Caste households are at a disadvantage while "others" are at an advantage. In terms of per capita income growth, there are no general benefits from living in a village dominated by a forward caste group. This conclusion holds for all types of dominance. There are, at the same time, startling inter-group differences in how the economic and political power of the forward caste group appears to impact on per capita income growth. Firstly and once more compared to upper caste Hindus, the income growth of Muslim households is negatively affected by being politically dominated by a forward caste group. The combination of forward caste economic and political power reinforces this negative effect which is in tune with expectations. For SCs and STs, there are no differences compared to upper caste Hindus, but the others category have experienced much faster progress than other social groups when forward castes control most of the land or combine political and economic power. What, then, about the performance of the enclave hypothesis in explaining poverty persistence? Here our results conflict manifestly with those reported by Munshi and Rosenzweig (2006). Firstly, we find that SC households in villages where SCs are in political majority, control most of the land or both in tandem have experienced faster income growth than the reference category upper caste Hindus. The positive impact of this income growth is reinforced as this grip on power intensifies – political power is less important than economic power while the combination of political and economic power has particularly strong effects on per capita income growth. Hence the idea that community ties are regressive or that lower caste communities do not take advantage of new economic opportunities as their collective strength intensifies is very strongly rejected. Our findings for Muslim households in Muslim villages are equally dramatic – compared to upper caste Hindus, they have experienced very strong income growth

– interestingly and in contrast to SC households this income growth is more pronounced when Muslims are a political majority – economic power, in isolation, also has a very strong effect, while in contrast to SCs, the combination of the two make little difference to the total.

Table 10 about here

Decomposing Ravallion and Chen's PPG measure

We next use the final regression (last column of Table 10) for decomposing Ravallion and Chen's PPG measure, following the procedure developed in Section 2 (Table 11), which allows us to get a sense of the relative quantitative importance of the key effects of interest.

Table 11 about here

The first remarkable thing about the Table is that all disadvantaged social groups contribute more to PPG than their population share alone would have predicted: SCs 30 percent (presence in the sample 24 percent), STs 14 percent (11) and Muslims 8 percent (7). Any suggestion that any of these groups are disproportionately (i.e. compared to upper-caste Hindus) left behind by India's modern growth experience is clearly not warranted.

Despite this, there is clearly a lot of "churning under the surface." For example, SCs that were not poor in round 1 and have become poor in round 2 contribute a negative effect to PPG that is as large as the entire sample PPG measure. In that light, effects that correspond with the oppression hypothesis considered here are rather small. If no single SC had lived in a forward-caste dominated village, SCs' contribution to PPG would only have been 7 percent smaller (so 28 percent instead of 30 percent). The effects for STs and Muslims are of the same order of magnitude as those for SCs (after correcting for their population share).

Effects that correspond with the enclave hypothesis, which we refute above and are in a direction opposite to the one predicted by that hypothesis, are likewise rather small. As noted, when SCs and Muslims live in villages that are dominated by their own

group, they tend to do better, *ceteris paribus* – contrary to the enclave hypothesis. About 5 and 23 percent, respectively, of their contribution to PPG is accounted for by this effect.

VI CONCLUSION

When SCs live in a village with a politically and economically dominant forward caste, their annual real income growth per capita is 1.9 percent. When they live in a village where they themselves are dominant in this sense, their annual real income growth per capita is 4.5 percent (Table 8). The contrast for Muslims is similarly stark, and that for STs too but qualitatively the opposite of that found for Muslims and SCs – the figures for Muslims and STs are based on small sample sizes though.

These effects are qualitatively robust to controlling for a large number of household and village characteristics (Table 10) but contribute nonetheless little to a measure of inclusive growth (Table 11). This is not necessarily contradictory: poorer households among the disadvantaged groups have experienced much slower growth than richer households (see the growth incidence curves in Figure A1). This is consistent with the suggestion that the growth prospects of richer households (whose growth counts for average growth but not for pro-poor growth) among the disadvantaged groups is more affected by the type of village they live in than those of their poorer households.

The enclave hypothesis according to which a geographical concentration of disadvantaged groups holds them back thus performs poorly for SCs and Muslims but not for STs – again, the results for STs should be interpreted with caution. The oppression hypothesis according to which powerful elites hold back members of disadvantaged groups is confirmed in that growth prospects of SCs and Muslims are affected by living in villages dominated by forward castes. However, all of this matters little for inclusive growth (as popularly measured); we speculate that the reason for that is that it is especially richer members of disadvantaged groups that are affected by the type of village they live in.

APPENDIX: GROWTH INCIDENCE CURVES

Table A1 about here

Table A2 about here

REFERENCES

Aitchison, J., and J. Brown (1957), *The Lognormal Distribution with Special Reference to Its Uses in Economics*, Cambridge: Cambridge University Press.

Alwang, J., B.F. Mills, and N. Taruvinga (2002), 'Changes in Well-being in Zimbabwe, 1990-6: Evidence Using Semi-parametric Density Estimates,' *Journal of African Economies* 11, 326-364.

Baulch, B. and J. Hoddinott (2000), 'Economic Mobility and Poverty Dynamics in Developing Countries,' *Journal of Development Studies* 36(6), 1-24.

Banerjee, Biswajit and John B. Knight (1985): Caste discrimination in the Indian labour market, *Journal of Development Economics*, 17, 277-307.

Bigsten, A., B. Kebede, A. Shimeles, and M. Taddesse (2003), 'Growth and Poverty Reduction in Ethiopia: Evidence from Household Panel Surveys,' *World Development* 31, 87-106.

Bourguignon, F. (2003), 'The Growth Elasticity of Poverty Reduction: Explaining Heterogeneity across Countries and Time Periods,' pp 3-26 in: T.S. Eicher and S.J. Turnovsky (eds.), *Inequality and Growth: Theory and Policy Implications*, Cambridge, Mass., London: MIT Press.

Contreras, D. (2003), 'Poverty and Inequality in a Rapid Growth Economy: Chile 1990-96,' *Journal of Development Studies* 39, 181-200.

Das, M. B. (2006): 'Do Traditional Axes of Exclusion Affect Labour Market Outcomes in India?'.

Datt, G. and M. Ravallion (1992), 'Growth and Redistribution Components of Changes in Poverty Measures: A Decomposition with Applications to Brazil and India in the 1980s,' *Journal of Development Economics* 38, 275-295.

Datt, G. and M. Ravallion (1998), 'Why Have Some Indian States Done Better than Others at Reducing Rural Poverty? *Economica* 65, 17-38.

Dercon, S. (2006), 'Economic Reform, Growth and the Poor: Evidence from Rural Ethiopia,' *Journal of Development Economics* 81(1), 1-24.

Deshpande, A. (2001), 'Caste at Birth? Redefining Disparity in India,' *Review of Development Economics*, 5(1), 130-44.

Dollar, D. and A. Kraay (2002), 'Growth is Good for the Poor,' *Journal of Economic Growth* 7, 195-225.

Dutta, P. V. (2006): 'Returns to Education: New Evidence for India, 1983-1999, *Education Economics*,14(4), 435-55.

Epaulard, A. (2003), 'Macroeconomic Performance and Poverty Reduction,' IMF Working Paper N^{o} 03/72.

Foster, J., J. Greer, and E. Thorbecke (1984), 'A Class of Decomposable Poverty Measures,' *Econometrica* 52, 761-765.

Gaiha, R. (1988), 'Income Mobility in Rural India,' *Economic Development and Cultural Change* 36(2), 279-302.

Gang, I. N, K. Sen and M. Yun (2008), Poverty in Rural India: Caste and Tribe', *Review of Income and Wealth*, 54 (1), 50-70.

Gibson, J. (2000), 'The Impact of Growth and Distribution on Poverty in Papua New Guinea,' *Applied Economics Letters* 7, 605-607.

Harriss-White, B. and E. Basile (2005): Dalit Accumulation and the Roles of Dalits in the Social Structure of Accumulation: With Reference to a Small Town Economy in South-India in the late 1990s, Paper presented at the Perspective Building Seminar: Towards Dignity: Access, Aspiration and Assertion, India International Centre, 21-22 December 2005.

Iversen, V. and Raghavendra, P.S. (2006): What the signboard hides: Food, caste and employability in small, South-Indian eating places, *Contributions to Indian Sociology*, 41(3), 311-41.

Kakwani, N. (1980), 'On a Class of Poverty Measures,' *Econometrica* 48, 437-446.

Kakwani, N. (1993), 'Poverty and Economic Growth with Application to Côte d'Ivoire,' *Review of Income and Wealth* 39, 121-139.
Kakwani, N. (2000), 'On Measuring Growth and Inequality Components of Poverty with Application to Thailand,' *Journal of Quantitative Economics* 16, 67-79.
Kakwani, N., S. Khandker, and H. H. Son (2003), 'Poverty Equivalent Growth Rate: With Applications to Korea and Thailand,' paper presented at the WIDER Conference on Inequality, Poverty and Human Well-being, Helsinki, 30-31 May.
Kakwani, N., S. Khandker, and H. H. Son (2004), 'Pro-poor Growth: Concepts and Measurement with Country Case Studies,' Working Paper 1, Brazilia: UNDP International Poverty Centre.
Kakwani, N., and E. Pernia (2000), 'What is Pro-poor Growth?' *Asian Development Review* 18, 1-16.
Kalwij, A. and A. Verschoor (forthcoming), 'Not by Growth Alone: The Role of the Distribution of Income in Regional Diversity in Poverty Reduction,' *European Economic Review*.
Kalwij, A., and A. Verschoor (2007), 'Globalization and Poverty Trends across Regions: The Role of Variation in the Income and Inequality Elasticities of Poverty,' pp. 94-117 (chapter 4) in M. Nissanke and E. Thorbecke (eds.) *The Impact of Globalization on the World's Poor: Transmission Mechanisms*, Basingstoke: Palgrave Macmillan.
Kijima, Yoko (2006): Caste and Tribe Inequality: Evidence from India, 1983-1999, *Economic Development and Cultural Change*, 54(2): 369-404.
Kingdon, Geeta K. (1998): Does the Labour Market Explain Lower Female Schooling in India? *Journal of Development Studies*, 35, No. 1: 39-65.
Kingdon, Geeta K. (2002): The gender gap in educational attainment in India: How much can be explained? Journal of Development Studies, 39, No. 2: 25-53.
Kolenikov, S., and A. Shorrocks (2005), 'A Decomposition Analysis of Regional Poverty in Russia,' *Review of Development Economics* 9, 25-46.
Kraay, A. (2004), 'When is Growth Pro-poor? Cross-country Evidence,' World Bank Policy Research Working Paper, WPS 3225.
Munshi, Kaivan and Mark R. Rosenzweig (2006): Traditional Institutions Meet the Modern World: Caste, Gender and Schooling Choice in a Globalizing Economy, *American Economic Review*, 96(4): 1225-51.
Lanjouw, P. and N. Stern (1991), 'Poverty in Palanpur,' *World Bank Economic Review* 5(1), 23-55.
Lanjouw, P. and N. Stern (1993), 'Agricultural Change and Inequality in Palanpur, 1975-84,' in K. Hoff, A. Braverman and J. Stiglitz (eds.), *The Economics of Rural Organization*, Oxford: Oxford University Press.
Mayer, Adrian (1997): Caste in an Indian village: Change and Continuity, 1954-1992. In Chris J. Fuller (ed.): Caste Today, *Oxford University Press*.
Nambissan, Geetha B. (1996): Equity in Education? The Schooling of Dalit Children in India, Discussion Paper Series no. 15, Studies of Human Development in India, Project of the United Nations Human Development Programme.
Palmer-Jones, R. and K. Sen (2003), 'What Has Luck Got To Do With It? A Regional Analysis of Poverty and Agricultural Growth in Rural India,' *Journal of Development Studies* 40, 1-31.
Parry, Jonathan (1999): Two cheers for reservation: The Satnamis and the Steel Plant, in Ramachandra Guha and Jonathan Parry (eds): Institutions and Inequalities: Essays in Honour of Andre Beteille, *Oxford University Press*, New Delhi.
Ravallion, M. (1997), 'Can High-Inequality Countries Escape Absolute Poverty?' *Economics Letters* 56, 51-57.
Ravallion, M. (2001), 'Growth, Inequality and Poverty: Looking Beyond Averages,' *World Development* 29, 1803-1815.
Ravallion, M. and G. Datt (2002), 'Why Has Economic Growth Been More Pro-poor in Some States of India than Others? *Journal of Development Economics* 68, 381-400.

Ravallion, M. and S. Chen (2003), 'Measuring Pro-poor Growth,' *Economics Letters* 78, 93-99.
Rosenzweig, M. (2003), 'Payoffs from Panels in Low-Income Countries: Economic Development and Economic Mobility,' *American Economic Review* 93(2), 112-117.
Shah, Ghanshyam, Harsh Mander, Sukhadeo Thorat, Satish Deshpande and Amita Baviskar (2006): Untouchability in rural India, Sage Publications, New Delhi.
Shorrocks, A. (1999), 'Decomposition Procedures for Distributional Analysis: A Unified Framework Based on the Shapley Value,' *mimeo*, University of Essex.
Swaminathan, M. (1991a), 'Measuring Mobility in Wealth: Some Estimates from a South Indian Village,' *Oxford Bulletin of Economics and Statistics* 53(2), 171-83.
Swaminathan, M. (1991b), 'Gainers and Losers: A Note on Land and Occupational Mobility in a South Indian Village, 1977-85,' *Development and Change* 22(2), 261-77.
Thorat, S. and P. Attewell (2007): 'The Legacy of Social Exclusion: A Correspondence Study of Job Discrimination in India,' *Economic and Political Weekly*, 42(41).
Toft Madsen, Stig (1991): Udupi hotels: A case of ethnicity based Non-Virulent Development, Paper presented at the First Nordic Conference on South-Asian studies, 11-13 October, Nordic Association for South-Asian Studies.
Tsui, K. (1996), 'Growth-equity Decomposition of a Change in Poverty: An Axiomatic Approach,' *Economics Letters* 50, 417-423.
Villasenor, J., and B.C. Arnold (1989), 'Elliptical Lorenz Curves,' *Journal of Econometrics* 40, 327-338.
Watts, H.W. (1968), 'An Economic Definition of Poverty,' in D.P. Moynihan (ed.), *On Understanding Poverty*, New York: Basic Books.
World Bank (1990), *World Development Report 1990: Poverty*, New York: Oxford University Press.
World Bank (2001), *World Development Report 2000/2001: Attacking Poverty*, New York: Oxford University Press.
World Bank (2005), *World Development Report 2006: Equity and Development*, New York: Oxford University Press.
Zheng, B. (1993), 'An Axiomatic Characterization of the Watts Index,' *Economics Letters* 42, 81-86.

Table 1: Annualised growth in real per capita household income by social group and region (%)

Social group	State clusters													
	north, poor & hard caste		north, better off and soft		north, better off hard		central, dynamic		south		others		Total	
	Mean	Med	Mean	Med	Mean	Med	Mean	Med	Mean	Med	Mean	Med	Mean	Med
Scheduled castes	-0.2	-0.7	3.3	3.4	1.6	1.5	0.9	0.7	0.9	0.4	-0.0	-0.6	1.3	1.2
Scheduled tribes	5.8*	8.5*	4.6*	5.9*	1.4	1.6	0.4	0.7	2.9	2.8	-0.6	-0.8	0.1	-0.2
High caste Hindus	0.5	0.4	4.8	4.5	2.5	2.4	-0.0	-0.2	0.3	-0.4	0.2	0.0	1.3	1.0
Muslims	0.3	0.1	1.4	1.6	1.9*	2.9*	1.3*	0.3*	4.2*	5.6*	-1.6	-2.3	0.9	0.6
Others	1.2*	1.2*	5.5	4.6	6.1	5.2	-0.9*	-1.6*	-0.3*	-1.6*			4.8	4.4
Total	0.3	0.1	4.0	3.7	2.2	2.2	0.2	0.1	0.7	-0.0	-0.1	-0.5	1.2	1.0

Notes: * means computed using less than 100 observations. State clusters are as follows. *North, poor and hard caste and other social divides*: Uttar Pradesh and Bihar. *North, better off and relatively soft caste and other divides*: West Bengal, Himachal Pradesh and Punjab. *North, better off and hard to intermediate caste and social divides*: Rajasthan and Haryana. *Central and economically dynamic and strong identity divides*: Gujarat and Maharashtra. *South*: Andhra Pradesh, Karnataka, Kerala and Tamil Nadu.

Source: HDPI-I ("round 1") and II ("round 2") surveys, panel households only; authors' calculations.

Table 2: FGT 0, 1 and 2 and Watts index by region and social group (1993/4 & 2004/5) using state-level poverty lines

Social groups/State clusters	Scheduled castes		Scheduled tribes		High caste Hindus		Muslims		Others		Total	
Poverty index	1993/4	2004/5	1993/4	2004/5	1993/4	2004/5	1993/4	2004/5	1993/4	2004/5	1993/4	2004/5
north, poor & hard caste												
FGT(0)(%)	46.88	54.69	50.00*	33.33*	32.77	35.85	36.57	40.57			37.48	41.86
FGT(1)(%)	17.30	19.74	31.63*	15.00*	12.27	12.38	9.60	12.64			13.09	14.38
FGT(2)(*100)	8.81	9.51	20.90*	8.15*	6.34	5.79	3.77	5.60			6.49	6.73
Watts index	25.55	28.07	53.52*	22.42*	18.16	17.37	12.52	17.22			19.02	20.16
north, better off and soft												
FGT(0)(%)	54.69	32.39	59.38*	28.13*	33.62	18.47	57.67	49.21	27.31	10.57	40.86	25.62
FGT(1)(%)	19.74	9.26	26.18*	10.86*	11.79	4.71	17.64	14.88	8.76	3.46	13.96	7.29
FGT(2)(*100)	9.51	3.86	14.72*	6.15*	5.73	1.82	7.31	6.69	3.88	1.49	6.53	3.07
Watts index	28.07	12.43	40.83*	16.65*	16.90	6.14	23.47	20.53	11.92	4.64	19.62	9.82
north, better off hard												
FGT(0)(%)	45.76	37.87	53.72	45.45	27.09	18.06	44.44*	27.78*	16.67*	5.56*	35.64	26.58
FGT(1)(%)	15.45	12.00	17.76	17.70	8.90	6.62	14.08*	9.67*	5.07*	1.85*	11.81	9.21
FGT(2)(*100)	6.91	5.26	7.60	9.06	4.05	3.38	6.05*	5.07*	1.90*	0.61*	5.28	4.44
Watts index	21.13	16.42	23.77	26.01	12.34	9.85	18.97*	14.91*	6.42*	2.25*	16.19	13.26
central, dynamic												
FGT(0)(%)	42.86	34.62	44.69	41.59	20.08	21.56	37.50*	37.50*		20.00*	27.58	27.16
FGT(1)(%)	13.68	10.82	15.14	14.61	6.68	6.67	13.25*	12.10 *		6.12*	9.18	8.72
FGT(2)(*100)	5.84	4.70	6.96	7.00	3.06	2.94	6.40*	5.73*		3.64*	4.17	3.95
Watts index	18.29	14.71	21.07	20.75	9.30	9.12	18.59*	17.00*		9.33*	12.70	12.06
South												
FGT(0)(%)	27.16	26.92	36.84*	5.26*	21.99	19.21	33.33*	17.65*	25.00*	29.17*	24.58	21.81
FGT(1)(%)	9.43	8.77	12.24*	0.02*	7.04	6.26	15.01*	4.86*	6.07*	9.03*	8.28	7.03
FGT(2)(*100)	4.59	4.01	5.60*	0.00*	3.24	2.85	8.17*	1.66*	2.64*	3.39*	3.95	3.17
Watts index	13.49	12.35	16.67*	0.02*	9.87	8.72	22.31*	5.99*	8.64*	11.41*	11.75	9.78
Others												
FGT(0)(%)	45.97	52.26	41.86	49.83	34.48	38.61	40.21	51.55*			38.75	44.49
FGT(1)(%)	16.18	19.03	13.73	17.92	12.08	12.94	12.10	21.33*			13.29	15.66
FGT(2)(*100)	7.80	9.06	6.39	8.63	5.72	5.99	5.06	10.97*			6.27	7.42
Watts index	23.12	26.76	19.32	25.50	17.04	18.06	16.33	31.27*			18.77	22.07
Total												
FGT(0)(%)	43.06	38.84	44.43	45.83	28.37	25.81	43.92	40.80	25.36	12.14	34.93	32.01
FGT(1)(%)	14.88	12.82	15.01	16.57	9.73	8.44	13.61	13.47	7.95	3.92	11.85	10.68
FGT(2)(*100)	6.99	5.823	7.00	8.07	4.60	3.88	5.87	6.32	3.50	1.67	5.54	14.96
Watts index	20.94	17.79	21.09	23.71	13.75	11.80	18.39	18.99	10.82	5.21	16.64	14.95

Notes and source are as for Table 1. State-level poverty lines and per capita income are used to compute the poverty indicators described in Section 2.

Table 3: Poverty transition matrices for social groups by region (%)

	Scheduled castes	Scheduled tribes	High caste Hindus	Muslims	Others	Total
north, poor & hard caste						
Nonpoor-nonpoor	22.9	33.3*	46.8	40.6	100.0*	39.0
Poor-nonpoor	22.4	33.3*	17.4	18.9*	0.0*	19.2
Nonpoor-poor	30.2	16.7*	20.4	22.9*	0.0*	23.5
Poor-poor	24.5	16.7*	15.4	17.7*	0.0*	18.3
north, better off and soft						
Nonpoor-nonpoor	38.8	31.3*	58.4	25.9*	65.6	48.8
Poor-nonpoor	28.8	40.6*	23.1	24.9*	23.8	25.6
Nonpoor-poor	12.7	9.4*	7.9	16.4*	7.0*	10.4
Poor-poor	19.6	18.8*	10.5	32.8	3.5*	15.2
north, better off hard						
Nonpoor-nonpoor	36.9	28.1*	62.0	42.2*	77.8*	50.9
Poor-nonpoor	25.2	26.4*	19.9	30.0*	16.7*	22.6
Nonpoor-poor	17.4	18.2*	10.9	13.3*	5.6*	13.5
Poor-poor	20.5	27.3*	7.2	14.4*	0.0*	13.1
central, dynamic						
Nonpoor-nonpoor	38.5	35.4	66.0	40.3*	80.0*	56.5
Poor-nonpoor	26.9*	23.0	12.5	22.2*	0.0*	16.4
Nonpoor-poor	18.7*	19.9*	14.0	22.2*	20.0*	15.9
Poor-poor	15.9*	21.7*	7.6	15.3*	0.0*	11.2
south						
Nonpoor-nonpoor	54.8	63.2*	63.3	54.9*	54.2*	59.8
Poor-nonpoor	18.3	31.6*	17.4	27.5*	16.7*	18.4
Nonpoor-poor	18.0	0.0*	14.7	11.8*	20.8*	15.6
Poor-poor	8.9*	5.3*	4.5*	5.9*	8.3*	6.2
others						
Nonpoor-nonpoor	26.3	35.9	43.9	38.1*		38.3
Poor-nonpoor	21.4	14.3	17.5	10.3*		17.2
Nonpoor-poor	27.7	22.3	21.6	21.6*		23.0
Poor-poor	24.6	27.6	17.0	29.9*		21.5
Total						
Nonpoor-nonpoor	36.7	34.6	56.5	38.6	63.2	48.1
Poor-nonpoor	24.6	20.0	17.3	22.4	23.1	20.0
Nonpoor-poor	19.7	19.7	15.6	18.2	9.2*	17.0
Poor-poor	19.1	25.7	10.7	20.8	4.5*	14.9

Notes: * means computed using less than 100 observations. State clusters are as described underneath Table 1. The first column designates households to one of four categories: not poor in either survey round ("nonnpoor – nonpoor"), poor in round 1 but has exited from poverty in round 2 ("poor – nonpoor"), not poor in the first round but has become poor in round 2 ("nonpoor – poor"), and poor in both rounds ("poor – poor"). State-level poverty lines and per capita income are used to compute the poverty headcount ratio.
Source: HDPI-I ("round 1") and II ("round 2") surveys, panel households only; authors' calculations.

Table 4: Growth and distribution components of changes in head count ratio (average effects) by region and social group

Social group	State clusters													
	north, poor & hard caste		north, better off and soft		north, better off hard		central, dynamic		South		others		Total	
	Growth	dist.	growth	dist.	growth	dist.	growth	dist.	growth	dist.	growth	dist.	growth	dist.
Scheduled castes	-24.48	32.29	-43.45	27.34	-37.57	29.68	-36.54	28.30	-29.93	29.69			-35.58	31.36
Scheduled tribes	-50.00*	33.33*	-51.56*	20.31*	-40.08	31.82	-33.41	30.31	-47.37	15.79			-32.85	34.25
High caste Hindus	-23.39	26.47	-38.17	23.01	-30.73	21.70	-21.83	23.31	-21.70	18.92			-27.49	24.93
Muslims	-28.00	32.00	-46.03	37.57	-35.56*	18.89*	-31.25*	31.25*	-43.14*	27.45*			-35.68	32.57
Others	-50.00*	50.00*	-34.80	18.06	-27.78	16.67	-15.00*	35.00*	-25.00*29.17	*			-33.21	20.00
Total	-25.65	30.03	-40.53	25.29	-34.58	25.52	-25.59	25.17	-24.75	21.98	-28.34	34.09	-31.08	28.16

Notes: * means computed using less than 100 observations. State clusters are as described underneath Table 1. The decomposition procedure entails taking the un-weighted average of effects obtained when holding the initial Lorenz curve constant, and those obtained when holding the final one constant (see Section 2).
Source: HDPI-I ("round 1") and II ("round 2") surveys, panel households only; authors' calculations.

Table 5: Poverty equivalent growth rates (Ravallion and Chen) by state cluster and social group (1993/4-2004/5) (%)

	State clusters				
Social groups	North, poor & hard caste	North, better off and soft	North, better off hard	Central, dynamic	South
Scheduled castes	72.4	24.9	61.3	74.3	7.5
Scheduled tribes	263.5	120.8	136.0	1.6	144.2
High caste Hindus	21.9	75.4	35.1	1.2	2.5
Muslims	-67.6	20.7	152.6	15.6	183.1
Others		90.5	319.6		-43.4

Notes: State clusters are as described underneath Table 1. The Ravallion and Chen pro-poor growth measure is described in Section 2.
Source: HDPI-I ("round 1") and II ("round 2") surveys, panel households only; authors' calculations.

Table 6: Poverty equivalent growth rates (Ravallion and Chen) by social group (1993/4-2004/5) (%)

Social groups	
Scheduled castes	30.7
Scheduled tribes	-52.5
High caste Hindus	36.1
Muslims	-5.7
Others	92.9
Total	20.3

Note: The Ravallion and Chen pro-poor growth measure is described in Section 2
Source: HDPI-I ("round 1") and II ("round 2") surveys, panel households only; authors' calculations.

Table 7: Poverty equivalent growth rates (Ravallion and Chen) by state cluster (1993/4-2004/5) (%)

State clusters	
North, poor & hard caste	-52.9
North, better off and soft	71.0
North, better off hard	29.4
Central, dynamic	-613.6
South	216.4
Others	-192.5

Notes: State clusters are as described underneath Table 1. The Ravallion and Chen pro-poor growth measure is described in Section 2.
Source: HDPI-I ("round 1") and II ("round 2") surveys, panel households only; authors' calculations.

Table 8: Mean annual per capita real income growth (%) by social group for various village types

Village type →	Numerically dominant			Political and economic majority			All
	Advantaged group	Forward caste	Own group	Advantaged group	Forward caste	Own group	
Scheduled castes	0.85	1.16	2.50	1.17	1.86	4.53	1.21
Scheduled tribes	0.32	*1.06*	0.46	0.04	*1.32*	*-0.19*	0.48
Muslims	0.35	*0.98*	2.15	*0.12*	*-1.04*	3.00	1.15
Upper-caste Hindus	1.20	1.03	1.05	1.38	1.65	1.05	1.30
Other	4.38	5.29	4.83	4.97	5.40	5.18	4.15
All	1.25	1.59	1.32	1.51	2.11	1.32	1.32

Notes: Figures in italics are based on N < 100. 'Advantaged group' is non-SC, ST, Muslim; 'forward caste' refers to locally relevant categories, as described in Section 3; 'own group' refers to the row-specific social group. Groups are 'numerically dominant' when they are the largest group in the village, and have a 'political and economic majority' when they constitute more than 50 percent of its population *and* own more than 50 percent of its land.
Source: HDPI-I ("round 1") and II ("round 2") surveys, panel households only; authors' calculations.

Table 9: Determinants of (log) per capita income,
Random-effects GLS regression

Village effects:	**Largest group ("numerically dominant")**	**Majority in population ("political majority")**	**Majority of land owned ("economic majority")**	**Majority in population & majority of land owned**
Intercept	8.263*** (0.116)	8.304*** (0.116)	8.235*** (0.113)	8.298*** (0.116)
Round	0.208*** (0.022)	0.206*** (0.022)	0.206*** (0.022)	0.205*** (0.022)
Social group (relative to "upper-caste Hindus")				
Scheduled Castes (SC)	-0.078** (0.039)	-0.064*** (0.019)	-0.058*** (0.020)	-0.069*** (0.018)
Scheduled Tribes (ST)	-0.026 (0.050)	-0.112*** (0.031)	-0.087*** (0.034)	-0.116*** (0.030)
Muslims	0.088* (0.051)	0.031 (0.036)	0.056 (0.037)	0.033 (0.035)
Others	0.127** (0.059)	0.120*** (0.034)	0.131*** (0.046)	0.102*** (0.036)
Social composition of village				
Respective groups are/have:	Numerically dominant	Political majority	Economic majority	Political and economic majority
Villages dominated by advantaged (≠ SC, ST, Muslims) groups: AG village				
AG village = 1	0.015 (0.043)	-0.006 (0.060)	0.007 (0.052)	-0.005 (0.062)
Social group (relative to "upper-caste Hindus")				
SC in AG village	0.041 (0.050)	0.012 (0.062)	0.036 (0.052)	0.032 (0.061)
ST in AG village	-0.032 (0.070)	0.048 (0.101)	0.026 (0.079)	0.056 (0.105)
Muslims in AG village	-0.072 (0.084)	0.088 (0.148)	0.111 (0.112)	0.104 (0.154)
Others in AG village	0.032 (0.086)	-0.046 (0.103)	-0.080 (0.088)	-0.051 (0.107)
Villages dominated by a forward caste with locally the highest status: LFC village				
LFC village = 1	0.161*** (0.046)	0.106 (0.069)	0.214*** (0.058)	0.141** (0.071)
Social group (relative to "upper-caste Hindus")				
SC in LFC village	-0.115** (0.052)	-0.063 (0.069)	-0.112* (0.060)	-0.088 (0.068)
ST in LFC village	-0.077 (0.083)	-0.021 (0.134)	-0.065 (0.107)	-0.037 (0.137)
Muslims in LFC village	-0.095 (0.088)	-0.221 (0.161)	-0.288** (0.125)	-0.271 (0.167)
Others in LFC village	-0.145 (0.097)	0.062 (0.084)	-0.190 (0.143)	0.031 (0.091)
Villages dominated by own group				
Social group (relative to "upper-caste Hindus")				
SC in SC village	0.032 (0.052)	-0.019 (0.087)	0.061 (0.085)	0.043 (0.085)
ST in ST village	-0.086 (0.061)	-0.013 (0.066)	-0.009 (0.067)	0.002 (0.070)
Muslims in Muslim	-0.124*	-0.134	-0.133*	-0.128

village	(0.070)	(0.085)	(0.079)	(0.083)
Upper-caste Hindus (UCH) in UCH village	0.013 (0.039)	0.039 (0.060)	0.061 (0.052)	0.053 (0.063)
Others in Others village	-0.050 (0.100)	-0.122 (0.085)	0.081 (0.144)	-0.075 (0.094)
Demographic controls				
Age household head	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)
Age squared	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Dependency ratio	-0.769*** (0.049)	-0.766*** (0.049)	-0.768*** (0.048)	-0.766*** (0.048)
Number of boys 0-10	-0.059*** (0.007)	-0.058*** (0.007)	-0.058*** (0.006)	-0.058*** (0.007)
Number of girls 0-10	-0.052*** (0.006)	-0.052*** (0.006)	-0.052*** (0.006)	-0.052*** (0.006)
Number of boys 11-15	-0.031*** (0.009)	-0.031*** (0.009)	-0.031*** (0.009)	-0.031*** (0.009)
Number of girls 11-15	-0.058*** (0.009)	-0.058*** (0.009)	-0.059*** (0.009)	-0.059*** (0.009)
Number of older (>60) household members	0.015 (0.036)	0.017 (0.036)	0.020 (0.035)	0.017 (0.036)
Number of men	-0.106*** (0.036)	-0.105*** (0.036)	-0.103*** (0.036)	-0.106*** (0.036)
Number of women	-0.133*** (0.036)	-0.131*** (0.036)	-0.127*** (0.035)	-0.131*** (0.036)
Education				
Number of males in household:				
Illiterate	-0.056 (0.037)	-0.056 (0.037)	-0.059 (0.036)	-0.055 (0.037)
Literate, below primary	-0.055 (0.037)	-0.055 (0.037)	-0.057 (0.037)	-0.055 (0.037)
Literate, below secondary	-0.016 (0.037)	-0.017 (0.038)	-0.018 (0.037)	-0.016 (0.037)
Literate, secondary	0.048 (0.037)	0.051 (0.037)	0.046 (0.037)	0.052 (0.037)
Literate, higher secondary	0.072* (0.038)	0.071* (0.038)	0.072* (0.038)	0.073* (0.038)
Literate, graduate and above	0.128*** (0.040)	0.127*** (0.040)	0.124*** (0.040)	0.128*** (0.040)
Number of females in household:				
Illiterate	-0.032 (0.037)	-0.032 (0.037)	-0.038 (0.036)	-0.033 (0.037)
Literate, below primary	-0.011 (0.038)	-0.013 (0.037)	-0.018 (0.037)	-0.013 (0.037)
Literate, below secondary	0.041 (0.039)	0.039 (0.039)	0.034 (0.038)	0.038 (0.039)
Literate, secondary	0.080** (0.039)	0.079** (0.039)	0.073* (0.039)	0.079** (0.039)
Literate, higher secondary	0.118*** (0.042)	0.118*** (0.042)	0.110*** (0.042)	0.117*** (0.042)
Literate, graduate and above	0.102** (0.047)	0.101** (0.048)	0.098** (0.047)	0.101** (0.048)

Occupation				
Number of males in household:				
Self-employed (agriculture)	0.024** (0.012)	0.026** (0.012)	0.024** (0.012)	0.025** (0.012)
Casual/low-wage workers	0.106*** (0.012)	0.105*** (0.012)	0.106*** (0.012)	0.106*** (0.012)
Self-employed (non-agriculture)	0.266*** (0.015)	0.264*** (0.014)	0.265*** (0.014)	0.263*** (0.014)
Salaried employment	0.427*** (0.016)	0.429*** (0.016)	0.429*** (0.016)	0.428*** (0.016)
Number of females in household:				
Self-employed (agriculture)	0.018 (0.012)	0.019 (0.012)	0.018 (0.012)	0.019* (0.012)
Casual/low-wage workers	0.083*** (0.011)	0.083*** (0.011)	0.084*** (0.011)	0.083*** (0.011)
Self-employed (non-agriculture)	-0.034 (0.025)	-0.032 (0.025)	-0.036 (0.025)	-0.033 (0.025)
Salaried employment	0.111*** (0.037)	0.106*** (0.037)	0.107*** (0.036)	0.105*** (0.037)
Number of children (6-14) working	0.027* (0.016)	0.028* (0.016)	0.027* (0.016)	0.027* (0.016)
Land				
Log land owned (acres)	0.254*** (0.016)	0.253*** (0.016)	0.254*** (0.016)	0.253*** (0.016)
Log land cropped (acres)	0.054*** (0.009)	0.053*** (0.009)	0.054*** (0.009)	0.054*** (0.009)
Log land irrigated (acres)	0.116*** (0.009)	0.117*** (0.009)	0.116*** (0.009)	0.117*** (0.009)
State clusters (relative to "Central and dynamic States")				
North, poor & hard social divides	-0.012 (0.042)	-0.042 (0.042)	0.003 (0.040)	-0.032 (0.042)
North, better-off & soft social divides	0.157*** (0.038)	0.140*** (0.039)	0.163*** (0.037)	0.140*** (0.038)
North, better off & hard social divides	0.115*** (0.038)	0.104*** (0.039)	0.130*** (0.037)	0.107*** (0.039)
South	0.092** (0.043)	0.073* (0.043)	0.121*** (0.042)	0.082* (0.043)
Others	-0.127*** (0.035)	-0.154*** (0.036)	-0.115*** (0.035)	-0.147*** (0.036)
Village infrastructure				
Log of village population	0.013 (0.012)	0.014 (0.012)	0.015 (0.012)	0.014 (0.012)
Access to schools	0.019*** (0.007)	0.020*** (0.007)	0.020*** (0.007)	0.020*** (0.007)
Distance to trained doctor	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
Access to clinic	-0.017 (0.024)	-0.019 (0.025)	-0.019 (0.024)	-0.019 (0.025)
Access to roads	0.058*** (0.019)	0.063*** (0.019)	0.059*** (0.018)	0.061*** (0.019)
Bus stop	0.049** (0.025)	0.050** (0.025)	0.047* (0.025)	0.050** (0.025)
Railway station	0.088*** (0.033)	0.087*** (0.033)	0.079** (0.033)	0.084** (0.033)

Post office	0.027 (0.023)	0.028 (0.023)	0.022 (0.022)	0.029 (0.023)
Bank	-0.031 (0.024)	-0.031 (0.024)	-0.032 (0.024)	-0.032 (0.024)
Market	-0.020 (0.021)	-0.026 (0.021)	-0.018 (0.021)	-0.025 (0.021)
Joint significance tests:				
AG village social effects	No	No	No	No
LFC village social effects	No	No	No	No
Own group village social effects	No	No	No	No
Village infrastructure effects	Yes***	Yes***	Yes***	Yes***
R squared	0.4404	0.4380	0.4426	0.4387
N	18,502	18,502	18,502	18,502

Notes: Dependent variable is the natural logarithm of monthly per capita household income. Standard errors are in parentheses and robust to heteroskedasticity and clustering within villages. ***, ** and * denote significance at 1, 5 and 10 percent level, respectively.
Source: HDPI-I ("round 1") and II ("round 2") surveys, panel households only; authors' calculations.

Table 10: Determinants of change in (log) per capita income,
Linear regression

Village effects:	**Largest group ("numerically dominant")**	**Majority in population ("political majority")**	**Majority of land owned ("economic majority")**	**Majority in population & majority of land owned**
Intercept	0.816*** (0.167)	0.839*** (0.161)	0.836*** (0.157)	0.837*** (0.159)
Social group (relative to "upper-caste Hindus")				
Scheduled Castes (SC)	0.003 (0.064)	-0.090*** (0.033)	-0.050 (0.034)	-0.064** (0.031)
Scheduled Tribes (ST)	-0.037 (0.101)	-0.072 (0.050)	-0.078 (0.053)	-0.058 (0.047)
Muslims	-0.087 (0.079)	-0.049 (0.060)	-0.050 (0.063)	-0.039 (0.059)
Others	0.086 (0.130)	0.155** (0.069)	0.159 (0.100)	0.219*** (0.075)
Social composition of village				
Respective groups are/have:	Numerically dominant	Political majority	Economic majority	Political and economic majority
Villages dominated by advantaged (≠ SC, ST, Muslims) groups: AG village				
AG village = 1	0.082 (0.069)	-0.004 (0.104)	0.009 (0.088)	-0.005 (0.106)
Social group (relative to "upper-caste Hindus")				
SC in AG village	-0.208** (0.089)	0.064 (0.110)	-0.099 (0.102)	-0.011 (0.111)
ST in AG village	-0.201 (0.127)	-0.099 (0.145)	-0.082 (0.120)	-0.116 (0.148)
Muslims in AG village	-0.067 (0.123)	0.173 (0.160)	0.054 (0.144)	0.164 (0.163)
Others in AG village	-0.115 (0.165)	0.027 (0.207)	-0.046 (0.187)	-0.019 (0.225)
Villages dominated by a forward caste with locally the highest status: LFC village				
LFC village = 1	-0.141** (0.069)	-0.054 (0.109)	-0.060 (0.091)	-0.023 (0.112)
Social group (relative to "upper-caste Hindus")				
SC in LFC village	0.201** (0.084)	0.094 (0.122)	0.169 (0.110)	0.116 (0.127)
ST in LFC village	0.153 (0.154)	0.196 (0.216)	0.212 (0.197)	0.178 (0.224)
Muslims in LFC village	0.065 (0.169)	-0.378* (0.197)	-0.063 (0.192)	-0.420** (0.200)
Others in LFC village	0.227 (0.207)	0.022 (0.272)	0.349** (0.168)	0.454** (0.198)
Villages dominated by own group				
Social group (relative to "upper-caste Hindus")				
SC in SC village	0.044 (0.073)	0.237*** (0.073)	0.284*** (0.089)	0.304*** (0.088)
ST in ST village	-0.075 (0.114)	-0.106 (0.107)	-0.087 (0.111)	-0.131 (0.114)
Muslims in Muslim village	0.280*** (0.102)	0.320*** (0.082)	0.301*** (0.083)	0.318*** (0.081)
Upper-caste Hindus	-0.103*	-0.029	-0.020	-0.009

(UCH) in UCH village	(0.061)	(0.103)	(0.087)	(0.106)
Others in Others village	0.220 (0.196)	0.255 (0.271)	-0.041 (0.173)	-0.221 (0.205)
Demographic controls				
Age household head	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
Change in dependency ratio	-0.796*** (0.060)	-0.793*** (0.060)	-0.797*** (0.060)	-0.797*** (0.060)
Change in number of boys 0-10	-0.060*** (0.009)	-0.061*** (0.009)	-0.061*** (0.009)	-0.061*** (0.009)
Change in number of girls 0-10	-0.048*** (0.008)	-0.048*** (0.008)	-0.048*** (0.008)	-0.048*** (0.008)
Change in number of boys 11-15	-0.052*** (0.012)	-0.051*** (0.012)	-0.051*** (0.012)	-0.051*** (0.012)
Change in number of girls 11-15	-0.066*** (0.013)	-0.066*** (0.013)	-0.065*** (0.013)	-0.066*** (0.013)
Change in number of older (>60) household members	0.000 (0.051)	0.003 (0.052)	0.002 (0.051)	0.000 (0.052)
Change in number of men	-0.129** (0.052)	-0.128** (0.053)	-0.126** (0.053)	-0.127** (0.053)
Change in number of women	-0.146*** (0.049)	-0.141*** (0.050)	-0.143*** (0.050)	-0.145*** (0.050)
Education				
Change in number of males in household:				
Illiterate	-0.028 (0.053)	-0.031 (0.053)	-0.030 (0.053)	-0.028 (0.053)
Literate, below primary	-0.033 (0.053)	-0.034 (0.054)	-0.035 (0.054)	-0.033 (0.054)
Literate, below secondary	-0.024 (0.053)	-0.026 (0.054)	-0.027 (0.053)	-0.026 (0.054)
Literate, secondary	0.045 (0.054)	0.042 (0.054)	0.042 (0.054)	0.044 (0.054)
Literate, higher secondary	0.053 (0.054)	0.050 (0.054)	0.050 (0.054)	0.052 (0.054)
Literate, graduate and above	0.089 (0.057)	0.089 (0.057)	0.087 (0.057)	0.089 (0.057)
Change in number of females in household:				
Illiterate	-0.016 (0.050)	-0.012 (0.051)	-0.017 (0.051)	-0.016 (0.051)
Literate, below primary	-0.007 (0.051)	-0.012 (0.052)	-0.008 (0.052)	-0.007 (0.052)
Literate, below secondary	0.006 (0.051)	0.003 (0.052)	0.006 (0.052)	0.007 (0.052)
Literate, secondary	0.054 (0.054)	0.052 (0.055)	0.052 (0.055)	0.053 (0.055)
Literate, higher secondary	0.069 (0.057)	0.062 (0.057)	0.066 (0.057)	0.065 (0.057)
Literate, graduate and above	0.008 (0.064)	0.005 (0.065)	0.003 (0.065)	0.006 (0.065)
Occupation				
Change in number of males in household:				
Self-employed (agriculture)	0.035** (0.014)	0.033** (0.014)	0.034** (0.014)	0.033** (0.014)

Casual/low-wage workers	0.127*** (0.015)	0.125*** (0.015)	0.126*** (0.015)	0.125*** (0.015)
Self-employed (non-agriculture)	0.246*** (0.021)	0.245*** (0.021)	0.244*** (0.021)	0.244*** (0.021)
Salaried employment	0.279*** (0.021)	0.280*** (0.021)	0.279*** (0.021)	0.279*** (0.021)
Change in number of females in household:				
Self-employed (agriculture)	0.060*** (0.014)	0.058*** (0.014)	0.059*** (0.014)	0.059*** (0.014)
Casual/low-wage workers	0.123*** (0.013)	0.122*** (0.013)	0.122*** (0.013)	0.123*** (0.013)
Self-employed (non-agriculture)	-0.009 (0.033)	-0.011 (0.033)	-0.010 (0.033)	-0.011 (0.033)
Salaried employment	0.108*** (0.040)	0.112*** (0.041)	0.114*** (0.041)	0.111*** (0.040)
Change in number of children (6-14) working	0.045** (0.019)	0.044** (0.019)	0.044** (0.019)	0.043** (0.019)
Land				
Change in log land owned (acres)	0.249*** (0.019)	0.251*** (0.020)	0.250*** (0.019)	0.250*** (0.019)
Change in log land cropped (acres)	0.086*** (0.011)	0.083*** (0.011)	0.084*** (0.011)	0.083*** (0.011)
Change in log land irrigated (acres)	0.074*** (0.010)	0.075*** (0.010)	0.074*** (0.010)	0.074*** (0.010)
Village infrastructure				
Log of village population	-0.078*** (0.021)	-0.083*** (0.021)	-0.084*** (0.021)	-0.084*** (0.021)
Access to schools	-0.006 (0.010)	-0.006 (0.010)	-0.005 (0.010)	-0.005 (0.010)
Distance to trained doctor	-0.001 (0.002)	-0.000 (0.002)	-0.000 (0.002)	-0.000 (0.002)
Access to clinic	0.109*** (0.039)	0.109*** (0.039)	0.105*** (0.040)	0.106*** (0.039)
Access to roads	0.038 (0.028)	0.034 (0.028)	0.038 (0.028)	0.035 (0.028)
Bus stop	-0.017 (0.040)	-0.010 (0.041)	-0.015 (0.040)	-0.015 (0.041)
Railway station	-0.011 (0.058)	-0.015 (0.057)	-0.023 (0.058)	-0.023 (0.058)
Post office	-0.025 (0.043)	-0.018 (0.043)	-0.014 (0.043)	-0.013 (0.043)
Bank	0.106*** (0.036)	0.102*** (0.036)	0.102*** (0.036)	0.103*** (0.036)
Market	-0.006 (0.032)	0.001 (0.032)	0.006 (0.032)	0.008 (0.032)
Joint significance tests:				
AG village social effects	No	No	No	No
LFC village social effects	No	No	No	Yes***
Own group village social effects	Yes**	Yes***	Yes***	Yes***
Village infrastructure effects	Yes***	Yes***	Yes***	Yes***

R squared	0.2862	0.2859	0.2854	0.2856
N	9,251	9,251	9,251	9,251

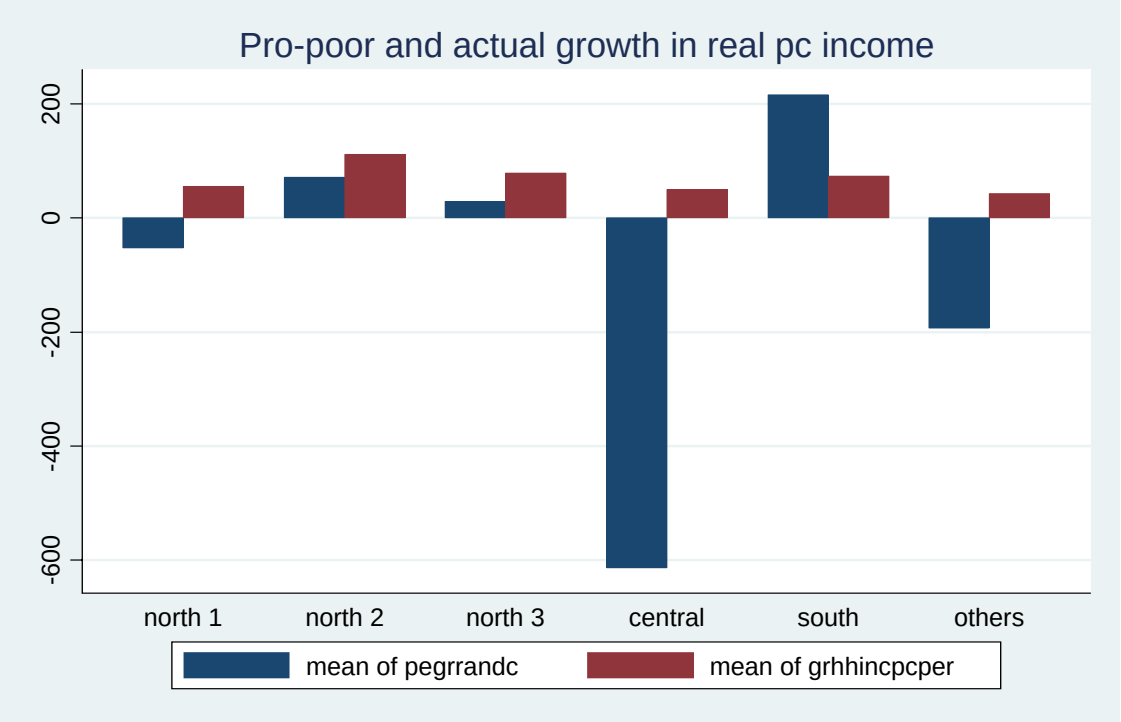
Notes: Dependent variable is the change in the natural logarithm of monthly per capita household income. Standard errors are in parentheses and robust to heteroskedasticity and clustering within villages. ***, ** and * denote significance at 1, 5 and 10 percent level, respectively.
Source: HDPI-I ("round 1") and II ("round 2") surveys, panel households only; authors' calculations.

Table 11: Decomposition of Ravallion and Chen's PPG measure

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)0
	Overall contribution to PPG:	Relative contribution (Col. 1 = 100%) to PPG of:						Proportionate presence in the sample		
		Still poor	Now poor	No longer poor	Living in LFC-dominated village	Living in own-group dominated village (a)	Living in own-group dominated village (b)	Living in LFC-dominated villages	Living in own-group dominated villages	All
Scheduled Castes	30.09	19.68	-377.39	257.71	-7.13	-2.09	5.05	6.75	6.36	23.61
Scheduled Tribes	14.11	21.38	-281.99	160.61	-2.10	-29.23	-	2.16	31.40	10.52
Muslims	8.32	25.14	-354.63	229.49	-4.26	-15.84	22.70	4.08	19.42	7.29
Upper-caste Hindus	45.81	11.51	-316.67	205.15	-8.71	-15.10	-	12.94	15.46	53.58
Others	1.66	5.29	-154.89	49.60	11.79	7.81	-	29.55	32.79	4.99
All	100	15.57	-322.21	206.63	-6.59	-12.86	5.11	10.53	16.14	100

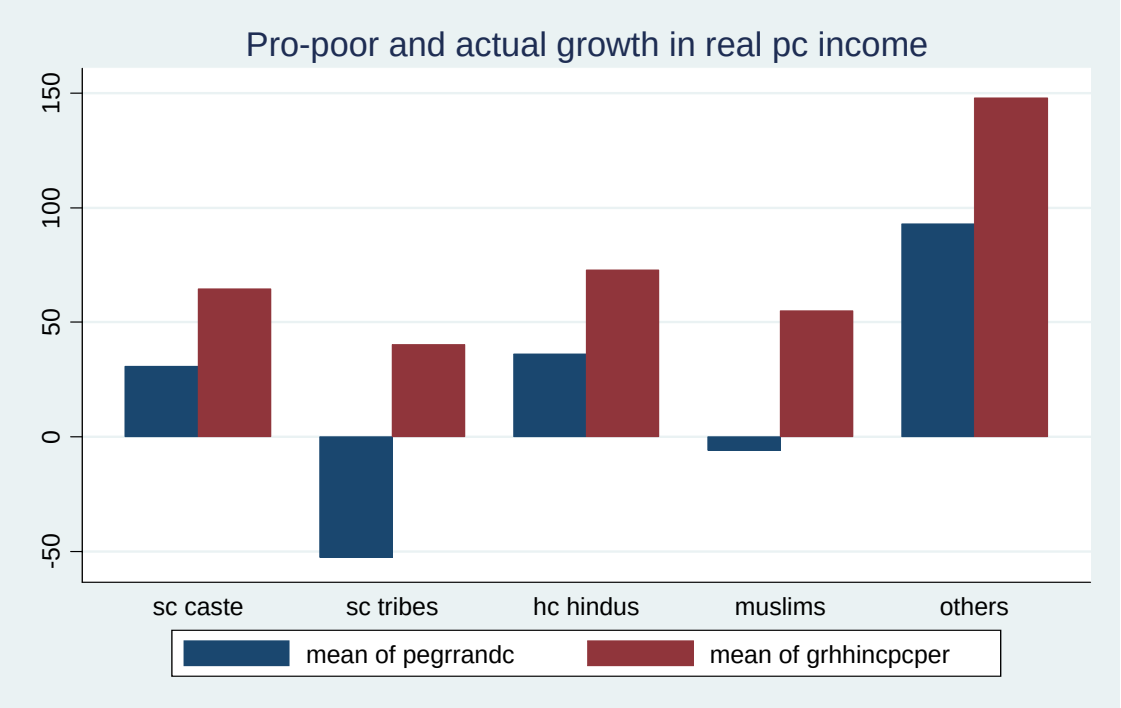
Notes: All figures are percentages, and the percentages in rows (2), (3) and (4) sum to minus 100 percent; those in columns (1) to (7) are computed using Eq. (8) and all coefficients significant at the 10 percent level in regression (3) in Table 10, with the exception of Column (7), which uses significant social interaction terms only, as explained in the main text. LFC-dominated villages are villages in which forward castes with locally the highest status own the majority of the land and constitute the majority of the population; own-group dominated villages are dominated in the same sense by the groups named in the rows of the table.
Source: HDPI-I ("round 1") and II ("round 2") surveys, panel households only; authors' calculations.

Figure 1: Poverty equivalent and actual growth rates (Ravallion & Chen) of household real income per capita by state clusters (1993/4-2004/5) (%)



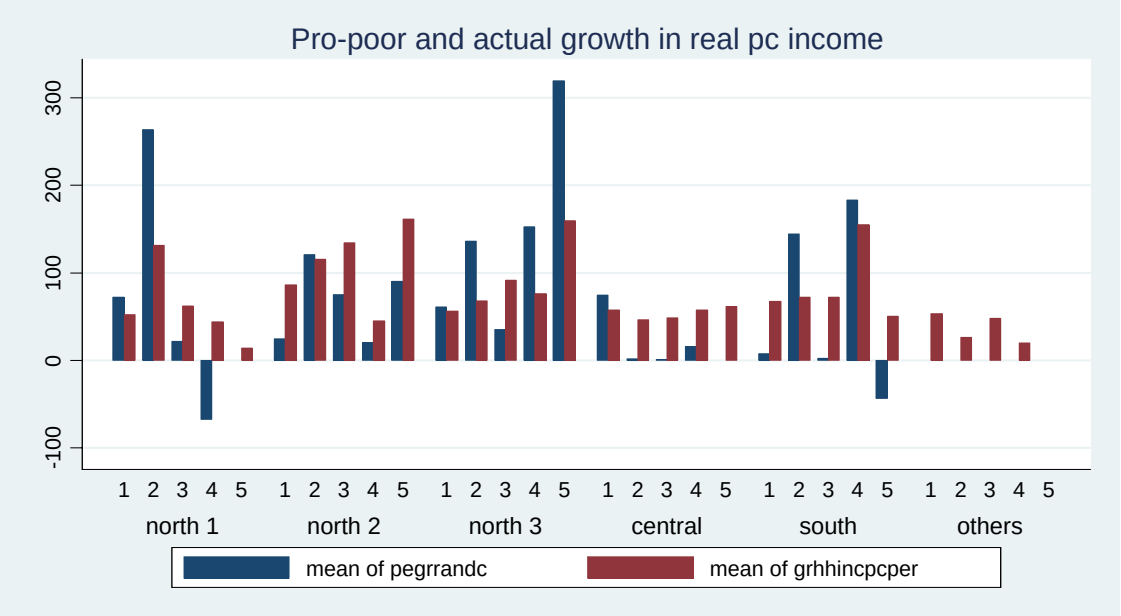
Notes: The Ravallion and Chen measure (pegrrandc) is described in Section 2. North 1 = North, poor and hard caste and other social divides. North 2 = North, better off and relatively soft caste and other divides. North 3 = North, better off and hard to intermediate caste and social divides. Central = Central and economically dynamic and strong identity divides. State clusters are as described underneath Table 1.
Source: HDPI-I ("round 1") and II ("round 2") surveys, panel households only; authors' calculations.

Figure 2: Poverty equivalent and actual growth rates (Ravallion & Chen) of household real income per capita by social group (1993/4-2004/5)(%)

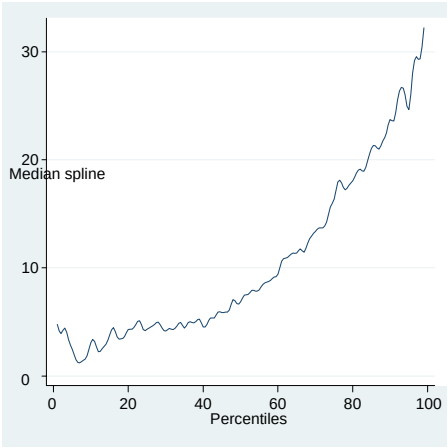


Note: The Ravallion and Chen measure (pegrrandc) is described in Section 2.
Source: HDPI-I ("round 1") and II ("round 2") surveys, panel households only; authors' calculations.

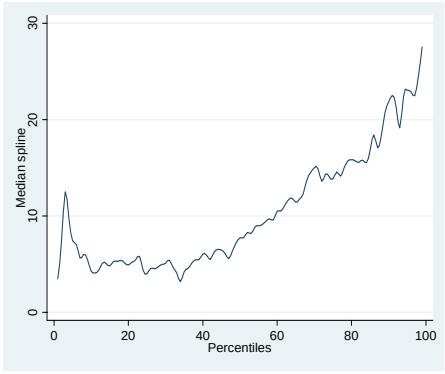
Figure 3: Poverty equivalent (Ravallion & Chen) and actual growth rates of household real income per capita by state cluster and social group (1993/4-2004/5) (%)



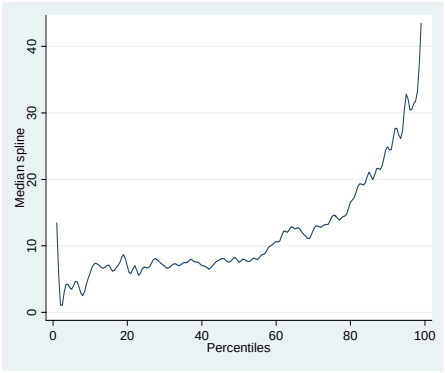
Notes: The Ravallion and Chen measure (pegrrandc) is described in Section 2. North 1 = North, poor and hard caste and other social divides. North 2 = North, better off and relatively soft caste and other divides. North 3 = North, better off and hard to intermediate caste and social divides. Central = Central and economically dynamic and strong identity divides. State clusters are as described underneath Table 1. 1 = Scheduled Castes; 2 = Scheduled Tribes; 3 = Muslims; 4 = upper-caste Hindus; 5 = Others.
Source: HDPI-I ("round 1") and II ("round 2") surveys, panel households only; authors' calculations.



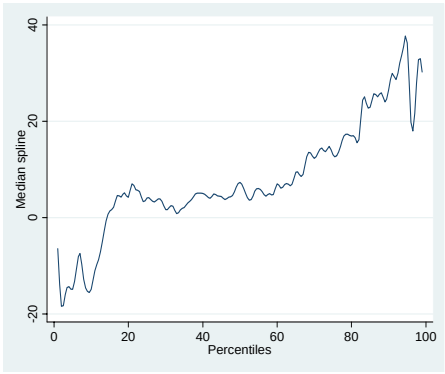
Whole sample



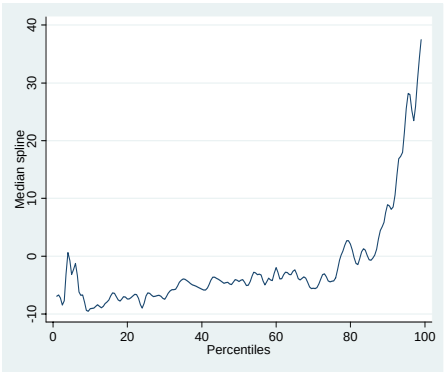
High caste Hindus



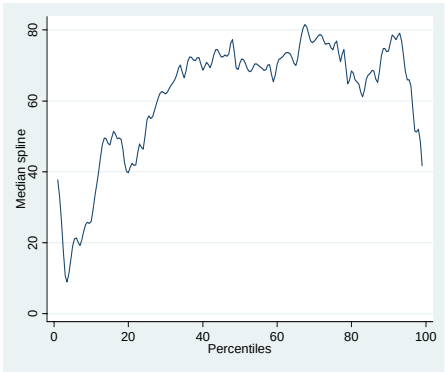
Scheduled castes



Muslims

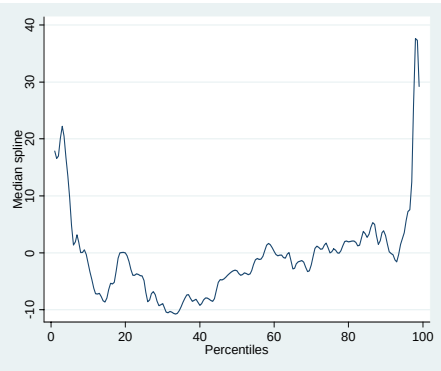


Scheduled tribes

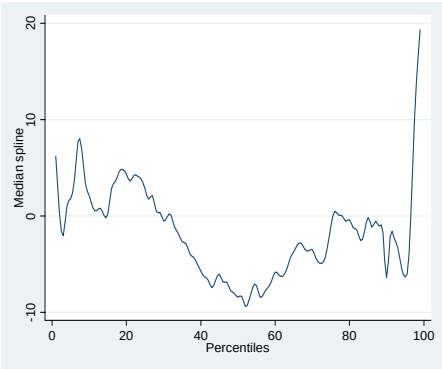


Other social groups

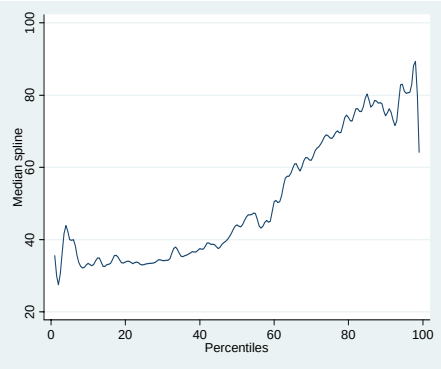
Figure A1: Growth incidence curves for social groups



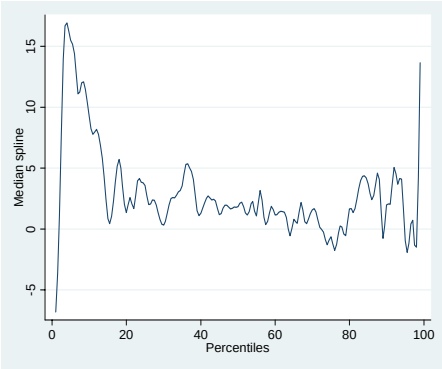
State cluster 1



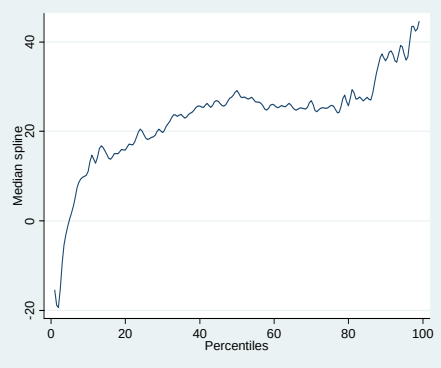
State cluster 4



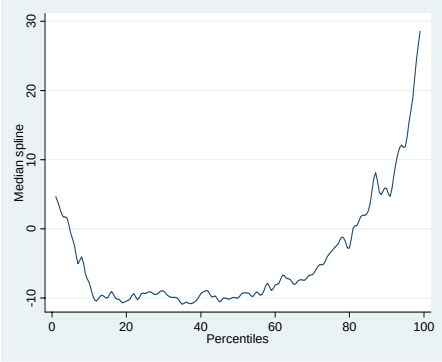
State cluster 2



State cluster 5



State cluster 3



State cluster 6

Figure A2: Growth incidence curves for different state clusters