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## **Social Identity and Perceived Income Adequacy**

**Deepthi Goel and Ashwini Deshpande<sup>1,2</sup>**

**July, 2018**

**Abstract** Economists are increasingly interested in subjective well-being, but the economic literature on perceptions of income adequacy, which is one of the factors that shapes subjective well-being, is small. Our paper fills this lacuna in the literature. We utilize nationally representative data on perceptions of amounts considered as remunerative earnings from self-employment in India, and examine how these are shaped by social identity, namely, caste. We also investigate if institutional change such as the introduction of an employment guarantee scheme alters these perceptions. Finally, we examine the relationship between caste identity and actual earnings. We find that caste identity does shape both perceptions of income adequacy as well as actual earnings: lower-ranked groups perceive lower amounts as being remunerative, and also earn lower amounts. Further, the employment guarantee scheme alters self-perceptions differentially for different caste groups, but in more nuanced ways than our ex-ante beliefs.

**JEL classification codes:** J15, O15

**Keywords:** Caste, Perceptions, Income Adequacy, Discrimination, India

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## **Social Identity and Perceived Income Adequacy**

### **1 Introduction**

Perceptions about income adequacy, in addition to actual income adequacy, are a critical part of individual well-being.<sup>3</sup> For instance, an assessment of subjective income among the elderly contributes to the discussion of social policy about how much income might be adequate for the happiness and well-being of older adults (Litwin and Sapir, 2009). There is also a fair amount of literature that investigates the effect of perceptions about adequacy of earnings on the larger matrix of factors that shape subjective well-being, such as life satisfaction (Coke, 1992), self-rated health (Cairney, 2000), depressive symptoms (St John, Blandford, and Strain, 2006), health inequalities (Wildman, 2003), functional adaptation and home modification (Mathieson, Kronenfeld, and Keith, 2002), and even mortality (Blazer, Sachs-Ericsson, and Hybels, 2005). Most of this literature is on older adults; however, these issues are pertinent for adults of all ages.

While economists are increasingly interested in subjective well-being, the economic literature on perceptions of income adequacy, which is one of the factors that shapes subjective well-being, is small. Factors that determine these perceptions, especially the role of social identity and policy change, are not as well investigated. Our paper fills this lacuna in the literature. We specifically examine the relationship between social identity and perceptions of income adequacy, and investigate whether policy change, such as the introduction of an employment guarantee scheme, can alter it.

We examine these questions by using nationally representative survey data on amounts considered as remunerative from self-employment among caste groups in India that have an

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<sup>3</sup> We use perceptions in the following sense: “the way in which something is regarded, understood or interpreted”, rather than the more literal meaning of being aware of something through the senses.

implicit status hierarchy. It is worth reiterating that the contemporary caste system in India consists of thousands of 'jatis' or castes that do not necessarily follow a linear hierarchy. These jatis are clubbed into four administrative categories that define data collection for the purposes of affirmative action, which is mostly caste-based: Scheduled Castes (SCs) is a list of formerly untouchable and lowest ranked jatis several of whom prefer to use the term 'Dalit' (meaning oppressed) as a term of pride; Scheduled Tribes (STs) is a list of marginalized tribal communities referred to as 'Adivasis', or the original inhabitants; Other Backward Classes (OBCs) is a collection of low to middle-ranking castes and communities that are also eligible for affirmative action; everyone else is clubbed into a residual category called 'Others', which is used as a proxy for upper-castes (UCs).

We focus on three major questions. First, we explore if the amounts considered as remunerative from self-employment vary in a way that lower-ranked caste groups find lower amounts to be remunerative. This might be the case if they internalize expectations of discrimination, or be influenced by lower earnings of other workers in their caste group and place an internal ceiling on what they realistically expect to earn. We focus on the self-employed because this data is available only for this category of workers.

Second, we assess whether policy change could affect perceptions of caste groups differentially. Specifically, we examine if the introduction of the world's largest workfare program, the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), alters perceptions in such a way that lower-caste groups find higher amounts to be remunerative. We expect MGNREGS to have a differential effect by caste because it specifically targets poorer households that are disproportionately SC or ST. Being an employment guarantee program, MGNREGS improves the outside option of targeted

households, thereby increasing their reservation earnings, and this may in turn affect their perceptions about remunerative earnings.

Third, we examine the relationship between caste identity and actual earnings, and whether MGNREGS affects actual earnings of caste groups differentially.

Our main results are as follows. Based on two cross-sections of data from the Employment-Unemployment Survey (EUS) of the National Sample Survey (NSS), we find that in 2004-5, relative to UC perceptions, STs perceived 7-19 percent lower amounts as remunerative, SCs 5-16 percent lower and OBCs 3-10 percent lower. The corresponding figures for 2009-10 were 9-17 percent lower for both STs and SCs, and 5-10 percent lower for OBCs. Contrary to our expectations, we do not find that MGNREGS affected ST or SC perceptions any differently than UC perceptions. However, the scheme had a positive effect on OBC perceptions vis-à-vis those of UCs, and this improvement was mainly the result of a direct impact on OBC notions of what they considered as remunerative earnings rather than due to an improvement in their economic conditions. Thus, policy does have the power to shape perceptions but the contours of the change are more complicated than our ex-ante beliefs.

The EUS does not have data on actual earnings for the self-employed. We use a unique method (explained in Section 6) to ascertain actual earnings from the data. We find that in 2004-5, STs, SCs and OBCs earned amounts that were 18-30, 17-29 and 8-17 percent lower than that earned by UCs.<sup>4</sup> For studying the impact of MGNREGS on actual earnings, we use consumption expenditure as a proxy for actual earnings.<sup>5</sup> We find that MGNREGS did not change the consumption expenditure of OBCs vis-à-vis that of UCs. There is weak evidence

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<sup>4</sup> Our method does not allow us to deduce actual earnings for a fairly large share of our sample in 2009-10. We therefore only report these estimates for 2004-5.

<sup>5</sup> We had to use consumption expenditure instead of deduced actual earnings because of the large share of missing data on actual earnings for 2009-10.

(significant at the 10 percent) that it worsened the consumption expenditure of STs vis-à-vis UCs, and improved that of SCs vis-à-vis UCs. Finally, we note that caste gaps in perceptions were lower than those in actual earnings.

Our paper makes several contributions. One, we fill a lacuna in the economic literature on well-being by focusing on a key component of well-being, viz., perceptions of income adequacy. Two, we contribute to the literature on the relationship between social identity and perceptions of income adequacy. Three, the Indian rural employment guarantee program has been analyzed extensively in its various dimensions; we contribute to this body of literature by focusing on an unintended consequence of this landmark policy, viz., the differential change in perceptions of income adequacy for a group of workers (the self employed) who are not directly targeted by this program.

The rest of the paper is organized as follows. Section 2 contains a brief review of the related literature on perceived income adequacy. Section 3 describes the empirical framework. Section 4 describes the data and offers summary statistics. Section 5 presents the main results related to perceptions followed by some robustness tests. Section 6 presents results related to actual earnings. Section 7 discusses the results and Section 8 offers concluding comments.

## **2 Related Literature on Perceived Income Adequacy**

Perceived income adequacy has been defined in a number of ways: an obvious way is to view it as a minimum amount of income needed for living, or a subjective poverty line, not related to the official government mandated poverty line. Milanovic and Jovanovic (1999) examine how the precipitous decline in actual incomes in Russia affected people's perceptions of the minimum level of income needed to make ends meet. They find that the percentage of the population who *felt* (italics added) that they were poor declined, even though poverty

remained at a very high level throughout the period. This self-perception was in marked contrast to an “objective” measure of poverty: the percentage of the population whose income was less than a given real poverty line actually rose during the period in their study.

Another way to define perceived income adequacy would be the amount of income needed for a desired standard of life. This is a complicated issue as self-perception of what one needs for a desired standard of life is shaped by a variety of factors, including one’s relative position in the social ladder. We do not use this interpretation of income adequacy in our paper. We use income adequacy in the sense of whether individuals consider their income remunerative, perhaps as a fair return to their efforts, and/or given their other options.<sup>6</sup>

Social identity could well influence the notion of income or earnings adequacy. There are several illustrations of this idea in the context of gender. Studies have discussed why women have lower pay expectations, and report greater satisfaction with their current pay, despite the fact that they report making less money than men (Clayton, Garcia and Crosby, 2010).

Women have lower expectations compared to men because they believe they deserve less,<sup>7</sup> which the management literature explains by differences in career paths, job inputs and so on, (Keaveny and Inderrieden, 2000), but social psychologists explain through the concept of “depressed entitlement”, (Major, 1989; Hogue and Yoder, 2003). While depressed entitlement was initially discussed in the context of gender pay disparities, it is now seen to operate more generally across a variety of social identities, indicating that members of low-status groups might absorb their inferiority and consequently have low self-worth, a phenomenon that is also analyzed as internalization, discussed below.

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<sup>6</sup> In Section 7 we provide a justification for this particular interpretation of income adequacy in the context of our paper.

<sup>7</sup> Berkowitz et al. (1987) also found that respondents’ satisfaction with their pay was related to what they felt they deserved, regardless of what others were paid.

The caste system in India is an ideal site to study the role of identity in shaping perceptions of earnings adequacy as it is a system that privileges ritual status over wealth/income,<sup>8</sup> which leads to individuals in higher ranked castes viewing themselves as higher placed compared to individuals in lower castes with similar incomes. Bros (2014) confirms this empirically using the World Values Survey data while investigating the answers to the following question: “which of these five classes do you think you belong to?” and finds that UC individuals tend to place themselves in a higher class compared to lower-caste individuals who are economically similar. Spears (2016) finds that in rural north India, lower-caste individuals report lower life satisfaction than upper caste individuals and this difference is not explained by poverty. Caste identities shape also expectations from job search. Deshpande and Newman (2007) show how, among highly educated university fresh graduates, expectations about the type of job they are likely to get, the time it would take to get the job and expected salary differ between similarly qualified Dalit and UC students. This could be because Dalit students have internalized expectations of labor market discrimination.

Economics is a relatively new entrant to this field of inquiry. Identity economics explores the role of identities in shaping individual behavior (Akerlof and Kranton, 2011), but could conceivably be extended to the examination of the interaction of social identities and perceptions of income adequacy. Charles (2013), using insights from economic theory, argues that a hierarchy of ideals exists in market interactions, which reflects the hierarchies among social groups, and suggests that norms of fairness are shaped by these hierarchies. While she does not directly discuss differences in perceptions, but if norms of fairness vary by social identities, this might be the mechanism underlying differential perceptions of income adequacy.

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<sup>8</sup> For instance, Brahmins, who are at the top of the ritual purity scale, enjoy high status, even when they are not at the top of the income/wealth hierarchy (Deshpande, 2017).



### 3 Empirical Framework

We use censored regressions to estimate the relationship between caste identity and perceptions/actual earnings, and a set of triple difference specifications to examine whether MGNREGS can mediate this relationship. Both methods are explained below using perceptions as the outcome variable; similar formulations hold for actual earnings as well.

#### 3.1 Estimating the Relationship between Caste Identity and Perceptions

Consider the following economic model applied separately to each cross-section:

$$y_i = \exp(\mathbf{x}_i\boldsymbol{\beta} + u_i) \quad (1)$$

$y_i$  is individual  $i$ 's perceived monthly earnings from self-employment that s/he considers to be remunerative.  $\mathbf{x}_i$  is a vector of observed characteristics, including caste.  $u_i$  is the residual.

In logarithms,

$$\ln y_i = \mathbf{x}_i\boldsymbol{\beta} + u_i \quad (2)$$

Although  $y_i$  is a continuous variable, in the EUS it is interval coded. The exact survey question about  $y_i$  is as follows: "*what amount of earnings (Rs. per month), would you regard as remunerative?*" The response could be any one of the following six integer codes: (1) Less than or equal to Rs.1000; (2) Rs. 1001 to Rs. 1500; (3) Rs. 1501 to Rs. 2000; (4) Rs. 2001 to Rs. 2500; (5) Rs. 2501 to Rs. 3000; (6) More than Rs. 3000.

We make the following identifying assumption,

$$u_i | \mathbf{x}_i, r_i \sim N(0, \sigma^2) \quad (3)$$

$r_i$  is the individual's threshold value(s).<sup>9</sup> Our assumption implies that  $u_i$  is independent of  $x_i$  and of  $r_i$ . We therefore use Maximum Likelihood to obtain consistent estimators of  $\beta$  and  $\sigma^2$ .<sup>10</sup> Assuming Equation (3), the effect on perceptions of a particular characteristic, say  $x_k$ , is given by the semi-elasticity of mean perceived earnings,  $E(y|\mathbf{x})$ , with respect to  $x_k$ . Let this be denoted by  $\theta_k$ . When  $u$  is independent of  $\mathbf{x}$  (as we have assumed), it can be shown that  $\theta_k = \beta_k$  (see Supplementary Appendix A.1 for proof). For a categorical variable such as caste, the exact percentage change in mean perception between a specified caste group and the omitted group (UC in this paper) is given by  $\exp(\beta_j - 1) * 100$ , where  $\beta_j$  is the coefficient attached to the binary variable for the specified caste.

### 3.1.1 Bounding the Relationship: Choice of X

We are interested in the effect of caste identity on perceptions after accounting for other characteristics that are correlated with caste and also independently affect an individual's perception about remunerative earnings. We have data on the following characteristics which we categorize in four groups for reasons explained below: (A) gender, age and age squared, marital status, whether the individual is the head of household, household size, dependency ratio,<sup>11</sup> area of residence (rural/urban), district of residence, survey month; (B) land owned by the household, educational attainment; (C) self-employment category (single person enterprise, employer, or unpaid family worker), whether engaged in subsidiary activity, industry and occupation of employment; (D) household's monthly consumption expenditure (proxy for earnings).

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<sup>9</sup> For example if s/he chose response code (2), then  $r_i$  is (1001, 1500).

<sup>10</sup> In order to separately identify  $\beta$  and  $\sigma^2$ ,  $r_i$  should not be perfectly related to  $x_i$  (Wooldridge 2010). In our data this condition is satisfied as thresholds are not perfectly related to individual characteristics.

<sup>11</sup> Dependency ratio is defined as the fraction of household members who are not employed.

Characteristics listed in groups B, C, and D, are, at least to some extent, themselves determined by caste.<sup>12</sup> Including them as part of  $\mathbf{x}$  biases the effect of caste (Angrist and Pischke, 2009). In Supplementary Appendix A.2 we show that their inclusion would underestimate the caste effect, while their exclusion would overestimate it. We therefore present results for four different specifications of  $\mathbf{x}$ , S1 through S4, where each successive specification includes additional controls from (A) through (D). Thus, S1 includes characteristics only in (A) and provides an upper bound for the caste effect, while S4 includes all four groups and provides a lower bound.<sup>13</sup>

### ***3.2 Can Policy Change Mitigate this Relationship?***

We use different triple difference specifications to estimate the differential effects of policy change, proxied by MGNREGS, on the perceptions of different caste groups.

#### ***3.2.1 Identifying the Effect of MGNREGS***

MGNREGS guarantees 100 days of wage-employment in a year to a rural household whose adult members are willing to do unskilled manual work at state-level statutory minimum wages. It was first implemented in early 2006 in the poorest districts of India, and by 2008 it had been rolled out throughout the country. Dutta et al. (2012), and Liu and Barrett (2013) find that MGNREGS has been successful in targeting the poor, mainly because it offers physically demanding manual work at minimum wages that is not attractive to the non-poor. Both studies also document higher participation rates for lower-ranked caste groups:

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<sup>12</sup> Deshpande (2017) and various papers in Thorat and Newman (2012) provide ample evidence of this.

<sup>13</sup> Our dataset dictates the final set of variables in S4. It is conceivable that inclusion of additional controls could further reduce the lower bound. Despite this, we believe that we have accounted for a fairly comprehensive set of variables such that S4 should provide an estimate close to the true lower bound.

according to Dutta et al. (2012), in 2009-10, the participation rates among ST, SC, OBC and UC were 44, 34, 21 and 16 percent, respectively. Additionally, between 2006-7 and 2011-2 the combined cumulative share of SCs and STs in total person-days under MGNREGS was 51 percent (GOI, 2012), much higher than their population share of 25 percent according to the 2011 census. Other research has also found differential effects across caste groups. For example, Klonner and Oldiges (2014) find that MGNREGS smoothed consumption expenditure among SC-ST households in particular. We therefore expect the scheme to have a greater effect on lower-caste groups.

Why might MGNREGS influence perceptions about remunerative earnings among the self-employed? Several studies have found that the scheme pushed up rural wage rates for private casual work (Azam, 2012; Berg et al. 2018; Imbert and Papp, 2015). We therefore anticipate that MGNREGS would affect the perceptions of casual wage earners the most. Unfortunately, we cannot analyze their perceptions as the question on perceptions was only asked of the self-employed. Nonetheless, there is evidence that the increase in casual worker wage rates led to welfare gains among the poor that extended beyond those received by program participants (Imbert and Papp 2015). Given this, it is plausible that MGNREGS raised earnings expectations and norms about appropriate earnings among the poor, including the self-employed.

In order to examine if MGNREGS did have a greater influence on the perceptions of lower-castes, it is not credible to use a Difference-in-Differences (D-I-D) specification between caste groups and over time (2004-5 as pre-MGNREGS and 2009-10 as post-).<sup>14</sup> Such a D-I-D relies on the assumption that during this period, besides the introduction of the scheme, there

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<sup>14</sup> Azam (2012), and Imbert and Papp (2015) exploit the partial implementation of MGNREGS and estimate a D-I-D specification using 2007-8 EUS data to study the effects of the scheme on wage rates. We cannot use a similar strategy because the question on perceptions was not asked in 2007-8.

were no other events that differently affected the perceptions of various caste groups. For this to be true, we would have to rule out some obvious possibilities such as differential price inflation across caste groups because of differences in their consumption baskets. To address such concerns, we estimate two different triple difference specifications explained below. Both specifications are run on only the rural sample as MGNREGS coverage is restricted to rural India.

The first triple difference relies on the variability across states in the effective implementation of the scheme. Although MGNREGS is stipulated to be demand driven, studies have suggested that political factors and lack of administrative capacity at various levels have led to supply constraints in actual provision of employment (Dutta et al., 2012; Gupta and Mukhopadhyay, 2016; Imbert and Papp, 2015; Mukhopadhyay, 2012). Dutta et al. (2012) and Liu and Barrett (2013) use EUS 2009-10 to rank states according to participation rates, and the severity of rationing. Based on these rankings we classify 27 Indian states into two groups: 14 states called Star states that are characterized by high participation and low rationing, versus the rest. To gauge the variation in MGNREGS implementation across states, Appendix Table A1 presents the list of Star and non-Star states along with their participation and rationing rates.<sup>15</sup>

If our hypothesis is true and MGNREGS does have a larger effect on the perception of lower-castes, then for the most part, this should be coming from the Star states which experienced better implementation of the scheme. We therefore combine data from both years and estimate the following triple difference specification (we have separated out the caste variables from  $\mathbf{x}$  and called the remaining vector  $\mathbf{x}_1$ ):

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<sup>15</sup> Liu and Barrett (2013) rank all 27 states studied here including 7 north eastern states which are not considered by Dutta et al. (2012). The participation and rationing rates are almost identical for states that are common across both studies.

$$\begin{aligned}
\ln y_i = & \beta_0 + \mathbf{x}_{1i}\beta_1 + \gamma_1 ST_i + \gamma_2 SC_i + \gamma_3 OBC_i \\
& + \gamma_4 Year09_i + \sum \gamma_5^k District_i^k \\
& + \gamma_6 ST_i * Year09_i + \gamma_7 SC_i * Year09_i + \gamma_8 OBC_i * Year09_i \\
& + \gamma_9 ST_i * Star_i + \gamma_{10} SC_i * Star_i + \gamma_{11} OBC_i * Star_i \\
& + \sum \gamma_{12}^j Year09_i * State_i^j \\
& + \gamma_{13} ST_i * Year09_i * Star_i + \gamma_{14} SC_i * Year09_i * Star_i \\
& + \gamma_{15} OBC_i * Year09_i * Star_i + \varepsilon_i
\end{aligned} \tag{4}$$

where  $ST_i$ ,  $SC_i$ , and  $OBC_i$ , are indicator variables capturing the caste of individual  $i$ ;  $Year09_i$ , stands for whether s/he is from survey year 2009-10;  $Star_i$  for whether s/he belongs to one of the Star states; and  $District_i^k$  and  $State_i^j$  are sets of district and state fixed effects. The effect of MGNREGS on average perception gap between SC and UC is given by  $\exp(\gamma_2) [\exp(\gamma_7 + \gamma_{10} + \gamma_{14}) - \exp(\gamma_7) - \exp(\gamma_{10}) + 1] * 100$  (derived in Supplementary Appendix A.3). Because we expect the change over time in the gap between SC and UC in the Star states to be larger than the same in the non-Star states, we expect this effect to be positive. The effect of MGNREGS on average perception gap between ST and UC (and between OBC and UC) can be similarly estimated. It is important to point out that while Star states maybe characterized by better governance compared to non-Star states, this by itself does not invalidate our identifying assumption. For our estimates to be biased we would need state governance for particular caste groups to have changed differently over the time period that we study which we think is an unlikely eventuality.

The second triple difference exploits the variation in time exposure of districts to the scheme, as MGNREGS was rolled out in a phased manner and was first implemented in poorer districts within each state (Imbert and Papp 2015). We expect the scheme to have had a

greater impact on individuals residing in Phase I and II districts (earlier roll-out) than those residing in Phase III (where the scheme was rolled out the last), as the former were exposed to it for a longer duration. Based on this we estimate a triple difference specification similar to Equation (4), wherein  $Star_i$  is replaced by  $Phase12_i$ , the latter captures whether  $i$  resides in a Phase I or Phase II district. That early phase districts are poorer compared to the later phase districts does not undermine identification. A threat to identification would arise if, for example, there were other poverty alleviation schemes, characterized by differential participation of various caste groups, and implemented at the same time as MGNREGS in precisely the same phase-wise manner. To the best of our knowledge, there were no such interventions.

A final point to note is that non-Star states and Phase III districts are not pure controls in the sense that they were also exposed to the scheme, albeit to a lesser extent. For this reason our estimates underestimate the true impact size of the scheme.

## **4 Data and Descriptive Statistics: Characterizing the Fully Self-Employed**

### ***4.1 Data***

We use data from the 61st and the 66th rounds of the EUS of the NSS pertaining to the years 2004-5 and 2009-10, respectively. These are repeated cross-sections and are representative both at the national and state levels. The EUS has been extensively used to study wage earners in India. However, in spite of the self-employed constituting about 50 percent of the labor force, there is very little empirical work on studying them.<sup>16</sup> One reason is that unlike income data for wage earners, EUS does not record actual earnings from self-employment. In

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<sup>16</sup> A few recent exceptions are Deshpande and Sharma 2013 and 2016, and Vanneman and Dubey 2013. These papers use the India Human Development Survey (IHDS) and the Micro, Small and Medium Enterprises (MSME) Census data to study earnings from self-employment in India.

a small section of the questionnaire, and only in these two rounds, it only asks the self-employed whether they consider their current earnings to be remunerative, and also collects interval coded data on perceived remunerative earnings.

Possibly because this is a very small section in an otherwise detailed survey, this part of the NSS questionnaire has not been used extensively by researchers. Ours is the first paper to use this limited data for the self-employed to examine both their perceptions and actual earnings, and how this varies by social identity, specifically caste. The only other study to report limited statistics from this section is World Bank (2011), which reports that 40 percent of rural men and 80 percent of rural women found an income of less than Rs. 2000 to be “remuneration enough” (p.132). While the study does not comment on the gender differences in perception of remuneration, this limited statistic – that a larger proportion of women than men find a given low level of earnings remunerative – is entirely consistent with our central hypothesis.

We consider individuals in the working age population (between the ages 18 to 60 years) who are self-employed.<sup>17</sup> This group is further refined to identify the set of ‘fully self-employed’ individuals (FSE, hereafter), defined as those who are employed full-time, have worked regularly in the year preceding the survey, and have not had a single month without work.<sup>18</sup>

We impose this restriction in order to focus on a relatively homogenous population characterized by stable employment. Our analysis sample consists of 58,637 and 39,706 FSE

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<sup>17</sup> The EUS records what it calls ‘the usual principal activity’ of each individual. This refers to the activity in which s/he spent the longest time in the year preceding the survey. We use this to identify the self-employed. Specifically, the self-employed consists of own account workers, employers, and unpaid family workers; it does not include casual wage workers (casual labor), and regular salaried wage earners.

<sup>18</sup> In both years, around 50 percent of the self-employed are FSE.



individuals in 2004-5 and 2009-10, respectively, who represent, roughly 25 percent of the Indian labor force in both years.<sup>19</sup>

The overwhelming majority of FSE are either own account workers, or single person enterprises, (62 and 67 percent in 2004-5 and 2009-10, respectively) or unpaid family workers (35 and 30 percent in 2004-5 and 2009-10, respectively). A very small proportion are employers (about 3 percent in both years). Thus, the discussion that follows is mostly about self-employed persons either operating single-person enterprises, or informally engaged in their family-owned establishments. It is not so much about persons running big businesses that employ other workers. This context needs to be kept in mind when assessing the amounts that are perceived as being adequately remunerative. In 2004-5 and 2009-10, 27 and 23 percent, respectively, of FSE were women. Roughly, 75 percent lived in rural areas. The educational attainment of FSE improved over the years: the share with no schooling declined from 36 to 26 percent, while those with secondary (Grade 10) or higher education increased from 24 to 32 percent. Majority (57 and 52 percent, in 2004-5 and 2009-10, respectively) were employed in primary industries such as agriculture, forestry, fishing and mining.

In 2009-10, 7 percent of FSE were ST, 12 percent SC, 47 percent OBC, and 34 percent the residual UC category. The caste distribution was very similar in 2004-5.

#### ***4.2 Differences in Characteristics across Caste Groups***

Table 1 presents the distribution of characteristics across caste groups for the FSE population and it reveals that caste groups differ significantly in their characteristics. We only discuss characteristics for 2009-10; similar patterns were seen in 2004-5. Female participation was

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<sup>19</sup> The analysis sample is smaller in 2009-10 because fewer households were sampled. It, however, continues to be representative at the national and state levels.

highest for ST (36 percent) and lowest for UC (16 percent); for SCs and OBCs it was in-between (25 percent). Compared to UC, all other caste groups had lower dependency ratios. In particular, while the ratio was 0.47 for ST, it was 0.56 for UC. SCs and OBCs owned less land than UCs. Surprisingly, STs owned more land, perhaps because of their geographic concentration in hilly and forested parts of the country. While 94 percent of STs lived in rural areas, only 66 percent of UCs did so. For SCs and OBCs the corresponding figures were 79 and 75 percent, respectively. There is clear evidence that higher caste groups have better educational attainment. While 48 and 37 percent of STs and SCs had no schooling, these figures were lower at 29 and 14 percent for OBCs and UCs respectively. At the other end of the spectrum, while only 12 and 20 percent of STs and SCs had attained an education level of Secondary (Grade 10) or above, 27 and 48 percent of OBCs and UCs, respectively, had attained this level. Compared to UCs, a smaller share of other groups were employers, which is confirmed by other data sources such as IHDS that show greater business ownership by UCs. A higher share of STs, SCs and OBCs engaged in subsidiary work in addition to their full-time employment. Compared to the other three caste groups, STs were predominantly employed in agriculture and allied industries. In terms of occupational distribution, a larger share of UCs were in higher paying administrative or professional occupations. While 27 percent of UCs were in these occupations, the corresponding figure for ST was 7 percent, SC 14 percent, and OBC 18 percent. Finally, better living standards among UCs is reflected in their higher monthly consumption expenditure. The average monthly consumption expenditure for UC households was 1.7, 1.6 and 1.3 times that of ST, SC, and OBC households respectively.

When attributing differences in perceptions to caste identity, it is important to account for the fact that a part of the differences may be due to variations in some of these characteristics.

### *4.3 Differences in Perceptions across Caste Groups*

Here we examine the main outcome variable of interest, namely, (self-reported) perceptions on earning amounts that are considered to be remunerative.<sup>20</sup> Table 2 presents these perceptions across caste groups for the FSE population. Note that the money amounts used to define the earnings intervals (column 1 of Table 2) remain the same across both EUS rounds. Given inflation over the five-year period,<sup>21</sup> these amounts are not comparable across years in real terms. It is therefore not surprising that while in 2004-5 about 65 percent of the FSE reported earnings less than Rs. 3000 per month to be remunerative, only 30 percent did so in 2009-10.

We find that amounts that are perceived as remunerative earnings vary significantly by caste. In 2004-5, 82 percent of ST, 71 of SC, 70 of OBC, and 54 of UC considered monthly earnings less than Rs. 3000 per month as being remunerative. In 2009-10, 45 percent of ST, 37 of SC, 34 of OBC, and 19 of UC considered this amount to be remunerative.<sup>22</sup> Thus, compared to UCs, lower caste groups – SC, ST and OBCs perceived lower amounts as being remunerative. These differences in perceptions across caste groups could be due to the differences in human capital characteristics that are valued in the labor market or they could be due to internalization of self-worth shaped by one's standing in the social hierarchy. By

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<sup>20</sup> The EUS has only one question on caste, namely, documenting the caste identity of the household. This information is collected in the 'Household Characteristics' module (Block 3) at the start of the questionnaire. The response about perceived remunerative earnings is collected in a separate module (Block 7.1) towards the end of the questionnaire. It is therefore unlikely that the survey design of itself directs the respondent's focus towards their caste identity when replying to the question on perceived earnings. We therefore believe that an individual's response mainly reflects the subliminal influence of their caste and is not biased by the survey design.

<sup>21</sup> The All-India Consumer Price Index (CPI) for rural labourers (base 1986/87=100) increased from 340 in 2004 to 493.5 in 2009, an increase of 45 percent (index numbers obtained from the Labour Bureau, Government of India; source: <http://labourbureau.nic.in/indtab.html> accessed on June 22, 2015).

<sup>22</sup> Pearson's chi-square test to examine whether amounts considered as remunerative earnings are independent of caste does not support this hypothesis.

accounting for a fairly exhaustive set of controls for human capital we believe that the partial correlations we present are not driven by differences in the marginal product of labor.

## **5 Main Results: Caste Identity and Perceptions about Remunerative Earnings**

Before we present the main results, it is important to address possible sample selection: over the study period individuals may have moved in or out of being FSE, perhaps even as a result of programs such as the MGNREGS, which would have changed the population being studied. To examine the extent of this problem, Appendix Table A2 presents cross tabulations between labor market status and caste, separately for each year. Between 2004-5 and 2009-10 we see a shift away from being FSE: there was a 3 percentage point drop in their share over this time period. It is reassuring though, that we see this pattern for all four caste groups: the proportionate change away from being FSE was 15 percent for STs, 26 for SCs, 21 for OBCs and 22 for UCs. Thus, while the composition of the FSE sample may have changed over time, we hope that the nature of selection was similar across caste groups making sample selection innocuous for our analysis.

### ***5.1 Relationship between Caste Identity and Perceptions***

Table 3 presents estimates of the semi-elasticity of mean perceived remunerative earnings with respect to caste, separately for each year.<sup>23</sup> Columns S1 through S4 show the results for the specifications with the same labels as discussed in section 3.1.1. As predicted, the caste effects decrease in magnitude as we move from S1 (the most parsimonious) to S4 (the full specification). We discuss the results from S4 bearing in mind that these are lower bounds. In 2004-5, the average amount perceived to be remunerative by STs was at least 7.3 percent

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<sup>23</sup> As explained in the beginning of Section 4.3, the responses to the question on perceptions are not directly comparable across years. Instead of interacting throughout with year dummies, we prefer to analyze each year separately.

lower than that perceived by UCs, and the corresponding figures for SC and OBC were 4.8 and 2.6 percent, respectively. In 2009-10, ST perceptions were at least 9 percent lower than UC, and for SC and OBC they were 9.2 and 5.1 percent lower, respectively. Estimates for gender and education are also along expected lines: compared to men, women perceived lower earnings to be remunerative, and the amount considered remunerative increased with educational attainment.

The important conclusion is that caste identity matters in shaping perceptions: after accounting for differences in observed characteristics, groups that are lower in the caste hierarchy also consider smaller amounts to be remunerative. While we have an extensive set of controls, it is possible that our identifying assumption (Equation (3)) does not hold good. It is therefore better to err on the side of caution and interpret our estimates as partial correlations between caste and perceptions rather than the causal effect of caste.

### ***5.2 Evidence of MGNREGS Mitigating the Relationship***

In Tables 4A and 4B we present the effect of MGNREGS. Each table shows results from using a triple difference formulation (Equation (4) or similar), wherein two specifications of  $\mathbf{x}$ , S2 and S4 (described in section 3.1.1) have been shown. Recall that S2 does not control for employment characteristics and consumption expenditure (our proxy for actual earnings), while S4 includes the complete set of controls.

Here we explain why we focus on S2 and S4. MGNREGS can affect caste specific perceptions either by directly affecting notions of what is considered as appropriate earnings (and without any change in economic realities), or it may first improve employment conditions and/or raise incomes which in turn may raise notions of appropriate remuneration. Of course, both these could also be happening simultaneously. While S2 captures the

combined effect of both mechanisms, S4 only captures the former as it controls for employment characteristics and income. Thus, S2 estimates what may be called the ‘policy’ effect (i.e. the total effect), while S4 controls for some plausible mechanisms through which the change may be operating and therefore gives a ‘partial’ effect. We compare estimates across the two specifications to remark on plausible mechanisms through which the effect on perceptions may be operating, but focus on S2 to conclude whether MGNREGS had an overall differential effect across caste groups.

Table 4A shows the results for the Star versus non-Star specification. Looking at S2 for the overall effect, we find that there was no differential effect of MGNREGS on the perceptions of any of the caste groups. Looking at S4, we find that MGNREGS improved the perceptions of ST, and perhaps that of OBC vis-à-vis UC in what they regard as remunerative earnings: for ST by 13.9 percentage points, and for OBC by 8.3 percentage points, though the OBC effect is significant only at the 10 percent level. That the program effect shows up in S4 but not in S2 suggests that employment characteristics and/or consumption expenditure deteriorated for ST vis-à-vis UC due to the scheme. Table 4B shows the results for the Phase I&II versus Phase III specification. Once again, looking at S2 for the overall effect, we find that the scheme had no differential effects on the perceptions of ST and SC groups vis-à-vis UC, but improved the perceptions of OBC vis-à-vis UC by 5.1 percentage points. For OBCs, when we control for economic outcomes in S4, the effect is 5.4 percentage points. Given that the impact size for OBCs is similar across S2 and S4, we conclude that MGNREGS had been operative by directly raising norms about remunerative earnings rather than by improving actual employment conditions and/or income and then affecting perceptions.

As explained in Section 3.2.1, both triple difference specifications underestimate the scheme's effect. Also, the degree of underestimation may differ between them as each relies

on a different mechanism for identifying the causal effect. Given that we find evidence of a positive effect on OBC perceptions vis-à-vis UC in one of the specifications, we interpret this as evidence to support that MGNREGS led to an unambiguous improvement in the relative perceptions of OBCs in what they regarded as remunerative earnings, and that this improvement was brought about by the scheme's impact on norms about remunerative earnings.

### **5.3 Robustness Test**

Our estimates would be biased if there is reason to believe that the change in *caste specific* perceptions *over time in control units* (non-Star states and Phase III districts) would have been different from that in treatment units (Star states and Phase I and II districts) in the absence of MGNREGS. Unfortunately, EUS does not have data on perceptions for other years to test this directly using pre-program time periods. Instead, we use our earlier control variables specified in groups (B), (C) and (D) in section 3.1.1 as dependent variables and estimate triple difference specifications similar to Equation (4) but using data for pre-MGNREGS years, 1999-2000 and 2004-05.

Table 5 presents the triple difference coefficients. As can be seen, most coefficients are insignificant except for a stronger trend toward being employed in primary industries for SC vis-à-vis UC in star versus non-star states, and a weaker trend toward being employed as laborers for SC vis-à-vis UC in Phase I&II versus Phase III districts. Absence of pre-program differential trends in these variables makes it unlikely that differential trends are driving our results.

## **6 Caste Identity and Actual Earnings**

Recall that the EUS does not directly capture earnings from self-employment. However, in addition to the question on perceived remunerative earnings, it asks the following: “*do you regard the current earning from self-employment as remunerative? (yes -1, no -2)*”. Table 6 shows how we deduce information about actual earnings using the responses to these two questions. For example, if an individual said that s/he did not consider their current earnings as remunerative, and also that s/he considered an amount between Rs. 1001 and Rs. 1500 to be remunerative, then their actual earnings must have been less than or equal to Rs. 1000. On the other hand, if s/he considered their current earnings as remunerative, and also considered an amount between Rs. 1001 and Rs. 1500 to be remunerative, then their actual earnings must have been between Rs. 1001 and Rs. 1500. The only pair of responses from which nothing conclusive can be deduced is when an individual did not consider their current earnings as remunerative, and considered an amount more than Rs. 3000 to be remunerative.

Table 7 presents information on actual earnings deduced in the manner described above. Self-employment earnings of lower-castes is less than that of UCs: in 2009-10, the shares of ST, SC, OBC, and UC, earning less than Rs. 1000 per month were 6, 5.8, 3.6, and 2.3, percent respectively; while the shares earning greater than Rs. 3000 per month were 30.2, 29.1, 36.7, and 46.8 respectively. Similar pattern is seen in 2004-5 as well.

Note that in 2004-5 and 2009-10, for 15 and 31 percent of the sample, respectively, we could not deduce anything about their actual earnings (see Table 7). Given the large share of missing earnings for 2009-10, in section 6.1 we only analyze actual earnings for 2004-5, and in Sections 6.2 and 6.3, we use consumption expenditure as a proxy for actual earnings.<sup>24</sup>

### ***6.1 Relationship between Caste Identity and Actual Earnings, 2004-5***

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<sup>24</sup> The EUS directly collects data on consumption expenditure at the household level.



Once again we use a censored regression model similar to the one discussed in Section 3.1. The results are summarized in Table 8.<sup>25</sup> We find that actual earnings vary by caste such that lower-castes earned smaller amounts compared to UCs even after controlling for observable characteristics. Using the most conservative estimates, namely S3, in 2004-5, the average amount earned by ST was 18 percent lower than that earned by UC, and the corresponding figures for SC and OBC were 16.8 and 8 percent, respectively.

One might be concerned that missing earnings data might introduce some bias. Note that data on earnings is missing for those individuals who did not consider their current earnings to be remunerative, and who chose the highest category (more than Rs. 3000) as what they considered as remunerative earnings. These are presumably the more ambitious individuals who are perhaps more likely to have higher actual earnings, all else being the same. This, combined with the fact that the percentages of missing are either lower (for ST and OBC) or comparable (for SC) vis-à-vis UC (see Table 7), we expect that missing earnings result in an underestimation of the association between caste and actual earnings.

## ***6.2 Relationship between Caste Identity and Consumption Expenditure***

In this section we examine whether monthly per capita consumption expenditure is associated with one's caste identity. Table 9 presents the results for Ordinary Least Squares (OLS) regressions where (logarithm) monthly per capita consumption expenditure is regressed on three sets of control variables, S1, S2, and S3 as described in Section 3.1.1.<sup>26</sup> Using the most conservative estimate (S3), we find that lower caste individuals consume smaller amounts: in

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<sup>25</sup> We do not estimate specification S4 that controls for monthly consumption expenditure (mce) because now the dependent variable is monthly earnings and mce is a proxy for it.

<sup>26</sup> An individual's monthly per capita consumption expenditure is obtained by dividing his household's monthly consumption expenditure by household size. Therefore, household size is not included as an additional control.

2004-5, the per capita consumption expenditure of ST was 24 percent lower than that for UC, while for SC and OBC it was 20.3 and 10.9 percent lower, respectively. In 2009-10, for ST it was 20.5 percent lower, while for SC and OBC it was 15.5 and 8.9 percent lower, respectively.

### ***6.3 Effect of MGNREGS on Consumption Expenditure***

Here we examine whether MGNREGS had differential impacts on the consumption expenditure of different caste groups. Table 10 summarizes the results from triple difference regressions (similar to Equation (4)), where the dependent variable is (logarithm) monthly per capita consumption expenditure. Results for S2 and S3 are shown.<sup>27</sup> There is weak evidence that MGNREGS led to a decrease in the consumption expenditure of ST vis-à-vis UC: for the Star versus non-Star specification, S2 and S3 reveal that consumption expenditure of STs vis-à-vis UCs decreased by 8.5 and 8.1 percentage points, respectively, however these are significant only at the 10 percent level. This is consistent with our conclusion in Section 5.2 that the scheme had a detrimental impact on economic conditions of ST vis-à-vis UC. There is weak evidence that the scheme had a positive effect on the consumption expenditure of SCs vis-à-vis UCs: looking at S2, the phase-wise specification shows an effect size of 6.4 percentage points, significant at 10 percent. This is surprising given that we did not find any effect on the relative perceptions of SCs. Finally, there is no evidence that MGNREGS had any differential effect on the consumption expenditure of OBCs vis-à-vis UCs. This is consistent with our finding for OBCs in Section 5.2, where we concluded that the effect of MGNREGS on perceptions had been working via directly impacting norms about appropriate earnings rather than by changing employment conditions or actual income.

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<sup>27</sup> As discussed in Section 5.2, S2 captures the policy/overall effect of institutional change, while S3 controls for employment characteristics and captures the partial effect.

## 7 Discussion

Since we are using the specific question about perception of income from self-employment as being remunerative as one of the interpretations of income adequacy, a question that arises is what exactly does the word “remunerative” convey to the respondent? Although we accessed the NSS question in English, the actual survey was administered in a different language in each state. There are 22 official languages of India; while we are multi-lingual, we are not familiar with all of them. However, we looked up the Hindi survey instrument (which we understand perfectly) since Hindi is the most widely spoken language in India. The exact question in Hindi<sup>28</sup> connotes the notion of appropriate earnings, given effort (and remunerative is not used as sufficient or desirable). We believe this interpretation of remunerative fits in perfectly our interpretation of this as a valid way to measure the notion of income adequacy.

We conjecture about the relationship between perceptions of amounts considered as remunerative earnings, and actual earnings. We find that caste gaps in perceptions are smaller than those in actual earnings. This begs another question: what might be the direction of the relationship between perceptions and actual earnings? Perceptions can have ‘real’ consequences. For example, social psychologists have documented the causal nature of the impact of perceived racial discrimination on African American psychological well-being (Sellers and Shelton, 2003). In our context, is it the case that lower-placed groups have lower expectations, which then becomes a self-fulfilling prophecy? Causality could run the other way around too: lower-ranked groups internalize existing disparities in earnings as “normal” and/ or expect discriminatory treatment, and thus, have lower perceptions. This channel has

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<sup>28</sup> “*Kya aap swa-rozgar se aay ko upayukt parishramik maante hain?*”

been discussed in Section 2. Deshpande and Sharma (2016) show discriminatory gaps in actual earnings for small-scale business. If lower-caste groups are aware of this discrimination that they face, their notions of amounts that constitute remunerative earnings are likely to be shaped by the ground realities. This channel of the relationship between actual earnings and perceptions appears highly likely, though it is not possible to verify it based on the data at our disposal.

## **8 Conclusion**

Our main finding is that caste identity in contemporary India does shape perceptions. We find that controlling for other characteristics, among the fully self-employed, lower-ranked groups perceive lower amounts as being remunerative. Further, policy interventions such as the MGNREGS affect these self-perceptions but in more nuanced ways than our ex-ante beliefs. Specifically, contrary to our expectations we do not find evidence to support that MGNREGS affected ST or SC perceptions of remunerative earnings any differently than UC perceptions. It, however, boosted OBC perceptions vis-à-vis UC perceptions by directly influencing norms concerning appropriate remuneration rather than by improving economic realities (employment characteristics and income) first and thereby impacting perceptions.

Confirming other studies, we find that caste identity is associated with actual earnings from self-employment. Consistent with our earlier conclusion, we do not find that MGNREGS had differential effects on the consumption expenditure (our proxy for actual earnings) of OBCs vis-à-vis UCs. We find weak evidence (significant at 10 percent level) that it had a detrimental effect on the relative consumption expenditure of STs and a positive effect on that of SCs.. Finally, we find that perception gaps are smaller than actual earnings gaps. Our data do not allow us to test for causality between the two, so we can only speculate about

whether perception gaps cause gaps in actual earnings or the other way around. That exploration could be the matter of future research.

Our results also have a bearing on the debate over caste-based affirmative action policies in India that are implemented through quotas in public employment. Arguments in favor of abolition of quotas question the extent to which caste identity is salient in contemporary India and wonder whether the existence of quotas solidifies caste identities, which, if left untouched, might be losing their hold. Our paper shows the pervasive and pernicious association between caste identity and perceptions about remunerative earnings in the sphere of self-employment, which is completely outside the purview of quotas (and thus, the salience of caste identity could not be explained by quotas). Hence, quotas should be seen as a remedy for underlying casteism, and not its cause.

**Conflict of Interest:** The authors declare that they have no conflict of interest.

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