Income inequality in village India: The role of caste

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Abstract

In this paper, we examine the role of caste in understanding inequality in incomes in rural India using a unique data set comprising household data from a cross-section of eight villages across four states. The focus of this paper is on Dalit or Scheduled Caste households. We begin with very simple measures of differences between groups, such as proportional representation in different quintiles, and the frequency distribution of households across incomes levels in different social groups. We, then, estimate a standard GE (2) inequality index along with its decomposition by caste. Lastly, we compute an alternative benchmark for assessing the share of between group inequality in total inequality as suggested by Elbers, Lanjouw, Mistiaen and Ozler (ELMO 2008).

Keywords: Income, Between-Group Inequality, Caste, India, Village
JEL classification: D31, O15

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1 Introduction

There is a very thin literature on income inequality in India, since most studies of so-called income inequality actually deal with expenditure inequality. The few available studies of income inequality indicate that levels of inequality are quite high in rural India. Indeed, there are only a handful of studies that actually look at income inequality in rural India, most of which draw upon multi-state sample surveys conducted by the National Council of Applied Economic Research. Based on the NCAER data, Azam and Shariff (2009) estimate that the Gini coefficient for rural incomes rose from 0.46 in 1993-94 to 0.50 in 2004-05. Using the same data set, Vanneman and Dubey (2010) indicate that the Gini coefficient for rural incomes was 0.54 in 2004-05.[1] There are some serious problems with the quality and reliability of data on household incomes in the NCAER surveys, particularly the 1993 survey. Nevertheless, these studies give us a rough order of magnitude of income inequality at the national level. In addition, smaller surveys indicate extremely high levels of income inequality (Swaminathan and Rawal 2011).

We also know that caste continues to play a significant role in economic life in village India, and specifically that persons belonging to the Scheduled Castes (also termed Dalit) face discrimination and are disadvantaged in respect of social and economic attainments. There is both theoretical and empirical work on the discrimination of Dalit households relative to other caste and social groups (Thorat 2009). In terms of economic status, however, most of the literature has focused on differences in consumption expenditure, and poverty defined on the basis of per capita consumption, as between Dalits or Scheduled Castes, Scheduled Tribes and all others.[2]

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[1]   See, also, Desai et. al. (2010).
[2]   See, for example, Thorat (2009), Saggar and Pan, Kijima (2006), and Deshpande (2000), among others. In the literature, it is quite common for expenditure inequality to be termed income inequality (e.g. Deshpande 2000).

In this paper, we examine the role of caste in observed inequality in incomes in rural India using a unique data set comprising household data from a cross-section of eight villages across four states.[3] The specific focus of the paper is on Dalit or Scheduled Caste households.

2 Data Set

The income data used in this paper come from the Project on Agrarian Relations, a project to study village economies in different agro-ecological regions of India.[4] Between 2005 and 2007, household surveys were undertaken in seven villages: three in Andhra Pradesh, two in Uttar Pradesh, two in Maharashtra and one in Rajasthan (Table 1). In 2005-06, we conducted in-depth census and sample surveys in three villages of Andhra Pradesh: Ananthavaram, a village in the paddy-growing region of Guntur district, Bukkacherla, a village in the dry and drought prone district of Anantapur, and Kothapalle in a groundwater-irrigated region of north Telengana (Karimnagar district). This was followed in June 2006 by census-type surveys in two villages of Uttar Pradesh: Harevli, drawn from the canal-irrigated wheat growing district of Bijnor and Mahatwar, selected from eastern Uttar Pradesh. Mahatwar is in Ballia district and belongs to a groundwater-irrigated wheat-paddy growing belt. In 2007, surveys were conducted in two villages of Maharashtra. Nimshirgaon is located in Kolhapur district, and has relatively prosperous agriculture based on irrigated sugarcane and a variety of vegetable and fruit crops. By contrast, Warwat Khanderao is a village in the unirrigated cotton-growing tracts of Vidarbha (Buldhana district). A census survey was also completed in 25 F Gulabewala village of Sri Ganganagar district, Rajasthan, in 2007. With irrigation from the Gang Canal project, the main crops cultivated in this village were wheat, rapeseed, cotton, cluster beans, and fodder crops.

A brief description of the villages follows.

Ananthavaram village is located in Kollur Mandal, Guntur district. At the Census of 2001, the population of Ananthavaram was 3,100 persons (1559 males and 1541 females). Our village survey of 2005 covered 2,424 persons in 667 households. Ananthavaram is a multi-caste village with a significant Dalit population (Malas and Madigas together constitute 45 per cent of the population).

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[3]	There is a recent paper (Lanjouw 2011) dealing with the contribution of caste to income inequality in two Indian villages.

[4]	For objectives of the Project and design of surveys, see www.agrarianstudies.org.

Taking the entire village work force, 21 per cent were cultivators, 15 per cent were cultivators cum labourers and 42 per cent were agricultural labourers. Thus, 77 per cent of workers were engaged primarily in agriculture.

The village is irrigated by the waters of the Krishna river. Supplementary irrigation from ground water is almost the norm on area officially classified as under the canal irrigation system. In the *kharif* (monsoon) season, paddy cultivation dominated the agriculture of the village (96.9 per cent of cropped area was sown to paddy). The two most important crops of the *rabi* (winter) season were maize and black gram. Land hunger is acute in Ananthavaram: 65 per cent of households did not own any agricultural land, and 65 per cent did not operate any land. The Gini coefficients for ownership and operational holdings of land were 0.89 and 0.83 respectively.

Bukkacherla village is located in Raptadu Mandal (taluk) of Anantapur district. The Mandal headquarters, Raptadu, is 8-9 km away, and Anantapur, the nearest town and railhead, is at a distance of 14-15 km. The approach road to the village is not an all-weather road and difficult to travel on during the monsoon.

Our census survey of 2005 covered 1,220 persons in 292 households. At the Census of 2001, the village had 296 households and a population of 1,383 persons. Households of the dominant landholding Kapu caste constitute 40 per cent of households, and Dalit (Mala and Madiga) households constitute 20 per cent. The occupational structure is weighted heavily towards work in agriculture: 86 per cent of all workers were engaged in agriculture as cultivators and agricultural labourers.

Typically, there is a single agricultural season in the village, with cultivation occurring mainly in the *kharif* season. Cultivation of oilseeds and pulses predominate in Bukkacherla: the two main crops are groundnut and red gram. There is not as high an incidence of landlessness in Bukkacherla as in Ananthavaram. In Bukkacherla, only 15 per cent of households did not own land and 18 per cent did not operate land. The Gini coefficient for both ownership and operational holdings of land was 0.58.

Kothapalle P.N. (Post Nustlapur) village is located in Thimmapur (Lower Maner Dam Colony) Mandal of Karimnagar district in the south Telengana region of Andhra Pradesh. The village is at a

distance of 5 km from the Mandal headquarters of Thimmapur (which is also the nearest Police Station). The nearest town is Karimnagar, at a distance of 16 km on a State highway.

Our village census survey covered 1,430 persons in 372 households. This is a multi-caste village. Dalit households accounted for 30 per cent of the population. In Kothapalle, there has been a clear movement out of agriculture, especially among male workers. Of total workers, 70 per cent worked as cultivators or agricultural labourers and the rest were in other work. In terms of specific non-agricultural occupations, 13.5 per cent of male workers were engaged in traditional work (mainly toddy tapping), 7 per cent were engaged in small business activity, and another 7 per cent were salaried professionals.

Typically, there is a single agricultural season in the village, the *kharif* season. The construction of the Lower Maner dam, however, has raised the water table by improved recharge of groundwater in the village. The irrigated area of the village has increased by 232 acres between 1991 and 2001 on account of increased groundwater irrigation. The village data reveal a complex cropping system. The two most important crops were maize and paddy. There were mango orchards and other fruit trees (lime, mango, coconut and pomegranate) accounting for almost 5 per cent of total gross cropped area. Tapping toddy from Palmyra trees was an important village occupation. Almost one-half of the households in the village have neither ownership nor operational holdings of agricultural land.

Harevli village is located in Najibabad block of Bijnor district in Western Uttar Pradesh. There is no all-weather road to the village and the main mode of transport from the village to Mandavli, the nearest town, is by horse and bullock carts. Harevli is a small village in terms of population (not area): the population was 668 persons at the Census of 2001. At the time of our survey, 115 households and 674 persons were resident in the village. The dominant caste in the village was Tyagi. However, in population terms, Dalits households (Chamar and Valmiki castes) comprised 38 per cent of total households.

Agriculture is the mainstay of the economy of Harevli. At the Census of 2001, 90 per cent of workers were reported to be cultivators or agricultural labourers. Sugarcane is the most important crop; wheat, paddy and fodder crops are also cultivated. Irrigation from a public canal, part of the Eastern Ganga canal project, provides water during the *kharif* season, and that from tubewells (with both diesel and electric pumpsets) provides water throughout the year. Most of the tubewells are

owned by the land-owning Tyagi households. There is a high degree of inequality in land ownership. In aggregate, 33 per cent of households in Harevli were landless.

Mahatwar village belongs to Rasra block of Ballia district in Eastern Uttar Pradesh. Mahatwar is located just off the highway linking Rasra to Mau, and has access to bus and jeep services to nearby towns as well as larger cities like Varanasi. At the time of our survey, there were 159 households and 1,114 persons resident in the village. Mahatwar is a multi-caste village with 10 different castes. Dalits (Chamar and Dusad) constituted the majority in the village: 95 households comprising 60 per cent of all households.

The major crops grown in Mahatwar were paddy during the *kharif* season and wheat (sometimes inter-cropped with mustard) during the *rabi* season. Irrigation was from groundwater using tubewells energized by diesel or electricity. The pattern of land ownership was such that about 20 per cent households had no land and 71 per cent owned less than 1 acre of land, and there were no very large land owners. Non-agricultural occupations, within and outside the village, provided an important source of income to resident households.

Warwat Khanderao belongs to Sangrampur *tehsil* of Buldhana district in the Vidarbha region of Maharashtra. The nearest town is Shegaon, at a distance of 20 kilometres from the village, on a regular concrete road. At our survey, there were 250 households in the village with a population of 1,308 persons (at the Census of 2001, the population was 1,447). The major caste in the village was Kunbi (43 per cent of all households).

Agriculture is the main occupation of residents, with 69 per cent of workers reported to be cultivators and another 15 per cent reported to be agricultural labourers. The major crop cultivated during 2007 was cotton, both Bt (GM) and non-Bt varieties. Other crops grown include ground nut, sunflower, green gram, sesamum, jowar, maize, pulses, wheat, red gram and black gram. The village had no irrigation facility. The pattern of ownership of land reveals that only 26 per cent of households did not own any agricultural land. The median extent of land ownership was 3.5 acres (excluding the landless), which is not high given the fact of it being mainly dryland.

Nimshirgaon is a village in Shirol taluk of Kolhapur district in the sugarcane-growing region of Western Maharashtra. It is connected by an all-weather road to the highway. The number of households in our listing was 768 with a population of 3,515 persons (the Census 2001 population

of the village was 4,515). Nimshirgaon is a multi-caste village with almost one-third of households belonging to the Jain community and another one-third of households from the Scheduled castes (mainly Mahar and Chamar castes).

Agriculture in Kolhapur is relatively modern and dynamic. Sugarcane is the major crop, soyabean pulses and millets are also cultivated as are a variety of vegetables and fruits (including grapes and mangos). Irrigation is from a water supply system linked to the Krishna river. There are also hundreds of open wells, borewells and tubewells in the fields belonging to village residents. The bulk of cultivators have marginal (28 per cent) or small holdings (24 per cent). Under irrigated conditions, the scale of operation of a cultivator with say 2 acres, is very different in Nimshirgaon from that in Warwat Khanderao. The landless comprise 28 per cent of all households. Among Dalits the proportion of landless was 57 per cent.

25 F Gulabewala is a village in Sri Ganganagar district. The village is about 25 km from Sri Ganganagar town and is connected by an all-weather road. In 2007, 204 households lived in the village, and the main castes were Jat Sikh, Mazhabi (Dalit) and Nayak (Dalit).

The village is irrigated by the Gang Canal project. The main crops cultivated in Gulabewala were wheat, rapeseed, cotton, cluster beans, and fodder crops. Land distribution in the village was extremely unequal. About 65 per cent of all households in the village were landless. At the other end of the distribution, the largest landowning household had about 287 acres of land and 31 households had more than 30 acres of land each. Agricultural land was owned primarily by Jat Sikh households; only three Dalit households, out of a total of 123 Dalit households resident in the village, owned any agricultural land. Another important feature of agriculture in the village was the widespread employment of long-term Dalit workers by large landowners.

TABLE 1 HERE

Table 2 shows the caste/social group composition of households in each of these villages. Dalit households accounted for a sizeable proportion of all households in six villages. Dalits households comprised less than one-fifth of all resident households of a village in Bukkacherla and Warwat Khanderao, both rainfed villages. Dalit households comprised the majority in two villages: Mahatwar in eastern Uttar Pradesh and 25 F Gulabewala in canal-irrigated western Rajasthan. Muslim

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households were few in number in most villages and a significant presence only in Warwat Khanderao (where they accounted for 21 per cent of households). Adivasis or Scheduled Tribes were present in two villages of Andhra Pradesh, but we have data on incomes for them for only one village, Ananthavaram.

 TABLE 2 HERE

3 Methodology

There is a growing literature on inter-group inequality that extends beyond the traditional decomposition of inequality in to within-group and between-group components.[5] Specifically, there is an interest in looking not just at inequality but also at polarization (understood as separation or absence of middleness).

In this paper, we begin with very simple measures of differences between groups, such as proportional representation in different quintiles, which is termed representational inequality in a recent paper by Jayadev and Reddy (2011). We also look at the frequency distribution of households across incomes levels in different social groups to assess the degree of non-overlap between them (what has been termed sequential inequality by Jayadev and Reddy, 2011).

We, then, estimate a standard GE (2) inequality index along with its decomposition by caste.

In most decomposition studies, it has been found that the between-group component is small and does not exceed 15 per cent of overall inequality (Kanbur 2006). Elbers, Lanjouw, Mistiaen and Ozler (ELMO 2008) point out that the value of the between-group component is affected by the number of subgroups, their relative sizes and the difference in means across subgroups. They argue that the existing measure compares observed between-group inequality with an extreme benchmark, namely the inequality that would occur if each individual constituted a separate group. They suggest an alternative benchmark or maximum between-group inequality, which occurs in a situation "where

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5   Jayadev and Reddy (2011), Lanjouw and Rao (2011), and other papers in *World Development* Feb. 2011.

subgroup incomes occupy non-overlapping intervals."[6] We have computed this alternative benchmark, as proposed in ELMO (2008).

The estimates of income here include all cash and kind incomes; they account for all cash and kind receipts other than from borrowing and from sale of assets (including cash transfers). All incomes are net of costs incurred by the households in the process of production and income generation. The surveys used a comprehensive definition of incomes, and included detailed modules on incomes from crop cultivation, from animal husbandry and from wage labour, as well as from salaried employment, non-agricultural self-employment, rent and other transfers. A total of 20 sources of income were used to construct the final income variable.

For most of this paper, we have focused on two social groups: Scheduled Castes or Dalits (combined with Scheduled Tribes in the case of one village, Ananthavaram) and "Others" or all non-Scheduled Caste, non-Scheduled Tribe and non-Muslim households. There are only a few Muslim households in our villages, but as they are also relatively deprived, we have excluded them from the analysis. As the data come from two agricultural years, 2005-06 (five villages) and 2006-07 (three villages), we have reported all incomes at constant (2005-06) prices.[7]

Before proceeding to the results, we would like to underline the fact that we see each village as a case study, and our attempt is to explore and explain income inequality across castes in each village and not to draw conclusions about districts or States to which these villages belong. While the data are reported, for convenience, for all villages in a Table, each village must be read separately. At the same time, since these villages are drawn from different agro-economic zones, we can make some contrasts between patterns of inequality in a village in a certain type of region with that in another type of region. The paper attempts to describe and comment on patterns of inequality across the big caste divide – Dalit versus rest -- in each of these eight villages.

4 Patterns of inequality

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[6]   If {y} is an income distribution for which inequality between subgroups *g* and *h* is maximized, then either *all* incomes in *g* are higher than *all* incomes in *h*, or vice versa (ELMO 2008, p 236).

[7]   We use the State-level Consumer Price Index for Agricultural Labour (CPIAL) as the deflator.

Before turning our attention to the role of caste in income inequality, we briefly report some features of aggregate income inequality in these eight survey villages (see Swaminathan and Rawal 2011 for further details).

First, while income inequality was high in general, there were also important differences across villages (Table 3). The lowest estimated Gini coefficient was 0.491 for Nimshirgaon (western Maharashtra) and the highest was 0.686 for 25 F Gulabewala (western Rajasthan), a difference of 19.5 Gini points. The three villages with the highest Gini coefficients (above 0.6) were Ananthavaram, Harevli and 25 F Gulabewala. All three are canal-irrigated villages.

TABLE 3 HERE

Secondly, there was extreme concentration of income at the top. The income share of the top 10 per cent was highest in 25 F Gulabewala (53.93) followed by Ananthavaram (49.7) and Harevli (48.58). As mentioned above, these three villages are characterized by relatively high productivity canal-irrigated agriculture.

The top decile had the lowest incomes shares in Nimshirgaon (37.5) and Bukkacherla (39.95). Bukkacherla is a rainfed village with unirrigated crop cultivation and a predominance of small-holder cultivation (and could be referred to as a "dry village"). The fact that Nimshirgaon does not have the same degree of concentration of incomes as the other three villages that are characterized by relatively advanced agriculture may be because the village is located close to urban and semi-urban areas that provide opportunities for non-agricultural employment.

Thirdly, income inequality appears to be of the Latin American "winner takes all" type of model (Palma 2006), that is, extreme concentration in the 10th decile, with even the 9th decile not gaining a significant share of income. The share of the 9th decile was barely above 10 per cent in these villages (for example, 12 per cent in Kothapalle, 15 per cent in Mahatwar). In all villages, there was a clear divide between deciles 10 and 9 in the level and share of income.

Thus, there appears to be no "middle class" in village India. In all eight villages, households in the middle deciles, say decile 5 to 7, did not even receive an income share corresponding to their population share.

We now turn to differences in incomes across castes.

(i) Absolute disadvantage.

Estimates of mean per capita income for Scheduled Caste or Dalit households and Other households establishes that Dalit households are at a disadvantage in terms of incomes in each of these eight villages (Table 4).

The distance between the mean incomes of Dalit households and Other households varies across villages: it is lowest in Kothapalle village of Andhra Pradesh and highest in 25 F Guabewala village of Rajasthan.

TABLE 4 HERE

The two Dalit-majority villages are strikingly different. In the eastern Uttar Pradesh village of Mahtwar, on average, a Dalit household received 47 per cent of the income of a non-Dalit household. By contrast, in Gulabewala village, a Dalit household received only 7 per cent of the the average income of a non-Dalit (in this case Jat Sikh) household.

When the distribution of incomes is highly unequal, we know that mean incomes will be affected by extreme values. We have therefore shown the value of median annual household income for the two social groups in Table 5.

TABLE 5 HERE

As expected, median incomes are lower than mean incomes in all eight villages for both social groups. Further, in each village, the income of the median Dalit household was lower than the income of the median Other Household. The gap between Dalits and Other Households, however, was lower in terms of median incomes than it was in terms of mean incomes. The gap was relatively narrow in Bukkacherla and Mahatawar indicating that incomes were low for a substantial number of non-Dalit households as well.

(ii) Representational inequality

We now turn to the first of our distributional measures of inter-group inequality. In Tables 6 to 8, we show the distribution of households from Dalit and other social groups across income quintiles. Equal representation would imply that each quintile has the same proportion of Dalit households as the population proportion (as shown in the last row). The Tables have to be read as follows: in Table 7, for example, the first row shows that in Harevli, of all households in the first income quintile, 62 per cent were Dalit households, 10 per cent were Muslim households and the remaining 29 per cent were Caste Hindu households. (The rows add to 100 for each village.) The last row shows that Dalits comprised only 5 per cent of the top income quintile although they comprised 37 per cent of all households.

TABLE 6, 7, 8 HERE

With one exception, in every village, Dalit households were under-represented in the top income quintile (Q5). In three villages (Bukkacherla, Harevli and Warwat Khanderao), Dalit comprised at most 5 per cent of the top quintile. Dalits had no representation in the top income quintile in 25 F Gulabewala village. In Kothapalle, the sole exception, Dalit households comprised 33 per cent of the population but 37 per cent of Q5, but even here, the picture changes if we take the top 5 per cent (see Table 9). At the same time, Other households (non-Scheduled Caste, non-Scheduled Tribe and non-Muslim) were over-represented in Q5. In five villages, more than 84 per cent of households in Q5 belonged to Other social groups.

(iii) Sequential inequality

We have observed that representation across quintiles (and other income groupings like deciles) is different for Scheduled Caste households as compared to Other households. To assess the extent to which, Scheduled Caste households are over-represented at one end of the income distribution, we look at the frequency distribution of per capita income for the two groups separately (Tables 9 to 12). The extent to which the frequency distributions are non-overlapping is a measure of the degree of sequential inequality or clustering.

TABLE 9, 10, 11, 12 HERE

There is some overlap at lower incomes in all the villages indicating that there are low income households among non-Scheduled caste communities as well. However, there is a non-overlapping section in every village at the upper end of the income distribution. In other words, the ceiling for incomes among Dalit households is well below the maximum per capita income in each village. The non-overlapping section is largest in 25 F Gulabewala village: here 68 per cent of Other households reported a per capita income above 20,000 rupees, whereas no Dalit household reported an income above Rs 20,000.

The graphic representation of the frequency distribution of per capita incomes (using kernel density plots) of Dalits (in red) and Others (in blue) in Figures A1 to A8 makes the inter-group differences in income distribution very obvious. The kernel density plots of per capita income of Dalits and Others showed the most overlap in Kothapalle and the least overlap in 25 F Gulabewala.

(iv) Between-Group Inequality

To identify the role of inter-group inequality in observed total inequality, we attempt a standard decomposition of inequality by population subgroup, using the generalized entropy measure $GE(\alpha)$ with $\alpha=2$, which corresponds to ½ of the squared coefficient of variation (Litchfield 1999). With this measure, total observed inequality can be decomposed in to a sum of within-group (I_w) and between-group inequality (I_b) components.

$$I = I_w + I_b$$

The within group inequality measure is the weighted sum of inequality of income within each subgroup, the weights being the relative population shares and incomes shares. The between group measure is calculated by assigning the mean income of each subgroup to all members of that subgroup and then computing a measure of inequality (*ibid.*). We have followed this decomposition method to calculate between-group and within-group inequality for each village. We have also calculated maximum between-group inequality as recommended by ELMO (2008) and identified observed between-group inequality as a share of the maximum value.

For the decomposition exercise, we have not used individual castes but social (caste-cum-religion) groups specific to each village. The results are reported in Tables 13 to 15.

TABLE 13, 14, 15 HERE

For Ananthavaram village (of Guntur district, Andhra Pradesh), we have used five subgroups: Scheduled Castes or Dalits, Scheduled Tribes, Muslims, Other Backward Classes (OBC) and Other Caste Hindus. The decomposition exercise shows that within-group inequality was least among Scheduled Tribes and Muslim households (only few of the latter were present), followed by OBCs and Dalit households. Not surprisingly, within-group inequality was highest among Other Caste Hindu households. Turning to the between-group component, it amounted to 11 per cent of total inequality in the village. However, using the ELMO approach, it is observed that within group inequality was 53.7 per cent of maximum between-group inequality.

In both Bukkacherla and Kothapalle villages, the within-group component was highest for Other Caste Hindus. In Kothapalle, between-group inequality accounted for less than 2 per cent of inequality using the conventional approach but accounted for as much as 30 per cent of maximum between-group inequality.

In Mahatwar village of Uttar Pradesh, within-group inequality was higher among OBCs than Other Caste Hindus (few in number) and Scheduled Caste households. In Harevli, within group inequality was very low among Muslims, followed by Dalits, and highest among Other Caste Hindus.

By contrast, between-group inequality was as high as 92 per cent of the maximum value in Gulabewala village of Rajasthan. As discussed earlier, the income distribution of Dalit households and Others (mainly Jat Sikhs, classified as OBCs) in this village had a large non-overlapping section. While within-group inequality among OBCs was undoubtedly the biggest contributor to aggregate income inequality in this village, nevertheless, the ELMO criterion indicates that between-group inequality should be a matter of serious concern. In this village, there is both high income inequality and close overlap between social and economic status: the Dalit households are landless and surviving on low incomes from agricultural labour whereas the OBC (Jat Sikh) households are cultivators with sizeable land holdings and high incomes.

Nimshirgaon village of Maharashtra has the highest number of subgroups (Dalits, Muslims, Notified tribes, OBCs, Jains and Other Caste Hindus), with within-group inequality highest among Jain households followed by Other Caste Hindus. In Warwat Khanderao, the biggest contribution to aggregate inequality is made by within-group inequality among OBCs. In both Warwat Khanderao and Nimshirgaon, the between group component is around a quarter of the maximum value.

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5 Concluding remarks

The study of income inequality in India is thin, as there are very few household income surveys. A recent study of income inequality across households in eight villages in India showed extremely high levels of inequality, with the Gini coefficient for per capita income ranging from 0.491 in Nimshirgaon village of Maharashtra to 0.686 in 25 F Gulabewala village of Rajasthan. There is also a growing body of evidence on the persistence of caste discrimination in rural India. In this context, in this paper, using data on household incomes from a set of eight village studies, we examined the nature of between-group income inequality, focusing on differences between Scheduled Caste or Dalit households and Others.

The analysis showed that Dalit households were under-represented in the top income quintile in all villages but one, and over-represented in the lower quintiles. The frequency distribution of incomes for Dalits versus Others revealed distinct non-overlapping segments. Thirdly, the contribution of between-group inequality to total inequality ranged from 1 to 14 per cent using the conventional decomposition of GE(2). However, using the ELMO method, between-group inequality was more than 50 per cent of its maximum value in three villages.

While the story of each village is different, there are two general observations we wish to make. First, the three villages – Harveli in western Uttar Pradesh, Ananthavaram in coastal Andhra Pradesh and 25 F Gulabewala in western Rajasthan – with the highest levels of aggregate income inequality were also the villages with the highest contribution of between-group inequality and all three villages were canal-irrigated villages of relatively high agricultural productivity. In other words, the more prosperous agricultural villages were characterised by high income inequality as well as by marked caste segregation.

Secondly, the size of the Dalit population in a village (or population dominance) did not show any simple relation with the degree of inter-group inequality. Of the two Dalit-majority villages we surveyed, one, 25 F Gulabewala, showed the highest between-group inequality (using the ELMO approach) and another, Mahatwar, showed relatively low between-group inequality.

Our research suggests that not only is income inequality very high in village India, but that caste still matters. We need further research on the role of caste discrimination in income determination in contemporary India.

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STATISTICAL TABLES

Table 1: *Location and agro-ecology of villages surveyed, 2005 to 2007*

Village	Block	District	State	Agro-ecological type
Ananthavaram	Kollur	Guntur	Andhra Pradesh	Canal-irrigated paddy cultivation
Bukkacherla	Raptadu	Anantapur	Andhra Pradesh	Dry and drought-prone, groundnut area
Kothapalle	Thimmapur	Karimnagar	Andhra Pradesh	Groundwater-irrigated, multi-crop system
Harevli	Najibabad	Bijnor	Uttar Pradesh	100% canal-irrigated with supplementary groundwater, wheat-sugarcane
Mahatwar	Rasra	Ballia	Uttar Pradesh	Groundwater-irrigated wheat-paddy rotation
Warwat Khanderao	Shirol	Buldhana	Maharashtra	Rainfed cotton region
Nimshirgaon	Sangrampur	Kolhapur	Maharashtra	Irrigated sugarcane and multi-crop system
25 F Gulabewala	Karanpur	Sri Ganganagar	Rajasthan	Canal and groundwater irrigation, with cotton, wheat and mustard cultivation

Table 2 *Number of households (HHs) by social group, study villages*

Village	Dalit HHs	Adivasi HHs	Muslim HHs	OBC HHs	Other Caste Hindu HHs	All Other HHs	Total HHs	Dalit HHs as % of all HHs
Ananthavaram	283	44	18	131	190		667	42.4
Bukkacherla	58		8	98	128		292	19.8
Kothapalle	118	11	5	150	87		372	43.3
Harevli	41		14	25	32		112	36.6
Mahatwar	95			53	13		159	59.0
Nimshirgaon	247		47	61	118	285*	757	32.6
Warwat Khanderao	25		53	122		50**	250	10.0
25 F Gulabewala	123			78	3		204	60.2

Note: In Nimshirgaon, all Other (*) are mainly Jain households, and in Warwat Khanderao (**) they are from notified tribes.

Table 3 *Gini coefficients of household and per capita income, by village*

Village	State	Gini coefficient	
		Households	Persons
Ananthavaram	Andhra Pradesh	0.656	0.602
Bukkacherla	Andhra Pradesh	0.607	0.542
Kothapalle	Andhra Pradesh	0.577	0.565
Harevli	Uttar Pradesh	0.671	0.602
Mahatwar	Uttar Pradesh	0.555	0.509
Warwat Khanderao	Maharashtra	0.586	0.531
Nimshirgaon	Maharashtra	0.549	0.491
25 F Gulabewala	Rajasathan	0.74	0.686

Note: These are Gini coefficients adjusted for negative incomes, following Chen, Tsaur and Rhai (1982)
Source: Swaminathan and Rawal (2011).

Table 4 *Mean household income by social group, study villages* in Rs per annum at 2005-06 prices

		1	2	Col 1/col 2
Village (State)	Year of survey	Dalit	Other Households	Ratio of Dalit to Other Households
Ananthavaram (AP)	2005-06	30,690	93,727	33
Bukkacherla (AP)	2005-06	19,829	40,596	49
Kothapalle (AP)	2005-06	26,197	38,962	67
Harevli (UP)	2005-06	27,540	118,951	23
Mahatwar (UP)	2005-06	25,077	53,530	47
Warwat Khanderao (MAH)	2006-07	24,843	68,400	36
Nimshirgaon (MAH)	2006-07	41,647	87,393	48
25 F Gulabewala (RAJ)	2006-07	25,111	339,078	7

Note: Figures for villages surveyed in 2006-07 were deflated to 2005-06 prices using State-level CPIAL.
Source: Survey data.

Table 5 *Median household incomes by social group study villages* in Rs per annum at 2005-06 prices

		1	2	Col 1/col 2
Villages (State)	Year of survey	Dalit	Other Households	Ratio of Dalit to Other Households
Ananthavaram (AP)	2005-06	18,008	34,800	52
Bukkacherla (AP)	2005-06	18,545	19,584	95
Kothapalle (AP)	2005-06	17,608	25,219	70
Harevli (UP)	2005-06	19,223	53,432	36
Mahatwar (UP)	2005-06	19,834	22,882	87
Warwat Khanderao (MAH)	2006-07	15,140	34,479	44
Nimshirgaon (MAH)	2006-07	30,998	47,014	66
25 F Gulabewala (RAJ)	2006-07	19,941	180,785	11

Note: Figures for villages surveyed in 2006-07 were deflated to 2005-06 prices using State-level CPIAL.
Source: Survey data.

Table 6 *Proportion of households belonging to different social groups in each quantile of per capita income, Andhra Pradesh villages*

Quantiles of per capita income	Anathavaram				Bukkacherla			Kothapalle			
	Dalit	Adivasi	Muslim	Caste Hindu	Dalit	Muslim	Caste Hindu	Dalit	Adivasi	Muslim	Caste Hindu
1	45	15	6	33	16	0	84	43	5	5	46
2	64	0	6	30	25	0	75	39	0	0	61
3	30	12	6	52	35	0	65	37	0	0	63
4	54	3	0	43	16	5	79	11	0	0	89
5	23	0	0	77	5	5	90	37	0	0	63
All	43	6	4	47	19	2	79	33	1	1	65

Table 7 *Proportion of households belonging to different social groups in each quantile of per capita income, Uttar Pradesh villages*

Quantiles of per capita income	Harevli			Mahatwar	
	Dalit	Muslim	Caste Hindu	Dalit	Caste Hindu
1	62	10	29	67	33
2	55	14	32	52	48
3	36	18	45	73	27
4	27	9	64	61	39
5	5	9	86	52	48
All	37	12.5	50.5	59	41

Table 8 *Proportion of households belonging to different social groups in each quantile of per capita income, Maharashtra and Rajasthan villages*

Quantiles of per capita income	Warwat Khanderao			Nimshiragon			25 F Gulabewala	
	Dalit	Muslim	Caste Hindu	Dalit	Muslim	Caste Hindu/Jain	Dalit	Caste Hindu/Sikh
1	22	20	58	53	6	41	100	0
2	16	22	62	33	10	57	95	5
3	6	30	64	40	13	47	83	17
4	2	22	76	25	1	74	24	76
5	4	12	84	13	0	87	0	100
All	10	21	69	33	6	61	60	40

Table 9 *Distribution of households by per capita income and social group, Andhra Pradesh villages, 2005-06*

Per capita income category (Rs per annum)	Ananthavaram		Bukkacherla		Kothapalle	
	Caste Hindu	Dalit/ Adivasi	Caste Hindu	Dalit	Caste Hindu	Dalit
Less than 5500	26.3	43.1	46.6	63.2	37.2	62.6
5500-10000	14.6	25.4	22	21.1	38.6	15.7
10000-20000	29.3	22	18.1	15.8	16.5	12.3
20000-30000	11.8	9.5	6.5	0	4.9	9.4
30000-40000	4.4	0	3.9	0	0	0
40000-50000	2.2	0	2.6	0	0	0
>50000	11.5	0	0.4	0	2.8	0
All households	100	100	100	100	100	100

Note: Households are ranked by per capita annual household income at constant prices. The first income category corresponds roughly to the official poverty line.
Source: Survey data.

Table 10 *Distribution of households by per capita income per annum, Harevli and Mahatwar, 2005-06*

Per capita income category (Rs per annum)	Harevli		Mahatwar	
	Caste Hindu	Dalit	Caste Hindu	Dalit
Less than 5500	37.7	80	72.6	79.8
5500-10000	26.1	12.5	11.1	13.8
10000-20000	11.6	7.5	11.3	4.3
20000-30000	10.1	0	0	2.1
30000-40000	4.3	0	1.6	0
40000-50000	0.0	0	3.2	0
>50000	10.1	0	8.1	0
All households	100	100	100	100

Note: Households are ranked by per capita annual household income at constant prices. The first income category corresponds roughly to the official poverty line.
Source: Survey data.

Table 11 *Distribution of households by per capita income per annum, Nimshirgaon and Warwat Khanderao, 2006-07*

Per capita income category	Warwat Khanderao		Nimshirgaon	
(Rs per annum)	Caste Hindu	Dalit	Caste Hindu/Jain	Dalit
Less than 5500	35.5	64	20.5	49.4
5500-10000	25.6	20	28.2	27.3
10000-20000	24.4	12	31.4	16.1
20000-30000	11	0	12.1	1.2
30000-40000	2.3	4	0	5.9
40000-50000	0.6	0	3.1	0
>50000	0.6	0	4.7	0
All households	100	100	100	100

Note: Households are ranked by per capita annual household income at constant prices. The first income category corresponds roughly to the official poverty line.
Source: Survey data.

Table 12 *Distribution of households by per capita income per annum, 25 F Gulabewala, 2006-07*

Per capita income category	25 F Gulabewala	
(Rs per annum)	Caste Hindu/Sikh	Dalit
Less than 5500	3.7	63.4
5500-10000	6.2	28.5
10000-20000	22.2	8.1
20000-30000	16	0
30000-40000	9.9	0
40000-50000	11.1	0
>50000	30.9	0
All households	100	100

Note: Households are ranked by per capita annual household income at constant prices. The first income category corresponds roughly to the official poverty line.
Source: Survey data.

Table 13 *Estimates of inequality decomposition (within-group and between-group components of inequality) by caste group using GE(2) measure of inequality, Andhra Pradesh villages*

	Ananthavaram	Bukkacherla	Kothapalle
Scheduled caste	0.0539	0.0186	0.1096
Scheduled tribe	0.0009	--	0.0000
Muslim	0.0008	0.0005	0.0000
OBC	0.0376	0.0981	0.0616
Other caste Hindu	2.4478	1.6676	7.7464
(a) Total within-group inequality	2.5412	1.7847	7.9176
(b) Between-group inequality	0.3177	0.0606	0.1456
Total inequality (a+b)	2.8589	1.8453	8.0632
Maximum Between group inequality (ELMO)	0.5918	0.3579	0.4836
Between group inequality as a percentage of maximum between group inequality	53.7	16.9	30.1
Between group inequality as a percentage of total inequality	11.1	3.3	1.8

Table 14 *Estimates of inequality decomposition (within-group and between-group components of inequality) by caste group using GE(2) measure of inequality, Uttar Pradesh villages*

	Harevli	Mahatwar
Scheduled caste	0.0808	0.1148
Muslim	0.0084	
OBC	0.1752	0.9282
Other caste Hindu	1.7383	0.4077
(a) Total within-group inequality	2.0026	1.4507
(b) Between-group inequality	0.3169	0.2612
Total inequality (a+b)	2.3195	1.7119
Maximum Between-group inequality (ELMO)	0.6337	0.9163
Between-group inequality as a percentage of ELMO between-group inequality	50.0	28.5
Between-group inequality as a percentage of total inequality	13.7	15.3

Table 15 *Estimates of inequality decomposition (within-group and between-group components of inequality) by caste group using GE(2) measure of inequality, Maharahtra and Rajasthan villages*

	Warwat Khanderao	Nimshirgaon	25F Gulabewala
Scheduled caste	0.0125	0.0913	0.0049
Muslim	0.0764	0.0009	--
Nomadic tribe	0.0507	0.0118	--
OBC	4.2799	0.0036	4.2271
Jain	--	1.1672	--
Other caste Hindu	--	0.2907	0.0049
(a) Total within-group inequality	4.4195	1.5654	4.2370
(b) Between-group inequality	0.0648	0.0986	0.5361
Total inequality (a+b)	4.4843	1.6640	4.7730
Maximum Between group inequality (ELMO)	0.2700	0.3763	0.5815
Between-group inequality as a percentage of ELMO between-group inequality	24.0	26.2	92.2
Between-group inequality as a percentage of total inequality	1.4	5.9	11.2

FIGURES SHOWING FREQUENCY DISTRIBUTION OF PER CAPITA INCOME FOR DALIT (RED) AND OTHER (BLUE) HOUSEHOLDS

Figure A1. Kernel density plots of per capita incomes for persons belonging to Dalit and Other households, Ananthavaram, Andhra Pradesh
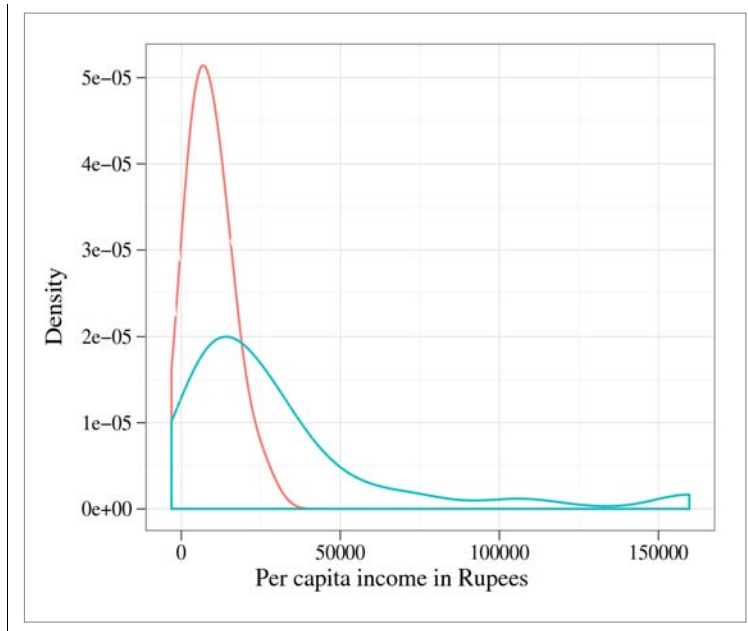
Figure A2. Kernel density plots of per capita incomes for persons belonging to Dalit and Other households, Bukkacherla, Andhra Pradesh
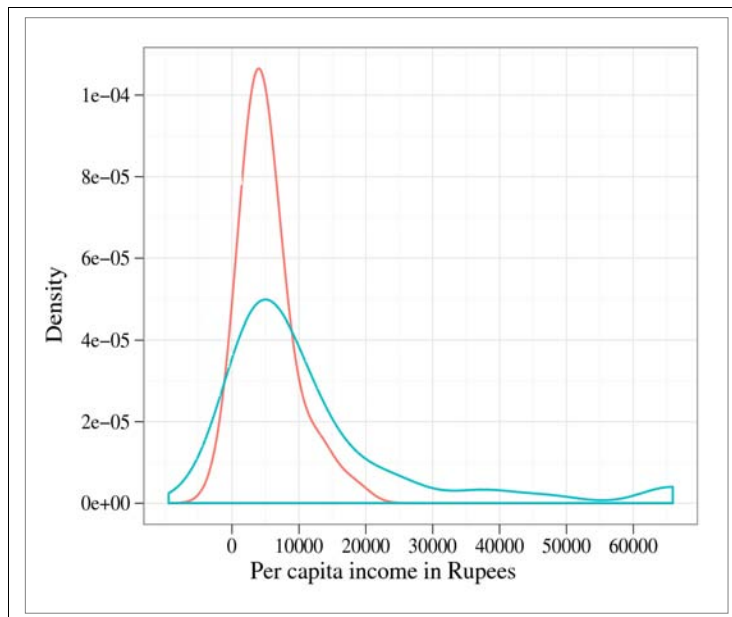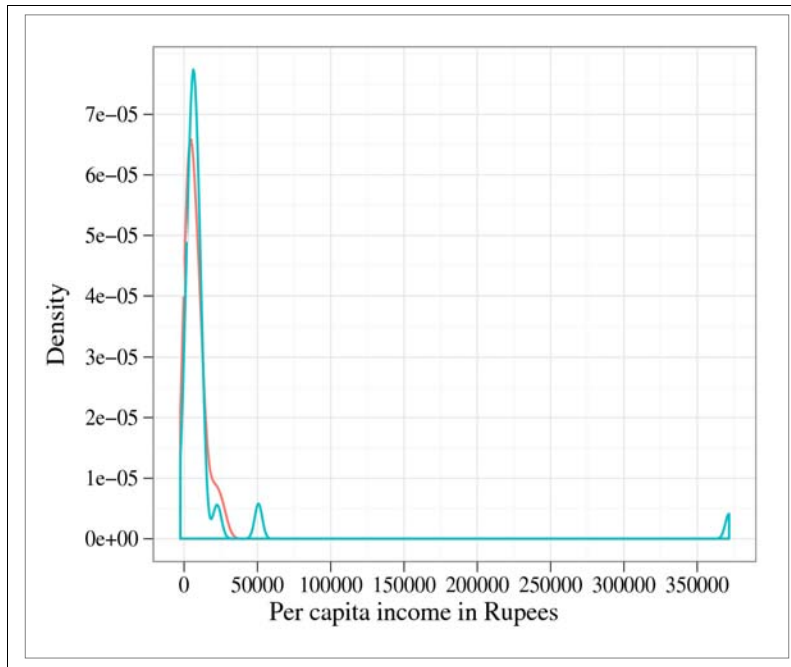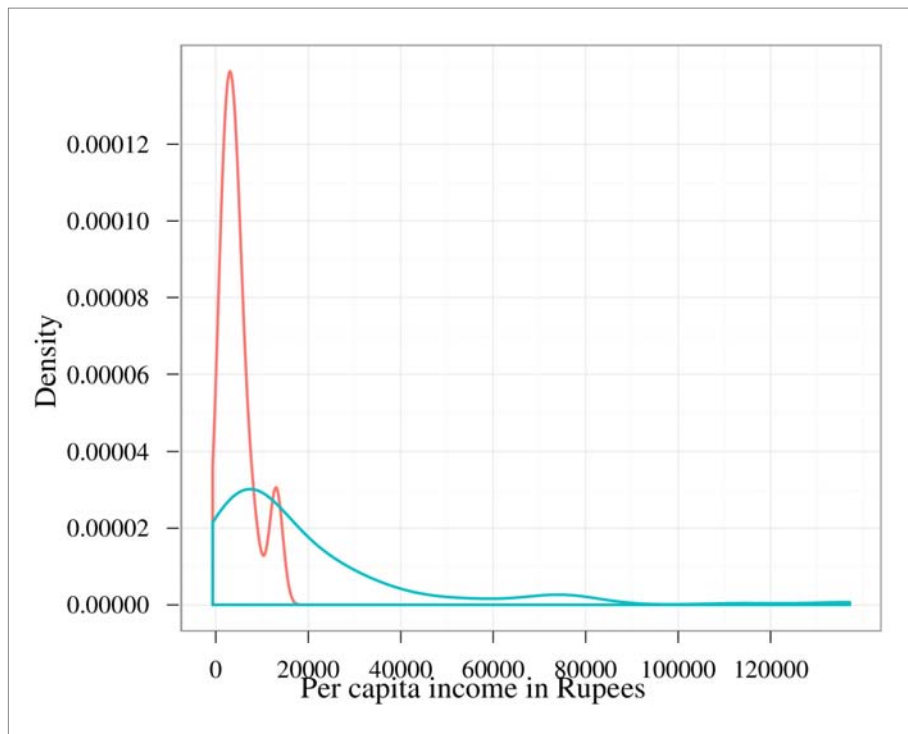
Figure A3. Kernel density plots of per capita incomes for persons belonging to Dalit and Other households, Kothapalle, Andhra Pradesh

Figure A4. Kernel density plots of per capita incomes for persons belonging to Dalit and Other households, Harevli, Uttar Pradesh
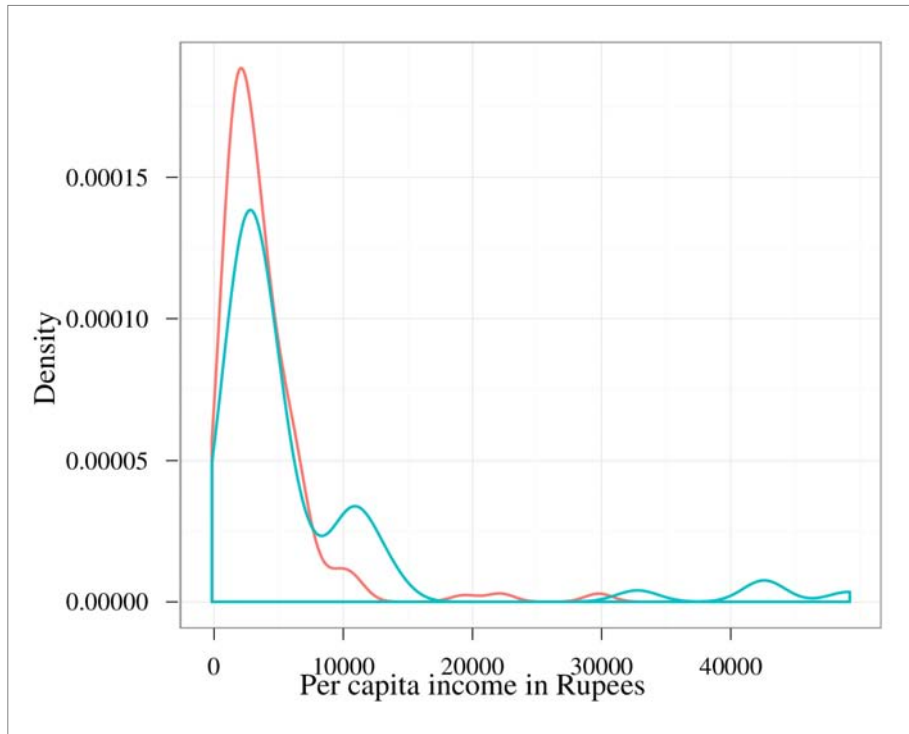
Figure A5. Kernel density plots of per capita incomes for persons belonging to Dalit and Other households,

Mahatwar, Uttar Pradesh

Figure A6. Kernel density plots of per capita incomes for persons belonging to Dalit and Other households, Warwat Khanderao, Maharashtra
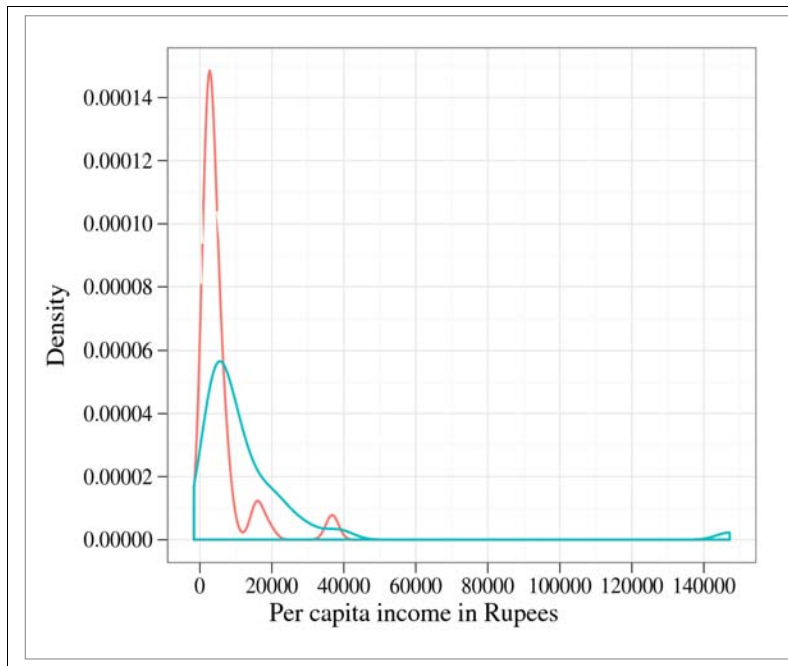
Figure A7. Kernel density plots of per capita incomes for persons belonging to Dalit and Other households, Nimshirgaon, Maharashtra
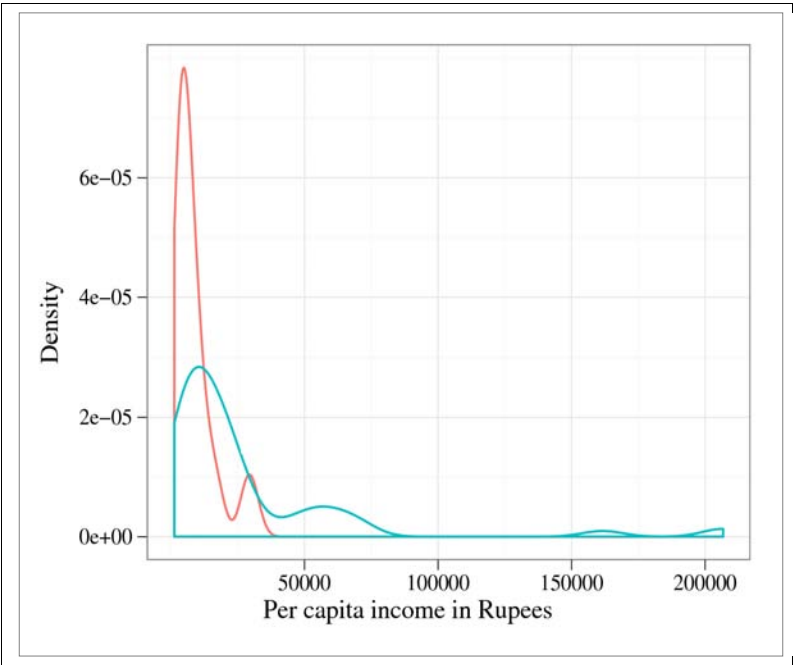
Figure A8. Kernel density plots of per capita incomes for persons belonging to Dalit and Other households, 25 F Gulabewala, Rajasthan