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Caste, Inequality, and Poverty: Inter-household Income and Consumption Disparities in India

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WORKING PAPER SERIES
Volume VII Number 06, 2013

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Working Paper
Indian Institute of Dalit Studies
New Delhi
2013

Foreword

The Indian Institute of Dalit Studies (IIDS) is among a handful of Indian organizations that have pioneered research exclusively on development issues of the marginalized groups and socially excluded communities. Over the last 12 years, IIDS has carried out several studies on different aspects of social exclusion and discrimination of the historically marginalized social groups, such as Scheduled Castes, Scheduled Tribes and Religious Minorities in India and other parts of the sub-continent. The Working Paper Series disseminates empirical findings of on-going research and conceptual development on issues pertaining to various forms and nature of social exclusion and discrimination. Some of our papers also critically examine inclusive policies for the marginalized social groups.

The working paper 'Caste, Inequality, and Poverty: Inter-household Income and Consumption Disparities in India' attempts to analyse caste based inequality and poverty in India. The paper also presents an analysis of inequality and poverty of rural households in India from consumption and income perspectives. It has used unit level data from the Indian Human Development Survey (IHDS) for over 17000 households. Findings of the paper reveal that the primary determinant of a household's consumption and expenditure depends on its access to productive assets (education, land and complementary assets) overlying factors such as geography (where they are located) and social identities such as caste which play a crucial role. Scheduled caste and OBC households are not endowed enough with productive assets, thus they are often found to be concentrated in disadvantageous locations or on difficult terrains.

We hope this working paper will be helpful to academicians, students, activists, civil society organisations and policymakers.

Nidhi S. Sabharwal

Director

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Caste, Inequality, and Poverty: Inter-Household Income and Consumption Disparities in India

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Abstract

The contribution of this paper was to use unit record data from the Indian Human Development Survey, for over 17,000 households, to examine the twin issues of inequality and poverty of rural households in India from two perspectives: consumption and income. In examining these two issues, from these two perspectives, the overriding purpose was to examine whether there was a "caste basis" to inequality and poverty in India. Our overarching conclusion was that, alas, households' outcomes with respect to their position on the distributional ladder, or with respect to their chances of being poor, were dependent in large measure on their caste. The primary determinant of a household's income and consumption were its assets where these 'productive' assets took three forms: education, land and complementary assets like tubewells and tractors, and human assets in the form of adult members. Overlaying these factors was the good (or bad) fortune of geography – living in the right (or wrong) parts of India. In this context, caste disadvantage stemmed from two sources: SC and OBC households were not as asset rich as HCH assets but, even when they did have assets, these were rewarded at a considerably lower rate than that obtained by HCH households. Geography, too, played its part in providing a caste basis to income and consumption. The more affluent parts of India offered higher standards of living to all but the benefits were tilted in favour of high caste Hindu households. JEL: I14, I38

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1. Introduction

The measurement of disparity between households in the context of inequality and poverty raises two separate issues. First, there is the issue of the 'household resources' that best provides a measure of household welfare in terms of its position on the economic scale. Second, in the context of households being grouped according to some immutable characteristic – race in the USA, caste in India – there is question as to whether its economic position has a 'group bias'. In other words, *ceteris paribus* are households from some (racial or caste) groups more likely to find themselves at the bottom of the pile than households from other groups? Does the capacity to generate income or consumption, or to escape poverty, depend not just upon relevant attributes (like education and assets) but also upon irrelevant features like group identity?

As regards the first question, resources can be defined in a number of ways but the first, and most obvious, is **income**. However, defining resources in terms of income poses several problems. First, income is difficult to measure: households receive income from a variety of sources and reporting from certain sources may be more reliable than others; indeed, certain sources may not even be revealed for tax avoidance purposes. Second, income is a volatile entity, high in certain periods and low in others. So, current income reflects a household's current position but not its long-run position.

However, households are able to smooth the volatility of income in terms of consumption by drawing down assets in lean periods and building up assets in good periods. Consumption is a better measure of the long run resources available to the family/household (their permanent income) than annual income. Income measures fail to capture differences across families and over time in the accumulation of assets and access to credit. This raises the question of whether, compared to income, **consumption** is a better measure of household welfare.

Although studies of wellbeing typically examine income data, which are available in many large national representative surveys, and poverty statistics for most developed countries rely on income data, Meyer and Sullivan (2009, 2011) argue that a rate based on consumption, instead of

income, would provide more insight on the well-being of Americans. The World Bank (Haughton and Khandker, 2009) echoes these feelings. Income, defined in principle as *consumption + change in net worth*, is generally used as a measure of welfare in developed countries, but it tends to be seriously understated in less developed countries. Consumption is less understated and comes closer to measuring 'permanent income'.

In terms of the second question, relating to the role of group identity in shaping economic welfare, the focus of this paper is on India and its caste structure. The contextual background to the study is the division of Indian society into a number of social groups delineated by caste and religion. There is, first, the caste system, which stratifies Hindus, who constitute eighty per cent of India's population, into mutually exclusive caste groups, membership of which is determined entirely by birth. Very broadly, one can think of four subgroups: *brahmins*; *kshatriyas*; *vaisyas*; and *sudras*. Brahmins, who were traditionally priests and teachers, represent the highest caste; *Kshatriyas* (traditionally, warriors and rulers) and *Vaisyas* (traditionally, moneylenders and traders) are "high caste" Hindus; the *Sudras* (traditionally performing menial jobs) constitute the "other backward classes" (OBC).

Then there are those persons (also Hindus) whom Hindus belonging to the four caste groups (listed above) regard as being outside the caste system because they are 'untouchable' in the sense that physical contact with them - most usually the acceptance of food or water - is polluting or unclean. In response to the burden of social stigma and economic backwardness borne by persons belonging to India's "untouchable castes", the Constitution of India allows for special provisions for members of these castes[1]. Articles 341 and 342 include a list of castes entitled to such benefits and all those groups included in this list – and subsequent modifications to this list – are referred to as, respectively, "Scheduled Castes". For all practical purposes the term "Scheduled Castes" (SC) is synonymous with the former "untouchable" castes.

Against this background, Deshpande (2001) has observed: "poverty and inequality has been extensively researched but the focus of economic research has been on identifying and defining the contours of poverty and redistribution policies that target the poor as a group…this has excluded the

study of other ingredients of stratification, most notably caste, and precludes any inferences about inter-group disparity based on caste" (p. 130).

Most economic studies of caste in India focus – for reasons cited above – on the SC versus non-SC distinction. Given this common cleavage, broadly speaking, they fall into two camps: studies of caste-based discrimination; and studies of economic disparities between castes. The first group typically estimates earnings functions for SC and non-SC workers with a view to seeing how much of the earnings difference between the two groups can be explained by differences in worker qualities (for example, Banerjee and Knight, 1985). The second group is concerned with measuring the degree of economic disparity between, on the one hand, SC persons/households and, on the other hand, non-SC persons/households (Gang *et. al.* 2002; Deshpande, 2000a; Sagar and Pan 1994).

In this context, the novelty of this paper is twofold. First, by distinguishing between three caste groups – high caste Hindus (Brahmins, *Kshatriyas*, and *Vaisyas*); the OBC (*sudras*) and the SC (outside the caste system) it embodies a richer caste breakdown than the usual SC non-SC distinction adopted by most studies. Second, the paper attempts to combine the two strands of research by analysing inequality and poverty in India within the context of caste-based discrimination. It does so by decomposing the difference between high caste Hindu households and their SC and OBC counterparts in: (i) their average household incomes; (ii) their monthly consumption expenditure; and (iii) their probabilities of being at different levels of poverty into: (a) a 'discrimination effect', which stems from the fact that its income/consumption depends upon its caste identity; (b) an 'attributes effect' which stems from the fact that there are systematic differences between households in the caste groups in terms of their asset endowments.[2]

2. Inter-Caste Disparities in Households' Monthly, Per Capita Consumption Expenditure

The data for the analysis was from the household file of the Indian Human Development Survey (IHDS) which provided information, pertaining to 2004, on over 41,000 households spread over India. Alongside, this data, the IHDS also provided information on the monthly per capita consumption expenditure (hereafter, MCE) of households.

Table 1 below provides information on the income and assets of *rural* households in India, by caste: high caste Hindus (HCH), Hindus from the other backward classes (OBC), and the Scheduled Castes (SC). This shows that the average incomes of SC (Rs. 31,141), and OBC (Rs. 37,463), households were, respectively, 53% and 64% of the income of HCH households (Rs. 58,776). At the same time, the MCE of SC (Rs. 657), and OBC (Rs. 748), households was, respectively, 64% and 73% of the income of HCH households (Rs. 1,026).

Not only did SC and OBC households have less income and spend less on consumption than HCH households, they were also relatively deprived in terms of asset ownership. Three-fourths of HCH households owned or cultivated land, compared to two-thirds of OBC households and considerably less than half of SC households. Moreover, the amounts of land owned by SC and OBC households, respectively, only one-fifth and two-thirds that of HCH households. In terms of non-land assets as well, SC households were the worst off compared to OBC and HCH households. For example: 96 per cent of SC households, compared to 85% of HCH households and 89% of OBC households, did not own a tubewell; 50% of SC households, compared to 45% of HCH households, did not have a cow; 52% of SC households, compared to 42% of HCH households, did not have a buffalo.

This section "models" consumption inequality in the context of estimating the relative strengths of the different factors affecting households' MCE in India and examining how this varies across SC, ST and Hindu households. It was hypothesised that a household's MCE would *inter alia* depend upon the following factors:

1. The caste of the household: HCH, OBC, or SC
2. Whether the household contained a literate person
3. The highest education level of an adult in the household: low, if up to class 5; medium, if higher than class 5 but less than class 10 (Matric); high, if Matric or above.[3]
4. Whether the household owned any of the following assets:
   i. Tube well
   ii. Electric pump

iii. Diesel pump

iv. Bullock cart

v. Tractor

vi. Thresher

vii. Cows, including the number of cows

viii. Buffaloes, including the number of buffaloes

V. The region in which the household lived: Central; South; West; East; and North[4].

The coefficient on each of the variables listed under II-VI, above, was allowed to vary according to the caste of the household. Consequently, if X_i represents the value of the value of an explanatory variable for household *i*, *(i=1....N)*, then the equations that were estimated took the form:

$$MCE_i = \alpha_1 \times HCH_i + \alpha_2 \times OBC_i + \alpha_3 \times SC_i + \beta_1 \times X_i + \beta_2 \times (X_i \times OBC_i) + \beta_3 \times (X_i \times SC_i) + \varepsilon_i \quad (1)$$

Where there are *N* households, indexed *i=1...N* such that*:*

a. MCE_i is the monthly per capita consumption expenditure of household *i*

b. $HCH_i=1$, the if household *i* is a high caste Hindu household, 0 otherwise

c. $OBC_i=1$, if household *i* is an OBC (Hindu) household, 0 otherwise

d. $SC_i=1$, if household *i* is a SC household, 0 otherwise

e. X_i is the value of the explanatory variable for household *i*

f. The α and β are coefficients

The interpretation of the coefficients is as follows:

1. The coefficients α_1, α_2, and α_3 are the intercept terms associated with HCH, OBC, and SC households. The presence of these terms ensures that the equation passes through the mean. In other words, if all the explanatory variables took as values their sample means, the predicted value of income would be the mean consumption.
2. The coefficient β_1 is the effect associated with the explanatory variable *for all households.*
3. The coefficient β_2 is the *additional* effect associated with the explanatory variable for *OBC households only*.

If β_2 is significantly different from zero, then this means that the variable has a (statistically significant) different effect on OBC households compared to its effect on HCH households. If β_2 is not significantly different from zero, then this means that there is no (statistically significant) difference in the variable's effect between OBC and HCH households.

4. The coefficient β_3 is the *additional* effect associated with the explanatory variable for *SC households only*.

   If β_3 is significantly different from zero, then this means that the variable has a (statistically significant) different effect on SC households compared to its effect on HCH households. If β_3 is not significantly different from zero, then this means that there is no (statistically significant) difference in the variable's effect between SC and HCH households.

The study reported in this paper - with certain differences in econometric methodology - is similar to van de Walle and Gunewardena's (2001) study of income inequality in Vietnam, with reference to its 'majority' (*Kinh*) and minority (non-*Kinh*) ethnic populations. Given the small number of locations, and the large number of households in our study, compared to that of van de Walle and Gunewardena (2001), the effects of region and ethnicity were accommodated, as described above, by employing interaction terms. This allowed not only separate intercept terms for each region and each ethnicity, but also separate slope coefficients. By contrast, estimating the income generating equation separately for the different ethnic groups, as did van de Walle and Gunewardena (2001), meant that they were confined to testing, via a Chow test, for the inter-ethnic equality of the entire coefficient vector without being able to focus on the subset of the covariates whose coefficients were significantly different between the groups.

Table 2 shows the results of estimating equation (1) using *rural* households' MCE as the dependent variable. Using the results of Table 2, the monthly per capita consumption expenditure of a *rural* HCH household, living in the East, and without any assets (education, land, non-land productive assets) would be 613.83 rupees. Acquiring educational assets in the form of a literate person in the household would add 26.25 rupees to this and acquiring educational assets in the form of an adult in the household educated to the level of matric (or higher) would add 400.87 rupees.

Households that owned or cultivated land would add 93.36 to their MCE and the further acquisition of complementary non-land productive assets would increase MCE as shown below, the largest increase (279.40 rupees) going to households who acquired a tractor followed by an increase of 113.17 rupees for households owning a diesel pump. Owning cows and buffalos increased MCE with the increase per animal being considerably greater for buffalos (39.35 rupees) compared to cows (6.16 rupees).

A household's MCE also depended on the region in which it lived. With the East as the reference region, living in the North *added* 337.52 rupees, and living in the South added 226.32 rupees, to MCE. On the other hand, compared to living in the East, living in the West and in the Centre *reduced* MCE by, respectively, 153.75 and 166.57 rupees.

Monthly (per capita) Consumption Expenditure of HCH households

Source	Amount
Intercept	614
Literate in Household adds:	26
Matric or more of highest educated adult adds:	401
Owning/ cultivating land adds:	93
Owning a tubewell adds:	66
Owning an electric pump adds:	53
Owning a diesel pump adds:	113
Owning a tractor adds:	279
Owning a thresher adds:	66.11
Owning 2.58 cows adds:	6.16×2.58=16
Owning 2.66 buffaloes adds	39.35×2.66=105
Living in the North adds:	338
Living in the South adds:	226
Living in the West adds:	-154
Living in the Centre adds:	-167

These results pertain to a HCH household. They change with respect to OBC and SC household in several respects:

1. Compared to HCH households, the return on matric (or higher) level education is lower for OBC and SC households: for HCH households, the presence of an adult educated to matric (or higher) level added 401 rupees to MCE; for OBC and SC households, this added only 268 and 294

rupees, respectively.[5]

2. Compared to HCH households, the return on owning/cultivating land is lower for OBC and SC households: for HCH households, owning/cultivating land added 93 rupees to MCE; for OBC households, owning/cultivating land increased MCE by 40 rupees while, for SC households, owning/cultivating land reduced MCE by 25 rupees.

3. Compared to HCH households, the return on owning buffalos is lower for OBC and SC households: for HCH households, owning a buffalo added 39 rupees to MCE; for OBC households, owning a buffalo increased MCE just 9 rupees while, for SC households, owning a buffalo reduced MCE by 4 rupees.

4. Compared to living in the East, living in the North, increased the MCE of HCH households by 338 rupees but it increased the income of SC households by only 209 rupees; again compared to living in the East, living in the South, increased the MCE of HCH households by 226 rupees but it increased the MCE of SC households by 15 rupees. In other words, the advantage of living in the more prosperous parts of India, in terms of higher MCE, was significantly greater for HCH households than it was for SC households.

5. However, compared to HCH households in the East, the MCE of HCH households in the West was 154 rupees lower; the same comparison made for OBC and SC households, with equivalent households in the East, shows, however, that MCE was higher by, respectively, 272 and 205 rupees respectively.

3. The Decomposition of Inter-Caste Differences in Household Monthly per capita Consumption Expenditure (MCE)

The preceding section showed that the attributes which resulted in a higher level of MCE by households were not uniformly rewarded across the different caste groups. So, for example, a high level of education of adults in a household would result in a higher MCE for all households but, compared to HCH households, this effect would be smaller for OBC and SC households. Or, in other words, the returns to education, in terms of higher MCE, were significantly greater for HCH households compared to OBC and SC households. Similarly, in the context of physical assets, the returns to ownership/cultivation of land and the ownership of buffalos were significantly

greater for HCH households compared to OBC and SC households. In terms of geography, the returns to living in the North and the South of India, in terms of higher MCE, were significantly greater for HCH households compared to OBC and SC households.

So, one reason for inter-caste disparities in MCE is differences in *rates of return on assets*: education, land, non-land productive assets, and region of residence. However, another reason for such inter-caste disparities might be that there are systematic differences in *asset endowments* between households in the different caste groups (as evidenced in Table 1) so that, for example, compared to HCH households, a smaller proportion of SC households contain an adult who is a matric (or higher).

These observations require one to distinguish empirically between the contribution of inter-caste differences *in asset rates of return* and inter-caste differences in *asset ownership* to the overall difference between households, belonging to the different caste groups, in their per capita consumption expenditure. The problem is that households from the HCH, OBC, and the SC groups differ in terms of both attributes and coefficients. So the first step is to ask what the HCH/SC difference (and the HCH/OBC difference) would have been if both sets of attributes were evaluated at a *common* coefficient vector. This difference could then be entirely ascribed to difference in attributes since coefficient differences would have been neutralised. Call this the *difference due to attributes*. Then the *observed* difference less the *difference due to attributes* is the *residual* or *unexplained* difference.[6]

A recent formal exposition of the Blinder-Oaxaca (B-O) decomposition method (named after Blinder, 1973 and Oaxaca, 1973) for *linear* regression models is to be found in Jann (2008).Suppose there are two groups, W and B with Y as an outcome variable such that $E(Y_W)$and $E(Y_B)$are the *expected* values of the outcome variable for, respectively, groups W and B. Then:

$$Y_k = X_k'\beta_k + \varepsilon_k, k = W, B \qquad (2)$$

Where $\mathbf{Y_k}$ is the vector of outcomes, $\mathbf{X_k}$ is the matrix of observations, and ε_k is the vector of error terms for persons in group k. Since, by assumption $E(\varepsilon_k) = 0$, we have:

$$
\begin{aligned}
R &= E(Y_W) - E(Y_B) = E(X_W{}')\beta_W - E(X_B{}')\beta_B \\
&= E(X_W{}')\beta_W - E(X_B{}')\beta_B + E(X_B{}')\beta_W - E(X_B{}')\beta_W \\
&= E(X_W - X_B)'\beta_W + E(X_B{}')(\beta_W - \beta_B) \\
&= E(X_W - X_B)'\beta_W + E(X_W - X_B)'\beta_B - E(X_W - X_B)'\beta_B + E(X_B{}')(\beta_W - \beta_B) \\
&= E(X_W - X_B)'\beta_B + E(X_B{}')(\beta_W - \beta_B) + E(X_W - X_B)'(\beta_W - \beta_B) \\
&= P + Q + T
\end{aligned} \tag{3}
$$

As Jann (2008) points out: the term $P = E(X_W - X_B)'\beta_B$ in equation (3), above, amounts to the difference in mean outcomes that is due to the inter-group differences in the predictors ("the asset endowments effect"); the term $Q = E(X_B{}')(\beta_W - \beta_B)$ in equation (3), above, amounts to the difference in mean outcomes that is due to the inter-group differences in the coefficients ("the asset returns effect"); and the term, $T = E(X_W - X_B)'(\beta_W - \beta_B)$ amounts to the difference in mean outcomes that is due to an *interaction term* representing the fact that differences in attributes and coefficients exist *simultaneously* between the two groups.

The decomposition represented in equation (3) *is formulated from the perspective of group B* because the inter-group difference in predictors is weighted by the coefficients of group B to determine the attributes effect, *P*. The *P* component measures the expected change in group B's mean outcome if it had group W's attributes. Similarly, the *Q* component measures the expected change in group B's mean outcome if group B had group W's coefficients.

Needless to say, the decomposition in equation (3) can also be represented from the perspective of group *W* as:

$$E(X_W - X_B)'\beta_W + E(X_A{}')(\beta_W - \beta_B) + E(X_W - X_B)'(\beta_W - \beta_B) = P' + Q' + T' \tag{4}$$

Now the endowment effect P' measures the expected change in group A's mean outcome if it had group B's attributes and the Q' component measures the expected change in group W's mean outcome if group W had group B's coefficients and T' represents the interaction effect.

As Jann (2008) points out, an alternative decomposition to equations (3) and (4) is to assume that there is some non-discriminatory coefficient vector, β^*, which should be used to evaluate the contribution of the difference in attributes. Then the outcome difference can be written as:

$$\begin{aligned} R &= E(Y_W) - E(Y_B) = E(X_W')\beta_W - E(X_B')\beta_B \\ &= E(X_W')\beta_W - E(X_B')\beta_B + E(X_W')\beta^* - E(X_W')\beta^* + E(X_B')\beta^* - E(X_B')\beta^* \\ &= E(X_W - X_B)'\beta^* + \left[E(X_W')(\beta_W - \beta^*) + E(X_B')(\beta^* - \beta_B) \right] \\ &= U + V \end{aligned} \tag{5}$$

Equation (5) yields a two-fold decomposition in which the term $U = E(X_W - X_B)'\beta^*$ is the part of the outcome difference that can be explained by the difference in attributes, and the term $V = E(X_W')(\beta_W - \beta^*) + E(X_B')(\beta^* - \beta_B)$ is the unexplained part. The latter is usually ascribed to discrimination.

There are two possible variations on equation (5). First, suppose $\beta^* = \beta_W$ that is, the non-discriminatory coefficient vector is identified as that associated with group *W*. Then equation (4) becomes:

$$R = E(X_W - X_B)'\beta_W + E(X_B')(\beta_W - \beta_B) \tag{6}$$

Second, and alternatively, suppose $\beta \quad \beta$ that is, the non-discriminatory coefficient vector is identified as that associated with group *B*. Then equation (4) becomes:

$$R = E(X_W - X_B)'\beta_B + E(X_A')(\beta_W - \beta_B) \tag{7}$$

In equation (6), the difference in attributes between the *W* and *B* groups are evaluated at the *W* group's coefficients; in equation (7), the difference in attributes between the *W* and *B* groups are evaluated at the *B* group's coefficients.

In general, the problem of defining β^*, the non-discriminatory coefficient vector, is a big issue in the decomposition literature on discrimination. One possibility (equations (6) and (7), above) is to identify β^* with the coefficients of one of the groups. Another is to regard it as the average of the two group coefficients (Reimers, 1983): $\beta^* = 0.5 \times \beta_W + 0.5 \times \beta_B$. Yet another (Cotton, 1988)

is to weight the coefficients by the size of the groups: $\beta^* = n_W \times \beta_W + n_B \times \beta_B$ where n_W and n_B are the proportions in groups W and B.

Decomposition Results: Aggregate

Tables 3 and 4 show the results from decomposing the difference in mean MCE between HCH rural households and, respectively, SC and OBC rural households using the method detailed in equation (3). Table 3 shows that the MCE of rural SC households was 362.67 rupees lower than that of their HCH counterparts. Of this difference: 115.35 rupees (or, 32%) – the term P in equation (3) - was due differences in asset endowments between the two groups of households; 222.27 rupees (61%) – the term Q in equation (3) - was due to differences in asset returns; and 25.05 rupees (7%) – the term T in equation (3) - was due to the interaction effect.[7]

Table 4 shows that the MCE of rural OBC households was 280.91 rupees lower than that of their HCH counterparts. Of this difference: 110.59 rupees (or, 39%) – the term P in equation (3) - was due differences in asset endowments between the two groups of households; 159.59 rupees (57%) – the term Q in equation (3) - was due to differences in asset returns, and 10.73 rupees (4%) – the term T in equation (3) - was due to the interaction effect. [8]

Table 5 and 6 show the results from decomposing the difference in MCE between HCH rural households and, respectively, SC and OBC rural households using the method detailed in equation (5). Both Tables show two decompositions. The first decomposition relates to evaluating what the difference *would have been* if SC/ OBC assets had received HCH rates of return: this is the term U in equation (5) with β^* replaced by β^{HCH}. The second decomposition relates to evaluating what the difference would have been if HCH assets had received SC/ OBC rates of return: this is the term U in equation (5) with β^* replaced by β^{SC} (or β^{OBC}).

Table 5 shows that when SC and HCH assets were evaluated using the HCH coefficient (asset returns) vector, of the total difference of 362.67 rupees in MCE between HCH and SC rural households, 140.40 rupees (39%) could be explained by differences in asset endowments between the two groups of households. However, when SC and HCH assets were evaluated using the SC

coefficient (asset returns) vector, 165.45 rupees (46%) of the total difference of 362.67 rupees could be explained by differences in asset endowments between the two groups of households.[9]

Table 6 shows that when OBC and HCH assets were evaluated using the HCH coefficient (asset returns) vector, of the total difference of 280.91 rupees in MCE between HCH and OBC rural households, 121.32 rupees (43%) could be explained by differences in asset endowments between the two groups of households. However, when OBC and HCH assets were evaluated using the OBC coefficient (asset returns) vector, 132.05 rupees (47%) of the total difference of 280.91 rupees could be explained by differences in asset endowments between the two groups of households.[10]

The results of Table 3, 4, 5, and 6 show aggregate results: they quantify the extent to which differences in asset endowments and differences in asset returns between two groups of households *contributed in aggregate* to differences between them in their MCE. However, this begs the question of the specific assets (and their returns) which made the largest contribution to the aggregate picture? The following subsection answers this question.

Asset Endowment and Returns Breakdown: SC

Table 7 breaks down the aggregate results for the HCH and SC difference (shown in Table 3) into the contributions made by the individual variables while Table 8 does the same for the aggregate results for the HCH and OBC difference (shown in Table 4). The estimates in both Tables 7 and 8 are obtained by pooling the observations to estimate the common coefficient vector, β^*, of equation (5). Table 7 shows that when the observations were pooled to obtain a common coefficient vector, of the overall difference of 362.67 rupees in MCE between HCH and SC rural households, 164.26 rupees (45%) could be explained by inter-group differences in asset endowments while the remainder of 198.41rupees (55%) was the "unexplained" part caused by differences in asset returns.

Of the aggregate asset endowment effect of 164.26 rupees, 80.33 rupees (49%) was caused by differences between HCH and SC groups in the proportion of their respective households in which the highest level of education of an adult was Matric or higher. Differences in the proportion of households with

a literate in the household contributed 12.56 rupees (3%). Consequently, of the aggregate asset endowment effect of 164.26 rupees, more than half (52%) was due to differences in educational endowments between HCH and SC rural households. Another 44.73 rupees (27%) was contributed by differences in the endowment of land (19.21 rupees), tubewells (9.84 rupees), electric pumps (-1.58), diesel pumps (3.70), and tractors (13.56 rupees). Lastly, differences between HCH and SC rural households in their region of residence contributed 28.18 rupees (17%).[11]

The second panel of Table 7 details the contributions of the different assets to the "unexplained" contribution of 198.41 rupees to the overall difference between HCH and SC households in their MCE. In terms of contribution to the "unexplained part" stemming from asset ownership, differences between HCH and SC groups, in which the highest level of education of an adult was Matric or higher, contributed 14.93 rupees (8%); differences between HCH and SC groups in their ownership of land contributed 75.62 rupees (38%); and differences between HCH and SC groups in their ownership of buffalos contributed 93.61 rupees (47%). Lastly, differences between HCH and SC rural households in their region of residence contributed -3.11 rupees (-2%).[12]

Asset Endowment and Returns Breakdown: OBC

Table 8 shows that when the observations were pooled to obtain a common coefficient vector, of the overall difference of 280.91 rupees in MCE between HCH and OBC rural households, 133.29 rupees (47%) could be explained by inter-group differences in asset endowments while the remainder of 147.62rupees (53%) was the "unexplained" part caused by differences in asset returns.

Of the aggregate asset endowment effect of 133.29 rupees, 42.36 rupees (32%) was caused by differences between HCH and OBC groups in the proportion of their respective households in which the highest level of education of an adult was Matric or higher. Differences in the proportion of households with a literate in the household contributed 5.19 rupees (4%). Consequently, of the aggregate asset endowment effect of 133.29 rupees between HCH and OBC households, more than one third (36%) was due to differences in educational endowments between HCH and SC rural households. Another 16.50 rupees

(12%) was contributed by differences in the endowment of land (4.96 rupees), tractors (6.31 rupees), and buffalos (5.23 rupees). Lastly, differences between HCH and SC rural households in their region of residence contributed 61.86 rupees (46%).[13]

The second panel of Table 8 details the contributions of the different assets to the "unexplained" contribution of 147.62 rupees to the overall difference between HCH and OBC households in their MCE. In terms of contribution to the "unexplained part" stemming from asset ownership, differences between HCH and OBC groups, in which the highest level of education of an adult was Matric or higher, contributed 40.90 rupees (28%); differences between HCH and OBC groups in their ownership of electric pumps contributed -25.33 rupees (-17%); and differences between HCH and OBC groups in their ownership of buffalos contributed 52.58 rupees (36%). Lastly, differences between HCH and OBC rural households in their region of residence contributed -115.94 rupees (-77%).[14]

4. The Decomposition of Inequality in Household Monthly (per capita) Consumption Expenditure (MCE)

This section analyses the topic of inequality between households in their MCE. On the available evidence, there was considerable inequality between households in their MCE. Focusing on households from the HCH, OBC, and SC groups, the value of the Gini coefficient was 0.402 for rural and urban households, 0.375 for rural households, and 0.390 for urban households. If N is the number of households, C_i is the MCE of the household i, and μ is the mean expenditure computed over all the households, the Gini coefficient is defined as:

$$G = \frac{1}{2N^2\mu}\sum_{i=1}^{N}\sum_{j=1}^{N}|C_i - C_j|$$

In other words, the Gini coefficient is computed as half the mean of the difference in consumption expenditure between pairs of households, divided by the average score (μ). So, $G=0.40$ implies that the *difference in MCE between two households chosen at random* will be 80 per cent of average MCE: if μ=1,000 rupees, this difference will be 800 rupees.

The previous section used econometric estimates to decompose the difference

between HCH and SC/OBC rural households in their MCE. However, the estimated equations allow the MCE to be predicted for *every* household in the sample, conditional upon the relevant values of the determining variables for the household. Armed with a knowledge of these individual expenditures, one can estimate how much of the overall inequality in these probabilities can be explained by a particular factor. For example, how much of the inequality in household MCE can be accounted for by differences in caste, education, and region?

This section provides an answer to this question, using the methodology of 'inequality decomposition'. Suppose that the total sample of N households is divided into M mutually exclusive and collectively exhaustive groups with N_m ($m=1...M$) persons in each group. Let $\mathbf{e} = \{e_i\}$ and $\mathbf{e_m} = \{e_i\}$ represent the vector of expenditures of, respectively, all the households in sample ($i=1...N$) and the households in group m. Then an inequality index $I(\mathbf{e}; N)$ defined over this vector is said to be additively decomposable if:

$$I(\mathbf{e}; N) = \sum_{m=1}^{M} I(\mathbf{e_m}; N_m) w_m + \mathbf{B} = \mathbf{A} + \mathbf{B} \qquad (8)$$

where: $I(\mathbf{e}; N)$ represents the *overall* level of inequality; $I(\mathbf{e_m}; N_m)$ represents the level of inequality within group m; **A** – expressed as the weighted sum of the inequality in each group, w_m being the weights – and **B** represent, respectively, the *within-group* and the *between-group* contribution to overall inequality.

If, indeed, inequality can be 'additively decomposed' along the lines of equation (8) above, then, as Cowell and Jenkins (1995) have argued, the proportionate contribution of the between-group component (**B**) to overall inequality is the income inequality literature's analogue of the R^2 statistic used in regression analysis: the size of this contribution is a measure of the amount of inequality that can be 'explained' by the factor (or factors) used to subdivide the sample (caste, education, region etc.).

Only inequality indices which belong to the family of *Generalised Entropy Indices* are additively decomposable (Shorrocks, 1980). These indices are defined by a parameter θ and, when $\theta=0$, the weights are the population shares of the different groups (that is, $w_j = N_j / N$); since the weights sum to

unity, the within-group contribution **A** of equation (4) is a weighted average of the inequality levels within the groups. When $\theta=0$, the inequality index takes the form:

$$I(\mathbf{e};N)=\left(\sum_{i=1}^{N}\log(e_i/\overline{e})\right)/N \qquad (9)$$

where: $\overline{e}=\sum_{i=1}^{N}e_i/N$ is the mean expenditure over the entire sample. The inequality index defined in equation (9) is known as the Theil's (1967) Mean Logarithmic Deviation (MLD) and, because of its attractive features in terms of the interpretation of the weights, it is the one used in this study to decompose inequality in the MCE of rural households.

Table 9 shows the results from decomposing household MCE by subdividing the sample of *rural* and *urban* households along one of the following lines:

1. Caste: HCH, OBC, and SC
2. Region: Central, North, South, West, and East
3. Highest education of adult in household is Matric or higher

The first point that emerges from this table is that the level of inequality was slightly, but consistently, higher for urban, compared to rural, households. The second point is caste played a bigger role in explaining urban, compared to rural disparities: 9% compared to 6%. The third point is that region of residence played a relatively major role in explaining rural, compared to urban, disparities: 9% compared to 3%. The fourth point is that a high level of education played a major role in explaining urban, compared to rural, disparities: 23% compared to 9%. The fifth, and final point, was that when all three factors – caste, region, education – were combined, they collectively explained 20% of rural disparities, and 30% of urban disparities, in households' MCE.

5. A Human Capital Model of Income Generation

The "human capital" approach to income generation relates a person's/ household's earnings or income to the individual's or household's characteristics. As Diamond *et. al.* (1990) observed, empirical work within the

human capital framework typically specifies earnings or income as a linear function of explanatory variables and a normally distributed error term and the work reported in this section follows in this tradition by estimating such a model using household income data from the IHDS. In addition to reporting each household's income, the IHDS also placed each household in the on the basis of its total income, in one of five income quintiles. Table 10 shows that of the 3,799 HCH households, 17% were in the lowest (poorest) income quintile, one-third were in the poorest two quintiles, while 27% were in the highest (most affluent) quintile. By contrast, 26% of SC households were in the lowest quintile, more than half of SC households in the poorest two quintiles, and less than one in ten SC households were in the highest quintile.

Table 11 shows the results of estimating an income generating equation for 10,579 rural households. These results mirror those for the MCE equation shown in Table 2 by showing that household income generation is associated with asset ownership and region of reidence:

1. Educational assets in the form of literacy, school education, and, most importantly, education levels associated with a Matric (or higher) qualification.
2. Productive assets in the form of land ownership and cultivation but, more importantly, assets that enhanced the productivity of land: tube wells, electric pumps, bullock carts, tractors. Of these assets, undoubtedly the most important was ownership of a tractor. Another asset that added considerably to household income was ownership of buffalos.
3. Human assets in the form of the number of assets in the household.
4. Using the East region of India as the reference region, the highest household incomes were from those living in the north, followed by households living in the south, followed by households living in the west. There was no significant difference in household income between households in the Central and Eastern regions.

Income of rural HCH households	
Source	**Amount**
Intercept	-12,691
Literate in Household adds:	7,056
Class 5 but < class 10 of highest educated adult adds:	3,515
Matric or more of highest educated adult adds:	33,169
Owning/ cultivating land adds:	7.54×27.4=208
Owning a tubewell adds:	10,692
Owning an electric pump adds:	10926
Owning a bullock cart adds:	5,884
Owning a tractor adds:	78,507
Owning a thresher adds:	6,772
Owning 2.66 buffaloes adds	2,867×2.66=7,626
Living in the North adds:	31,775
Living in the South adds:	18,102
Living in the West adds:	7,609
Number of adults in the household adds:	8,698×2.84=24,702

These results pertain to a HCH household. They change with respect to OBC and SC household in several respects:

1. Compared to HCH households, the return on literacy or on matric (or higher) level education was lower for OBC and SC households: for HCH households, the presence of an adult educated to matric (or higher) level added 33,168 rupees to income; for OBC and SC households, this added only 28,091 and 23,800 rupees, respectively.
2. Compared to HCH households, the return on owning a tractor is lower for OBC and SC households: for HCH households, owning a tractor added 78,507 rupees to household income; for OBC households, owning a tractor increased income by 27,654 rupees while, for SC households, owning a tractor increased income by 55,140 rupees.
3. Compared to HCH households, the return on owning buffalos is lower for OBC and SC households: for HCH households, owning a buffalo added 2,867 rupees to income; for OBC households, owning a buffalo increased income by 2,058 rupees while, for SC households, owning a buffalo increased income by only 731 rupees.

4. Compared to living in the East, living in the North, increased the income of HCH households by 31,775 rupees but it increased the income of SC households by only 6,831 rupees; again compared to living in the East, living in the South, increased the income of HCH households by 18,101 rupees but it reduced the income of SC households by 8,042 rupees. In other words, the advantage of living in the more prosperous parts of India, in terms of higher income, was significantly greater for HCH households than it was for SC households.

5. Compared to HCH households, the number of adults in a household did less for increasing the income of OBC and SC households. Each additional adult increased the income of HCH households by 8,697 rupees but it increased the income of OBC and SC households by, respectively, only 6,377 and 6,943 rupees.

Decomposition Results: Aggregate and Detailed

Tables 12 and 13 show the results from decomposing the difference in mean income between HCH rural households and, respectively, SC and OBC rural households using the method detailed in equation (5). The estimates of the common vector, β^* were obtained by pooling the observations for, respectively, the HCH and SC households and the HCH and OBC households.

Table 12 shows that the mean income of rural SC households was 29,036 rupees lower than that of their HCH counterparts. Of this difference, 19,173 rupees (or, 66%) – the term *U* in equation (5) - was due differences in asset endowments between the two groups of households and 9,862 rupees (34%) – the term *V* in equation (5) - was the "unexplained" difference.

Table 13 shows that the mean income of rural OBC households was 21,883 rupees lower than that of their HCH counterparts. Of this difference, 14,544 rupees (or, 66%) – the term *U* in equation (5) - was due differences in asset endowments between the two groups of households and 7,339 rupees (34%) – the term *V* in equation (5) - was the "unexplained" difference.

Table 14 breaks down the aggregate results for the HCH and SC difference (shown in Table 12) into the contributions made by the individual variables while Table 15 does the same for the aggregate results for the HCH and OBC difference (shown in Table 13). The estimates in both Tables 14 and 15 are

obtained by pooling the observations to estimate the common coefficient vector, β^*, of equation (5).

First comparing HCH and SC households, of the aggregate asset endowment effect of 19,173 rupees, 5,847rupees (30%) was caused by differences between HCH and SC groups in the proportion of their respective households in which the highest level of education of an adult was Matric or higher. Another 7,362 rupees (38%) was contributed by differences in area owned/cultivated (291 rupees), tubewells (1,126 rupees), electric pumps (1,949), bullock carts (520), and tractors (3,289 rupees), and buffalos (188 rupees). Lastly, differences between HCH and SC rural households in their region of residence contributed 2,532 rupees (13%) the number of adults in the household contributed 3,062 rupees (16%).

Second comparing HCH and OBC households, of the aggregate asset endowment effect of 14,544 rupees, 3,790 rupees (26%) was caused by differences between HCH and SC groups in the proportion of their respective households in which the highest level of education of an adult was Matric or higher. Another 3,287 rupees (22%) was contributed by differences in area owned/ cultivated (148 rupees), tubewells (473 rupees), electric pumps (727 rupees), tractors (1,276 rupees), and buffalos (663 rupees). Lastly, differences between HCH and SC rural households in their region of residence contributed 2,532 rupees (13%) the number of adults in the household contributed 3,062 rupees (16%).

Inequality Decomposition

Table 16 shows the results from decomposing household income by subdividing the sample of *rural* and *urban* households along one of the following lines:

a) Caste: HCH, OBC, and SC

b) Region: Central, North, South, West, and East

c) Highest education of adult in household is Matric or higher

Comparing the results from Table 16 with those from Table 9, shows that there was much greater inequality associated with the distribution of households' income than with inequality in the distribution of households' MCE: the Gini

value for the former distribution was 0.52 while for the latter it was 0.38. Another that emerges from this table is that the level of inequality in the distribution of household income was slightly, but consistently, higher for rural, compared to urban, households; on the other hand, as Table 9 shows, inequality in the distribution of MCE was higher for urban, compared to rural, households . The second point from Table 16 is that caste played the same role in explaining urban, compared to rural income disparities: 9% compared to 6%. The third point from Table 16 is that the region of residence played a relatively major role in explaining rural, compared to urban, income disparities: 5% compared to 1%. The fourth point from Table 16 is that a high level of education played a major role in explaining urban, compared to rural, income disparities: 28% compared to 17%. The fifth, and final point, was that when all three factors – caste, region, education – were combined, they collectively explained 23% of rural income disparities, and 31% of urban disparities, in households' income.

6. Caste and Poverty

Ravallion (1996), reviewing current practice in 'poverty modelling', was critical of the method of defining a *binary* variable (poor, non-poor), on the basis of a poverty line, and then using logit or probit methods to 'explain' the probability of being poor in terms of observed household characteristics. He argued that unlike the usual binary response model, in which the latent variable was not observed, data on household incomes clearly exist: so, estimating a binary (poor/non-poor) model in the presence of income data for individual households was, in effect, to 'throw away' data by pretending they did not exist. Instead, Ravallion's (1996) proposal was to follow the methodology of Diamond, *et. al.* (1990) by estimating a *multinomial* model of poverty based on *different* poverty lines. This suggestion is developed in this subsection.

Let $z_1 > z_2 ... > z_J$ represent J 'poverty lines', defined in terms of household income, such that, for an 'indicator variable' (income or consumption) which takes the value V_i for household i, household i is 'poor' at 'level j' if: $z_{j-1} < V_i \leq z_j$. For example, if $J=3$, there are three levels of poverty, the level of poverty being indicated by the value assumed by a variable Y_i : a household is 'not poor' if $V_i > z_1$ and $Y_i = 0$; a household is 'moderately poor'

if $z_2 < V_i \leq z_1$ and $Y_i = 1$; and a household is 'poor' if: if $V_i \leq z_2$ and $Y_i = 2$.

This study analysed two indicator variables (that is, V_i, above):

1. Household income per adult equivalent (IAE)
2. Household monthly consumption expenditure per adult equivalent (CAE)[15] and the poverty lines were defined in terms of the median values of IAE (θ) and CAE (Ω) as follows:
   I. Not poor if IAE ≥ 0.75×θ (in terms of income) or not poor if CAE ≥ 0.75×Ω (in terms of income)
   II. Moderately poor if 0.5×θ < IAE ≤ 0.75×θ (income) or moderately poor if 0.5×Ω < IAE ≤ 0.75×Ω (consumption)
   III. Poor if IAE ≤ 0.5×θ (income) or if CAE ≤ 0.5×Ω (consumption)

Table 17 shows the household poverty rates (that is, the proportion of the households who were 'poor', as defined above) by the households' caste. This Table shows that 75% of rural HCH households were 'not poor' on the IAE indicator and 83% were 'not poor' on the CAE indicator; by contrast, 60% of rural SC households were 'not poor' on the IAE indicator and 63% were 'not poor' on the CAE indicator and 61% of rural OBC households were 'not poor' on the IAE indicator and 67% were 'not poor' on the CAE indicator.

At the other end of the scale, 14% of rural HCH households were 'poor' on the IAE indicator and 4% were 'poor/ very poor' on the CAE indicator; by contrast, 21% of rural SC households were 'poor/ very poor' on the IAE indicator and 14% were 'poor' on the CAE indicator and 22% of rural OBC households were 'poor' on the IAE indicator and 12% were 'poor' on the CAE indicator.

Table 17 also shows that 77% of urban HCH households were 'not poor' on the IAE indicator and 81% were 'not poor' on the CAE indicator; by contrast, 52% of urban SC households were 'not poor' on the IAE indicator and 57% were 'not poor' on the CAE indicator and 57% of urban OBC households were 'not poor' on the IAE indicator and 57% were 'not poor' on the CAE indicator.

At the other end of the scale, 12% of urban HCH households were 'poor' on the IAE indicator and 5% were 'poor' on the CAE indicator; by contrast, 30% of urban SC households were 'poor' on the IAE indicator and 20% were

'poor/ very poor' on the CAE indicator and 24% of urban OBC households were 'poor' on the IAE indicator and 14% were 'poor' on the CAE indicator.

Since the values of the poverty variable, *Y*, took discrete values – 0, 1, and 2 - a natural method of estimating a human capital model with *Y* as the dependent variable was that of *multinomial logit*. The basic question that a multinomial logit model of income distribution seeks to answer is: *ceteris paribus* what is the probability that a household, with a particular set of characteristics, will be found in a specific poverty category: 'not poor', 'moderately poor', and 'poor'?

In order to answer these questions, we used the method of "predictive margins" to evaluate the following scenarios:

1. We first pretend that all the households in the sample are HCH households, with all other household characteristics unchanged. In operational terms, *ceteris paribus* $HCH_i=1, OBC_i=0, SC_i=0, i=1...N$. Suppose that, under this scenario, $\overline{p}_j^{HCH}$ is the average probability of a household belonging to poverty category $j, j=0, 1, 2$.
2. Next, we pretend that all the households in the sample are OBC households, with all other household characteristics unchanged. In operational terms, *ceteris paribus* $HCH_i=0, OBC_i=1, SC_i=0, i=1...N$. Suppose that, under this scenario, $\overline{p}_j^{OBC}$ is the average probability of a household belonging to poverty category $j, j=0, 1, 2$.
3. Lastly, we pretend that all the households in the sample are SC households, with all other household characteristics unchanged. In operational terms, *ceteris paribus* $HCH_i=0, OBC_i=0, SC_i=1, i=1...N$. Suppose that, under this scenario, $\overline{p}_j^{SC}$ is the average probability of a household belonging to poverty category $j, j=0, 1, 2$.

The differences between the "caste probabilities", p_j^{HCH}, p_j^{OBC}, and p_j^{SC} are entirely the result of *different* sets of coefficients (HCH, OBC, and SC) being applied to a *given* set of attributes. These differences may, therefore, be attributed to the unequal treatment of households who, except for their caste, are identical in every respect. However, the sample proportions of households from the different caste groups – denoted, q_j^{HCH}, q_j^{OBC}, *and* q_j^{SC} - will, in general, be different from the "caste probabilities". This reflects the fact that households of different castes differ not just in terms of how they

are treated (in terms of their asset returns) but also in terms of their asset endowments. Then the overall penalty faced by (say) SC, relative to HCH, households, with respect to poverty category j, is μ_j^{SC} where:

$$\mu_j^{SC} = \frac{q_j^{SC}}{q_j^{W}} = \left[\frac{p_j^{SC}}{p_j^{HCH}}\right] \times \left[\frac{q_j^{SC}}{p_j^{SC}}\right] \times \left[\frac{p_j^{HCH}}{q_j^{HCH}}\right] = \lambda_j^{SC} \times \frac{\pi_j^{SC}}{\pi_j^{HCH}} = \lambda_j^{SC} \times \delta_j^{SC} \quad (10)$$

Where: $\pi_j^{SC} = \frac{q_j^{SC}}{p_j^{SC}}$ and $\pi_j^{HCH} = \frac{q_j^{HCH}}{p_j^{HCH}}$ are, respectively, for SC and HCH households, the ratios of the sample proportions to caste penalties and $\delta_j^{SC} = \frac{\pi_j^{SC}}{\pi_j^{HCH}}$ is a measure of the attributes penalty faced by households from the SC. From equation (1), the overall penalty can be written:

$$\mu_j^{SC} = \lambda_j^{SC} \times \delta_j^{SC} \quad (11)$$

The multinomial logit model was estimated over 10,651rural households (distinguished between HCH, OBC, and SC households) such that, for each household, the dependent variable of the model assumed exactly one of the values 0, 1, and 2, depending upon the poverty category in which the household was placed. The specification of the equation was as shown in equation (1), that is, with *all* the interaction effects included. The multinomial logit estimates are not shown, both for reasons of economy of space and because the coefficients are difficult to interpret in terms of the underlying probabilities of being in the different quintiles.

Table 18, below, shows the caste probabilities for HCH, OBC, and SC households of being at different levels of poverty: these are, respectively, the empirical counterparts of p_j^{HCH}, p_j^{OBC}, and p_j^{SC} discussed above. This shows that, *purely on the basis of caste advantage*, rural HCH households had a 59.6% chance of not being poor compared to a 54.9% chance for OBC households and 54% chance for SC households. Similarly, Table 18 also shows that, *purely on the basis of caste advantage*, rural HCH households had a 22.4% chance of being poor compared to a 25.8% chance for OBC households and 25.1% chance for SC households.

However, as the last column of Table 18 shows, 75% of HCH households

were, in fact, not poor and only 13.6% of HCH households were, in fact, poor. The reason for this is that HCH households were able to harness attributes advantage to their innate caste advantage and this lifted the proportion of HCH households who were not poor from the predicted 59.6% to an actual 75.3%: this rise of 15.7 points is a measure of their attributes advantage. In a similar vein, SC households were able to harness attributes advantage to their innate caste disadvantage and this lifted the proportion of SC households who were not poor from the predicted 54.0% to an actual 60.0%: this rise of 6 points is a measure of their attributes advantage.

At the other end of the poverty spectrum, attributes advantage lowered the proportion of HCH households who were poor from the predicted 22.4% to an observed 13.6% and it lowered the proportion of SC households who were poor from the predicted 25.1% to an observed 20.6%. So SC households were disadvantaged with respect HCH households both with respect to the "caste factor" and with respect to the "attributes factor".

One can formalise this by noting that from equation (11):

$$\begin{aligned} &\log \mu_j^{SC} = \log \lambda_j^{SC} + \log \delta_j^{SC} \\ &\Rightarrow \log q_j^{SC} - \log q_j^{HCH} = \left[\log p_j^{SC} - \log p_j^{HCH}\right] + \left[\log \pi_j^{SC} - \log \pi_j^{HCH}\right] \end{aligned} \quad (12)$$

So, from Table 18, in the context of being poor,

$\log q_j^{SC} - \log q_j^{HCH} = \log(20.6/13.6) = 0.42$, and

$\log p_j^{SC} - \log p_j^{HCH} = \log(25.1/22.4) = 0.11$, implying that of the observed (log) difference between HCH and SC households in the probability of being poor, 26% was due to the caste factor and 74% was due to the attributes factor.

7. Conclusions

The contribution of this paper was to approach the twin issues of inequality and poverty of *rural* households in India from two perspectives: consumption and income. In examining these two issues (inequality and poverty), from these two perspectives (consumption and income), the overriding purpose was to examine whether there was a "caste basis" to inequality and poverty in India or whether distributional and deprivation outcomes were "caste blind"

and entirely determined by the attributes of the individual households. Our overarching conclusion was that, alas, households' outcomes with respect to their position on the distributional ladder, or with respect to their chances of being poor, were dependent in large measure on their caste.

The primary determinant of a household's income and consumption were its assets where these 'productive' assets took three forms: education, land and complementary assets like tubewells and tractors, and human assets in the form of adult members. Overlaying these factors was the good (or bad) fortune of geography – living in the right (or wrong) parts of India. In this context, caste disadvantage stemmed from two sources: SC and OBC households were not as asset rich as HCH assets but, even when they did have assets, these were rewarded at a lower rate than that obtained by HCH households.

A particularly glaring example of this was education, particularly when the educational level attained was Matric or above. A high level of education boosted a household's income and consumption but, compared to HCH households, SC and OBC households obtained much less leverage from a good education in terms of higher income and consumption. Another example was that of households owning buffalos. The sale of milk from buffalos served to raise household income and consumption but 'untouchability' issues relating to food meant that buffalos did not earn as much for SC households as they did for HCH households. Geography, too, played its part in providing a caste basis to income and consumption. The more affluent parts of India offered higher standards of living to all but the benefits of geography were tilted in favour of high caste Hindu households.

Endnotes

1 * School of Economics, University of Ulster, Newtownabbey, Northern Ireland BT37 0QB. (Email: vk.borooah@ulster.ac.uk). The data used in this paper are from the *Indian Human Development Survey 2005*, available from the Inter-University Consortium for Political and Social Research (ICPSR) http://www.icpsr.umich.edu. Needless to say, the usual disclaimer applies.

2 Mainly in the form of reserved seats in the national parliament, state legislatures, municipality boards and village councils (*panchayats*); job reservations in the public sector; and reserved places in public higher educational institutions

3 Note that differences between groups in income-generating attributes can reflect historical discrimination: for example, a group is currently disadvantaged educationally because, in the past, it was denied access to education.

4 "Matric" is a term commonly used in India to refer to the final year of high school, which ends at tenth standard (tenth grade); the qualification received after passing the "matriculation exams", usually at the age of 15-16 years, is referred to as "matric (passed)".

5 The Central region, comprising Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh; the South, comprising Andhra Pradesh, Karnataka, Kerala and Tamil Nadu; the West, comprising Maharashtra and Gujarat; the East, comprising Assam, Bengal and Orissa; and the North, comprising Haryana, Himachal Pradesh and Punjab.

6 The null hypothesis that the coefficients on $OBC \times X$ and $SC \times X$ being equal could not be rejected with an $F(1,16907)=0.56$, where X is the variable, "the highest level of education for an adult in the household is greater than matric".

7 See Oaxaca (1973), Blinder (1973).

8 Note that the interaction effect was not significantly different from zero.

9 Note that the interaction effect was not significantly different from zero.

10 The remaining difference of, respectively, 61% and 54% was the "unexplained difference", which is the term V in equation (5).

11 The remaining difference of, respectively, 57% and 53% was the "unexplained difference", which is the term V in equation (5).

12 North: 19.82 rupees; South: -4.73 rupees; West: -2.05 rupees; and Central: 15.14 rupees.

13 South: 39.77 rupees and West: -42.88 rupees.

14 North: 61.76 rupees; South: -22.22 rupees; West: 5.18 rupees; and Central: 17.14 rupees.

15 North: -18 rupees; West: -62.04 rupees; and Central: -35.90 rupees.

16 The number of adult equivalents were given by the formula 1+(number of adults -1)×0.7+(number of children)×0.5

References

Banerjee, Biswajit and J.B. Knight, "Caste Discrimination in the Indian Urban Labour Market", *Journal of Development Economics* 17 (1985): 277-307.

Blinder, Alan S., "Wage Discrimination: Reduced Form and Structural Estimates", *Journal of Human Resources* 8 (1973): 436-455.

Cotton, J. (1988), "On the Decomposition of Wage Differentials", *Review of Economics and Statistics*, 70: 236-243.

Cowell, Frank and Stephen Jenkins, "How Much Inequality Can We Explain? A Methodology and an Application to the United States", *The Economic Journal* 105 (1995): 421-30.

Deshpande, Ashwini, "Does Caste Still Define Disparity? A Look at Inequality in Kerala, India", *The American Economic Review* (Papers and Proceedings) 20 (2000a): 322-23.

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

Diamond, Charles, Curtis. J. Simon and John T. Warner, "A Multinomial Probability Model of Size Income Distribution", *Journal of Econometrics* 42 (1990): 43-61.

Haughton, J. and Khandker, S. R., (2009) *Handbook of Inequality and Poverty*, Washington DC: The World Bank (available at: http://issuu.com/world.bank.publications/docs/9780821376133)

Jann, B. (2008), "The Blinder-Oaxaca decomposition for linear regression models", *The Stata Journal*, 8, 453-479.

Gang, Ira, Kunal Sen and Myeong-Su Yun, *Caste, Ethnicity and Poverty in Rural India*, Discussion Paper No. 629, Bonn: Institute for the Study of Labour (IZA), 2002.

Meyer, B.D. and Sullivan, J.X. (2009) *Five Decades of Consumption and Income Poverty*, National Bureau of Economic Research, Working Paper 14827: Cambridge, Mass.

Meyer, B.D. and Sullivan, J.X. (2011) "Viewpoint: Further Results on Measuring the Well-Being of the Poor using Income and Consumption", *Canadian Journal of Economics* 44 (1): 52-87.

Oaxaca, R. (1973), "Male-Female Wage Differentials in Urban Labor Markets", International Economic Review, vol. 14, pp. 693-709.

Ravallion, Martin, "Issues in Measuring and Modelling Poverty", *Economic Journal* 106 (1996): 1328-43.

Reimers, C.W. (1983) "Labour Market Discrimination against Hispanic and Black Men", Review of Economics and Statistics, 65, 570-579.

Saggar, Mridul. and Indranil Pan, "SCs and STs in Eastern India: Inequality and Poverty Estimates", *Economic and Political Weekly* 29 (1994): 567-74.

Shorrocks, A.F. (1980), 'A Class of Additively Decomposable Measures', *Econometrica*, vol. 50, pp. 613-25.

Theil, Henri., *Economics and Information Theory*, Amsterdam: North-Holland, 1967.

van de Walle, D. and Gunewardena, D. (2001) "Sources of Ethnic Inequality in Vietnam", *Journal of Development Economics* 65 (2001): 177-207.

Table 1: Rural Households' Income and Assets, by Caste

	Upper Caste Hindus	Other Backward Classes	Scheduled Castes*	All-India
Number of Households	3,914	9,543	6,011	19,468
Mean Household Monthly Income (Rs.)	58,776	37,463	31,141	39,796
Mean number of persons in a household	5.33	5.34	5.25	5.31
Mean Household per capita consumption (Rs.)	1,026	748	657	795
Proportion of households owning or cultivating land	74	65	44	60
Average area owned (High caste=100)	100	67	21	64
Percentage of owned area that is cultivated	84	87	84	85
Proportion of households not owning a tubewell (%)	85	89	96	91
Proportion of households not owning an electric pump (%)	85	91	97	92
Proportion of households not owning a diesel pump (%)	93	94	97	95
Proportion of households not owning a bullock cart (%)	88	90	97	91
Proportion of households not owning a tractor (%)	95	97	99	98
Proportion of households not owning a thresher (%)	97	98	99	98
Proportion of households not owning a cow (%)	45	48	50	48
Proportion of households not owning a buffalo (%)	42	52	52	50

*Of the 8,333 SC households, 7,724 households were Hindus with the remainder being Christian, Sikh, and Buddhist.

Table 2: Regression Estimates for the Consumption generating Equation for Rural Households*

Household type↓	Coefficient Estimate	Standard Error	T value
High Caste Hindu	613.83	38.81	15.82
OBC Hindu	488.16	26.84	18.19
Scheduled Castes	583.30	25.53	22.84
Literate in household	26.25	13.50	1.94
Highest level of education for adult in household is higher than Matric	400.87	27.76	14.44
Highest level of education for adult in OBC household is higher than Matric	-132.41	33.90	-3.91
Highest level of education for adult in SC household is higher than Matric	-106.35	39.61	-2.68
Household owns land	93.36	32.39	2.88
OBC household owns land	-53.30	36.82	-1.45
SC household owns land	-118.30	38.47	-3.07
Household owns a tubewell	66.37	23.33	2.85
Household owns an electric pump	53.10	23.65	2.25
Household owns a diesel pump	113.17	29.24	3.87
Household owns a tractor	279.40	45.49	6.14
Household owns a thresher	66.11	47.65	1.39
Household owns cows	6.16	4.05	1.52
Household owns buffalos	39.35	6.28	6.26
OBC household owns buffalos	-30.80	6.57	-4.69
SC household owns buffalos	-43.89	6.78	-6.47
North	337.52	30.67	11.00
SC Households in the North	-128.69	46.00	-2.80
South	226.32	23.84	9.49
SC Households in the South	-211.11	37.67	-5.60
West	-153.75	36.14	-4.25
OBC Households in the West	271.91	40.36	6.74
SC Households in the West	205.03	54.58	3.76
Central	-166.57	39.00	-4.27
OBC Households in the Central	122.13	39.55	3.09
SC Households in the Central	59.94	47.83	1.25
Equation Statistics			
Number of observations		16,936	
Adjusted R^2		0.54	
F(4,16905)		642	
Root Mean Square Error		734	

*Dependent variable is total monthly consumption per capita

Table 3: The Decomposition of the Difference in Mean Per Capita Consumption Expenditure between HCH and SC households, with Interaction Term

	Value	Standard Error	z value	P>z
HCH: Mean household per capita expenditure	1007.61	21.17	47.60	0
SC: Mean household per capita expenditure	644.94	7.85	82.12	0
Difference between HCH and SC households	362.67	22.58	16.06	0
Decomposition of the Difference between HCH and SC Households				
Endowments	115.35	10.98	10.51	0
Coefficients	222.27	30.57	7.27	0
Interaction	25.05	24.09	1.04	0.30

Decomposition using equation (3) of paper: 8,668 observations

Table 4: The Decomposition of the Difference in Mean Per Capita Consumption Expenditure between HCH and OBC households with Interaction Term

	Value	Standard Error	z value	P>z
HCH: Mean household per capita expenditure	1007.61	21.17	47.60	0.00
OBC: Mean household per capita expenditure	726.70	7.18	101.20	0.00
Difference between HCH and OBC households	280.91	22.35	12.57	0.00
Decomposition of the Difference between HCH and OBC Households				
Endowments	110.59	7.76	14.25	0.00
Coefficients	159.59	26.33	6.06	0.00
Interaction	10.73	16.75	0.64	0.52

Decomposition using equation (3) of paper: 11,468 observations

Table 5: The Decomposition of the Difference in Mean Per Capita Consumption Expenditure between HCH and SC households, without interaction term

	Value	Standard Error	z value	P>z
HCH: Mean household per capita expenditure	1007.61	21.17	47.60	0.00
SC: Mean household per capita expenditure	644.94	7.85	82.12	0.00
Difference between HCH and SC households	362.67	22.58	16.06	0.00
Decomposition of the Difference between HCH and SC Households using HCH coefficient vector				
Explained	140.40	22.50	6.24	0.00
Unexplained	222.27	30.57	7.27	0.00
Decomposition of the Difference between HCH and SC Households using SC coefficient vector				
Explained	165.45	45.31	3.65	0.00
Unexplained	197.22	49.42	3.99	0.00

Decomposition using equation (5) of paper: 8,668 observations

Table 6: The Decomposition of the Difference in Mean Per Capita Consumption Expenditure between HCH and SC households, without interaction term

	Value	Standard Error	z value	P>z
HCH: Mean household per capita expenditure	1007.61	21.17	47.60	0.00
OBC: Mean household per capita expenditure	726.70	7.18	101.20	0.00
Difference between HCH and OBC households	280.91	22.35	12.57	0.00
Decomposition of the Difference between HCH and SC Households using HCH coefficient vector				
Explained	121.32	16.60	7.31	0.00
Unexplained	159.59	26.33	6.06	0.00
Decomposition of the Difference between HCH and SC Households using SC coefficient vector				
Explained	132.05	32.44	4.07	0.00
Unexplained	148.86	37.94	3.92	0.00

Decomposition using equation (5) of paper: 11,468 observations

Table 7: Individual Contributions to the Decomposition of the Difference in Mean Per Capita Consumption Expenditure between HCH and SC Households, Pooled Estimates

	Value	Standard Error	z value	P>z
HCH: Mean household per capita expenditure	1007.61	21.12	47.70	0.00
SC: Mean household per capita expenditure	644.94	7.84	82.22	0.00
Difference between HCH and SC households	362.67	22.53	16.09	0.00
Explained Difference				
Literate in household	12.56	3.19	3.93	0.00
Highest education level of adult in household is ≥ Matric	80.83	7.53	10.73	0.00
Household owns land	19.21	6.56	2.93	0.00
Household owns tubewell	9.84	9.78	1.01	0.32
Household owns electric pump	-1.58	5.93	-0.27	0.79
Household owns diesel pump	3.70	2.16	1.71	0.09
Household owns tractor	13.56	6.13	2.21	0.03
Household owns thresher	-0.15	1.54	-0.09	0.93
Household owns cows	-0.77	1.26	-0.61	0.54
Household owns buffalo	-1.14	0.90	-1.27	0.21
Household lives in north	19.82	3.37	5.88	0.00
Household lives in south	-4.73	1.79	-2.65	0.01
Household lives in west	-2.05	5.19	-0.39	0.69
Household lives in central	15.14	2.45	6.18	0.00
Total	164.26	11.77	13.96	0.00
Unexplained Difference				
Literate in household	29.91	29.03	1.03	0.30
Highest education level of adult in household is ≥ Matric	14.93	7.09	2.11	0.04
Household owns land	75.62	42.74	1.77	0.08
Household owns tubewell	5.55	10.05	0.55	0.58
Household owns electric pump	-12.90	6.76	-1.91	0.06
Household owns diesel pump	-2.97	4.15	-0.72	0.47
Household owns tractor	-1.18	2.60	-0.45	0.65
Household owns thresher	-2.37	1.93	-1.22	0.22
Household owns cows	-5.10	30.09	-0.17	0.87
Household owns buffalo	93.61	26.76	3.50	0.00
Household lives in north	14.36	13.44	1.07	0.29
Household lives in south	39.77	18.95	2.10	0.04
Household lives in west	-42.88	12.20	-3.51	0.00
Household lives in central	-16.09	12.35	-1.30	0.19
Intercept	8.14	87.40	0.09	0.93
Total	198.41	16.30	12.17	0.00

Table 8: Individual Contributions to the Decomposition of the Difference in Mean Per Capita Consumption Expenditure between HCH and OBC Households, Pooled Estimates

	Value	Standard Error	z value	P>z
HCH: Mean household per capita expenditure	1007.61	21.12	47.70	0.00
SC: Mean household per capita expenditure	726.70	7.17	101.28	0.00
Difference between HCH and SC households	280.91	22.31	12.59	0.00
Explained Difference				
Literate in household	5.19	1.56	3.33	0.00
Highest education level of adult in household is ≥ Matric	42.36	4.30	9.85	0.00
Household owns land	4.96	1.64	3.02	0.00
Household owns tubewell	3.15	2.08	1.51	0.13
Household owns electric pump	2.62	1.94	1.35	0.18
Household owns diesel pump	0.87	0.64	1.36	0.18
Household owns tractor	6.31	2.38	2.65	0.01
Household owns thresher	0.41	0.48	0.86	0.39
Household owns cows	0.36	0.59	0.60	0.55
Household owns buffalo	5.23	1.64	3.19	0.00
Household lives in north	61.76	6.15	10.05	0.00
Household lives in south	-22.22	3.38	-6.58	0.00
Household lives in west	5.18	3.12	1.66	0.10
Household lives in central	17.14	3.60	4.77	0.00
Total	133.29	8.36	15.94	0.00
Unexplained Difference				
Literate in household	20.78	30.44	0.68	0.50
Highest education level of adult in household is ≥ Matric	40.90	15.74	2.60	0.01
Household owns land	62.32	46.44	1.34	0.18
Household owns tubewell	5.09	18.00	0.28	0.78
Household owns electric pump	-25.33	11.14	-2.27	0.02
Household owns diesel pump	-3.99	5.75	-0.69	0.49
Household owns tractor	1.85	6.77	0.27	0.78
Household owns thresher	-4.53	3.27	-1.38	0.17
Household owns cows	7.22	26.47	0.27	0.79
Household owns buffalo	52.58	22.91	2.29	0.02
Household lives in north	-18.00	10.38	-1.73	0.08
Household lives in south	-8.14	19.86	-0.41	0.68
Household lives in west	-62.04	13.08	-4.74	0.00
Household lives in central	-35.90	13.36	-2.69	0.01
Intercept	114.81	88.88	1.29	0.20
Total	147.62	19.28	7.66	0.00

Table 9: Percentage Within- and Between-Group Contributions to Inequality in per capita Household Consumption Expenditure

Decomposition by↓	MLD value (Gini Value)	Within Group Contribution	Between Group Contribution
Rural Households			
Caste: 19,468 households	0.233 (0.375)	94%	6%
Region: 18,849 households	0.233 (0.375)	91%	9%
High education level of adult in household: 17,187 households	0.235 (0.376)	91%	9%
All three combined: 16,683 households	0.236 (0.377)	80%	20%
Urban Households			
Caste: 9,859 households	0.252 (0.390)	92%	8%
Region: 9,353 households	0.255 (0.393)	97%	3%
High education level of adult in household: 8,311 households	0.264 (0.399)	77%	23%
All three combined: 7,907 households	0.266 (0.401)	70%	30%

Table 10: Distribution of Households by Caste across Quintiles of Income

Household Caste↓	Income Quintile					Total
	Poorest	2nd	Middle	4th	Affluent	
High Caste Hindu Households						
Number of Households	630	595	649	899	1026	3799
Percentage in Quintile	17	16	17	24	27	100
OBC Households						
Number of Households	2462	2009	1835	1700	1230	9236
Percentage in Quintile	27	22	20	18	13	100
Scheduled Caste Households						
Number of Households	1555	1564	1284	978	525	5906
Percentage in Quintile	26	26	22	17	9	100

Table 11: Regression Estimates for the Income-generating Equation for Rural Households*

Household type↓	Coefficient Estimate	Standard Error	T value
High Caste Hindu	-12691.27	3865.95	-3.28
Scheduled Castes	11068.43	3768.90	2.94
Literate in household	7056.31	3640.99	1.94
Literate in OBC household	-6156.01	3900.66	-1.58
Literate in SC household	-9415.89	4342.75	-2.17
Highest level of education for adult in household > class 5 but < Matric	3515.44	1620.13	2.17
Highest level of education for adult in household is Matric or higher	33168.90	2940.07	11.28
Highest level of education for adult in OBC household is higher than Matric	-5077.24	3359.49	-1.51
Highest level of education for adult in SC household is higher than Matric	-9368.53	4204.67	-2.23
Area owned or cultivated	7.54	1.85	4.07
Household owns a tubewell	10691.53	1817.45	5.88
Household owns an electric pump	10926.39	1914.79	5.71
Household owns a bullock cart	5884.37	1779.68	3.31
Household owns a tractor	78507.43	5475.12	14.34
OBC household owns a tractor	-50852.93	7107.89	-7.15
SC household owns a tractor	-23367.18	12561.37	-1.86
Household owns a thresher	6772.39	3828.97	1.77
Household owns a buffalo	2867.46	554.19	5.17
OBC household owns a buffalo	-808.58	657.00	-1.23
SC household owns a buffalo	-2135.71	728.59	-2.93
Households in the North	31775.20	2466.72	12.88
SC Households in the North	-24944.73	4748.18	-5.25
South	18101.85	3450.67	5.25
OBC Households in the South	-12579.80	3761.05	-3.34
SC Households in the South	-26143.93	4910.66	-5.32
West	7608.73	1919.59	3.96
SC Households in the West	-15801.10	5272.68	-3.00
SC Households in the Central	-10268.02	3157.39	-3.25
Number of Adults in Household	8697.56	873.35	9.96
Number of Adults in OBC Household	-2320.52	981.48	-2.36
Number of Adults in SC Household	-1754.21	1250.31	-1.40
Equation Statistics			
Number of observations		10,657	
Adjusted R^2		0.44	
Fβ 1, 10626)		268	
Root Mean Square Error		57448	

*Dependent variable is total household income

Table 12: The Decomposition of the Difference in Income between HCH and SC households, with Interaction Term: Pooled Estimates

	Value	Standard Error	z value	P>z
HCH: Mean Income	60661.10	1916.06	31.66	0.00
SC: Mean Income	31625.53	710.39	44.52	0.00
Difference between HCH and SC households	29035.56	2043.51	14.21	0.00
Decomposition of the Difference between HCH and SC Households				
Explained	19173.70	1452.21	13.20	0.00
Unexplained	9861.86	1602.56	6.15	0.00

Decomposition using equation (5) of paper: 5,098 observations

Table 13: The Decomposition of the Difference in Income between HCH and OBC households with Interaction Term: Pooled Estimates

	Value	Standard Error	z value	P>z
HCH: Mean Income	60661.10	1916.01	31.66	0.00
OBC: Mean Income	38778.16	772.67	50.19	0.00
Difference between HCH and OBC households	21882.94	2065.94	10.59	0.00
Decomposition of the Difference between HCH and OBC Households				
Explained	14544.40	1129.30	12.88	0.00
Unexplained	7338.54	1950.86	3.76	0.00

Decomposition using equation (5) of paper: 7,920 observations

Table 14: Individual Contributions to the Decomposition of the Difference in Income between HCH and SC Households, Pooled Estimates

	Value	Standard Error	z value	P>z
HCH: Mean Income	60661.10	1916.06	31.66	0.00
SC: Mean Income	31625.53	710.39	44.52	0.00
Difference between HCH and SC households	29035.56	2043.51	14.21	0.00
Explained Difference				
Literate in household	-108.97	258.70	-0.42	0.67
Highest level of education for adult in household > class 5 but < Matric	210.35	96.44	2.18	0.03
Highest education level of adult in household is ≥ Matric	5847.66	677.79	8.63	0.00
Area owned or cultivated	291.01	164.12	1.77	0.08
Household owns a tubewell	1125.60	470.15	2.39	0.02
Household owns an electric pump	1948.91	545.24	3.57	0.00
Household owns a bullock cart	519.50	326.49	1.59	0.11
Household owns a tractor	3289.46	810.35	4.06	0.00
Household owns a thresher	268.90	287.78	0.93	0.35
Household owns buffalo	187.72	114.53	1.64	0.10
Household lives in north	2128.56	382.56	5.56	0.00
Household lives in south	-139.94	204.05	-0.69	0.49
Household lives in west	-514.82	619.72	-0.83	0.41
Household lives in central	1057.99	310.91	3.40	0.00
Number of Adults in Household	3061.78	463.33	6.61	0.00
Total	19173.70	1452.21	13.20	0.00
Unexplained Difference				
Literate in household	5251.48	2196.78	2.39	0.02
Highest level of education for adult in household > class 5 but < Matric	1244.81	952.82	1.31	0.19
Highest education level of adult in household is ≥ Matric	2907.22	1449.12	2.01	0.05
Area owned or cultivated	183.15	123.37	1.48	0.14
Household owns a tubewell	281.02	703.28	0.40	0.69
Household owns an electric pump	657.95	699.94	0.94	0.35
Household owns a bullock cart	820.71	623.67	1.32	0.19
Household owns a tractor	172.81	531.80	0.32	0.75
Household owns a thresher	129.36	427.73	0.30	0.76
Household owns buffalo	3410.97	1613.97	2.11	0.04
Household lives in north	5320.64	976.67	5.45	0.00
Household lives in south	5170.73	1262.04	4.10	0.00
Household lives in west	3373.75	865.99	3.90	0.00
Household lives in central	2756.41	1190.62	2.32	0.02
Number of Adults in Household	3559.92	5046.30	0.71	0.48
Intercept	-25379.05	5785.64	-4.39	0.00
Total	9861.86	1602.56	6.15	0.00

Table 15: Individual Contributions to the Decomposition of the Difference in Income between HCH and OBC Households, Pooled Estimates

	Value	Standard Error	z value	P>z
HCH: Mean Income	60661.10	1916.01	31.66	0.00
SC: Mean Income	38778.16	772.67	50.19	0.00
Difference between HCH and SC households	21882.94	2065.94	10.59	0.00
Explained Difference				
Literate in household	158.89	107.53	1.48	0.14
Highest level of education for adult in household > class 5 but < Matric	-8.19	40.16	-0.20	0.84
Highest education level of adult in household is ≥ Matric	3790.02	444.24	8.53	0.00
Area owned or cultivated	147.99	97.81	1.51	0.13
Household owns a tubewell	473.10	165.39	2.86	0.00
Household owns an electric pump	726.94	214.83	3.38	0.00
Household owns a bullock cart	62.97	65.29	0.96	0.34
Household owns a tractor	1276.10	356.18	3.58	0.00
Household owns a thresher	34.21	62.22	0.55	0.58
Household owns buffalo	663.15	169.53	3.91	0.00
Household lives in north	6123.99	731.19	8.38	0.00
Household lives in south	-1059.26	270.95	-3.91	0.00
Household lives in west	1077.72	383.47	2.81	0.01
Household lives in central	-207.20	294.48	-0.70	0.48
Number of Adults in Household	1284.01	286.37	4.48	0.00
Total	14544.40	1129.30	12.88	0.00
Unexplained Difference				
Literate in household	2731.28	2367.92	1.15	0.25
Highest level of education for adult in household > class 5 but < Matric	1382.08	1030.81	1.34	0.18
Highest education level of adult in household is ≥ Matric	2399.05	1745.23	1.37	0.17
Area owned or cultivated	-30.71	250.18	-0.12	0.90
Household owns a tubewell	-141.84	1118.94	-0.13	0.90
Household owns an electric pump	1161.80	1057.79	1.10	0.27
Household owns a bullock cart	538.62	915.78	0.59	0.56
Household owns a tractor	1875.57	889.40	2.11	0.04
Household owns a thresher	440.95	619.43	0.71	0.48
Household owns buffalo	1272.57	1624.08	0.78	0.43
Household lives in north	1039.91	831.39	1.25	0.21
Household lives in south	2631.96	1244.51	2.11	0.03
Household lives in west	353.74	1151.70	0.31	0.76
Household lives in central	-208.43	1071.64	-0.19	0.85
Number of Adults in Household	6129.94	5334.38	1.15	0.25
Intercept	-14237.96	5861.51	-2.43	0.02
Total	7338.54	1950.86	3.76	0.00

Table 16: Percentage Within- and Between-Group Contributions to Inequality in Household Income

Decomposition by↓	MLD value (Gini Value)	Within Group Contribution	Between Group Contribution
Rural Households			
Caste: 19,049 households	0.493 (0.515)	94%	6%
Region: 18,441 households	0.495 (0.516)	95%	5%
High education level of adult in household: 16,823 households	0.498 (0.519)	83%	17%
All three combined: 16,329 households	0.501 (0.521)	77%	23%
Urban Households			
Caste: 9,778 households	0.389 (0.459)	93%	7%
Region: 9,290 households	0.392 (0.462)	99%	1%
High education level of adult in household: 8,242 households	0.409 (0.471)	72%	28%
All three combined: 7,852 households	0.413 (0.473)	69%	31%

Table 17: Poverty Rates by Caste of Household

	Not Poor	Moderately Poor	Poor	Total
Rural Households, Income as Indicator				
High Caste Hindu				
Number	2877	425	519	3821
Percentage	75	11	14	100
OBC				
Number	5679	1585	2026	9290
Percentage	61	17	22	100
SC				
Number	3563	1153	1222	5938
Percentage	60	19	21	100
Total				
Number	12119	3163	3767	19049
Percentage	64	17	20	100
Rural Households, Consumption as Indicator				
High Caste Hindu				
Number	3157	518	146	3821
Percentage	83	14	4	100
OBC				
Number	6267	1907	1116	9290
Percentage	67	21	12	100
SC				
Number	3730	1398	810	5938
Percentage	63	24	14	100
Total				
Number	13154	3823	2072	19049
Percentage	69	20	11	100
Urban Households, Income as Indicator				
High Caste Hindu				
Number	2434	365	372	3171
Percentage	77	12	12	100
OBC				
Number	2451	796	1055	4302
Percentage	57	19	25	100
SC				
Number	1191	421	693	2305
Percentage	52	18	30	100
Total				
Number	6076	1582	2120	9778
Percentage	62	16	22	100
Urban Households, Consumption as Indicator				
High Caste Hindu				
Number	2565	449	157	3171
Percentage	81	14	5	100
OBC				
Number	2744	989	569	4302
Percentage	64	23	13	100
SC				
Number	1318	524	463	2305
Percentage	57	23	20	100
Total				
Number	6627	1962	1189	9778
Percentage	68	20	12	100

Table 18: Caste Based Probabilities of Rural Households being at Different Levels of Poverty with Income per Adult Equivalent as Poverty Indicator

	Caste Based	Sample
Probability of Not being Poor: Income above 75% of Median		
High Caste Hindu Households	59.6%	75.3%
OBC households	54.9%	61.3%
SC households	54.0%	60.0%
Probability of being Moderately Poor: Income between 75% and 50 % of Median		
High Caste Hindu Households	17.9%	11.1%
OBC households	19.3%	17.1%
SC households	20.9%	19.4%
Probability of being Poor: Income below 50 % of Median		
High Caste Hindu Households	22.4%	13.6%
OBC households	25.8%	21.8%
SC households	25.1%	20.6%

The views expressed in this working paper are those of the author (s) and not necessarily endorsed by or representative of Indian Institute of Dalit Studies or the co-sponsoring or supporting organizations

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