Title: Continuing Caste inequalities in Rural Uttar Pradesh

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Abstract: A continuous mixed opinion on the relevance of caste as a factor of socioeconomic disparity in the recent period demands update of evidence on socioeconomic inequalities among caste groups for effective policy making. This study investigates whether the caste inequalities in terms of socioeconomic opportunities and poverty are still persisting in rural Uttar Pradesh (UP) based on village census surveys? Our findings suggest that in spite of more than six decades of welfare policies and major political mobilization movements among lower castes in the state, huge inequalities in terms of critical socioeconomic indicators such as landholding, higher education and wealth distribution and multi-dimensional poverty across the castes are still persisting in the state. Decomposition results suggest that between group inequalities contribute more to the total inequality in landholding whereas within group inequalities contribute maximum to total inequality in education and wealth status of different castes in rural UP.

Background and Rationale

Historically, the socioeconomic progress in India continues to suffer from the inflexibility of a rigid caste system and caste based discriminations (Deshpande 2000; Omvedt 2011). The traditional Hindu *Varnas* (translated into English as castes) were five, *Brahmins* (priests, teachers), *Kshatriyas* (warriors, royalty), *Vaisyas* (moneylender, traders), and the *Sudras* (menial job) and the *Ati Sudhra and Dalits* (the untouchables, doing lowest of the menial jobs). There are thousands of sub-castes within these five castes. However, for the political and developmental planning and policy perspective, the constitution of India classified traditional caste groups into four broad categories: Scheduled Castes (SCs), Scheduled Tribes (STs), Other Backward Castes (OBCs) and General Castes (Srinivasan 1986, 1996). The critical reason why caste has distinctive sociological imagination is because it is viewed as a representation of unadulterated status, based on religion and ideological grounds with class inequalities being rooted from caste (Dumont 1980; Milner 1994).

Since its emergence, caste has been a determining factor of access to productive resources such as land, education and health as well as discrimination in the labour market. A strong link has been identified between caste and economic status (Gerth and Mills 1946; Dumont 1980; Gupta 2000; Kapur et al 2010; Desai 2010; De and Gollerkeri 1986; Kopparty 1994; Mehta and Kapoor 1998; Deshpande 2000; Nayar 2007; Thorat and Newman 2009; Desai and Dubey 2012; IIPS and Macro Internationals 1992-93, 1998-99, 2005-06; Goli et al. 2013; Goli and Apollo, 2014; Singh 2014). In order to root out this problem, since independence, Government of India (GoI) has initiated a number of affirmative action plans including land reforms, reservation in education and employment etc. In spite of decades of planning and a

sizeable amount of public resources being channelled in the name of welfare of SCs/STs but actual benefits have hardly reached these groups. However, this claim needs a strong evidential support.

Though, caste as a phenomenon has been extensively researched in its myriad facets by the other social scientists but many of these studies either theoretical or their evidence become a decade old by now (e.g. Gerth and Mills 1946; Dumont 1980; De and Gollerkeri 1986; Gupta 2000; Kapur et al 2010; Desai 2010; Kopparty 1994; Mehta and Kapoor 1994; Deshpande 2000; IIPS and Macro Internationals 1992-93, 1998-99, 2005-06; Deshpande 2000; Subramanian et al 2006; Nayar 2007; Thorat and Newman 2009; Desai and Dubey 2012; Deshpande 2012; Goli et al. 2013; Singh 2014). Also among those studies which used recent data have limitations in their assessment. For instance, Bhagat (2013) has assessed the latest Census information on the economic and living conditions of the SCs and STs vis a vis other caste, but the Census based study has limitation as it does not provide data on OBCs. According to Bhagat (2013) "there has been considerable progress in the well-being of SCs and STs during the last decade, but the gap between SCs and STs and of both these groups compared to the rest of the population has widened". Mamgain (2013) argued for a post-2015 development framework that ensures faster reduction in poverty and inequality in SCs and STs. He also argued for the elimination of all forms of discrimination against them and ensures social inclusion with dignity, but the study presents only a set of theoretical postulations but need to be supported with empirical evidences on the current levels of poverty and inequality of socioeconomic opportunities across the caste groups. Another recent study by Singh (2014) demonstrated that the root cause of inequality among caste groups is actually grounded in a hierarchy of land rights, political power and driven by religious and secular ideology but lacks supports to the argument based on empirical evidence.

Thus, the evidence on current scenario of different social groups in terms of socioeconomic standing becomes important in the context where increasing of privatisation of education and employment resorted to do away with the reservation quotas. The demand is also increasing from the non-reserved groups to take away reservation in higher education and certain fields of government employment. The recent debates regarding inclusion of caste in Census 2011 have raised questions about whether caste still matters in modern India because an equal number of intellectual groups supported (e.g. Khachane 2010; Desai and Dubey 2012) and opposed (e.g. Shah 1998; Bhagat 2007, 2010; Sudarshan 2010) to include caste questions in the Census enumeration. Moreover, these questions become much more

important in the context of Uttar Pradesh, which is the focus of our study. Uttar Pradesh has unique place when we talk about caste. It is one of the major states in India, which has mass political mobilisation and ruled by a party dominated and headed by a dalit leader. Like, rest of the country, it has huge caste inequalities and rampant caste discrimination and atrocities against dalits (The Hindu, 2014, 31 May). A status report of discrimination in schools submitted by 41 independent monitoring institutes (MI) to the Union Human Resource Development Ministry (UHRD) highlights instances of caste discrimination and untouchability in Uttar Pradesh along with other four states (UHRD, 2012). Two stories published in Indian Together magazine (August 17, 2007) on caste discrimination reported that

> "Dalit children wait for mid-day meals until other caste will finish taking their mid-day meal at a government run primary school of village Bhagwanpura of Jalaun district".

An another story of class fourth student in a government run primary school of village Bhagwanpura of Jalaun district of UP says his teacher does not permit him to sit on the mat. He says

> "The Thakurs and Brahmin students in my class ask me to keep away from the mat. My teacher asks me to sit on the ground. In school during mid day meal (MDM), we are forcibly seated very far. The children from the general castes don't like to play with us. If I go to the teachers for checking the home work or class work, they see it without touching it." (India Together, August 17, 2007).

These discriminations will definitely affect the social and economic status of scheduled and backward class children in the villages. Therefore, it is imperative to learn that after more than six decades of affirmative policies still how much inequality exist in socioeconomic opportunities and poverty between and within caste groups in rural Uttar Pradesh, is an important research question needs empirical investigation. Therefore, in this context, this study has attempted to assess the current standing of social groups (SCs/STs, OBCs and General castes) in terms of key socioeconomic indicators. This study has three key objectives: 1) to assess the inequality of opportunities in landholding, education and wealth status. 2) To assess the multi-dimensional poverty among social groups. 3) To estimate within and between caste inequalities in landholding, educational and wealth status.

Data

In this study, we have used the data from a survey of four villages undertaken by the Giri Institute of Development Studies (GIDS), Lucknow in 2013 under the project 'Rural Transformation in Uttar Pradesh'. This survey was conducted in four villages selected from the four different economic regions of Uttar Pradesh. We have purposively selected Gohanakala village in Lucknow district of Central region, Senapur village in Jaunpur district of Eastern region, Pandari village in Chitrakoot district in Bundelkhand region, Seemli village in Muzzafarnagar district of Western region. While Gohanakala village is near to an urban center, Senapur village is located neither very near to an urban centre nor located in remote area and neither in very poor economic region nor in very rich economic region. While Pandari village is located in remote and economically backward region, Seemli village is located in economically prosperous region of the state. We have conducted a Census survey in the villages that all the households in the villages were enumerated with structured schedule. The sample size of Gohanakala (503), Senapur (471), Pandari (368) and Seemli (296) and their distribution across caste group were sufficient for testing Pearson Chi square test of significance of differences in socioeconomic status across the caste groups. In Uttar Pradesh as a whole, the presence of the scheduled tribe population is insignificant and the same thing also reflected in our sample villages. However, in case of Seemli village, we could not find a sufficient number of General caste households.

Methods

The inequalities in socioeconomic status of caste groups in villages of Uttar Pradesh were assessed in four ways. First, bivariate percentage differences in different socioeconomic indicators were presented by caste groups. The statistical significance of these differences was measured by Pearson Chi-square test. Second, Human Opportunity Index (HOI) was measured to assess inequalities in socioeconomic opportunities in selected villages of Uttar Pradesh. Third, we have estimated Multi-Dimensional Poverty Index (MPI) to assess the overall socioeconomic deprivation among caste groups. Fourth, inequalities in key socioeconomic outcome indicators by caste groups were decomposed to estimate the contribution of within and between group inequalities. The statistical procedure of the estimation of HOI, MPI and decomposition is discussed below.

Human Opportunity Index

Barros et al.'s (2009, 2011) Human opportunity index (HOI) has been widely used to highlight inequalities of socioeconomic opportunities. The HOI synthesizes two measures into a single indicator– first, the level or efficiency of basic opportunities in a society was measured through the average coverage rate for a given opportunity and second, how equitably those opportunities distributed were measured through index of dissimilarity. Thus, this measure was computed in two stages, first step was to estimate the index of dissimilarity for each factor. It was obtained by following formula

$$\mathrm{DI} = \frac{1}{2\bar{\mathrm{p}}} \sum_{k-1}^{n} \propto_k [\, P_K - \bar{p}]$$

Where *DI* represents the index of dissimilarity and $\bar{\mathrm{p}}$ is the coverage rates or average access. P_K is coverage for group k and $\propto_k$ is the weight of group k in total population.

The second step is the estimation of the HOI. It was obtained by the following formula.

$$\mathrm{HOI} = \bar{P}\,(1 - D)$$

Where *HOI* represents Human Opportunities Index, $\bar{P}$ the mean of the variable for population, *D* is the index of dissimilarity. *HOI* value represents the amount of gap that should be reduced to reach the perfect equality in a given population for given indicator.

Multidimensional Poverty Index (MPI): Identification of Indicators

Multidimensional poverty captures the deprivations of different basic needs of an individual. The MPI generally presents a different picture of poverty than income poverty. Amartya Sen has argued the need to take a multidimensional approach to poverty as well as development: "Human lives are battered and diminished in different ways, and the first task is to acknowledge that deprivations of very different kinds have to be accommodated within a general overarching framework" (Sen 2000). The operational procedure of estimation of Multidimensional Poverty Index (MPI) was developed in 2010 by Oxford Poverty & Human Development Initiative and the United Nations Development Programme and uses different factors to determine poverty which are beyond income-based lists (Alkire and Foster 2007).

Typically, the MPI has been measured on the basis of three dimensions: living standards, education and health. Each dimension includes a different set of indicators. According to Alkire et al (2011), "The MPI identifies an individual as deprived based on household

achievements so the unit of analysis is the household, then it was aggregated across all people". However, this criterion of identifying poor in terms of using available information for any household members and generalizing it to all household members has some serious drawbacks. For instance, if one adult or child in a household is undernourished that doesn't mean whole household members are undernourished. Similarly, if one child in the household has not attended school for 5 years or more that doesn't mean other children in the household also didn't go to school. In our data, we observed that in the same households, the educational and health attainment of the individual are different.

In this context, we have an opinion that a method which similar to HDI calculation is much better procedure to derive MPI rather than Alkire and Foster (2007) and Alkire et al (2011) method. Moreover, the definition of basic needs in fact a relative one. It changes as per time and place. Therefore, the coverage of this study, especially, in terms of the dimensions of living standard and education was more than previous studies which attempted to measure MPI. However, this study has a limitation of indicators in terms of health dimension where we have used only one indicator. In the typical MPI calculation includes infant mortality rate and nutritional status as indicators of health which were not possible to calculate from this survey. We have not collected information in nutritional status of household members. Though, we have collected information on infant and child deaths, but the sample was too less to consider, it has an indicator for generalization of health position on population of the village. The indicators considered in each dimension are presented and explained in table 1.

Weights

Principal Component Analysis (PCA) method was used for creating the individual dimension index score. Each of the components used in computation of the individual dimension index was assigned a weight (factor score) generated through PCA, except, in case of access to the health dimension where there was only one component. The resulting scores were standardized in relation to a normal distribution with the mean of zero and standard deviation of one. Then, poverty cut-off from standardised scores divided as 33.3% population of first lower quintiles considered as a poor and rest 33.3% middle and 33.3% rich were considered as non-poor. In the next step, unlike traditional approach giving equal weights to three dimensions, we have calculated two set of MPI. First, the geometric mean of individual dimension scores and second, the weighted mean of individual dimensions where weights

were – education and awareness (E) = 0.25, health (H) = 0.25 and assets and living standard (L) = 0.50. The mathematical form of MPI calculation is as follows:

$$MPI = L*0.50 + E*0.25 + H*0.25$$

Decomposition models

We have decomposed caste inequalities through three main measures: the Gini, Theil, and Atkinson inequality decomposition models. To decompose inequality in continuous variable like household landholding of caste groups, we have used the Gini decomposition model. On the other hand, to decompose inequality in categorical variables like education and health status, we have used Theil and Atkinson decomposition models.

Pyatt's Gini decomposition model

Pyatt (1976) has given the decomposition model of Gini coefficient. Gini index was used to calculate the change in inequality in household landholding among the caste groups of the four selected villages. Further, the Gini index was decomposed to derive the contribution of between and within group inequalities.

Let a population of 'n' individuals, with landholding vector ($y_1, y_2, y_3 \ldots\ldots y_n$) and mean landholding $\overline{y}$ is desegregated in 'k' subgroups, with $n = \sum_{j=1}^{k} n_j$ and subgroup mean is $\overline{y_j}$. The Gini index between two subgroups j and h can be expressed as

$$G_{jh} = \frac{1}{n_j\, n_h(\overline{y_j} + \overline{y_h})} \sum_{i=1}^{n_j} \sum_{r=1}^{n_h} |y_{ji} - y_{hr}|$$

If F(y) be the cumulative distribution function of landholding, then expected landholding difference between group j and h can be defined as

$d_{jh}^1 = \int_0^{\alpha} dF_j(y) \int_0^{y} (y - x)\, dF_h(x)$, for $y_{ji} > y_{hr}$ and $\overline{y_j} > \overline{y_h}$

$d_{jh}^2 = \int_0^{\alpha} dF_h(y) \int_0^{y} (y - x)\, dF_j(x)$, for $y_{ji} < y_{hr}$ and $\overline{y_j} > \overline{y_h}$

The relative landholding affluence is defined as

$$D_{jh} = \frac{d_{jh}^1 - d_{jh}^2}{d_{jh}^1 + d_{jh}^2}$$

If the population shares in subgroup j is $p_j = \frac{n_j}{n}$ and landholding share in subgroup j is $s_j = \frac{p_j \overline{y}_j}{\overline{y}}$, then the contribution to total inequality attributable to the difference between the k population subgroup is defined as:

$$G_b = \sum_{j=1}^{k} \sum_{h=1\ j\neq h}^{k} G_{jh}\ D_{jh}\left(p_j\ s_h + p_h\ s_j\right)$$

The Gini index for subgroup j is given by

$$G_{jj} = \frac{\sum_{i=1}^{n_j}\sum_{r=1}^{n_j}\left(y_{ij} - y_{rj}\right)}{2n_j^2\overline{y}_j}$$

The within group inequality index is the sum of Gini indices for all subgroups weighted by the product of population shares and landholding shares of the subgroups:

$$G_w = \sum_{j=1}^{k} G_{jj}\, p_j s_j$$

If subgroups are not overlapping, total inequality can be expressed as the sum of within group and between group indices. But, if subgroups are overlapping, we can add another component which is a part of between-group disparities issued from the overlap between the two distributions which measures the contribution of the intensity of transvariation. The contribution of the transvariation between the subpopulations to G is

$$G_t = \sum_{j=1}^{k} \sum_{h=1\ j\neq k}^{k} G_{jh}\ \left(1 - D_{jh}\right)\left(p_j\ s_h + p_h\ s_j\right)$$

Thus, Gini index can be decomposed into three components: within group inequality, between group inequality and inequality due to group overlapping:

$$G = G_w + G_b + G_t$$

Theil decomposition model

The Theil index is used to measure economic inequality. The basic Theil index T_T is the same as redundancy in information theory. It is a special case of the generalized entropy index. Mathematically the Theil index is written as:

$$T_T = \frac{1}{N}\sum_{i=1}^{N}\left(\frac{x_i}{\bar{x}}\ .\ln\frac{x_i}{\bar{x}}\right)$$

Where *x* represent educational or wealth status of different caste groups and $\bar{x}$ is the mean of *x.*

To decompose Theil's T index (i.e. GE(1)), let *Y* be the average educational or wealth status of the total population, *Yj* the educational or wealth status of a subgroup, *N* the total population, and *Nj* the population in the subgroup. Using *T* to represent GE(1)

$$T = \sum_j \left(\frac{Y_j}{Y}\right) T_j + \sum \left(\frac{Y_j}{Y}\right) \ln\left(\frac{Y_j/Y}{N_j/N}\right)$$

This decomposes the inequality measure into two components. The first term represents the within-group inequality and the second term represents the between-group inequality.

Atkinson's decomposition model

Atkinson (1983) proposed a set of measures to calculate inequality. Atkinson index of inequality, while far less widely used than Gini coefficients, meet all the criteria of scale independence, the principle of transfers and the principle of decomposition (Marsh, 1998). Atkinson's index introduces a specific parameter, ε, which represents the degree of inequality aversion: as inequality aversion increases so ε increases. Thus, ε=0 represents a social value judgment whereby people are totally unconcerned about inequality whereas, at the other extreme, $\varepsilon=\infty$ represents a social value judgment where only the welfare of the least well off person which is of concern (Atkinson, 1983). The formula of Atkinson index of inequality is

$$I = 1 - \left[\sum_{i=1}^{n} \left(Y_i/Y\right)^{1-\varepsilon} f_i\right]^{1/(1-\varepsilon)}$$

where $\varepsilon \neq 1$

$$I = 1 - \exp\left[\sum_{i=1}^{n} f_i \log_e\left(Y_i/Y\right)\right]$$

where $\varepsilon = 1$

Where Y_i denotes the education or wealth status of those in the ith caste group (n range altogether), f_i denotes the proportion of the population with the education and wealth status of those in the ith caste group and $\bar{Y}$ denotes the mean education or wealth status.

Results

Socioeconomic differentials by Caste groups

The socioeconomic differentials by caste groups were assessed in terms of key socioeconomic indicators viz. landholding, literacy and higher education status, and wealth status. The landholding differences by caste groups presented in table 2 revealed that landless households were highest in SCs compared to other two caste groups across four selected villages from four economic regions of Uttar Pradesh. In case of Gohanakala village of Lucknow district in Central region of the state, the results indicate that the landless

households among scheduled caste were nearly two times higher (45%, $p<0.01$) compared to OBCs (18%, $p<0.01$) and General caste (26%, $p<0.01$). The differences were more pervasive at large landholdings. In comparison with scheduled caste households the large landholdings were several times greater among General caste households. Also, such differences were statistically significant at $p<0.01$. Similar results also observed in other three villages. In Senapur village of Jaunpur district in Eastern region of the state, the percentage of households without any land was two times greater in scheduled caste (58%, $p<0.01$) in comparison with General caste (26%,$p<0.01$). These differences become manifold at large landholdings that, the SCs in this village were highly deprived in terms of large landholdings.

The situation of Pandari village in Chitrakoot districts was also more or less same. In comparison with General caste households, the scheduled caste households were two times higher in terms of percentage of landless category households. These differences become manifold in case of large landholdings and statistically significant at $p<0.01$. In case of Seemli village in Muzaffarnagar district of Western Uttar Pradesh, we found only three General caste households. Among other two caste groups, although, OBCs as compared to SCs were in disadvantageous position in terms of landless but in terms of large size of landholdings they were better-off in comparison with SCs.

Table 3 presents differences in literacy by caste groups. The results revealed that General castes were better-off in terms of literacy rate in all the four villages and these differences were statistically significant at $p<0.01$. Compared to SCs, the literacy rate among General caste was more than two times higher in Gohanakala and nearly two times higher in Senapur and Pandari. However, in Seemli, the literacy differences between OBCs and SCs were not significant. The difference between General caste and SCs in terms of higher education (Graduate and above) was more pervasive where General caste were in a better position compared to SCs. In comparison to SCs, the proportion of people who have higher education in General caste was nine times higher in Gohanakala, three times higher in Senapur, twelve times higher in Pandari and 3% higher in Seemli. These differences were statistically significant at $p<0.01$.

In table 4 we presented caste differences in wealth status (asset score) among the four selected villages of Uttar Pradesh. The results showed a huge difference in terms of wealth status among caste groups in all the four villages. In Gohanakala, poorest wealth quintile households among SCs were more than six times higher compared to General castes. In same

village, the richest wealth quintile was more than three times higher in General castes compared to SCs which was also statistically significant at $p<0.01$. In case of Senapur village, greater proportions of OBCs (27%) were observed with poorest wealth quintile compared to SCs (7%) and General caste (2%). However, in case of richest wealth status, SCs (11%) were in more disadvantageous position compared to OBCs (20%) and General castes (39%). Similarly in Pandari village, there was huge caste difference in terms of wealth status where 60% of SCs were living with poorest wealth status while in the same category, General caste households were less than 10%. It was exactly, opposite in terms of richest wealth status where General caste (21%) holding twenty times more wealth compared to SCs (1%). In Seemli village where there were no General caste households we found greater differences in wealth status between OBCs and SCs. The SC households were two times higher in terms of poorest wealth status compared to OBCs. These differences were also statistically significant at $p<0.01$.

Human Opportunity Index

In this section, we have presented the estimates of HOI for selected socioeconomic indicators by caste groups in four selected villages of Uttar Pradesh. Figure 1 shows the HOI of landholding opportunities among caste groups. The results of dissimilarity index revealed that highest dissimilarity in landholding opportunities were observed in Senapur village (0.72) followed by Pandari (0.36), Seemli (0.25) and Gohanakala (0.13). The HOI results revealed that less than one percent of land in Gohanakala (0.86%) and Senapur (0.60%) was equally distributed and remaining 99% of landholding opportunities were unequally distributed. Similarly, less than five percent of land was equally distributed in Pandari (4.72) and Seemli (4.56) and reaming 95% of landholding opportunities were unequally distributed.

In case of inequality in basic education opportunities, the estimation of HOI indicated that on an average only 60% of population has equal basic education opportunities, yet, remaining 40% were devoid of basic education opportunities across the four villages. The village specific results indicate that HOI was lowest in Pandari village of Bundelkhand region, followed by Gohanakala village of Central region. The Seemli village (71%) in Western region showed the highest HOI, followed by Senapur village (67%) in Eastern region (Figure 2). In terms of inequalities in higher education opportunities, the estimates of HOI shown in figure 3 reveal that across all the four villages only about 5 percent of higher education

opportunities were equally distributed. The village specific results showed that less than 3% of higher education opportunities were equally distributed in Gohanakala and Pandari villages. The estimates of HOI of economic opportunities in terms of wealth by caste groups showed that the lowest HOI was evident in Pandari village (5%), followed by Seemli (12%). It was slightly higher in Gohanakala (23%) and Senapur (16%) villages. Overall, across all the four villages less than 25% of economic opportunities were equally distributed. This indicates huge inequalities in economic opportunities across the different caste groups in the selected villages.

Multidimensional Poverty

This section presents the results of multidimensional poverty index by caste groups in selected villages of Uttar Pradesh (Table 4). As mentioned above, the multidimensional poverty was measured in three components of basic human needs. The poverty estimates in terms of educational dimension indicated that, except in Seemli village, it was consistently highest among SCs, followed by OBCs. General castes have lowest MPI across all the four selected villages. The educational poverty score differences between General and SCs was 0.29 in Gohanakala, 0.34 in Senapur and 0.30 in Pandari. However, poverty differences between OBCs and SCs were not very high. Indeed, in Seemli village OBCs were educationally backward than SCs.

The estimates of asset and living standard poverty indicate a high incidence of poverty amongst SCs and OBCs. Poverty score differences between General caste and SCs in terms of the assets and standard of living were higher than educational poverty score. The gap in the assets poverty score between General caste and SCs was 0.45 in Gohanakala, 0.35 in Senapur and 0.56 in Pandari. Significant differences have also been found in asset and living standard poverty score between OBCs and SCs. This difference was highest (0.24) in Seemli and lowest (.004) in Senapur. However, poverty scores in health dimension suggested considerable improvement in the health services across the four selected villages. Except, in Senapur (0.365), health poverty score was less than 0.25 in other villages, lowest was in the Gohankala village (0.131). Yet, wide variations can be seen in the health poverty among social groups. As compared to General and OBCs, SCs were significantly lagging behind in terms of health poverty.

Decomposing inequalities

In this section we have decomposed caste inequalities in household landholding, educational and wealth status into within and between group inequalities. The results of the total Gini index (GI) in household landholding of caste groups showed remarkably high inequalities in all the four villages. Further, it was highest in Seemli and Senapur (GI = above 0.75), followed by Pandari (GI = 0.650) and Gohanakala (GI = 0.613). Further, the decomposition of Gini index revealed that between group (BG) inequalities contribute more compared to within group (WG) inequalities in Senapur (WG = 0.184, BG = 0.492) and Pandari (WG = 0.191, BG = 0.299) villages. However, within group inequalities contribute more compared to between group inequalities in Seemli (WG= 0.407, BG =0.049). Decomposition of Gini index in Gohanakala village showed equal contribution of both within and between inequalities (WG = 0.210, BG = 0.211).

Theil and Atkinson decomposition analyses were performed to estimate within and between group inequalities in educational and wealth status of caste groups. In case of educational status, the results revealed that more than 90% of total caste inequalities in educational status in all the four villages were contributed by within group inequalities. The comparison of villages revealed that the contribution of within group inequalities in educational status was above 95% in Senapur and Pandari whereas it was above 90% in Gohanakala and Seemli. Similar results were evident in case of within and between caste group inequalities in wealth status. The contribution of within caste group inequalities to total caste group inequalities in wealth status was around 90% in Gohanakala, 85% in Senapur, near about 80% in Pandari but it was 97% in Seemli.

Discussion

In this study, we have assessed inequalities in socioeconomic opportunities and multi-dimensional poverty among social groups in rural Uttar Pradesh by collecting evidence from four village census surveys. The findings of this study provided evidence for huge inequalities in socioeconomic opportunities and multi-dimensional poverty across the caste groups in all the four villages of Uttar Pradesh. It was consistently found across all the four villages that scheduled castes were in a disadvantageous position in terms of landholding, educational and economic opportunities. Though, other backward castes were better than scheduled castes but worse compared to General castes in terms of all socioeconomic

indicators. These inequalities were worse in terms of landholding and higher education opportunities compared to other assets distribution and literacy rate. A composite measure of multi-dimensional poverty also indicated huge inequalities across the caste groups. Moreover, caste group inequalities in MPI was greater in Pandari village located in the backward region like Bundelkhand, followed by Senapur village of Eastern region but comparatively less in Seemli village located in developed Western region of the state.

Decomposing caste group inequalities into between and within group inequalities in landholding, education and wealth status foster that between group inequalities among caste continue to persist in landholding, especially, among the villages (Pandari and Senapur) located in poorer region of the state. Gohankala village which is near to urban center suggest presence of both within and between inequalities. Seemli village which has only OBCs and SCs suggest greater contribution from within group inequalities. However, in case of both education and wealth status, within group inequalities contributed 80-90% of total inequalities. Overall, findings of this study suggested huge inter-caste inequalities in landholding, intra-caste inequalities in education and wealth status in selected villages of Uttar Pradesh.

Conclusion

With the help of analyses of information collected from four village census in four regions of Uttar Pradesh, we made some important conclusions related to each dimension. First, huge inequalities of opportunities in terms of landholding, especially, large landholdings reflect failure of Uttar Pradesh Government in implementation of land reforms. Some of the previous studies have theoretically argued that the land ceiling law has been ineffective to make any dent on the landholding structure of the state in Uttar Pradesh. Further, the recently notified Uttar Pradesh revenue Code 2006 weakens the pro-poor provisions of the UP Zamindari Abolition and Land Reforms Act, 1950. It is a huge blow to efforts in the direction of uniform distribution of land resources in Uttar Pradesh (Trivedi, 2013). The affirmative action efforts in terms of bringing equity in landholding are less intensive and effective compared to education and employment. The affirmative policies rather failed to fight against 'caste-feudal system' in landholding. This could be one reason why between group caste inequalities in landholding still dominant in remote villages of Uttar Pradesh.

Second, in terms of education, though, literacy rate has improved across all the caste groups, yet, higher education failed to penetrate into scheduled castes in comparison to other

backward and general castes. The continued discrimination and unequal treatment of dalit children in schools (Union Human Resource Development, 2012) and poor economic status are possibly the major reason for SCs not reaching higher education. Majority of them dropping before completion of high schools, thus, not reaching higher education. Third, the skewed wealth distribution and high prevalence of multidimensional poverty among SCs can also be attributed for continued chronic caste inequalities in major resources like landholding and higher education in the villages of Uttar Pradesh. Uttar Pradesh had a major political movement to mobilise the dalits and the other backward castes in the state. However, like previous studies (Pai and Singh, 1997; Mehrotra, 2006; Narayan, 2014), our newest empirical findings revealed that UP's lower castes had, before the mobilisation began, and still have, the worst social indicators in the state and in the country. Moreover, our decomposition analyses provide an hint that reservation policies advantage in education may not reaching the entire lower caste group equally rather its fruits unequally distributed within the SCs and OBCs as evident from huge within group inequalities.

Though, the conclusions of this study mayn't sound entirely unmarked but they are re-assuring evidence towards huge existing socioeconomic inequalities among caste groups with latest evidence primarily collected from the village census surveys. Thus, the findings of the study definitely refresh our thought on the persisting socio-economic inequalities among the caste groups in villages of Uttar Pradesh. Also, re-stress the relevance of caste system in understanding socio-economic position of individuals in modern society in India. Moreover, we agreed with some of the previous study's findings to change in the idealism of traditional caste practices across the scheduled castes who continued to imitate their counterparts (Pai and Singh, 1997; Mehrotra, 2006; Narayan, 2014) but still a huge gap need to be closed in terms of material and status holding across the caste groups in Uttar Pradesh. Land holdings and higher education are crucial instruments to uplift the scheduled caste of Uttar Pradesh. The government of Uttar Pradesh and Central government need to take note of these huge inequalities in landholding and higher education. Especially, the Uttar Pradesh Government need to take back recently notified Uttar Pradesh revenue Code 2006 which weakens the equidistribution of land in the state. In order to prevent the dropout rates of dalit students from schools, there is need to eliminate the social and cultural discrimination and unequal treatment of dalits at schools. The government needs to bring more higher education opportunities and strengthen the financial support mechanism for higher education in order to improve higher education enrollment among lower social groups in the state.

However, a new challenge is to address an emerging strong argument that reservations tend to benefit a ‘creamy layer’ of SCs and STs. In their direct impact, reservation policies have increased inequalities within the SCs and STs populations (Weisskopf, 2004; Verma, 2010). By taking this argument into consideration some states have introduced 'quota to backward SC/ST within SC/ST quota' but it invited a serious protest from other SCs/STs as evident in the state of Andhra Pradesh ultimately led to cancellation of such provisions. Moreover, Desai and Kulkarni (2008) said “they do not find any evidence that so-called creamy layer of dalits and adivasis, disproportionately benefit from the affirmative action programme at the expense of their lower-income counterparts”. Further, bringing the general caste poor under the protection of affirmative programmes is gaining grounds in opinion of the academic community and policy makers. However, HOI plots support that within inequalities in General caste is much less compared to within inequalities in SCs and OBCs. The absolute number of poor in General caste is very less compared to their counter parts. Looking towards an alternative policy option, Deshpande (2012) is in opinion that in order to reduce caste discrimination, increasing quotas in higher education and formal employment cannot be a solution rather increased access to productive assets such as land through land reforms, and to alternative sources of livelihoods through rural non-farm employment should be the targeted strategy. Nevertheless, this is a crucial juncture to strengthen existing protective measures, address the loopholes and ensure proper implementation to reach the benefits to the SCs/STs in general and most backward SCs/STs in particular to avoid the both within and between caste inequalities. Furthermore, historically breaking endogamy system of marriage practices is treated to be an important affirmative action to reduce caste inequalities in India because still there is a huge resistance for inter-caste marriage. Even if the higher educated and higher economic status scheduled caste boy/girls are rarely allowed to marrying even poor upper caste girls/boys. Thus, there is also need to bring change in caste mindset of the people (Goli et al., 2013). Therefore, any efforts to break caste order should adopt multiple approaches ranging from cultural to social and economic discriminations in Uttar Pradesh as well as in India.

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Table 1. The dimensions, indicators, deprivation thresholds of the MPI

Dimension	Indicator	Poor if
Assets and Standard of Living	House	Living in kuccha, mud, semi-pucca house
	TV and Mobile*	The household does not own any one or both - *TV or mobile*
	Electricity	The household does not have electricity
	Drinking water	a household does not have portable water facility within the periphery of 100 meters
	Sanitation facility	A household does not have toilet at home, or the toilet is shared (community toilets)
	Cooking fuel	A household cook with wood, kerosene, charcoal, or dung
	Financial services	A household does not have a post office or bank account
Education and general awareness	Years of schooling	A person have completed less than 5 years of schooling
	Information about centrally sponsored schemes	A respondent or person is not aware about the benefits available under at least three Centrally Sponsored Schemes viz. SGSY, MNREGA, IYA, OAP, TSC, ARWSP, SSA
Access to health	Institutional delivery	Delivery of last child took place at home among women in age group 15-49 is considered to be poor

* We did not included cycle in this category. In the current times absence of cycle does not mean - he is poor or not, as many high income people also don't own cycle in many cases.

Table 2. Landholding among Caste Groups in selected Villages of Uttar Pradesh, 2013

Caste Groups	Land Less	0.1 to 1.00	1.00 to 2.5	2.5 to 5.0	Above 5.0	Chi square test value and significance	Mean Distribution of Land (in acres)	n (Sample)
Gohanakala (Lucknow District, Central Region)								
General	25.80	28.10	29.20	15.70	1.10	64.547***	1.44	89
OBC	17.90	43.70	32.10	5.20	1.20		0.94	252
SC	45.10	39.50	13.00	1.90	0.60		0.78	162
Total	28.00	39.60	25.40	6.00	1.00		1.07	503
Senapur (Jaunpur District, Eastern Region)								
General	26.40	26.40	32.60	7.00	7.80	93.897***	2.05	129
OBC	35.90	43.70	17.50	2.90	0.00		0.55	103
SC	58.60	31.60	8.90	0.80	0.00		0.52	237
Total	45.00	32.70	17.20	3.00	2.10		1.56	471
Pandari (Chitrakoot, Bundelkhan Region)								
General	17.00	0.00	38.30	17.00	27.70	65.038***	5.68	47
OBC	23.10	20.70	29.60	22.50	4.10		1.68	171
SC	36.20	29.60	18.40	11.20	4.60		1.44	122
Total	27.70	21.70	26.10	17.10	7.30		2.98	368
Shamli (Muzaffarnagar, Western Region)								
General	33.30	66.70	0.00	0.00	0.00	24.141***	0.23	3
OBC	60.80	13.50	10.50	6.40	8.80		2.83	171
SC	47.50	19.70	25.40	4.90	2.50		2.04	122
Total	55.10	16.60	16.60	5.70	6.10		2.51	296

Note: Significance level *** = P value <0.01

Table 3. Educational status of Caste Groups in selected villages of Uttar Pradesh, 2013

Caste Groups	Illiterate	Literate	Chi square	Below Graduation	Graduation and above	Chi square	n (Sample)
Gohanakala (Lucknow, Central Uttar Pradesh)							
General	16.90	83.10		90.80	9.20		479
OBC	32.10	67.90	109.977***	96.30	3.70	53.548***	1473
SC	44.80	55.20		98.80	1.20		854
Total	33.40	66.60		96.20	3.80		2806
Senapur (Jaunpur District, Eastern Region)							
General	20.30	79.70		85.70	14.30		685
OBC	31.70	68.30		95.30	4.70	58.812***	598
SC	35.50	64.50	55.699***	94.30	5.70		1399
	71.40	28.60		100.00	0.00		7
Total	30.90	69.10		92.40	7.60		2689
Pandari (Chitrakoot, Bundelkhan Region)							
General	19.40	80.60		87.40	12.60		206
OBC	42.30	57.70	44.902***	98.80	1.20	81.497***	824
SC	44.90	55.10		98.10	1.90		727
Total	40.70	59.30		97.20	2.80		1757
Shamli (Muzaffarnagar, Western Region)							
General	21.40	78.60		92.90	7.10		14
OBC	27.20	72.80	1.745NS	95.80	4.20	0.373NS	1014
SC	29.90	70.10		96.00	4.00		700
Total	28.20	71.80		95.80	4.20		1728

Note: Significance level *** = P value <0.01. NS – Not Significant.

Table 4. Wealth status of Caste Groups in different villages of Uttar Pradesh, 2013

Caste Groups	Poorest	Second	Middle	Fourth	Richest	N (Sample)	Chi square
Gohanakala (Lucknow, Central Region)							
General	4.50	2.20	13.50	28.10	51.70	89	
OBC	15.50	15.10	14.70	21.00	33.70	252	
SC	26.50	20.40	19.80	17.90	15.40	162	60.618***
Total	17.10	14.50	16.10	21.30	31.00	503	
Senapur (Jaunpur District, Eastern Region)							
General	2.30	10.90	17.10	31.00	38.80	129	
OBC	22.30	22.30	17.50	17.50	20.40	103	
SC	7.20	36.70	31.60	13.50	11.00	237	109.296***
ST	0.00	100.00	0.00	0.00	0.00	2	
Total	9.10	26.80	24.40	19.10	20.60	471	
Pandari (Chitrakoot, Bundelkhan Region)							
General	8.50	8.50	27.70	34.00	21.30	47	
OBC	40.80	18.30	17.80	15.40	7.70	171	
SC	59.90	18.40	13.20	7.20	1.30	122	68.589***
Total	44.60	17.10	17.10	14.40	6.80	368	
Shamli (Muzaffarnagar, Western Region)							
General	0.00	0.00	66.70	33.30	0.00	3	
OBC	8.20	21.10	19.30	33.90	17.50	171	
SC	18.00	23.00	27.90	15.60	15.60	122	21.322***
Total	12.20	21.60	23.30	26.40	16.60	296	

Note: Significance level *** = P value <0.01

Table 5. Multidimensional Poverty among caste groups in selected villages of Uttar Pradesh, 2013

Village (District, Region)	Social Group	Index of Educational and General awareness Poverty	Index of Asset And Living Standard Poverty	Index of Health Poverty	Multidimensional Poverty Index	
					Geometric mean	Simple weighted
Gohanakala	General	0.501	0.180	0.091	0.202	0.238
(Lucknow,	OBC	0.697	0.464	0.038	0.232	0.416
Central Uttar	SC	0.795	0.630	0.250	0.500	0.576
Pradesh)	Total	0.693	0.467	0.131	0.349	0.440
Senapur	General	0.448	0.295	0.167	0.280	0.301
(Jaunpur	OBC	0.678	0.650	0.273	0.494	0.563
District, Eastern	SC	0.691	0.654	0.500	0.609	0.625
Region)	Total	0.626	0.556	0.365	0.503	0.526
Pandari	General	0.488	0.319	0.333	0.373	0.365
(Chitrakoot,	OBC	0.728	0.769	0.143	0.431	0.602
Bundelkhan	SC	0.786	0.882	0.333	0.614	0.721
Region),	Total					
Bundelkhan						
Region)		0.724	0.758	0.222	0.496	0.616
Shamli	General	-	-	-	-	-
(Muzaffarnagar,	OBC	0.680	0.327	0.158	0.327	0.373
Western	SC	0.633	0.574	0.300	0.478	0.520
Region)	Total	0.661	0.426	0.200	0.383	0.428

Weights- Education = 0.25; Health = 0.25; Assets and living standard = 0.50. *Geometric mean cannot be calculated as one of the values is zero/no value.

Table 6: Decomposition of Caste Inequalities in Socio-economic Status in Selected Villages Uttar Pradesh, 2013

Village	Measure	Landholding			Educational Status			Wealth status		
		Within group	Between group	Total	Within group	Between group	Total	Within group	Between group	Total
Gohanakala (Lucknow, Central Region)	Theil index	-	-	-	0.1851	0.0159	0.2010	0.0986	0.0109	0.1095
	Atkinson index	-	-	-	0.1837	0.0165	0.1971	0.1125	0.0167	0.1273
	Gini index	0.210	0.211	0.613	-	-	-	-	-	-
Senapur (Jaunpur, Eastern Region)	Theil index	-	-	-	0.2114	0.0111	0.2226	0.0753	0.0109	0.0862
	Atkinson index	-	-	-	0.2100	0.0119	0.2194	0.0807	0.1405	0.0937
	Gini index	0.184	0.492	0.754	-	-	-	-	-	-
Pandari (Chitrakoot, Bundelkhand Region)	Theil index	-	-	-	0.2014	0.0131	0.2145	0.1417	0.0302	0.1719
	Atkinson index	-	-	-	0.1935	0.0122	0.2033	0.1365	0.0333	0.1652
	Gini index	0.191	0.299	0.650	-	-	-	-	-	-
Shamli (Muzaffarnagar, Western Region)	Theil index	-	-	-	0.1913	0.0001	0.1914	0.0866	0.0024	0.0890
	Atkinson index	-	-	-	0.1884	0.0000	0.1885	0.0961	0.0039	0.0997
	Gini index	0.407	0.049	0.791	-	-	-	-	-	

Note: Overlap contribution for Gini indices are not shown in the table, therefore, within and between total will not equal to total Gini index.

Figure 1. HOI of landholding by caste groups in selected villages of Uttar Pradesh, 2013

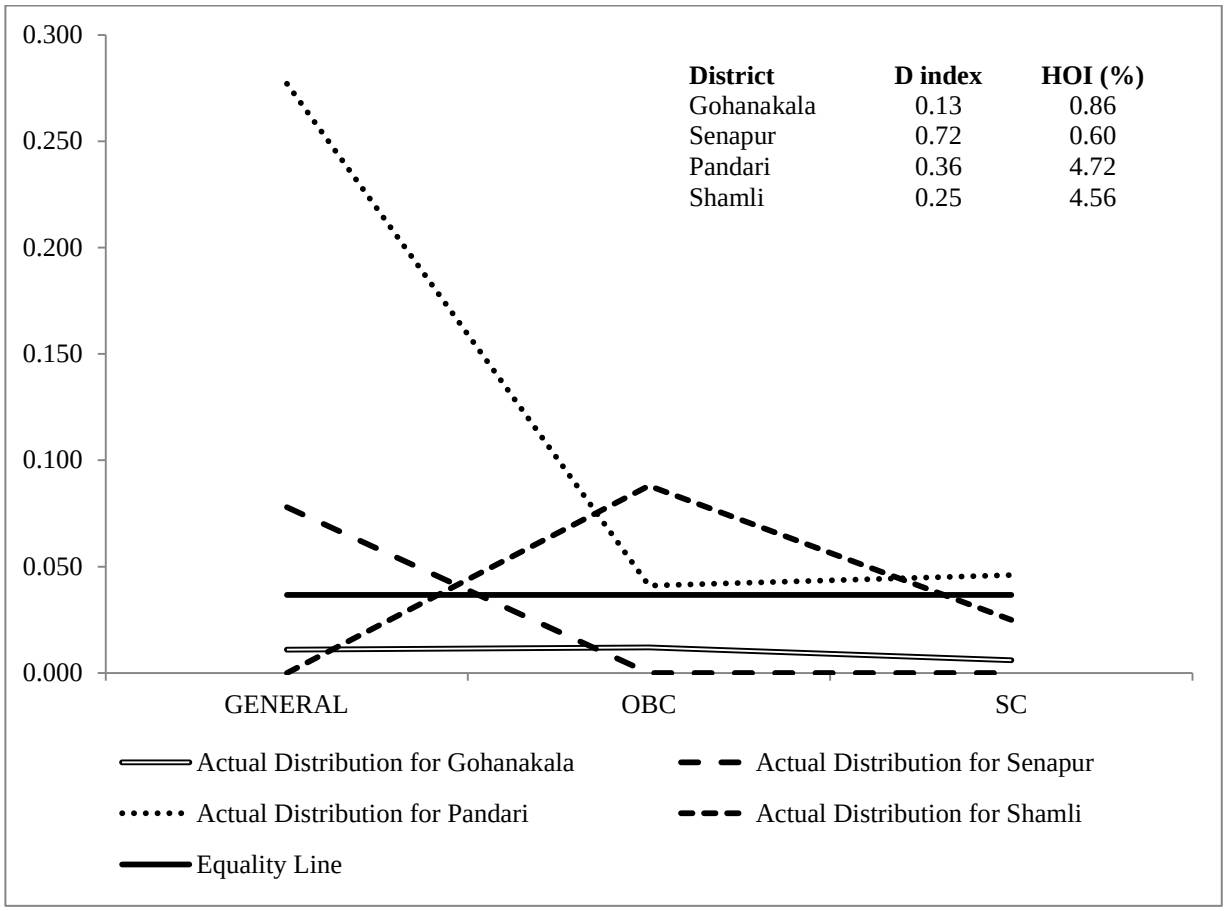

Figure 2. HOI of basic education by caste groups in selected villages of Uttar Pradesh, 2013

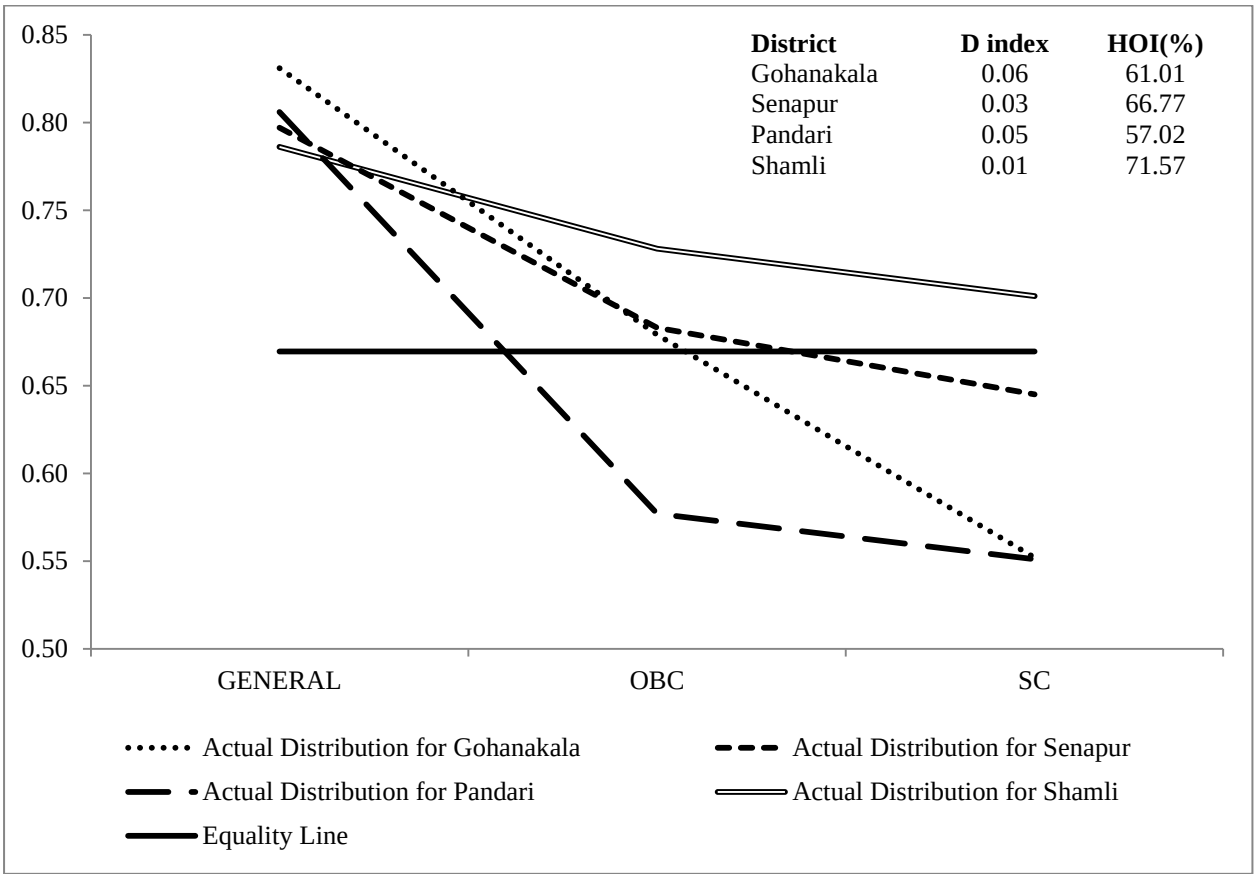

Figure 3. HOI of higher education by caste groups in selected villages of Uttar Pradesh, 2013

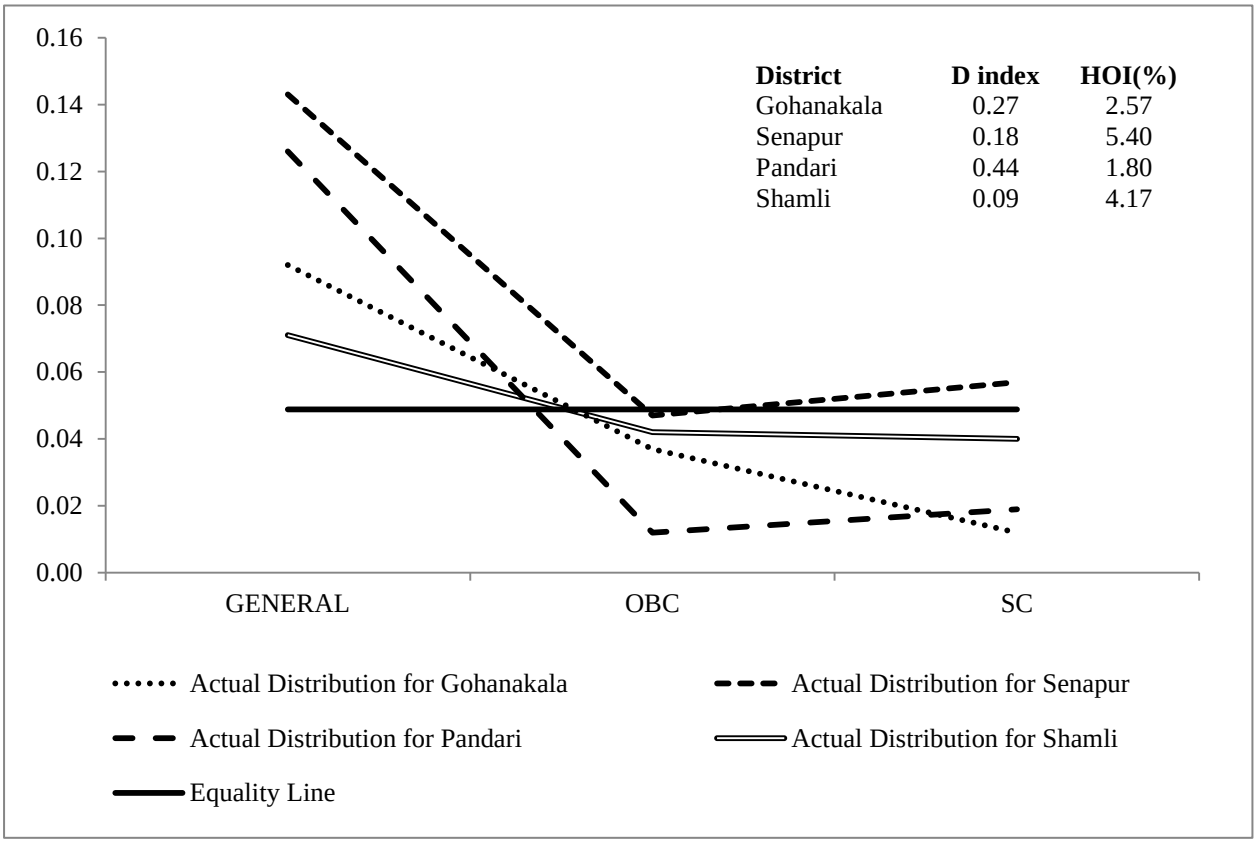

Figure 4. HOI of wealth status by caste groups in selected villages of Uttar Pradesh, 2013