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## **Job Contracts**

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## Chapter 5 Job Contracts

### 5.1 Introduction

The previous two chapters analysed two different types of “desirable” employment outcomes. Chapter 3 examined, using National Sample Survey (NSS) data for 2011–12, the likelihood of being a regular salaried or wage employee (RSWE) while chapter 4 examined, using data from the Indian Human Development Survey for 2011, the likelihood of being in “desirable occupations” — professional and executive (P&E) and clerical. This chapter analyses, again using data from the Indian Human Development Survey, employment outcomes from the slightly different perspective of job contracts by drawing a distinction between permanent and casual jobs. Macleod (2010) has observed that while every country in the world seeks through employment law to protect employment, most economic analysis of the law suggests that employment protection is efficiency reducing.

There is, however, a tension between efficiency and fairness with a *laissez faire* labour market resulting in severe inequities in worker remuneration and welfare. It is to address issues of fairness that employment legislation — built around the pillars of minimum wage, unemployment insurance, centralised bargaining, sickness pay, holiday entitlements, and, more recently, freedom from bullying and harassment — exists. Central to the issue of worker welfare is the degree of job security that workers obtain from their employers. If one defines job insecurity as a worker’s fear of involuntary job loss, then Sverke *et al.* (2002), in a meta review of job insecurity and its consequences, show that job insecurity has negative consequences for employees’ attitudes towards their job, their health, and the quality of their relationship with their employers.<sup>1</sup>

This chapter considers the distribution of job contracts — in terms of casual jobs, temporary jobs (that is, those of less than a year’s duration), and permanent jobs — across different subgroups of the population. Although the analysis of this chapter echoes that of chapter 3, which was cast in terms of regular salaried and wage employment and casual employment, the novelty here is two-fold. First, this chapter *explicitly* addresses the question of job tenure: while much of the regular salaried and

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<sup>1</sup> See also Greenhalgh and Rosenblatt (1984), Lazarus and Folkman (1984), Hartley *et. al.* (1991), and Sverke and Hellgren (2002).

wage employment discussed in chapter 3 may have been permanent employment, some of it may not have been. Second, and more importantly, this chapter addresses the issue of “desirable jobs” using a data set different from the NSS data used in the earlier chapter. The analysis of this chapter is based on unit record data from the Indian Human Development Survey relating to the period 2011–12 (hereafter, IHDS-2011).<sup>2</sup> This is a nationally representative, multi-topic panel survey of 42,152 households in 384 districts, 1,420 villages and 1,042 urban neighbourhoods across India. Each household in the IHDS-2011 was the subject of two hour-long interviews. These interviews covered *inter alia* issues of: health, education, employment, economic status, marriage, fertility, gender relations, and social capital. The IHDS-2011, like its predecessors for 2005 and 1994, was designed to complement existing Indian surveys by bringing together a wide range of topics in a single survey. This breadth permits analyses of associations across a range of social and economic conditions. Of particular interest to this chapter is that the IHDS-2011 provides details about the job tenure of persons by distinguishing between three types of jobs: casual (daily or piecework);<sup>3</sup> contracts of less than one year duration (hereafter, simply, “contract jobs”); and permanent.

## 5.2 Job Contracts

Of the persons aged 21–60 years who were employed (hereafter, simply “persons”) in the IHDS-2011, 73% had jobs with private sector firms or employers (hereafter, simply “private sector”), 16.8% had jobs under the National Rural Employment Guarantee Act (NREGA), 8.3% had jobs in government/public sector units (hereafter, simply “public sector”); and 1.9% had jobs with “other employers”.<sup>4</sup> As noted, the IHDS-2011 distinguished casual jobs, contract jobs, and permanent jobs. Table 5.1 shows that 79.5% of persons were in casual jobs, 3.9% were in contract jobs; and 16.6% were in permanent jobs. In terms of the four types of *employers* distinguished in IHDS-2011 (see above), 85.9% of public sector, in contrast to 12.7% of private sector, and 6.3% of other employer

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<sup>2</sup> Desai *et al.* (2015).

<sup>3</sup> 92% of casual jobs were paid on a daily basis, the remainder being paid by piecework.

<sup>4</sup> All the figures in this chapter were obtained by grossing up the sample observations using the weights in IHDS-2011 contained in its FWT variable.

jobs were permanent. All the jobs under NREGA were casual as were 90.5% of jobs by other employers and 82.7% of jobs by the private sector (Table 5.1).

<Table 5.1>

In terms of *occupation*, Table 5.1 shows that 72.9% of professional and executive (P&E) jobs, 74.4% of clerical jobs, 44.9% of sales/service jobs, and 21.6% of other non-farm jobs were permanent. In the other two occupations of agricultural labour and construction, 97–98% of jobs were casual. The social groups which, in terms of their members' probabilities of being in various occupations, are the focus of this study were distinguished as follows: Scheduled Tribes (ST); Scheduled Castes (SC); Non-Muslim Other Backward Classes (OBC-NM); Muslims; and Forward Castes (FC).<sup>5</sup> In terms of these groups, 36.9% of jobs held by persons from the FC were permanent and only 55.6% were casual; in contrast, only 7.9%, 11.7%, 15.6%, and 14.2% of jobs held by those from, respectively, the ST, SC, OBC-NM, and by Muslims were permanent and 90.1%, 85%, 80.8%, and 82.6% of jobs held by those groups, respectively, were casual. In terms of *gender*, 18.8% of (employed, aged 21–60 years) men, compared to 11.6% of (employed, aged 21–60 years) women had permanent jobs and, at the other end of the scale, 85.6% of women compared to 76.8% of men were employed on a casual basis. In terms of *education*, the proportion of (employed, aged 21–60 years) persons holding a permanent job rose with the level of education: 69.1% of graduates had permanent jobs, followed by 41.8% of those with higher secondary qualifications. On the other hand, 94.4% of those with no education, compared to 22.3% of graduates, were employed on a casual basis. In terms of *English fluency*, 69.9% of persons claiming they were fluent, compared to 38.1% of those with a little fluency, and 8.8% of those with no fluency had permanent jobs. Conversely, 21.3% of those claiming they were fluent, compared to 55% of those with a little fluency, and 88.3% of those with no fluency had casual jobs. In terms of location, 54.4% of (employed, aged 21–60 years) persons in metro areas had permanent jobs, in contrast to 34.7% in urban non-metros, 9.3% in more developed villages, and 8% of those in less developed villages.

<Table 5.2>

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<sup>5</sup> 94% of persons in the FC category were Hindu, 4% were Christian, and 2% were Sikh.

Table 5.2 presents information about job types from a different perspective. In terms of *employer*, 43.1% and 55.7% of permanent jobs were, respectively, in the public and private sectors with a negligible supply of permanent jobs from the two other employers. In terms of *occupation*, 95% of permanent jobs were in just four occupations: P&E, clerical, sales/service, and other non-farm occupations contributing, respectively, 27.7%, 22.8%, 20.9%, and 23.4% of permanent jobs. In terms of *social group*, 86% of permanent jobs were held by persons from three groups: SC (25.2%), OBC-NM (32%), and FC (28.8%) with the ST and Muslims holding, respectively, 5.2% and 8.6% of such jobs. In terms of *gender*, 78.6% of permanent jobs were held by men and only 21.9% by women. In terms of *education*, the largest share of permanent jobs accrued to those with secondary level of education followed by persons who were graduates (respectively, 36.6% and 31.3% of permanent jobs) and, in terms of *English language fluency*, the largest share of permanent jobs (41.7%) accrued to those with no fluency, followed by those with a little fluency (37.9%), with those fluent in English receiving the smallest share (20.5%). Lastly, in terms of *location*, persons living in urban non-metro areas held the largest share of permanent jobs (40.8%), followed by persons in metro areas (21.1%), with persons in more developed and less developed villages accounting for, respectively, 17.9% and 20.2% of permanent jobs.

In order to appreciate the link between the results of Tables 5.1 and 5.2, suppose that the sample of  $N$  persons is divided into  $M$  mutually exclusive and collectively exhaustive groups with  $N_m$  ( $m=1\dots M$ ) persons in each group such that  $N_m$  and  $H_m$  are the numbers of persons from *each* group in,

respectively, the population and in permanent jobs. Then  $N = \sum_{m=1}^M N_m$  and  $H = \sum_{m=1}^M H_m$  are,

respectively, the total numbers of persons in the population and in P&E jobs.

The success rate of group  $m$  (denoted  $e_m$ ) is the proportion of persons from that group that hold permanent jobs:  $e_m = H_m / N_m$ ,  $0 \leq e_m \leq 1$ . This is the information contained in Table 5.1 which shows  $e_m=36.9\%$  and  $e_m=11.7\%$  for, respectively, persons from the FC and the SC. Now from the definition of  $e_m$ :

$$e_m = H_m / N_m = (H_m / N_m)(N / H)(H / N) = (H_m / H)(N / N_m)(H / N) = (h_m / n_m)\bar{e} \quad (5.1)$$

where:  $h_m = H_m / H$  and  $n_m = N_m / N$  are, respectively, group  $m$ 's share of permanent jobs and of the population.

The information contained in Table 5.2, relates to  $h_m$ , group  $m$ 's share of permanent jobs and from equation (5.1), this is:

$$h_m = \left( \frac{e_m}{\bar{e}} \right) n_m \quad (5.2)$$

Consequently, from equation (5.2), a group's share of permanent jobs could be high because it has a high success rate relative to the average success rate ( $e_m / \bar{e}$  is high) and/or it has a large presence in the population ( $n_m$  is high). For example, for persons from the OBC-NM,  $n_m = 34.4\%$  (Table 5.2: last column),  $e_m = 15.6\%$  (Table 5.1) for permanent jobs. Since  $\bar{e} = 16.6\%$  (last row of Table 5.1),  $h_m = 32.3$  (Table 5.2).

The OBC-NM is an example of a group which has a lower than average success rate in terms of permanent jobs (15.6% against an average of 16.6%) but its large presence among those with jobs (34.4%) means it obtains a large proportion of permanent jobs (32.3%). On the other hand, the FC is an example of a group which has a higher than average success rate in terms of permanent jobs (Table 5.1: 36.9% against an average of 16.6%) but its smaller presence among those with jobs (Table 5.2: 14.8%) means that its members obtain almost the same share of permanent jobs (Table 5.2: 32.8%) as those in the OBC-NM.

One can, using the methodology set out in the previous chapters, compute overall *disproportionality* in group outcomes as the natural logarithm of the ratio of the arithmetic mean ( $\bar{e}$ ) to the geometric mean ( $\hat{e}$ ) of the group success rates (the  $e_m$ ).<sup>6</sup> Since the arithmetic and geometric means of  $e_m$  are, respectively:

$$\bar{e} = \sum_{m=1}^M e_m n_m \quad \text{and} \quad \hat{e} = \prod_{m=1}^M (e_m)^{n_m} \quad \text{where} \quad n_m = N_m / N, \quad \sum_{m=1}^M n_m = 1 \quad (5.3)$$

the measure of disproportionality associated with permanent jobs is:

$$J = \log(\bar{e} / \hat{e}) = \log(\bar{e}) - \sum_{m=1}^M n_m \log(e_m) \quad (5.4)$$

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<sup>6</sup> See Theil (1967) and Bourguignon (1979).

Now, from the definition of  $e_m$  in equation (5.1):

$$J = \log(\bar{e} / \hat{e}) = \log(\bar{e}) - \sum_{m=1}^M n_m \log(e_m) = \log(\bar{e}) - \sum_{m=1}^M n_m \log\left[\frac{h_m \bar{e}}{n_m}\right] = -\sum_{m=1}^M n_m \log\left[\frac{h_m}{n_m}\right] \quad (5.5)$$

From equation (5.5), inequality is minimised when  $J=0$ . This occurs when  $n_m = h_m$ , that is when each group's share in the "population" ( $n_m$ ) is equal to its share in permanent jobs ( $h_m$ ).

Otherwise,  $J>0$ . Inequality is at a maximum when one group (say group 1) has exclusive access to permanent jobs — permanent jobs are only filled by persons from that group — with access denied to the other groups ( $h_1 = 1, h_2 = h_3 \dots = h_m = 0$ ). Then  $J_{\max} = -n_1 \log(1/n_1) = n_1 \log(n_1)$  and, therefore,

$$0 \leq J \leq n_1 \log(n_1)$$

Using the numbers shown in Table 5.2, under the last column, for the  $n_m$  of equation (4.4) and under the column headed "Permanent", for the  $h_m$  of equation (5.5), the computed value of  $J$  for the *social groups* was 10.3 (compared to the previous chapter's computation of 13.2 for men and 21.9 for women in respect of P&E jobs). The disproportionality in permanent job outcomes associated with *gender*, with a computed value of  $J=2.3$ , was much lower than that for social groups, while the disproportionality in permanent job outcomes associated with *employers* ( $J=67$ ), with *occupations* ( $J=130$ ), with *education* ( $J=47.2$ ), with *English language fluency* ( $J=29.1$ ), and with *location* ( $J=27.3$ ) was much higher than that for social groups. The conclusion of this analysis is that while there was considerable disproportionality in permanent jobs associated with social groups (persons from the FC comprised 14.8% of those in jobs but 32.8% of those with permanent jobs), this disproportionality was small compared to that associated with employers (only 8.3% of all jobs, but 43.3% of permanent jobs, were in the public sector); was small compared to that associated with educational qualifications (only 7.5% of all job holders, but 31.3% of those holding permanent jobs, were graduates); was small compared to that associated with location (only 6.5% of all job holders, but 21.1% of those holding permanent jobs, lived in metro areas). So, shifting the type (and improving the quality) of employment from casual to permanent involves considerably more than social engineering through ever-widening reservation policies. It involves policies to encourage the private sector — which provided 73% of all jobs but only 55.7% of permanent jobs — to change its

employment structure; it requires investment in education to produce more graduates; and lastly, it involves regional policies to either move jobs to people or people to jobs.

### 5.3 Private Sector Jobs

Since there is an incessant demand in India to extend the scope of jobs reservation — currently confined to the public sector — to the private sector, it is worth delving into the relation between the social group of persons and their presence in the private sector.<sup>7</sup> As Table 5.2 shows, 73% of persons in the IHDS-2011, aged 21–60 and who were employed, had jobs in the private sector. Of these persons, 75.6% had jobs with private employers and 24.4% had jobs with private firms. The type of jobs offered by these two private sector entities, however, differed considerably: only 8.8% of jobs with private employers were permanent, in contrast to 21.4% of jobs with private firms; at the other end of the jobs spectrum, 87.4% of private employers' jobs were casual compared to 71.9% of private firm jobs.

<Table 5.3>

Table 5.3 shows that of the five social groups — ST, SC, OBC-NM, Muslims, and FC — it was persons from the FC that had the *lowest* proportion in private sector (68.2%), and the *highest* proportion (18.4%) in public sector, employment. On the other hand, Muslims had the *highest* proportion in private sector employment (78%), followed closely by the ST (73.7%), SC (72.3%), and OBC-NM (74%), and persons from the ST had the *lowest* proportion in public sector employment (4.4%), followed closely by the SC (6.6%), the OBC-NM (7.3%), and Muslims (6.4%). So, on the face of it, it was persons who were *not* in the FC that benefited from private sector employment.

<Table 5.4>

Table 5.4 sheds light on the type of private sector employer vis-à-vis the five social groups. This table shows that, of persons from the FC that had private sector jobs, 36% had jobs with private firms while the corresponding proportions for the ST, SC, OBC-NM, and Muslims were, respectively, 19.6%, 22.4%, 23.8%, and 24.1%. So, persons from the FC with private sector jobs held 13.8% of jobs in that sector but 20.1% of jobs with private firms. If one computes the coefficient of

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<sup>7</sup> See Bhambri (2005); Thimmaiah (2005); Thorat *et. al* (2005) , Thorat *et. al*. (2016).

disproportionality, as set out in equation (5.5), then  $J=1.52$  suggesting that there was *very little disproportionality* in the presence of persons from the different social groups with jobs in the private sector in its entirety and their presence, within that sector, in jobs with private firms.

### 5.3.1 Who Gets What Jobs?

The above discussion raises the more general question of the differences in direction between employers in terms of the social orientation of their jobs. The upper panel of Table 5.5 shows that, considering jobs in their entirety, 32.7% of government jobs went to persons from the FC, 30.1% to members of the OBC-NM, and 23.8% to members of the SC. By contrast, only 10.1% of NREGA jobs went to members of the FC with nearly 83% of NREGA jobs held by members of the ST (13.3%), the SC (35%), and the OBC-NM (34.3%). The losers with respect to government and NREGA jobs were Muslims: they held 10.1% of all jobs but only 7.7% and 7.3%, respectively, of government and NREGA jobs and were largely reliant on the 16.3% share of jobs provided by “other employers”.

<Table 5.5>

The lower panel of Table 5.5 shows the distribution of permanent jobs across the social groups by employer. The glaring result here is the disproportionality associated with private sector jobs. Members of the FC held 20.1% of *all* jobs, but 36.3% of *permanent* jobs, with private firms (Table 5.5: upper and lower panels), and they also held 11.7% of *all* jobs, but 28.8% of *permanent* jobs, with private employers (Table 5.5: upper and lower panels). Conversely, members of the SC held 30.6% and 27%, respectively, of all jobs with private employers and private firms but, when it came to permanent jobs, their shares fell to 20.5% and 19% for, respectively, private employers and private firms. This suggests that the high coefficient of disproportionality (as set out in equation (5.5), with respect to social groups, for *permanent* jobs vis-à-vis *all* jobs, computed earlier as  $J=10.3$ , was largely the result of disproportionality in private sector jobs, with members of the FC receiving a disproportionately high, and members of the SC receiving a disproportionately low, share of permanent jobs in this sector.

#### 5.4 Specifying the Likelihood of Holding a Permanent Job Equation

The previous two sections examined, using the information contained in Tables 5.1–5.5, types of jobs from a *bivariate* perspective, that is, by looking at the relation between job type and a particular variable without reference to other variables. While such a perspective is illuminating it does not tell the full story and, indeed, might even distort the true narrative. This is because social scientists, who are often interested in knowing why a particular outcome occurs (for example, a person receives a particular type of job contract), recognise that there may be no single explanation for it. Rather, several reasons for observing that outcome could co-exist. When there is a unique explanation for an outcome (the value of  $X$  causes the outcome of  $Y$ ), then bivariate analysis, which studies the relation between  $X$  and  $Y$  in isolation, is appropriate. However, if — as is more likely in the real world — there are a multiplicity of explanations for an outcome (the values of  $W$ ,  $X$ ,  $Z$  all play a part in determining the outcome of  $Y$ ) one moves from bivariate analysis to multivariate analysis. One might still be interested in the influence of  $X$  on  $Y$  but, in studying this, one would also have to recognise that  $W$  and  $Z$  exercise independent influences on  $Y$  and this would have to be accounted for before one could isolate the effect of  $X$  and  $Y$ . The important purpose of multivariate analysis is to estimate the *relative strength* of the different factors ( $W$ ,  $X$ , and  $Z$ ) which affect  $Y$ . If, in the presence of multiple explanations, one claimed that the entire outcome was due to  $X$  then one would be exaggerating the influence of  $X$  because some of the outcome could also be due to  $W$  and  $Z$ . This section analyses, using the IDHS-2011 data as described above, the likelihood that an employed person would have/not have a permanent job (the outcome of the variable  $Y$ ) in terms of the relative strengths of a variety of factors ( $W$ ,  $X$ , and  $Z$ ) which might influence this likelihood.

There were, as noted, three types of jobs identified in IDHS-2011: casual jobs, jobs with contracts of less than one year, and permanent jobs. Since only 3.9% of employed persons aged 21–60 had contracts of less than one year (see Table 5.1), this category was combined with the casual jobs category. For the purposes of empirical analysis, the dependent variable  $y$ , therefore, took the value 1 ( $y_i=1$ ), if person  $i$  had a permanent job and the value 0 ( $y_i=0$ ) if the person had a casual job (where, in the context of the earlier discussion, this category now included jobs of less than one year's tenure). Two occupations (agricultural labour and construction) and two employers (NREGA and other

employers) offered only casual employment *and these were omitted from the estimation*. With these omissions, there were 20,195 persons in the estimation sample of whom 45.4% were in permanent jobs and 54.6% were in casual jobs.

Given that the dependent variable,  $y_i$ , defined above, took binary values, an appropriate method of estimation was *logistic regression*. In a logistic regression model, the log of the odds ratio (that is,  $\log\left(\frac{\Pr(y_i = 1)}{1 - \Pr(y_i = 1)}\right)$ ) is written as a function of  $K$  explanatory variables with values

$X_1, X_2, \dots, X_K$  and associated coefficients  $\beta_1, \beta_2, \dots, \beta_K$ . The probability of the outcome,  $\Pr(y_i = 1)$ , can be derived from a knowledge of the *estimates* of the  $K$  coefficients and the values of the  $K$  explanatory variables.

From the earlier analysis of Tables 5.1–5.5, the explanatory variables used in the estimation were:

1. Gender. As noted earlier, the proportion of women in permanent jobs was lower than that of men.
2. Social group. Earlier it was shown that the groups with the highest and lowest proportions of their members in permanent jobs were the FC and the ST, respectively.
3. Education. The proportion of persons with permanent jobs rose with their level of education.
4. English fluency. The proportion of persons with permanent jobs rose with their level of fluency in English.
5. Location. The proportion of persons with permanent jobs was highest in metro areas and lowest in less developed villages.
6. Employer. The proportion with permanent jobs was much higher among public sector than among private sector employees.

### **5.5 The Predicted and Synthetic Probabilities of Being in a Permanent Job**

Differences in the observed proportions of persons in different groups being in a permanent, as opposed to a casual, job could arise through employer bias so that, for example, inter-group differences in the proportions of persons in permanent jobs were, in part, the result of employers

being biased against persons belonging to certain groups and in favour of persons belonging to other groups. They could, however, also be the result of the average level of attributes differing between persons from the various groups. For example, 22.1% of employed persons aged 21–60 from the FC were graduates, compared to only 5.2% of Muslims, 6.8% of those from the OBC-NM, and 4% and 2.1%, respectively, of persons from the SC and ST. Since, as Table 5.1 showed, 69.1% of graduates were in permanent jobs, this gave persons from the FC considerable advantage over their peers from the other groups in finding permanent positions.

So, the fact that, as Table 5.1 shows, 36.9% of FC persons, compared to only 11.7% of SC persons, were in permanent jobs may have been partly due to employer bias but it may have been partly the result of the educational qualifications of men and women from the FC being, on average, superior to those from the SC. Consequently, the observed outcome with respect to inter-group differences in the proportions in permanent jobs could be regarded as the outcome of the combined working of employer bias and employee attributes.

Using the methodology developed in earlier chapters, a major purpose of this chapter is to disentangle the effects of employer bias and employee attributes on the observed proportions of persons belonging to different social groups being in permanent jobs. These observed proportions are referred to as the average predicted probabilities of being in permanent jobs because if the logit model was used to *predict* for each of the  $N$  persons in the sample the likelihood of being in a permanent job (denoted  $\hat{p}_i$ ,  $i = 1 \dots N$ ) then the average of these  $\hat{p}_i$ , computed over every subgroup, would equal the *observed* proportion of persons from that subgroup in a permanent job. This is because the logit model has the property of passing through the mean. So,  $\hat{p}^{FC}$ ,  $\hat{p}^{MU}$ ,  $\hat{p}^{OBC}$ ,  $\hat{p}^{SC}$ ,  $\hat{p}^{ST}$ , the *average predicted probabilities* from the multinomial logit model of, respectively, FC, Muslim OBC-NM, SC, and ST persons being in permanent jobs would be the same as the *observed proportion* of persons from these groups being in such jobs. Contrasting with the average predicted probabilities are average *synthetic* probabilities of being in permanent jobs — denoted  $\tilde{p}^{FC}$ ,  $\tilde{p}^{MU}$ ,  $\tilde{p}^{OBC}$ ,  $\tilde{p}^{SC}$ ,  $\tilde{p}^{ST}$  for persons from the five groups — where these synthetic probabilities were computed on the basis of simulations based on the method of *recycled proportions* described in chapter 3 and summarised below.

In order to compute the synthetic probability of persons from the SC being in permanent jobs, assume that all the  $N$  persons in the estimation sample were SC or, in other words, apply the “SC component” of the coefficient vector  $\beta_k$  to every person in the sample. Then, holding the values of the other variables constant (either to their observed sample values, as in this chapter, or to their mean values over the estimation sample), compute the average probability of being in a permanent job and denote it  $\tilde{p}^{SC}$ . Similarly, in order to compute the synthetic probability of persons from the FC being in permanent jobs, assume that all the  $N$  persons in the estimation sample were FC or, in other words, apply the “FC component” of the coefficient vector  $\beta_k$  to every person in the sample. Then, holding the values of the other variables constant (either to their observed sample values, as in this chapter, or to their mean values over the estimation sample), compute the average probability of being in a permanent job and denote it  $\tilde{p}^{FC}$ .

Since the values of the non-social group variables (gender, education, fluency in English, location, employer type, age, and state of residence) were unchanged between these two (all-SC and all-FC) hypothetical scenarios, the only difference between the two synthetic probabilities,  $\tilde{p}^{SC}$  and  $\tilde{p}^{FC}$  was that the first probability was the result of applying “SC coefficients”, while the second probability was the result of applying “FC coefficients”, to the entire sample. Consequently, the difference between the two synthetic probabilities,  $\tilde{p}^{SC}$  and  $\tilde{p}^{FC}$ , was *entirely* due to differences in caste because all other differences between persons from the SC and FC had been neutralised by assigning them the attributes of the entire sample.

In essence, therefore, in evaluating the effect of two characteristics  $X$  and  $Y$  on the likelihood of a particular outcome, the method of “recycled proportions” compares two probabilities: first, under an “all have the characteristic  $X$ ” scenario and, then, under an “all have the characteristic  $Y$ ” scenario, *with the values of the other variables unchanged between the scenarios*. The difference between the two synthetic probabilities is then entirely due to the effect of the different attributes represented by  $X$  and  $Y$  (in this case, differences in caste between the SC and FC).<sup>8</sup>

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<sup>8</sup> STATA’s margin command performs these calculations.

## 5.6 Estimates from the Likelihood of Holding a Permanent Job Equation

The average synthetic probabilities (hereafter, SP) of being in a permanent job were computed using the logit estimates and — using the method of recycled proportions described above — are shown in Table 5.6 with respect to the six explanatory variables listed in section 5.4.<sup>9</sup> This follows from the advice by Long and Freese (2014) that it is more meaningful to present the results from the estimated equation in the form of the synthetic probabilities from the estimated multinomial logit coefficients rather than in terms of the estimates themselves. As discussed earlier, the logit estimates themselves do not have a natural interpretation — they exist mainly as a basis for computing more meaningful statistics and, in this case, these are the synthetic probabilities (SP).

<Table 5.6>

The column headed “Synthetic Probability” in Table 5.6 shows the SP associated with the various categories of variables. So, in the social group category, Table 5.6 shows that the synthetic probability of employed persons aged 21–60 being in permanent jobs (remembering that the equation was restricted to public and private sector employers and the four occupations of P&E, clerical, sales/service, and other non-farm) was 45.9% for the ST, 42.5% for the SC, 44.3% for the OBC-NM, 40.5% for Muslims, and 43.7% for the FC.

The column headed “Marginal Probability” in Table 5.6 represents, for the social group category, the *difference* between the synthetic probability of the individuals in the first four social groups and those in the reference group, FC, denoted by [R]. Dividing these marginal probabilities by their standard errors yielded the t-values. These showed whether these marginal probabilities were significantly different from zero in the sense that the likelihood of observing these values, under the null hypothesis of no difference, was less than 5% (superscript \*\* in Table 5.6) or 10% (superscript \* in Table 5.6). These results show that, apart from Muslims for whom the SP of being in permanent jobs was significantly lower than that for the FC, there was no significant difference between the groups in their SP of being in permanent jobs. Indeed, the SP for Muslims of being in permanent jobs was

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<sup>9</sup> The equations were estimated using the *svy* command in STATA or, in other words, by grossing up the sample observations using weights in IHDS-2011 contained in its FWT variable.

significantly lower than that for the ST and the OBC-NM, but not significantly different from that for the SC.

In terms of *gender*, the SP for men of being in permanent jobs (Table 5.6: 44%) was significantly higher than that for women (Table 5.6: 40.8%); in terms of *education*, the SP of graduates being in permanent jobs (Table 5.6: 51.2%) was significantly higher than that for persons with Higher Secondary qualifications (Table 5.6: 46%) and, although there was no significant difference between those with Higher Secondary and Secondary qualifications, the SP of persons with secondary-level education being in permanent jobs (Table 5.6: 43.9%) was significantly higher than that for persons with just primary education (Table 5.6: 37.6%). *English language fluency* had a significant influence on the SP of having a permanent job; although there was no significant difference between persons who were fluent and those who had a little fluency in their SP of being in permanent jobs (Table 5.6, respectively, 47.9% and 46.1%), it was the case that those who had no fluency had a lower SP of being in a permanent job (41%) than those who either had a little fluency or were fluent in English.

In the context of *location*, persons living in metro areas had a significantly higher SP of being in a permanent job than those in urban non-metro areas (Table 5: 49.4% versus 44.6%) and, in turn, the SP for urban non-metro areas was significantly higher than that for both more and less developed villages.<sup>10</sup> In terms of *employers*, the highest SP of being in a permanent job was with the public sector (Table 5.6: 75.9%) which was significantly higher than the corresponding SP for permanent jobs with either private employers or firms (Table 5.6: respectively, 33.6% and 38.9%) and, in turn, the SP of a permanent job with private firms was significantly higher than with private employers. Lastly, in terms of *occupation*, the highest SP of a permanent job was in clerical occupations (Table 5.6: 55.5%) which was significantly higher than the next highest SP which was for P&E jobs (Table 5.6: 51.6%). At the other end of the jobs spectrum, the lowest SP of permanent jobs was in sales/service and other non-farm occupations (Table 5.6: respectively, 48.4% and 35.1%).

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<sup>10</sup> Though there was no difference between more and less developed villages in the SP of persons being in permanent jobs.

The results of Table 5.1 showed that there was no significant difference between persons in the different social groups in their SP of being in permanent jobs, except for Muslims who had a lower SP than their counterparts from other groups. Notwithstanding this general result, it is pertinent to enquire whether, under particular circumstances, persons from different groups were treated differently. These circumstances might relate to employer — does the SP of a permanent job for members of the different groups depend upon the nature of the employer? For example, do private employers and private firms treat Muslims and the backward classes differently than the public sector? Or, in terms of the likelihood of obtaining a permanent job, are men in the different social groups treated differently from women?

In order to answer these questions, the logit equation (for the likelihood of being in a permanent job) was estimated with *interaction effects* between social group and gender and between social group and employer. These interaction effects are used to examine whether the effect of a specific variable (say, employer type) on the outcome probability varied according to values of another variable (say, social group).

In order to appreciate the difference between an “interacted” and a “non-interacted” equation, consider the following equations for a variable  $Y$  which is explained by two explanatory variables  $X$  (say, education) and  $Z$  (say, social group), for observations indexed  $i=1\dots N$ , without and with interaction between  $X$  and  $Z$ .

$$\begin{aligned} Y_i &= \alpha + \beta X_i + \gamma Z_i \\ Y_i &= \alpha + \beta X_i + \gamma Z_i + \phi(X_i \times Z_i) \end{aligned} \tag{5.6}$$

In the first equation — without the interaction term  $X_i \times Z_i$  — the marginal change in  $Y_i$ , given a small change in the value of the variable  $X_i$ , is  $\beta$ : the marginal effect of education,  $\partial Y_i / \partial X_i$ , is independent of the value of the social group variable,  $Z_i$ . In the second equation — with the interaction term  $X_i \times Z_i$  — the marginal change in  $Y_i$ , given a small change in the value of the variable  $X_i$ , is  $\beta + \phi Z_i$ : the marginal effect of education,  $\partial Y_i / \partial X_i$ , will also depend on the value of the social group variable,  $Z_i$ . If interaction effects are significant then an equation which neglects them would be under-specified. The estimated equation, the results from which are shown in Table 5.6, had

embedded in it two separate interactions: (i) between social group and gender and (ii) between social group and employer type. This enabled us to compute, for the three types of employers — public sector, private employer, and private firms — and for men and women, separate synthetic probabilities (of being in a permanent job) for the social groups.

<Table 5.7>

An important result to emerge from this analysis, reported in Table 5.7, is that Muslims and persons from the SC had the *lowest* SP of being in a permanent job with private employers (Table 5.7: 29.4% and 31.3%, respectively) and, for persons from both groups, their SP of being in a permanent job with private employers was significantly lower than the corresponding SP for persons from the FC (Table 5.7: 35.9%). In jobs with private firms, however, there was no significant difference between the social groups in their SP of being in a permanent job, while for jobs in the public sector the SP of being in a permanent job was significantly higher for persons from the ST and OBC-NM (Table 5.7: respectively, 86% and 77.2%) than for persons from the FC (Table 5.7: 71.4%). In terms of gender, it was Muslim men that were treated differently from men from the FC with the SP of being in a permanent job being significantly lower for the former than for the latter. In summary, the advantage of estimating with interaction effects is that, in this case, it enables us to narrow the focus of differential treatment: while Table 5.6 reported a general bias against Muslims, Table 5.7 reported that this largely emanated from private employers and was significantly directed towards Muslim men.

### 5.7 Disparity and Discrimination in the Distribution of Permanent Jobs

The observed proportions of persons from the different social groups who had permanent jobs in the *estimation sample* (remembering that the estimation sample was restricted to public and private sector employers and the four occupations of P&E, clerical, sales/service, and other non-farm) were: 36.9% (ST); 40.5% (SC); 41.1% (OBC-NM); 28.6% (Muslim); and 58% (FC). There was thus considerable *disparity* between the social groups in the average proportions of their members that held permanent jobs. If these observed proportions are denoted  $\hat{p}^{FC}$ ,  $\hat{p}^{MU}$ ,  $\hat{p}^{OBC}$ ,  $\hat{p}^{SC}$ ,  $\hat{p}^{ST}$  for, respectively, the FC, Muslims, the OBC-NM, the SC, and the ST then the observed *difference* between the reference group

of the FC and the other groups (denoted  $X=ST, SC, OBC-NM$ , and Muslims) in their proportions in permanent jobs,  $\hat{p}^{FC} - \hat{p}^X$  is the outcome of two forces: (i) employer bias for or against certain groups which resulted in the (unjustifiably) unequal treatment of *equals*; (ii) inter-group differences in employee attributes which resulted in the (justifiably) unequal treatment of *unequals*. The synthetic probabilities, denoted  $\tilde{p}^{FC}, \tilde{p}^{MU}, \tilde{p}^{OBC}, \tilde{p}^{SC}, \tilde{p}^{ST}$  for, respectively, the FC, Muslims, the OBC-NM, the SC, and the ST, were obtained by keeping, for every person, the values of every attribute variable unchanged, except for a single change to their social group. Differences in the synthetic probabilities between the FC reference group and the other groups (denoted  $X=ST, SC, OBC-NM$ , and Muslims),  $\tilde{p}^{FC} - \tilde{p}^X$ , are entirely the outcome of group membership and may, therefore, be identified as employer bias for or against certain groups in appointments to permanent positions. Consistent with the decomposition methodology set out in detail in the previous chapters, the observed difference between persons from the FC and those in group  $X$  in their proportions in permanent jobs can be decomposed as:

$$\overbrace{\hat{p}^{FC} - \hat{p}^X}^Z = \overbrace{(\tilde{p}^{FC} - \tilde{p}^X)}^A + \left[ \overbrace{(\hat{p}^{FC} - \tilde{p}^{FC})}^B - \overbrace{(\hat{p}^X - \tilde{p}^X)}^C \right] \quad (5.7)$$

The terms  $Z$  and  $A$  in equation (5.7) represent, respectively, the difference between persons from the FC and group  $X$  in their *predicted* probabilities ( $Z$ ) — that is, observed proportions — and in their *synthetic* probabilities ( $A$ ) of being in permanent jobs where, as discussed earlier, the term  $A$  represents the difference which is due *solely* to differences in social group. Consequently, it would be legitimate to regard the term  $A$  as resulting from employer bias.<sup>11</sup>

The terms  $B$  and  $C$  in equation (5.7) could be positive or negative. If say,  $C < 0$ , then  $\hat{p}^X < \tilde{p}^X$  and the proportion of persons from group  $X$  that are in permanent jobs is *less* than the proportion which would result if these persons were assigned the general level of attributes. This implies that, as far as holding permanent jobs goes, persons from group  $X$  have employment-related attributes which are *inferior* to the general level of attributes. Similarly, if  $C > 0$ , then  $\hat{p}^X > \tilde{p}^X$  implying that, as far as

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<sup>11</sup> See chapter 3 for a more detailed discussion of this decomposition.

holding permanent jobs goes, persons from group  $X$  have employment related-attributes which are *superior* to the general level of attributes.

If  $B > 0$ , then  $\hat{p}^{FC} > \tilde{p}^{FC}$  and the proportion of FC persons in permanent jobs is greater than the proportion which would result if FC persons were assigned the general level of attributes. This implies that, as far as holding permanent jobs goes, persons from the FC have employment-related attributes which are *superior* to the general level of attributes. Similarly, if  $B < 0$ , then  $\hat{p}^{FC} < \tilde{p}^{FC}$  implying that, as far as holding permanent jobs goes, persons from the FC have employment-related attributes which are *inferior* to the general level of attributes.

<Table 5.8>

Table 5.8 attaches numbers to the components of equation (5.7) by showing, with respect to permanent jobs, the differences between the observed proportions and the synthetic probabilities for persons from the five social groups: ST, SC, OBC-NM, Muslims, and FC. The first column of Table 5.8 shows that, taking public and private sector employers in their entirety, the gaps in the (estimation) sample proportions of persons from the FC and persons from other groups in permanent jobs were 21.1, 17.4, 16.9, and 29.4 points for, respectively, the ST, SC, OBC-NM, and Muslims. The gaps in the synthetic probabilities of being in permanent jobs between persons from the FC and persons from other groups were much smaller and, indeed, sometimes negative: -2.2, 1, 2, -0.6, and 3.2 points for, respectively, the ST, SC, OBC-NM, and Muslims. Since the gap in synthetic probabilities can be interpreted as discrimination, the discrimination in permanent jobs was faced by Muslims and persons from the SC: 10.9% ( $=3.2/29.4$ ) of the gap between Muslims and FC persons in their sample proportion in permanent jobs, and 6.9% ( $=1.2/17.4$ ) of the gap between SC and FC persons in their sample proportion in permanent jobs was due to discrimination. On the other hand, the other groups did not face any discrimination in terms of permanent jobs.

Most of the gap between FC persons and persons from the other groups in their observed proportions in permanent jobs was *not* the result of discrimination but, rather, was the outcome of persons from the FC having employment-related attributes which were *superior* to the general level of

attributes ( $B > 0$ ) with, simultaneously, persons from the other groups having employment-related attributes which were *inferior* to the general level of attributes ( $C > 0$ ).

## 5.8 Conclusions

This chapter examined a third aspect of employment outcomes: the nature of the contracts of employed persons in terms of whether their jobs were permanent, of less than a year's tenure, or casual. Since one of the major employers in India, the NREGA, offered jobs which were almost entirely casual, the main providers of the mix of jobs, in terms of the three job types, were the public and private sectors where the latter was subdivided into private employers and private firms. Furthermore, as discussed above, certain occupations — agricultural work and construction — consisted almost entirely of casual workers and it was in only four occupations — P&E, clerical, sales/service, and other non-farm — that permanent jobs could be found

Within these constraints of employer type (public sector, private employers, and private firms) and occupations (P&E, clerical, sales/service, and other non-farm) this chapter examined the likelihood of persons obtaining permanent jobs conditional on their observed characteristics. The concern of this chapter, as indeed of this book, was to shed light on the disparity/discrimination conundrum with respect to permanent jobs: how much of the likelihood of getting such jobs was determined by *employer bias*, for or against members of certain groups, and how much was the result of the quality of *employee attributes*. The results reaffirmed those from the previous chapters: only a small proportion of the observed disparity in labour market outcomes that existed between persons from the FC and persons from less privileged groups was the result of employer bias, and most of the disparity was the result of the strength of employee attributes of persons from the former group relative to those from the latter. So, the point made in earlier chapters needs reiterating. Attempts to provide people, through a policy of jobs reservation, with jobs for which they are not qualified is misguided because it ignores the essence of the problem: that it is much more important to prepare people for the world of employment than to shoehorn them into desirable jobs.

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### Appendix on Measures of Disproportionality

One of the issues central to this chapter is the degree to which permanent jobs were *concentrated* among certain social groups. In analysing this, this chapter made use of the *Bourguignon-Theil index* based on the natural logarithm of the arithmetic to the geometric mean (Theil, 1967; Bourguignon, 1979). Other methods for measuring disproportionality also exist.

A popular measure of concentration, used in the industrial economics literature to measure the degree of competition in a market, is the *Hirschman-Herfindahl index (HHI)*.<sup>12</sup> Applied to the concentration of “desirable jobs”, the *HHI* for group  $j$  is represented by  $HHI^j$  and defined as:

$$HHI^j = \sum_{k=1}^K (v^k)^2 \quad (5.8)$$

Where  $v^k$  is group  $k$ 's share in desirable jobs ( $k=1\dots K$ ). At one extreme, if group  $k$  has all the desirable jobs, then  $v^k = 1$  and  $HHI^j = 1$ , which is the *maximum* value of the index. At the other extreme, if all the groups have an equal share of desirable jobs,  $HHI^j = 1/K$  which is the *minimum* value of the index. Consequently,  $1/K \leq HHI^j \leq 1$ .

Another index of disproportionality is Shannon's (1948) *entropy index* defined as:

$$E = -\sum_{k=1}^K v^k \log(v^k) \quad (5.9)$$

And another such index is the *dissimilarity index* defined as:

$$D = \frac{1}{2} \left[ \sum_{k=1}^K \left( v^k - \frac{1}{K} \right)^2 \right] \quad (5.10)$$

If a group's share of desirable jobs equals 1 (meaning that group  $k$  gets all the desirable jobs) so that, say,  $v^1 = 1, v^2 \dots = v^K = 0$ , then  $E=0$ , which is its *minimum* value, and  $D=K-1$  which is its maximum value; on the other hand, if all the groups have equal shares in desirable jobs so that,  $v^1 = v^2 = \dots = v^K = 1/K$ , then  $E = \log(1/K)$  which is its *maximum* value and  $D=0$ , which is its *minimum* value.

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<sup>12</sup> See Hirschman (1964).

**Table 5.1: Proportion of persons aged 21–60 years with Different Types of Employment Contract  
By Employer, Occupation, and Social Group**

	Casual	Less than 1 year	Permanent	Total
<i>All Persons</i>	79.5	3.9	16.6	100
<b>Employer</b>				
Government/PSU	10.1	4.0	85.9	100
Private Firm or Employer	82.7	4.7	12.7	100
MNREGA	99.1	0.4	0.5	100
Other	90.5	3.2	6.3	100
<b>Occupation</b>				
Professional & Executive	17.5	9.6	72.9	100
Clerical	16.1	9.6	74.4	100
Sales/Service	44.0	11.2	44.9	100
Agricultural labour	97.0	1.2	1.8	100
Construction	98.1	1.0	0.9	100
Other non-farm	71.6	6.9	21.6	100
<b>Social Group</b>				
Scheduled Tribe	90.1	2.0	7.9	100
Scheduled Caste	85.0	3.3	11.7	100
OBC Non-Muslim	80.8	3.6	15.6	100
Muslims	82.6	3.3	14.2	100
Forward Castes	55.6	7.5	36.9	100
<b>Gender</b>				
Men	76.8	4.4	18.8	100
Women	85.6	2.8	11.6	100
<b>Education</b>				
No education	94.4	1.7	3.9	100
Primary or below	90.3	2.4	7.3	100
Primary to Secondary	75.7	5.1	19.3	100
Higher Secondary	49.2	9.0	41.8	100
Graduate or above	22.3	8.6	69.1	100
<b>English</b>				
None	88.3	2.9	8.8	100
Little	55.0	6.9	38.1	100
Fluent	21.3	8.9	69.9	100
<b>Location</b>				
Metro	34.1	11.4	54.4	100
Urban non-metro	58.2	7.1	34.7	100
More Developed Village	87.5	3.3	9.3	100
Less Developed Village	90.4	1.6	8.0	100

*Source: Own calculations from IHDS-2011*

**Table 5.2: Proportion of Different Types of Employment by Employer, Occupation, and Social Group**

	Casual	Less than 1 year	Permanent	Total
<b>Employer</b>				
Government/PSU	1.1	8.7	43.1	8.3
Private Firm or Employer	75.9	87.8	55.7	73.0
MNREGA	20.9	1.9	0.5	16.8
Other	2.2	1.6	0.7	1.9
Total	100	100	100	100
<b>Occupation</b>				
Professional & Executive	1.4	15.7	27.7	6.3
Clerical	1.0	12.7	22.8	5.1
Sales/Service	4.3	22.4	20.9	7.7
Agriculture labour	37.5	9.2	3.4	30.8
Construction	39.7	8.0	1.8	32.2
Other non-farm	16.1	32.1	23.4	18.0
Total	100	100	100	100
<b>Social Group</b>				
Scheduled Tribe	12.2	5.5	5.2	10.8
Scheduled Caste	32.1	25.2	21.2	30.0
OBC Non-Muslim	35.0	32.0	32.3	34.4
Muslims	10.4	8.5	8.6	10.1
Forward Castes	10.3	28.8	32.8	14.8
Total	100	100	100	100
<b>Gender</b>				
Men	67.0	78.1	78.6	69.4
Women	33.0	21.9	21.4	30.6
Total	100	100	100	100
<b>Education</b>				
No education	43.4	16.3	8.5	36.5
Primary or below	20.6	11.3	7.9	18.2
Primary to Secondary	30.0	41.2	36.6	31.5
Higher Secondary	3.9	14.5	15.7	6.2
Graduate or above	2.1	16.8	31.3	7.5
Total	100	100	100	100
<b>English</b>				
None	87.3	59.4	41.7	78.6
Little	11.4	29.5	37.9	16.5
Fluent	1.3	11.2	20.5	4.9
Total	100	100	100	100
<b>Location</b>				
Metro	2.8	19.1	21.1	6.5
Urban non-metro	14.3	36.0	40.8	19.5
More Developed Village	35.3	27.2	17.9	32.1
Less Developed Village	47.7	17.8	20.2	41.9
Total	100	100	100	100

Source: Own calculations from IHDS-2011

**Table 5.3: Percentage of Employed Persons, 21–60 years of Age, in Social Groups by Employer Type**

	Government	Private Sector	NREGA	Other	Total
<b>Scheduled Tribe</b>	4.4	73.7	20.7	1.2	100
<b>Scheduled Caste</b>	6.6	72.3	19.6	1.5	100
<b>OBC Non-Muslim</b>	7.3	74.0	16.7	2.1	100
<b>Muslims</b>	6.4	78.4	12.1	3.1	100
<b>Forward Castes</b>	18.4	68.2	11.5	1.9	100
<b>Total</b>	8.3	73.0	16.8	1.9	100

*Source: Own calculations from IHDS-2011*

**Table 5.4: Percentage of Persons with Private Sector Jobs, 21–60 years of Age, by Social Group and Employer Type**

	Private Employer	Private Firm	Total
<b>Scheduled Tribe</b>	80.4	19.6	100
<b>Scheduled Caste</b>	77.5	22.5	100
<b>OBC Non-Muslim</b>	76.2	23.8	100
<b>Muslims</b>	75.9	24.1	100
<b>Forward Castes</b>	64.0	36.0	100
<b>Total</b>	75.3	24.7	100

*Source: Own calculations from IHDS-2011*

**Table 5.5: The Distribution of Jobs by Employer Across Social Group\***

	% of All Jobs Across Social Groups					
	Government	Private Employer	Private Firm	NREGA	Other	Total
Scheduled Tribe	5.8	11.6	8.7	13.3	6.9	10.8
Scheduled Caste	23.8	30.6	27.0	35.0	24.2	30.0
OBC Non-Muslim	30.1	35.2	33.7	34.3	38.1	34.4
Muslims	7.7	10.9	10.5	7.3	16.3	10.1
Forward Castes	32.7	11.7	20.1	10.1	14.5	14.8
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
	% of Permanent Jobs Across Social Groups					
Scheduled Tribe	5.8	4.6	4.5	NA	NA	5.1
Scheduled Caste	23.1	20.5	19.0	NA	NA	21.2
OBC Non-Muslim	29.3	36.6	31.8	NA	NA	32.2
Muslims	7.9	9.5	8.4	NA	NA	8.5
Forward Castes	33.9	28.8	36.3	NA	NA	32.9
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>NA</b>	<b>NA</b>	<b>100</b>

\* Over 95% of NREGA and other employers' jobs are casual and hence they are excluded from the lower panel.

*Source: Own calculations from IHDS-2011*

**Table 5.6: Probabilities of Having a Permanent Job Contract<sup>§</sup>**

	Synthetic Probability	Marginal Probability	Standard Error	t-value
<b>Gender</b>				
Men [R]	0.440			
Women	0.408	-0.033**	0.009	-3.5
<b>Social Group</b>				
Scheduled Tribe	0.459	0.022	0.025	0.9
Scheduled Caste	0.425	-0.012	0.013	-1.0
OBC Non-Muslim	0.443	0.006	0.014	0.4
Muslims	0.405	-0.032**	0.016	-2.1
Forward Castes [R]	0.437			
<b>Education</b>				
No education	0.350	-0.162**	0.023	-6.9
Primary or below	0.376	-0.136**	0.022	-6.3
Primary to Secondary	0.439	-0.073**	0.016	-4.4
Higher Secondary	0.460	-0.052**	0.016	-3.3
Graduate or above [R]	0.512			
<b>English Competence</b>				
None	0.410	-0.069**	0.019	-3.6
Little	0.461	-0.018	0.015	-1.2
Fluent [R]	0.479			
<b>Location</b>				
Metro [R]	0.494			
Urban non-metro	0.446	-0.048**	0.019	-2.6
More developed village	0.396	-0.097**	0.021	-4.7
Less developed village	0.398	-0.095**	0.024	-4.0
<b>Age Band</b>				
21–30 [R]	0.417			
31–40	0.444	0.027**	0.009	2.9
41–50	0.439	0.022**	0.011	1.9
51–60	0.449	0.031**	0.012	2.7
<b>Employer</b>				
Government [R]	0.759			
Private employer	0.336	-0.423	0.015	-28.2
Private firm	0.389	-0.370	0.016	-23.3
<b>Occupation</b>				
P&E[R]	0.516			
Clerical	0.555	0.039**	0.016	2.4
Sales/Service	0.484	-0.032**	0.017	-1.9
Other non-farm	0.351	-0.165**	0.015	-10.7

<sup>§</sup>Estimated using a logit model on data for 20,195 individuals between the ages of 21 and 60 years, employed by the public or private sectors in four occupations: profession & executive, clerical, sales/service, other non-farm.

\*\* Significant at 5%; \* significant at 10%.

Source: Own calculations from IHDS-2011

**Table 5.7: Probabilities of Having a Permanent Job Contract: Social Group Interactions<sup>§</sup>**

	Synthetic Probability	Marginal Probability	Standard Error	t-value
<b>Men</b>				
Scheduled Tribe	0.471	0.026	0.028	0.9
Scheduled Caste	0.424	-0.020	0.013	-1.5
OBC Non-Muslim	0.453	0.009	0.015	0.6
Muslims	0.414	-0.031	0.017	-1.8
Forward Castes [R]	0.445			
<b>Women</b>				
Scheduled Tribe	0.414	0.003	0.039	0.1
Scheduled Caste	0.428	0.018	0.024	0.7
OBC Non-Muslim	0.404	-0.006	0.023	-0.3
Muslims	0.372	-0.039	0.028	-1.4
Forward Castes [R]	0.410			
<b>Public Sector</b>				
Scheduled Tribe	0.860	0.145	0.036	4.1
Scheduled Caste	0.739	0.024	0.030	0.8
OBC Non-Muslim	0.772	0.057	0.029	2.0
Muslims	0.770	0.056	0.042	1.3
Forward Castes [R]	0.714			
<b>Private Employer</b>				
Scheduled Tribe	0.337	-0.022	0.038	-0.6
Scheduled Caste	0.313	-0.046	0.019	-2.4
OBC Non-Muslim	0.344	-0.014	0.023	-0.6
Muslims	0.294	-0.065	0.024	-2.8
Forward Castes [R]	0.359			
<b>Private Firm</b>				
Scheduled Tribe	0.423	0.040	0.048	0.8
Scheduled Caste	0.400	0.018	0.025	0.7
OBC Non-Muslim	0.398	0.016	0.022	0.7
Muslims	0.344	-0.039	0.027	-1.4
Forward Castes [R]	0.382			

<sup>§</sup>Estimated using a logit model on data for 20,195 individuals between the ages of 21 and 60 years, employed by the public or private sectors in four occupations: profession & executive, clerical, sales/service, other non-farm.

\*\* Significant at 5%; \* significant at 10%.

*Source: Own calculations from IHDS-2011*

**Table 5.8: Measuring Discrimination in Permanent Jobs for Persons Aged 21–60 years, by Social Group\***

	<b>Public and Private Sector Employers Professional and Executive, Clerical, Sales/Service, Other Non-farm Occupations</b>			
	$\hat{p}^{FC} - \hat{p}^X$	$\tilde{p}^{FC} - \tilde{p}^X$	$\hat{p}^{FC} - \tilde{p}^{FC}$	$\hat{p}^X - \tilde{p}^X$
Scheduled Tribe	21.1	-2.2	14.3	-9.0
Scheduled Caste	17.4	1.2	14.3	-1.9
OBC, non-Muslim	16.9	-0.6	14.3	-3.2
Muslims	29.4	3.2	14.3	-11.9

Note: Discrimination is measured vis-à-vis persons from the Forward Castes

\* Based on data for 20,195 individuals between the ages of 21 and 60 years, employed by the public or private sectors in four occupations: profession & executive, clerical, sales/service, other non-farm.

*Source: Own calculations from IHDS-2011*