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Earnings and Caste: An Evaluation of Caste Wage Differentials in the Nepalese Labour Market

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ABSTRACT *This paper examines the sources of wage differentials among castes in Nepal, a country which had, until 1963, an age-old caste-based social division of labour. We use an extended Oaxaca decomposition model with occupation and firm size augmenting the conventionally used measures of human capital endowments. Our results indicate that caste wage differentials in Nepal are large and that human capital endowments and lack of access to better paying occupations and larger firms have a significant impact. Furthermore, we find mixed evidence that the government policy of affirmative action has narrowed down the caste wage differential.*

1. Introduction

Labour market discrimination is defined as a situation in which a person providing labour market services who is equally productive in a physical and material sense is paid less in a way that is related to gender, race, caste or ethnicity (Altonji & Blank, 1999). This concept emerged from the theories of taste discrimination, whereby employers directly hold preferences about the ethnic background of their employees (Becker, 1957) and statistical discrimination, whereby employers with incomplete information about workers' productivity have statistical priors about how productivity varies with ethnicity (Phelps, 1972).

Caste discrimination might be more powerful and persistent than racial discrimination. Racism emerged in countries that were either colonised or participated in the slave trade during the colonial era, while caste-based societies have existed for centuries before colonialism (Deshpande, 2011). Moreover, while apart from the master-slave division of slavery, the colonial powers did not impose strict occupational restrictions on the population, caste-based stratification was inherently associated with an occupational division of labour.

Caste discrimination persists in two self-perpetuating ways (Banerjee & Knight, 1985). First, caste classification discourages low-caste workers from developing their human capital in line with occupations assigned to the higher castes. Second, it subjects backward castes to informational and network disadvantages because of their exclusion from certain sectors of employment. Thus, a caste-based division of labour can perpetuate itself through the inter-generational transmission of low educational and occupational status from one generation to the next even once discrimination per se is abolished (Borjas, 1994; Darity & Mason, 1998).

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This paper examines the sources of wage differentials among castes in Nepal, a country in which, until 1963, an age-old, caste-based social division of labour was imposed by the national legal code *Muluki Ain*. The *Muluki Ain* of 1963 discarded this caste system. However, caste-based discrimination was itself declared illegal only after the promulgation of the new Constitution of the Kingdom of Nepal in 1990, which made the practice of untouchability illegal. Since then, several policies have been implemented to reduce the impact of such discrimination, including positive discrimination and the establishment of the Dalit Commission. The Second Amendment of the Civil Service Act, 1993, reserves 45 per cent of total vacancies in the public sector for backward castes, female, disabled and remote inhabitants. The effect of such policies has not been studied. This paper partly aims to fill this gap.[1]

In doing so, we follow the empirical literature and distinguish between pre-market and current market labour discrimination. The first type of discrimination captures the effects of the propagation mechanisms mentioned above, that contribute to the persistence of wage inequality even if active discrimination is no longer practiced by employers. The second type represents active discrimination by employers. The Oaxaca decomposition method (Blinder, 1973; Oaxaca, 1973) is the most commonly used technique for disentangling the two effects. Empirical studies based on the Oaxaca decomposition have typically focused on human capital endowments as the sole proxy for pre-market effects.

However, authors such as Darity and Mason (1998) have identified group differences in access to better paying industries and occupations as major contributors to the persistence of labour market discrimination. Since such obstacles do not represent on-the-job wage inequality, but rather a difference in access to high-paying work, they too can be considered as pre-market effects. Empirical work carried out by Banerjee and Knight (1985), Das and Dutta (2007) and Madheswaran and Attewell (2007) has estimated such effects in the Indian labour market by incorporating occupation in the wage differential decomposition method.

In this paper, we extend the study of pre-market effects by investigating whether differences in access to employment with higher paying firms in the same occupation can be an additional factor in perpetuating wage inequality. Our reasons for this are twofold.

First, in imperfectly competitive product markets, differently sized firms might have different capacities for remunerating their employees, even if the latter have similar levels of education and work in the same occupation (Vietorisz & Harrison, 1973).[2] There is widespread evidence that firm size is positively correlated with employee wages and salaries (see Brown & Medoff, 1989; Fajnzylber, Maloney, & Montes-Rojas, 2009; Hettler, 2007; Schmidt & Zimmermann, 1991; Wagner, 1997) even if there is some debate as to the reasons for this (see the survey by Oi & Idson, 2000). For example, Wagner (1997) studies firm-level micro data from Germany and finds that small firms pay lower wages, salaries and benefits and offer less job security than large ones. He explains this difference on the grounds that smaller firms need to compensate for weaker scale economies by offering less remuneration to their employees.

In the context of developing economies, labour market formality can be an additional driver of wage differences between firms. Ito (2009) uses formality as a proxy for better paying jobs, although his study did not link formality to firm size. However, a World Bank study (World Bank, 2009) of Bolivian firms did so, stating both that formality was associated with higher productivity and that large firms were more likely to be in the formal sector than small ones. For these reasons, firm size can also be a proxy for employer formality in developing countries.

A second and possibly more compelling reason to supplement occupation by firm size in the specific case of caste discrimination is that occupational choice may result because of caste peer pressure on individuals to seek employment in traditional caste occupations, as argued by Munshi and Rosenzweig (2006).[3] It is less likely that caste pressure would direct individuals to volunteer for lower paying firms within a given occupation. Thus using firm size (as a proxy for lower paying firms) allows us to make inferences about barriers to high-paying jobs within the same occupation.[4]

Our results indicate that caste wage discrimination is indeed present in the Nepalese labour market, with intermediate *(Matwali)* and low *(Pani Nachalne)* castes earning significantly less than the higher

(Tagadahari) castes. For the *Matwali*, the wage differential decreases over the period of analysis, 2003–2010; this may reflect the effect of certain governmental policies to reduce caste discrimination. However, the wage differential increases for the *Pani Nachalne*. Lack of access to employment in certain occupations and large firms is found as a major factor behind the caste wage differential together with years of schooling.

The rest of the paper is organised as follows. Section 2 describes the historical and institutional basis of caste classification in Nepal. Section 3 presents a succinct literature review of caste wage discrimination. Section 4 states the econometric model, while the data and descriptive statistics are presented in Section 5. The main econometric results are presented in Section 6. Section 7 concludes and discusses policy implications. The Online Appendix contains additional tables with descriptive statistics and definitions.

2. Caste System in Nepal: An Overview

Nepal, along with other countries of the Indian subcontinent, had a caste-based social division of labour in the past. Historically, caste classification was based on the Varna system of Hindu philosophy and the Aryan division of labour. These comprised four categories, namely Brahman, Kshatriyas (Chhetri), Vaisyas and Shudras. Together these encompassed a social division of labour as priests and teachers, warriors and royalty, merchants and money lenders, and artisans, service providers and other manual workers, respectively (Deshpande, 2011; World Bank, 2006). Brahman, being the superior caste, enjoyed the highest status in Nepalese society, followed by Chhetri. While Vaisyas were not as privileged as Brahmans or Chhetri, they enjoyed relatively higher social status than Shudras in the caste-based social hierarchy. Shudras were the lowest caste, considered untouchable by their superiors.

As a predominantly Hindu country with a significant Buddhist minority, Nepal's version of the Hindu caste system came with some variation, implemented in the form of a legal code called *Muluki Ain*. This code classified all Nepalese into different categories irrespective of their religious backgrounds, but based on their relative ritual purity (Bennet, Dahal, & Govindasamy, 2008). The official classification under *Muluki Ain* consisted of three categories, namely *Tagadhari* (literally 'twice-born'), *Matwali* (literally 'liquor drinking') and *Pani Nachalne* (literally 'impure') (Cox, 1988). *Tagadahari* included upper-caste Hindus such as the Brahmans of the traditional Hindu caste system. *Matwali*, on the other hand, consisted mainly of Buddhists and indigenous ethnic groups who practiced Animism and Shamanism, and were considered an intermediate caste. The *Pani Nachalne* were the lowest caste and included not just traditional Hindu untouchables such as Kami, Damai and Sarki but also Muslims and Mlechha (literally 'foreigners'), which in turn included Christians. Dalit is a designation for a group of people traditionally regarded as untouchable. This is where the intersection of caste and ethnicity entered into the social hierarchy of Nepal. Hofer (1979) and Gurung (2003) describe a hierarchy of ethnic groups and their respective associations with the legal caste categories. This divides all ethnic groups into two broader categories of 'pure' and 'impure' caste hierarchies consisting of three and two subcategories, respectively (see Table 1). While ethnic groups belonging to the *Tagadhari* and *Matwali* castes fell under 'pure' (or water acceptable, that is sharing water with them was acceptable), the *Pani Nachalne* were 'impure' (or water unacceptable). Within these there were subcategories: while the pure *Matwali* were divided into enslavable and non-enslavable, the impure *Pani Nachalne* were further divided into untouchable and touchable, depending on whether or not they belonged to Hindu religious groups.

In line with these classifications, we aggregate caste-ethnic identity into three broad categories, namely *Tagadhari, Matwali* and *Pani Nachalne*. Lack of observations on the enslavable *Matwali* and touchable *Pani Nachalne* groups prevents us from constructing a finer division of the social hierarchy. We refer to these groups as castes although, from a strict point of view, they correspond to caste and ethnicity.

Table 1. Nepal social hierarchy: 1854

Hierarchy	Habitat	Belief/Religion
A. Water acceptable (pure)		
1.*Tagadhari*: Wearer of the sacred thread		
'Upper Caste' (Brahmin)	Hills	Hinduism
'Upper caste' (Madhesi)	Tarai	Hinduism
'Upper Caste' (Newar)	Kathmandu Valley	Hindusim
2. *Matwali*: Alcohol drinkers (non-enslavable)		
Gurung, Magar, Sunuwar	Hills	Tribal/Shamanism
Thakali, Rai, Limbu	Hills	Tribal/Shamanism
Newar	Kathmandu Valley	Buddhism
3. *Matwali*:Alcohol drinkers (enslavable)		
Bhote (Tamang)	Mountain/Hills	Buddhisim
Gharti,Chepang, Hayu	Hills	
Kumal, Tharu	Inner Tarai	Animism
B. Water unacceptable (impure)		
1. *Pani Nachalne*: Touchable		
Dhobi, Kasai, Kusule, Kalu	Kathmandu Valley	Hinduism
Musalman	Tarai	Islam
Mlechha (Foreigner)	Europe	Christianity and so forth
2. *Pani Nachalne*: Untouchable (achhut)		
Badi, Damai,Gaine	Hill	Hinduism
Kadara, Kami, Sarki (Parbatiya)	Hills	Hinduism
Chhyame, Pode (Newar)	Kathmandu Valley	Hinduism

Source: Adapted from Bennet et al. (2008).

3. Demand- and Supply-Side Considerations of Caste Wage Inequality

Caste wage inequalities can arise for several reasons and both demand- and supply-side factors operating in the labour market can be a source of these inequalities. It is generally assumed that idiosyncratic labour market characteristics such as ability which might affect both demand and supply are uncorrelated with group differences. Thus active discrimination by employers, a demand-side factor, cannot be justified on grounds of group differences in ability.

On the demand-side, an important factor is that low-caste individuals lack what is known as pre-market endowments, which has traditionally been interpreted as including education, skills and other forms of human capital. The basic Oaxaca decomposition distinguishes between this source and what is known as current market discrimination or active employer discrimination. The concept of pre-market endowment was later extended by Banerjee and Knight (1985) to include participation in higher paying occupations as an additional factor in pre-market endowments.

In a study of caste wage differentials in Delhi, India, Banerjee and Knight (1985) found that low-caste workers are more likely to participate in traditional low-paid jobs. By extending the conventional decomposition methodology to include occupational access as part of a worker's pre-market endowment, they find that a significant part of the caste wage differential was attributable to differences in access to better paid occupations. Their main point was that '[d]iscrimination is found to exist, and to operate in part at least through the traditional mechanism, *viz*. assignment to jobs, with the scheduled castes entering poorly-paid "dead-end" jobs' (1985, p. 277)

Siddique (2011) studied active demand-side discrimination in India using an experimental design, in which, resumes with randomly selected names (reflecting caste) were submitted to employees and responses were recorded. On average low-caste applicants needed to send 20 per cent more resumes than high-caste applicants to get the same feedback. Das and Dutta (2007) estimated the caste wage differential in both regular and casual jobs in the Indian labour market. Their results show that a substantial differential exists between scheduled and non-scheduled castes in regular jobs, but not in casual ones, with almost two thirds of the differential in regular jobs being attributable to endowment effects (educational and occupational variables).

In a study of regular salaried jobs in India, Madheswaran and Attewell (2007) found that endowment differences are larger than current market wage differences in explaining the caste wage differentials, and that the most important type of difference in endowments was the difference in occupation across castes. For Nepal, Cameron (1995), Bhattachan, Sunar, and Bhattachan (2009) and Karki (2007) analyse caste wage discrimination. All of them find strong evidence of caste discrimination against the Dalit, although only the latter applies the Oaxaca decomposition method. In our own paper, we are extending the concept of pre-market endowment to also include access to better paying firms within a given occupation, for reasons outlined in the Introduction.

On the supply-side of the labour market, economic theory suggests that individuals with similar pre-market endowments are unlikely to select into lower paying jobs as doing so would not represent an optimal choice. However, if pre-market endowments are defined to include not just individual human capital but also access to better paying occupations and higher paying firms (within a given occupation) then individuals belonging to disadvantaged castes, might self-select into low-paid jobs for two reasons.

First, they might be subject to collective pressure by fellow caste members to restrict themselves to traditional caste occupations (Akerlof, 1976). In an empirical study, Munshi and Rosenzweig (2006) have argued that in certain communities in Maharashtra, India, boys are earmarked for pursuing traditional caste occupations, whereas girls enjoy greater occupational flexibility. If this is the case, then caste members might 'voluntarily' reduce their pre-market endowment by not considering entry into non-traditional occupations.[5]

Second, low-caste workers might face higher transaction costs in attempt to attain high paying jobs, whether via the choice of occupation or via employment with higher paying firms within the same occupation. This in turn might be because employers actively create obstacles to entry (a demand-side factor) or because lower castes lack access to information and contacts that might help reduce entry costs (a supply-side factor).

Ito (2009) measures transaction costs for entry into 'regular' as opposed to 'casual' jobs in rural labour markets in north India. He finds that members of disadvantaged castes face higher transaction costs in accessing regular jobs as compared to high-caste members. He cautions that higher transaction costs could reflect either demand-side barriers or informational and network disadvantages operating on the supply-side.

Even if caste peer pressure or network disadvantages rather than employer preferences restrict access to better paid jobs, it can be argued that they too are the product of historical discrimination and thus part of the overall framework that generates inequality. Indeed, Ito (2009) concludes that even if it is caste-selection that drives the higher transaction costs facing disadvantaged castes, their existence suggests 'that government policies to combat inequality in employment opportunities have not been successful in the study region' (p. 297).

Moreover, even if an individual's occupational choice is restricted by traditional caste norms, this might not be optimal given an individual's abilities and preferences, so it cannot be simply a matter of revealed preference by an individual.[6] Finally it should be noted that the Oaxaca decomposition is itself concerned with the factors that generate inequality, not in the demand versus supply-side causes behind those factors. Thus if occupational assignment is found to be a source that generates inequality, the decomposition method is not directed to finding whether demand or supply-side motives underlie that source. We elaborate further on this point in the following section.

Nonetheless, it is relevant for policy purposes whether lack of participation by low-caste workers in certain occupations and jobs is driven by active demand-led discrimination, or supply-side factors such as lack of networks or active selection into traditional caste occupations. Furthermore, there is a difference between the first supply-side factor, that is intra-caste pressure and the second, thatis network disadvantage, as policy tools such as quotas, employer subsidies for hiring low-caste workers or placement assistance would remain effective if the latter was the causal factor but would lose effectiveness if internal policing of traditional caste roles was the causal one. Our data allows us to see whether adherence to traditional caste occupations is a major factor in occupational selection and we address its effect in Section 6.4.

4. Empirical Model

Consider caste categories j = *t, m, p* (*Tagadhari* = t, *Matwali* = m and *Pani Nachalne* = *p*). An expanded Mincerian log wage equation can be specified for each caste as,

$$w_{ij} = \beta_j E_{ij} + \delta_j S_{ij} + \gamma_j X_{ij} + \varepsilon_{ij} \tag{1}$$

where w is the log hourly wage of individual i of caste j, E represents years of schooling completed, S is a set of variables containing job characteristics such as occupation and/or firm size (see below), X is a set of covariates comprising of a constant, experience, experience square, marital status, regional and industry dummies, and ε is the unobserved component in the wage equation. (E,S,X) represent the endowments and (β, δ, γ) the pricing of those endowments.

The gross logarithmic caste wage differentials in observable variables can be calculated as,

$$\bar{w}_t - \bar{w}_m = (\beta_t \bar{E}_t - \beta_m \bar{E}_m) + (\delta_t \bar{S}_t - \delta_m \bar{S}_m) + (\gamma_t \bar{X}_t - \gamma_m \bar{X}_m), \tag{2}$$

$$\bar{w}_t - \bar{w}_p = (\beta_t \bar{E}_t - \beta_p \bar{E}_p) + (\delta_t \bar{S}_t - \delta_p \bar{S}_p) + (\gamma_t \bar{X}_t - \gamma_p X_p) \tag{3}$$

where $\bar{.}_j$ is the mean of a variable . for caste j.

Considering *Tagadhari* workers as the dominant/reference group and *Matwali* and *Pani Nachalne* workers as non-dominant/comparison groups' caste wage differentials among can be decomposed into explained and unexplained components by employing the Oaxaca (1973) and Blinder (1973) decomposition methodology. In the conventional Oaxaca methodology, the gross difference in mean log wages between the two groups can be decomposed into explained differences in the individual productivity characteristics (that is differences in E, S and X) and unexplained differences in the market valuation of such individual productivity characteristics (that is differences in β, δ and γ),

$$\begin{aligned} \bar{w}_t - \bar{w}_m &= \beta_t(\bar{E}_t - \bar{E}_m) + (\beta_t - \beta_m)\bar{E}_m \\ &+ \delta_t(\bar{S}_t - \bar{S}_m) + (\delta_t - \delta_m)\bar{S}_m \\ &+ \gamma_t(\bar{X}_t - \bar{X}_m) + (\gamma_t - \gamma_m)\bar{X}_m, \end{aligned} \tag{4}$$

$$\begin{aligned} \bar{w}_t - \bar{w}_p &= \beta_t(\bar{E}_t - \bar{E}_p) + (\beta_t - \beta_p)\bar{E}_p \\ &+ \delta_t(S_t - S_p) + (\delta_t - \delta_p)\bar{S}_p \\ &+ \gamma_t(\bar{X}_t - \bar{X}_p) + (\gamma_t - \gamma_p)\bar{X}_p. \end{aligned} \tag{5}$$

We estimate the full decomposition model in Equations (4) and (5) to evaluate the sources of caste wage differentials. For each decomposition, the first term denotes the wage difference attributable to the difference in observable characteristics between the two groups evaluated according to the dominant group's wage structure and the second term represents the wage difference because of differences in the wage structure between the two groups, evaluated at the mean level of the comparison groups. The former terms represent the explained components of the wage differential whereas the latter terms are the unexplained components. These are also known respectively as *pre-market* discrimination and *current market* discrimination.

The decomposition in E analyses differences in education, which in the traditional Oaxaca decomposition is the main component of human capital.

The decomposition in S shows group differences in access to better jobs, either by occupation or by employer quality, and this is the main contribution of this paper. As argued in Banerjee and Knight (1985), the choice of occupation can influence the wage a worker receives and that this is important for the rigid caste structure in India. Their methodology isolates the effect of productivity

characteristics and occupational distribution on wages (see also Hinks & Watson, 2001, for a related analysis). As we argued earlier, access to jobs in medium and large firms can play a considerable role in producing wage differentials across groups of workers and this is particularly important for developing countries in which the average firm size is smaller than in developed countries and where informal employment is more widespread. We thus use firm size as a proxy for employer quality that determines lower/higher wages. Note that the decomposition in S could be attributed to either demand or supply-side considerations, as discussed in the previous section.

In order to evaluate the effect of occupation and firm size on caste wage differentials we consider three models. First, we only apply the occupation decomposition, S = *{occupation}*; second, we only apply the firm size decomposition, S= *{firm size}*; and finally, we consider decomposing the full interaction between occupation and firm size, S= *{occupation x firm size}*. These models are referred as occupational, firm size and interaction decomposition models, respectively.

Finally, the decomposition in X studies other characteristics such as industry, rural/urban or regional distribution of workers that cannot be ruled out while estimating the sources of wage differentials across castes.

The Oaxaca decomposition model measures whether occupation or firm-size assignment is statistically responsible for explaining a difference in wages, not why an individual is working in a given job or occupation. To the extent that the first stage of the Oaxaca method requires estimating a wage equation, the inclusion of occupational and employer dummies produce bias if the choice of occupations or working in a big/large firm is simultaneously determined with the wage received. That is, simultaneity in the determination of the dependent variable and control variables and unobserved factors in the wage equation that affect jobs allocations may produce endogeneity bias in the regression Model (1) when estimating the pricing parameters δ.

Given the decomposition term $\delta_A(\bar{S}_A - \bar{S}_B) + (\delta_A - \delta_B)\bar{S}_B$ for castes A and B, bias in the wage regression equation may affect both terms.

Consider first the explained component $\delta_A(\bar{S}_t - \bar{S}_m)$. Since group A corresponds to the *Tagadhari* dominant caste, we can expect that they are more likely to be paid according to their productivity and that they face less restrictions on occupational and job choice. As such, the pricing parameter δ_A is likely to be estimated without bias. In this case, the explained component $\delta_A(\bar{S}_t - \bar{S}_m)$ will also be estimated without bias.

Consider now the unexplained component $(\delta_A - \delta_B)\bar{S}_B$. This will be valid if there is no bias in the parameter estimators or if the bias is the same for the two groups. That is '"selection based on observables" assumption allows for selection biases as long they are the same for the two groups. [. . .] [A]ggregate decomposition remains valid as long as the dependence structure [. . .] is the same in group A and B' (Fortin, Lemieux, & Firpo, 2011, p.6). However, we expect that the bias will not be the same across the two groups. In particular, while we can argue as above that δ_A will be estimated without bias, the same is likely not true for δ_B, since non-dominant castes may face both supply- and demand-side constraints on occupational and job mobility that act simultaneously with wage discrimination. As a result, the unexplained component can be biased.

A supply-side factor could simply be that members of lower castes have an innate preference for following traditional occupations that happen for historical reasons to pay less (given human capital). This would result in a downward bias in the estimated coefficient. In this case the unexplained component attributed to S will be overestimated while other unexplained components, that is $(\beta_A - \beta_B)\bar{E}_B$ or $(\gamma_A - \gamma_B)\bar{X}_B$ will compensate to adjust the gross log wage difference.

On the other hand, a positive bias in $\delta_B$might arise from the supply-side of the labour market, if innate ability was heterogeneous within each caste but the distribution of ability was similar across castes. Suppose that (i) members of the lower caste actually prefer better paying jobs but face transaction costs (such as social exclusion) for leaving their traditional caste occupation; (ii) jobs in larger firms and/or better occupations pay higher wages per unit of employee productivity, (iii) productivity depends only on an employee's education and individual ability level, (iv) these attributes are publicly observable; (v) an individual's productivity attributes are transferable across occupations and firms. In this framework, using the arguments of Roy (1951) and Borjas (1987) it follows that the

most productive of the low caste members would select into the better jobs. In this case the bias in $\delta_B$could be positive and the unexplained component attributed to S will be underestimated.

Following an anonymous referee' suggestion, we include a dummy variable for caste adherence to traditional occupation, which may indicate the presence of supply-side discrimination of this type. In this case, the inclusion of the traditional dummy occupation should reduce or increase the unexplained component of S depending on the direction of the bias.

From the demand-side a downward bias in δ_B could arise if more profitable employers discriminate not just in the wages they offer to low caste members but also in employing them. Our prior is that this is the more likely obstacle to low caste individuals gaining access to better paying jobs in the first place. Then, the unexplained component attributed to S will be overestimated relative to other components. In this case, even when the coefficients δ_B do not measure the causal effect of occupation or employer quality on wages, the regression model would be capturing a discrimination effect that is of interest.

The above discussion highlights the main limitations of the Oaxaca decomposition methods. As argued in Fortin et al. (2011), 'decomposition methods, just like program evaluation methods, do not seek to recover behavioral relationships or "deep" structural parameters. By indicating which factors are quantitatively important and which are not, however, decompositions provide useful indications of particular hypotheses or explanations to be explored in more detail' (p. 3). Then, large values of $(\delta_A - \delta_B)\bar{S}_B$ could be an indication of mechanisms affecting δ_B, and as such, the wages of non-dominant castes individuals, even if we cannot identify the source (that is supply- or demand-side).

5. Data and Descriptive Statistics

This paper employs two waves of the National Living Standard Survey (NLSS) of Nepal for 2003/2004 and 2010/2011 carried out by the Central Bureau of Statistics of Nepal with the combined support of the World Bank and the UK Department for International Development (these surveys will be referred to below as 2003 and 2010, respectively.) The surveys follow the World Bank's Living Standard Measurement Survey and apply a two-stage sampling scheme. 73 out of the 75 administrative districts of Nepal are covered. A total of 5240 households in 2003 and 5998 households in 2010 were interviewed, and information recorded about 28,110 and 28,670 individuals in each of the respective years. The data include information on wage employment, self-employment, sector of employment, industry type, mode of payment, labour market attachment and educational attainment at the individual level. Since information on experience is not reported, it is replaced by age minus years of schooling minus six, which is the average age to start school in the Nepalese education system. For simplicity, it is assumed that every person joined the labour market immediately after completing their schooling. An individual is defined as employed if he/she worked at least one hour during the seven days prior to the interview. See the Online Appendix for the details of these classification plus definitions of all variables.

The analysis includes 785 in 2003 and 834 in 2010 male wage workers aged 19–59 years old from the non-agricultural sector.[7] Descriptive statistics are presented in Tables A1 and A2 in the Online Appendix. The *Tagadhari* group represents the dominant share of employees in both periods, accounting for 70.7 per cent of the total employment in 2003 and 71.3 per cent in 2010. The *Matwali* accounted for 19.2 per cent and 21.4 per cent, and *Pani Nachalne* 9.9 per cent and 7.3 per cent in each survey year, respectively. There is an average log hourly wage rate of 3.34 and 3.83 NPR, respectively. The USD equivalent would be .38 and .68, respectively.[8] The *Matwali* and *Pani Nachalne* workers earn on average wage 30 per cent and 49 per cent less than *Tagadhari* workers, respectively, in 2003. By 2010, the wage gap between the *Tagadhari* and *Pani Nachalne* remains identical whereas it has been decreased to 20 per cent in case of the wage gap between the *Tagadhari* and *Matwali* workers.

Average years of education, defined as the highest level of completed years of schooling were 7.78 in 2003 and 9.88 in 2010. The education gap between *Tagadhari* and *Matwali* was 2.29 years in 2003

and by 2010 it had decreased slightly to 2.10 years. However, the educational gap between *Tagadhari* and the lowest caste *Pani Nachalne* increased over this period, from 3.03 years in 2003 to 4.45 years in 2010.

The NLSS survey contains a question about the size of the firm where the wage worker works. As described in the Online Appendix it contains three categories: 1 employee, 2–10 employees, and more than 10 employees. We use the ad-hoc classification of small, medium and large firms, respectively. This variable has a high proportion of missing observations, that is non-respondents, which resulted in a particular distribution of workers across occupations. In the robustness section below we consider the imputation of firm size to certain occupations.

We aggregate occupations into seven broad groups based on Nepal's National Classification of Occupations: professional, clerical, service, skilled, sales, agri-worker and unskilled. The professional category includes the categories of doctor, engineer, manager; religious and clerical comprises of categories such as clerk, typist, book keeper, and so forth. Those not included in any of the six occupations are classified as unskilled workers that include loaders, unskilled construction workers and labourers. Similarly, eight categories of industry are constructed based on *the Standard Industrial Classification (SIC)* reported in the survey.

In 2003, the occupational ranking is as follows: professionals are the largest category accounting for 38.6 per cent of workers, unskilled is second largest with 18.4 per cent followed by skilled workers at 17.9 per cent. By 2010 the rankings are 28.2 per cent for skilled, 23.9 per cent for professional and 19.1 per cent for clerical. The professional and clerical occupations, which collectively correspond to white collar jobs, have a higher proportion of *Tagadhari* workers, while the lower castes *Matwali* and *Pani Nachalne* workers are more engaged in unskilled and skilled occupations. In order to highlight the role of firm size, Table A3 in the Online Appendix reports average wages in 2003 and 2010 by occupation in the three firm size categories we consider. In all cases, larger firms pay higher wages than smaller ones.

In terms of the workers' industry, the majority of workers are in the service, manufacturing and other industry classification.[9] There are no significant differences between the *Tagadhari* and *Matwali* workers with respect to their association to industries. The *Pani Nachalne* workers are more likely to work in the manufacturing industry.[10] Information is not available to distinguish between public and private sector employees.

In summary, the descriptive statistics indicate that caste-based disparities in labour market outcomes continue to play an important role in Nepal. The intermediate *Matwali* group managed to slightly close the gap with the dominant *Tagadhari* group, while the lowest caste *Pani Nachalne* appears to have fallen further behind. However, the descriptive statistics alone cannot tell us which are the key drivers of these disparities.

6. Econometric Analysis

6.1 Access to Large Firms and Occupations by Caste

We first evaluate if there are differences in access to large firms and occupations by caste, after controlling for other observed characteristics.

Table 2 presents probit estimates for access to large firms. The results show that both *Matwali* and *Pani Nachalne* castes are less likely to work in large firms in 2003 (column 1), while for 2010 only the *Pani Nachalne* effect remains significant (column 3) but of smaller magnitude. This provides some evidence of a reduction in caste discrimination in access to large firms. Interacting the caste dummy variables with education reveals that caste discrimination for the *Pani Nachalne* is more prevalent for the less educated in 2003 (column 2). The interaction is not statistically significant in 2010.

Table 3 presents a multinomial logit model for access to occupations (base category Unskilled). Convergence issues on the multinomial models with few observations make us consider reduced models with only key covariates. The 2003 results show that *Taghadari* workers are more likely to work in professional occupations, but less in skilled occupations. The other occupations show no clear

Table 2. Probit model for access to large firms (Dep. var.: dummy = 1 for large firm, 0 otherwise)

	Year: 2003		Year: 2010	
Variables	1	2	3	4
Education	.009**(.004)	.007(.005)	.035***(.006)	.040***(.008)
Experience	.011*(.007)	.013*(.007)	.006(.006)	.006(.006)
Experience2	−.000(.000)	−.000(.000)	.000(.000)	.000(.000)
Married	−.053(.061)	−.052(.062)	.039(.058)	.041(.058)
Rural	−.158**(.069)	−.164**(.069)	−.031(.042)	.032(.042)
Lnholding	.365***(.120)	.373***(.120)	−.011(.015)	−.011(.015)
Eastern	.075(.102)	.066(.104)	.222***(.057)	.218***(.057)
Central	.195**(.089)	.194**(.089)	.123*(.059)	.116*(.059)
Western	.201**(.091)	.194**(.092)	−.112(.090)	−.113(.090)
Mid-western	.088(.109)	.092(.108)	−.026(.103)	−.023(.104)
Abroad	.076(.096)	.073(.096)	.092(.120)	.079(.122)
Professional	.098*(.060)	.101*(.060)	−.156*(.086)	−.165*(.087)
Clerical	.039(.074)	−.040(.074)	−.031(.082)	−.033(.082)
Service	.112(.086)	.124(.087)	.009(.085)	.005(.085)
Sales	−.382***(.076)	−.382***(.076)	−.483***(.113)	−.485***(.113)
Agri-worker	−.183(.125)	−.170***(.127)	.272*(.085)	.251*(.100)
Skilled	−.009(.063)	−.002(.063)	−.048(.073)	−.050(.073)
Mining	.310(.157)	.324*(.148)	.136(.223)	.135(.222)
Manufacturing	.052(.150)	.065(.150)	.162(.145)	.153(.145)
Construction	−.214(.157)	−.204(.159)	.120(.163)	.119(.160)
Trade	−.134(.157)	−.129(.157)	.146(.162)	.140(.161)
FRE	−.013(.182)	−.002(.181)	.018(.176)	.014(.173)
Servicesec	−.192(.143)	−.190(.142)	.142(.149)	.134(.150)
Others	.017(.149)	.025(.148)	.221(.168)	.216(.165)
*Matwali*Education*	-	.005(.011)	-	−.009(.011)
*Pani Nachalne*Education*	-	.021*(.013)	-	−.016(.015)
Matwali	−.154***(.049)	−.196**(.083)	−.047(.047)	.037(.109)
Pani Nachalne	−.154**(.063)	−.270***(.092)	−.207***(.080)	−.073(.138)
Pseudo R^2	.1156	.1179	1629	.1640
Log likelihood ratio	−480.75	−479.50	−457.02	−456.40
Obs.	785	785	834	834

Notes: Robust standard errors in parentheses. Marginal effects are reported. * significant at 10 per cent, ** significant at 5 per cent and *** significant at 1 per cent.

pattern. For 2010, however, the statistical significance is further reduced and no clear conclusions can be extracted. *Taghadari* workers are more likely to work in clerical occupations and less in skilled, as compared to *Matwali*.

Should caste-led preference for traditional occupations continue to exist, this would be reflected in a high prime facie adherence to the occupation category that was historically assigned to caste members.[11] Brahmins would be priests, Kshatriya warriors, and Vaisya merchants. The lowest caste Sudras, which includes ethnic groups such as Kami, Damai and Sarki were considered untouchable and regarded as the service caste. The Kami were blacksmiths who worked with metals, Damai were tailors and Sarki shoe leather workers. See Subedi (2010), for a detailed list of occupations by caste. Matwalis as well as Muslims, however, did not have a particular traditional occupation under the Hindu caste system, although they were traditionally assigned to blue collar work rather than white collar jobs. Table 4 reports the sub-caste classification and the corresponding traditional occupation for the cases where there is a clear match between caste and occupation, together with the proportion of workers that fulfil this match. Overall, the results show that a very low proportion of wage earners continue working in occupations that were traditionally assigned to their caste.

Table 3. Multinomial logit model for access to occupations

Dependent variable: Occupational categorical variable						
Year: 2003						
	Professional	Clerical	Service	Sales	Agri-worker	Skilled
Education	.034***(.004)	.009***(.003)	−.003***(.001)	−.001(.001)	−.003***(.001)	−.012***(.002)
Experience	−.003**(.002)	−.001(.001)	.000(.000)	.000(.000)	.001(.001)	−.001(.001)
Rural	.015(.047)	−.053(.047)	.079**(.036)	−.002(.020)	.021**(.009)	−.050(.039)
Lnholding	.439***(.145)	.269***(.071)	−.382***(.123)	−.073(.122)	.039(.028)	−.73*(.159)
Matwali	−.164***(.044)	−.030(.033)	.030(.022)	−.029*(.017)	.021(.016)	.119***(.043)
Pani Nachalne	−.185***(.056)	.036(.048)	.020(.027)	−.016(.023)	.040(.029)	.167***(.058)
Log likelihood ratio			−1154.62			
Obs.			785			
Year: 2010						
Education	.046***(.009)	.033***(.007)	−.025***(.004)	−.003(.003)	−.001(.001)	−.034***(.007)
Experience	.002***(.000)	.002**(.001)	−.005***(.001)	−.003***(.001)	.000(.000)	.000(.000)
Rural	−.010(.010)	−.045(.029)	.032(.033)	.015(.033)	−.001(.004)	.048(.042)
Lnholding	−.002(.003)	.010(.023)	.014(.024)	.001(.008)	.000(.000)	.013(.016)
Matwali	−.007(.010)	−.154***(.038)	−.028(.033)	−.038*(.023)	.007(.007)	.188***(.047)
Pani Nachalne	.010(.028)	.031(.075)	.048(.055)	.001(.041)	.007(.009)	−.055(.073)
Log likelihood ratio			−1150.02			
Obs.			834			

Notes: Robust standard errors in parentheses. Marginal effects are reported. * significant at 10 per cent, ** significant at 5 per cent and *** significant at 1 per cent. Unskilled occupation as base category.

6.2 Baseline Regression Analysis

Wage regression analysis is carried out to estimate the underlying wage equations for each sample period. The estimates are listed in Table 5 for 2003 and Table 6 for 2010. Columns 1, 2 and 3 report results of separate regressions for each of the three castes, followed by the pooled sample results in column 4 with caste dummy variables, where the *Tagadhari* caste represents the reference caste.

Returns to education for the pooled sample are positive, increasing with time, and statistically 0.018 (significant at 5%) and 0.070 (significant at 1%) in 2003 and 2010, respectively. However, they vary considerably across caste groups. In 2003, the *Tagadhari* caste had positive and significant returns, while *Pani Nachalne* and *Matwali* displayed a negative but statistically insignificant education coefficient. In 2010, these coefficients increased markedly for each group and became statistically significant. The *Tagadhari* have the highest returns to education followed by the *Pani Nachalne* and *Matwali* groups.

Firm size played a crucial role in wage determination for the *Tagadhari* and *Matwali* sub-samples. For example, in 2003, those belonging to the *Tagadhari* group and working in medium-sized and

Table 4. Traditional occupation by caste

		Working on traditional occupation			
		2003		2010	
Caste category	Traditional occupation by social division of labour	Obs.	%	Obs.	%
Tagadhari					
Chhetri	Armed services	8	.59	8	.72
Brahmin (Hill)	Religious professional	1	.07	1	.09
Newar	Trading	0	0	0	0
Thakuri	Armed services	8	.59	8	.72
Brahmin (Tarai)	Religious/government jobs/teachers	1	.07	1	.09
Pani Nachalne					
Muslim	Not specified/labourers				
Kami	Blacksmith/tool maker	10	.74	21	1.90
Damai	Textile/garments, sewing	30	2.21	28	2.53
Sarki	Leather work/shoe making	1	.07	1	.09
Chamar	Leather work/shoe making	0	0	0	0
Dhobi	Laundry/cleaners	8	.59	0	0
Gaine	Singer/entertainer	0	0	0	0

Notes: Sub-caste and occupation assignment based on Subedi (2010).

AQ8 large-sized firm were likely to earn a premium of respectively 34.7 per cent and 57.9 per cent compared to those working in small firms. The same measures account for 59.2 per cent and 56.2 per cent for the *Matwali* sub-sample. Firm size coefficients other than the medium firm in the *Matwali* sub-sample are similar in the latter period. These coefficients were not statistically significant in the *Pani Nachalne* sub-sample.

The results for occupational effects (with reference group = unskilled workers) show mixed significance across sub-samples. For instance, professional, clerical and skilled occupations are the main contributors to the *Tagadhari* workers' wage in 2003. Occupational categories other than professional and sales do not show any significant impact on *Matwali* worker's wages in this period. None of the occupation coefficients are found statistically significant in the *Pani Nachalne* sub-sample. In the 2010 period, professional occupation continues to have a positive impact on the *Tagadhari* worker's wage whereas professional, clerical and skilled occupations appear to have positive impact on the *Matwali* worker's wage. As in 2003, none of the occupations seem to have significant impact on wage earning by the *Pani Nachalne* workers.

Industry effects (with reference group = agriculture) are not consistent across sub-samples and reflect variability in the base category.

In the pooled regression using caste dummies in column 4, the coefficients on the dummies are negative for both castes in 2003. However, the *Matwali* coefficient is not statistically significant in this period. In contrast, both caste dummy coefficients became positive although still not significant in 2010. This shows that in order to explore caste wage differentials, the Oaxaca decomposition model is necessary.

6.3 Decomposition Results

Three different decomposition models are employed to study the sources of wage differentials. These models are hereafter referred as the occupational, firm size and interaction decomposition models. Each model consists of three components; namely (1) explained and unexplained wage differences attributable to differences in education endowments, (2) explained and unexplained wage differences attributable to differences in job characteristics (firm size and/or occupation), (3) explained and unexplained wage differences attributable to differences in other variables including the constant term.

Table 5. Regression results: 2003

	Tagadhari	*Matwali*	*Pani Nachalne*	*Dummy*
	1	2	3	4
Education	.024***(.009)	−.009(.021)	−.002(.035)	.016**(.007)
Experience	.030**(.015)	.000(.025)	−.029(.035)	.026**(.011)
Experience2	−.000(.000)	.000(.000)	.000(.000)	−.000(.000)
Married	.041(.102)	.263(.229)	.472*(.262)	.113(.088)
Lnholding	−.000(.003)	−.007(.024)	−.071(.155)	−.000(.003)
Medium firm	.347**(.203)	.592**(.248)	−.179(.410)	.366***(.138)
Large firm	.579***(.200)	.562**(.254)	.561(.433)	.601***(.139)
Eastern	.045(.225)	−.116(.259)	−.454*(.288)	−.032(.171)
Central	.247(.191)	.146(.236)	−.439(.429)	.196(.152)
Western	.188*(.203)	.779**(.319)	dropped	.299*(.167)
Mid-western	.243(.224)	.251(.249)	−.587(.627)	.208(.173)
Abroad	.194(.200)	.431*(.273)	−.197(.432)	.190(.160)
Professional	.639***(.113)	.540***(.217)	.107(.363)	.647***(.093)
Clerical	.317**(.124)	.054(.324)	.275(.445)	.389***(.109)
Service	.050(.197)	.322(.316)	−.119(.444)	.132(.157)
Sales	.005(.205)	.729***(.226)	−.542(.596)	.056(.165)
Agri-worker	.277(.455)	−.184(.301)	−.111(.576)	.356*(.205)
Skilled	.195*(.131)	.212(.187)	.225(.455)	.301***(.100)
Mining	−.180(.334)	−.173(.595)	.387(.502)	−.169(.259)
Manufacturing	.012(.331)	−.708**(.324)	.233(.534)	−.094(.212)
Construction	.156(.343)	.053(.369)	1.28***(.465)	.215(.226)
Trade	−.189(.335)	−.705**(.344)	.027(.503)	−.252(.218)
FRE	.663*(.356)	−.209(.407)	-	.594**(.255)
Servicesec	.092(.314)	−.262(.334)	−.296(.366)	−.009(.202)
Others	.195(.324)	.525(.444)	.467(.573)	.246(.211)
Matwali	-		-	−.083(.077)
Pani Nachalne	-	-	-	−.244**(.110)
Constant	1.73***(.450)	2.08***(.519)	3.00***(.811)	1.76***(.311)
R^2	.2738	.4010	.4237	.2718
Obs.	555	153	78	786

Notes: Robust standard errors in parentheses. *significant at 10 per cent, **significant at 5 per cent and ***significant at 1 per cent. Base categories: Small firm, Unskilled, Agricultural and *Tagadhari* are omitted categories for firm size, occupation, industry-type and caste dummy variables, respectively.

The results are presented in Tables 7 and 8 for 2003 and 2010 respectively. These tables present only the main results. Detailed results can be provided upon request.

The tables show that wage gaps attributable to differences in human capital endowments (that is education, explained, $\beta_t(\bar{E}_t - \bar{E}_m)$ and $\beta_t(\bar{E}_t - \bar{E}_p)$), generally considered the main source of wage gaps among workers, explains less than half of the wage differentials in 2003 but more than three-fourths in 2010. For 2003 and for the *Tagadhari – Matwali* wage differential, the occupational model shows that differences in education endowments are 0.060 out of a total wage gap of 0.299, and this corresponds to 0.096 and 0.057 for the firm size and interaction models. For the *Tagadhari – Pani Nachalne* wage differential, the occupational model shows that differences in education endowments are 0.080 out of 0.493, and this corresponds to 0.128 and 0.076 for the firm size and interaction models. In 2010, the *Tagadhari – Matwali* wage differential decreases to 0.199, and this is explained by differences in education endowments by 0.179, 0.213, 0.150 for the occupational, firm size and interaction decomposition models, respectively. Moreover, the *Tagadhari – Pani Nachalne* wage differential is 0.489 in 2010, and this is explained by differences in education endowments by 0.380, 0.454, and 0.319 for the occupational, firm size and interaction decomposition models, respectively.

AQ6

Table 6. Regression results: 2010

	Tagadhari	*Matwali*	*Pani Nachalne*	*Dummy*
	1	2	3	4
Education	.078***(.012)	.058**(.017)	.077*(.041)	.066***(.009)
Experience	.011(.012)	.072***(.020)	.028(.042)	.033***(.010)
Experience2	−.000(.000)	−.001(.000)	−.000(.000)	−.000(.000)
Married	.239**(.113)	−.125(.156)	.100(.320)	.131*(.086)
Lnholding	.000(.000)	−.000(.001)	.032(.031)	−.000(.000)
Medium firm	.305**(.146)	.304*(.205)	−.282(.831)	.265*(.137)
Large firm	.492***(.149)	.583***(.186)	.149(.863)	.487***(.137)
Eastern	.155(.150)	−.304(.326)	−.086(.685)	.025(.128)
Central	.210*(.125)	.096(.282)	.635(.658)	.245**(.109)
Western	.048(.154)	−.105(.301)	.042(.670)	.063(.123)
Mid-western	.335*(.203)	−.271(.335)	.676(.696)	.286*(.160)
Abroad	.313(.309)	−.683(.318)	.348(.799)	.086(.202)
Professional	.498***(.140)	.742***(.225)	−.142(.826)	.618***(.110)
Clerical	.150(.125)	.374*(.233)	−.546(.713)	.253**(.100)
Service	.052(.138)	.176(.223)	−.197(.474)	.156*(.107)
Sales	−.649***(.197)	−.526*(.330)	.127(.932)	−.370*(.187)
Agri-worker	.144(.134)	.322(.590)	−.806(.538)	−.073(.350)
Skilled	.017(.121)	.373**(.175)	−.404(.545)	.170*(.089)
Mining	−.729**(.349)	.131(.342)	-	−.436(.369)
Manufacturing	−.289(.317)	.573**(.276)	−.013(.832)	−.058(.345)
Construction	−.221(.344)	.939***(.294)	-	.067(.356)
Trade	.147(.326)	.899***(.323)	−.482(.972)	.232(.353)
Servicesec	−.434(.313)	.520*(.311)	−.190(.838)	−.192(.344)
FRE	−.044(.329)	.915***(.266)	-	.177(.355)
Others	−.239(.310)	.656***(.242)	−.494(.666)	−.031(.340)
Matwali	-	-	-	.043(.056)
Pani Nachalne	-	-	-	.064(.113)
Constant	2.27***(.375)	1.57***(.496)	2.69**(1.10)	2.02***(.398)
R^2	.3724	.4819	.3315	.3708
Obs.	594	179	61	834

Notes: Robust standard errors in parentheses. * significant at 10 per cent, ** significant at 5 per cent and *** significant at 1 per cent. Base categories: Small firm, Unskilled, Agricultural and *Tagadhari* are omitted categories for firm size, occupation, industry-type and caste dummy variables, respectively.

The wage gaps arising from differences in job characteristics (that is job, explained, $\delta_t(\bar{S}_t - S_m)$ and $\delta_t(\bar{S}_t - S_p)$) are statistically significant, and they show a consistent positive effect. Overall, this shows that access to jobs in better occupations and higher paying firms plays a non-trivial part in explaining the wage gaps across castes. In 2003, for the *Tagadhari – Matwali* wage differential, differences in occupation explain a gap of 0.127, differences in firm size explain 0.077 and the interaction of the two 0.180 (out of 0.299 in all cases); while for the *Tagadhari – Pani Nachalne* wage differential, each model explains 0.128, 0.063, 0.191 (out of 0.493 in all cases), respectively. In 2010, for the *Tagadhari – Matwali* wage differential, differences in occupation explain a gap of 0.041 (although not statistically significant), differences in firm size explain 0.032 and the interaction of the two 0.084 (out of 0.199 in all cases); while for the *Tagadhari – Pani Nachalne* wage differential, each model explains 0.088, 0.078, 0.227 (out of 0.489 in all cases), respectively.

Thus, the results show that job characteristics, as captured by occupation and firm size are important and the largest effect is obtained when using the interaction decomposition model in which the occupation effect is combined with firm-size.

The differences in endowments in variables other than education, occupation and firm size (that is, Others, Explained, $\gamma_t(\bar{X}_t - \bar{X}_m)$ and $\gamma_t(\bar{X}_t - \bar{X}_p)$) generally appear as statistically insignificant.

Table 7. Oaxaca decomposition results: 2003

AQ9

		Education		Job		Other	
	Total	Explained	Unexplained	Explained	Unexplained	Explained	Unexplained
				Tagadhari vs. Matwali			
Occupational	.299***	.060**	.198*	.127***	0.029	.016	−.131
	(.089)	(.023)	(.153)	(.036)	(.044)	(.027)	(.200)
Firm size	.299***	.096***	.161	.077***	.059	.041	−.135
	(.086)	(.026)	(.127)	(.025)	(.418)	(.029)	(.297)
Interaction	.299***	.057**	.265*	.180***	.201	.014	−.418
	(.089)	(.023)	(.153)	(.044)	(.259)	(.027)	(.604)
				Tagadhari vs. Pani Nachalne			
Occupational	.493***	.080**	.104	.128***	.178	.041	−.038
	(.118)	(.032)	(.196)	(.042)	(.493)	(.044)	(.378)
Firm size	.493***	.128***	.230*	.063**	.361	.114**	−.403
	(.114)	(.036)	(.152)	(.028)	(95.99)	(.045)	(.419)
Interaction	.493***	.076**	.289*	.191***	−.270	.044	.163
	(.119)	(.031)	(.191)	(.055)	(.478)	(.044)	(.864)

Notes: Standard errors in parentheses. *significant at 10 per cent, **significant at 5 per cent and ***significant at 1 per cent.

Table 8. Oaxaca decomposition results: 2010

AQ10

		Education		Job		Other	
	Total	Explained	Unexplained	Explained	Unexplained	Explained	Unexplained
				Tagadhari vs. Matwali			
Occupational	.199***	.179***	.126	.041	−.192	.009	.036
	(.071)	(.037)	(.180)	(.031)	(.108)	(.029)	(.232)
Firm size	.199***	.213***	.202	.032**	−.095	−.003	−.150
	(.070)	.040)	(.166)	(.015)	(.064)	(.030)	.334
Interaction	.199***	.150***	.131	.084*	−.780*	.002	.612
	(.071)	(.034)	(.187)	(.043)	(.501)	(.027)	(.791)
				Tagadhari vs. Pani Nachalne			
Occupational	.489***	.380***	.084	.088*	−.068	.044	−.039
	(.122)	(.071)	(.310)	(.046)	(.071)	(.055)	(.528)
Firm size	.489***	.454***	.027	.078***	.801	.092*	−.963
	(.118)	(.075)	(.246)	(.029)	(1.22)	(.055)	(.592)
Interaction	.489***	.319***	.019	.227***	−.394	.028	.290
	(.128)	(.067)	(.318)	(.064)	(.493)	(.053)	(1.25)

Notes: Standard errors in parentheses. *significant at 10 per cent, **significant at 5 per cent and ***significant at 1 per cent.

Moreover, the unexplained differences in wage gaps attributable to education (that is differences in returns to education), job characteristics (occupation and/or firm size), and other components are in general not statistically significant, although some of them are large in magnitude. Note that the latter contains industry as one component which preliminary estimates show is not relevant for the decomposition.

One important point is that the *Tagadhari – Matwali* wage differential decreased in 2010 whereas the *Tagadhari – Pani Nachalne* wage differential remained constant. The underlying reason could be that there is a slightly reduction in the gaps in human capital endowment in the former comparison

group which has been widened in the case of the latter group. The *Matwali* group has improved their access to better jobs with a relative improvement in educational attainment in the latter period. For instance, the interaction model shows that the job-explained component of the *Tagadhari – Matwali* wage differential has decreased to 0.084 in 2010 relative to 0.180 in 2003 while it has increased in the case of *Tagadhari – Pani Nachalne* wage differential. This indicates that although the government introduced a policy of affirmative action providing quotas in public sector jobs, the *Pani Nachalne* group might not have been able to take advantage of this because of a lack of minimum level of education required for public sector jobs.

6.4 Robustness: Traditional Occupation

As discussed earlier, caste wage differences attributable to occupation may be the result of adherence by caste members to traditional occupations. Prime facie evidence for this effect was discussed in Table 4, in which a low proportion was seen as working in the occupations historically assigned to their caste. To study this further, we included a dummy variable that represented a match between sub-caste and traditional occupation in the wage regression equation and in the Oaxaca decomposition model. The results are in Tables 9 and 10.

Note that as discussed in Section 4, simultaneity bias between job selection and wages was likely to affect the unexplained component but not the explained component. The decomposition results show minor changes to the numerical coefficients of the Education (Explained and Unexplained) component and to the Job Explained component, but large changes to the Job Unexplained part of the decomposition. In particular, the results are consistent with the upward bias expected for the latter (because of an expected downward bias in the occupation and firm-size coefficient in the wage equation of non-dominant castes). These however are insignificant in all cases but those of *Tagadhari – Matwali* and Interaction.

Overall this suggests that discriminated against castes do not remain working in traditionally assigned occupations, but do remain working in low-paid occupations and/or small firms and these remain important determinants of their low wages. Also note that while firm-size has a smaller effect than occupation, it shows higher statistical significance across specifications.

Table 9. Oaxaca decomposition results with traditional occupation as an additional explanatory variable: 2003

Tagadhari vs. Matwali							
		Education		Job		Other	
	Total	Explained	Unexplained	Explained	Unexplained	Explained	Unexp
Occupational	.283***	.061**	.276*	.121***	−.356	.011	.170
	(.090)	(.024)	(.151)	(.036)	(.735)	(.029)	(.135)
Firm size	.283***	.097***	.189	.072***	.080	.038	−.193
	(.049)	(.026)	(.135)	(.024)	(.724)	(.031)	(.192)
Interaction	.283***	.059**	.366**	.177***	−.565	.013	.233
	(.092)	(.023)	(.161)	(.044)	(.763)	(.029)	(.505)
Tagadhari vs. Pani Nachalne							
Occupational	.447***	.077**	.146	.117**	−.159	.014	.252
	(.120)	(.031)	(.212)	(.042)	(1.05)	(.047)	(.286)
Firm size	.447***	.125***	.215	.054**	−.576	.085*	.544
	(.117)	(.036)	(.168)	(.026)	(.978)	(.047)	(.733)
Interaction	.447***	.076**	.243	.170***	−1.45	.018	1.39
	(.123)	(.031)	(.212)	(.054)	(1.07)	(.047)	(16.18)

Notes: Standard errors in parentheses. * significant at 10 per cent, ** significant at 5 per cent and *** significant at 1 per cent.

Table 10. Oaxaca decomposition results with traditional occupation as an additional explanatory variable: 2010

Tagadhari vs. Matwali							
		Education		Job		Other	
	Total	Explained	Unexplained	Explained	Unexplained	Explained	Unexp
Occupational	.216***	.201***	.027	.041*	.413	.004	−.470
	(.061)	(.035)	(.137)	(.026)	(.470)	(.027)	(.387)
Firm size	.216***	.244***	.135	.013	.234	−.009	−.401*
	(.061)	(.037)	(.130)	(.016)	(.464)	(.029)	(.290)
Interaction	.216***	.178***	.071	.076**	.066	.007	−.182
	(.062)	(.035)	(.143)	(.033)	(.492)	(.026)	(.391)
Tagadhari vs. Pani Nachalne							
Occupational	.489***	.385***	.096	.087***	.702	.045	−.826
	(.084)	(.061)	(.159)	(.033)	(.684)	(.055)	(1.07)
Firm size	.489***	.466***	.086	.043	.395	.066	−.567**
	(.083)	(.061)	(.141)	(.035)	(.672)	(.058)	(.272)
Interaction	.489***	.340***	.078	.150***	.552	.044	−.675
	(.087)	(.062)	(.168)	(.054)	(.764)	(.055)	(.300)

Notes: Standard errors in parentheses. * significant at 10 per cent, ** significant at 5 per cent and *** significant at 1 per cent.

6.5 Robustness: Imputation of Missing Firm Size

In our preceding analysis, we had restricted ourselves to a subset of workers who had explicitly reported the firm size of their employer. This exclusion had resulted in a higher proportion of workers in the professional and clerical occupations in our sub-sample than in the overall sample. It could therefore be suspected that the estimated decomposition results may be attributable to group differences in access to white collar jobs rather than group differences in access to larger firms. We thus propose another firm size measurement that might still suffer from measurement error but that serves to evaluate the robustness of the previous results. The results for this imputation exercise appear in the Online Appendix, Tables A4–A8.

In order to test for this possible bias, we construct an extended sample by imputing firm size when explicit information is missing. In certain occupations, a large firm size was detectable from the work description reported in the survey questionnaire. These included production/operation department managers, architect, engineers, nursing/midwifery professionals, primary and secondary education teachers, other teaching professionals, business professionals, computer technicians, optical/electronic equipment operators, modern health associates, administrative personal, secretaries/clerks, library/mail clerks, cashier/tellers clerks, client information clerks, travel attendants, housekeeping and restaurant workers. The rest of workers with missing firm size are imputed as working for small firms, except for workers in agriculture and fisheries, brick/glass workers and porters. For these categories firm size could not be clearly assigned and they were excluded from the imputation exercise.

Table A4 reports the original and imputed firm size distribution. Tables A5 and A6 present the distribution of male wage workers by occupation and industry, before and after the imputation exercise.

Decomposition results for the extended sample are listed in Tables A7 and A8. If the difference in access to white collar occupations was driving the baseline results, then it is expected that the explained components of access to jobs will be smaller in the extended sample than in the baseline sample, particularly for 2003 where the proportion of white collars jobs has been significantly reduced in the extended sample. In 2003, the results for the Job-Explained component increase while the Education-Explained component is slightly reduced. For instance, in the Interaction model, the Job-Explained increases to 0.211 from 0.180 in the *Matwali* and to 0.225 from 0.191 for the *Pani Nachalne* groups. In 2010, on the contrary, the Job-Explained component decreases although the

Interaction model still continues to have the largest effect. Overall the results are qualitatively similar to those of the original sample, and thus, they confirm that access to jobs in larger firms play an important role in explaining caste discrimination.

7. Conclusions and Policy Implications

We investigated the sources of caste wage differentials in Nepal by extending the conventional Oaxaca method to include both occupational and firm size effects. The study covered two different surveys over a time span of seven years (2003 and 2010), a period of radical political change in Nepal. We find that caste wage inequality is present in the Nepalese labour market in both 2003 and 2010 and that along with differences in human capital endowments, occupational and firm size effects are important for explaining inequality. These effects are found to be especially strong when taken together. Within the components of discrimination that are related to access to better jobs our results indicate that differences in access continue to exist for reasons other than differences in human capital for both *Matwali* and *Pani Nachalne* disadvantaged groups. This suggests that either discriminatory behaviour by employers or lack of networks which might help low-caste members to access jobs in better paying firms continue to exist in Nepal.

Overall, the government's attempt to reverse historical caste discrimination, for instance by imposing quotas in public sector employment, has benefited *Matwali* workers to some extent but not *Pani Nachalne* ones.

We considered whether caste based adherence to traditional occupations could be a driving factor behind the failure of such policies but found little evidence for that, as the uptake of various castes to their traditional occupations was quite low. At the same time, low-caste workers in general continue to work in low paid occupations. This could indeed be a result of a lack of caste networks that facilitate entry into higher paid jobs, rather than active discrimination by individual employers, but as we have argued above this is itself a legacy of past discrimination so for policy purposes should be considered part of the overall discriminatory culture.

While it would be good to disentangle the remaining legacy of discrimination between currently active discrimination and that arising from a lack of networks and high transaction costs, the current data unfortunately do not permit this. However, even without disentangling these two effects it should be noted that positive policy interventions such as subsidies for the employment of low-caste members or providing them with assistance in applying to higher end firms would make employers more willing to hire them or at least less able to exclude them.

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Disclosure statement

AQ4 No potential conflict of interest was reported by the authors.

Notes

1. A similar policy was introduced by the Indian government after its independence, where the first beneficiaries were members of scheduled castes (that is 'untouchables') and scheduled tribes, who sit at the bottom of the social hierarchy. It was later extended to other backward classes. See the description in Osborne (2001) and Ito (2009).
2. In perfect competitive markets discrimination disappears with new entry of less prejudiced competitors into the market. Similarly, if group differences in ability are perceived to exist by employers but are not real, as the theory of statistical discrimination assumes, employers will update their beliefs over time (Darity & Mason, 1998).
3. We thank an anonymous referee for bringing this to our attention.
4. At the same it should be noted that for our purposes barriers to entry include both active discrimination by employers and lack of networks and social capital that might make it harder for less privileged castes to access higher paying jobs. We expand on this point at the end of Section 4.
5. Munshi and Rosenzweig (2006) also found that when boys were subject to restrictions in occupational mobility, this also led to a downward bias in their educational endowment.
6. Akerlof (1976) argues that caste discrimination involves active policing by caste members of each other, and while this may lead to an equilibrium in which each member acquiesces to their caste occupation, this is not a Pareto optimal outcome. In fact, there is another equilibrium in which all workers opt for skilled occupations.
7. The NLSS has separate questions for agriculture and non-agriculture wage employment. We only consider respondents in the non-agriculture employment. However, agriculture can also be selected as an industry in the non-agriculture wage employment questionnaire.
8. Average exchange rates between NPR and USD were 73.99 and 71.80 in 2003 and 2010, respectively (Nepal Rastra Bank).
9. Note that there is a significant change in the industry classification between 2003 and 2010 regarding the other category, which represents industry not responded or responded as other.
10. Workers from this caste do not have representation in the FRE industry in both years and FRE, mining and agricultural industries in 2010.
11. We again thank the referee for raising this point.

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Online Appendix

Variable definitions

Tagadhari	1 if an individual's ethnicity is reported as Brahmin, Chhetri, Newar and Yadav; and 0 otherwise.
Matwali	1 if an individual's ethnicity is reported as Gurung, Magar, Tharu, Tamang, Rai and Limbu; and 0 otherwise.
Pani Nachalne	1 if an individual's ethnicity is reported as Damai, Kami, Sarki and Muslim; and 0 otherwise.
lhwage	log of hourly wage (cash, in-kind, bonus, transport, and medical allowances).
Education	Years of schooling completed (the highest level completed).
Experience	Age-years of schooling-6.
Married	1 if an individual is married; and 0 otherwise.
Small firm	1 if a firm employs only one employee; and 0 otherwise.
Medium firm	1 if a firm employs 2–10 employees; and 0 otherwise.
Large firm	1 if a firm employs more than 10 employees; and 0 otherwise.
Eastern	1 if an individual works in eastern administrative region; and 0 otherwise.
Central	1 if an individual works in central administrative region; and 0 otherwise.
Western	1 if an individual works in western administrative region; and 0 otherwise.
Mid-western	1 if an individual works in mid-western administrative region; and 0 otherwise.
Far-western	1 if an individual works in far-western administrative region; and 0 otherwise.
Abroad	1 if an individual works outside Nepal; and 0 otherwise.
Unskilled	1 if an individual's occupation is not included in other categories; and 0 otherwise.
Professional	1 if an individual's occupation is reported as doctor, engineer, administrative executive, religious professional and so forth; and 0 otherwise.
Clerical	1 if an individual's occupation is reported as clerk, typist, book keeper, telephone operator, military, or other clerical; and 0 otherwise.
Service	1 if an individual's occupation is reported as travel, trekking, cooking, housekeeping, care takers, laundry workers, barbers and other service worker; and 0 otherwise
Sales	1 if an individual's occupation is reported as shop and stall sales person; 0, otherwise.
Agri-worker	1 an individual's occupation is reported as farm manager, farm worker, agricultural worker, forestry worker, fisherman, hunters and trapper; and 0 otherwise.
Skilled	1 if an individual's occupation is reported as metal processor, chemical processor, plumber, welders, jewellery workers, paper makers; and 0 otherwise.
Agricultural	1 if industry is reported as agricultural, forestry and logging and fishing; and 0 otherwise.
Mining	1 if industry is reported as coal mining, petroleum gas, metal mining and other mining; and 0 otherwise.
Manufacturing	1 if industry is reported as food and beverage, textile apparel, wood furniture paper printing, handicrafts, other metallic; and 0 otherwise.
Construction	1 if industry is reported buildings, street highways, water ports project, irrigation, electricity gas and water; and 0 otherwise.
Trade	1 if industry is reported as wholesale, retail and restaurant; and 0 otherwise.
FRE	1 if industry is reported as finance, insurance and real estate; and 0 otherwise.
Service sector	1 if industry is reported as transport, communication, recreation and cultural and international; and 0 otherwise.
Other	1 if industry is not responded or is responded as other; and 0 otherwise.

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Table A1. Descriptive statistics: 2003

Variables	Total	*Tagadhari*	*Matwali*	*Pani Nachalne*
Caste	1.00	.707(.016)	.192(.014)	.099(.010)
Lhwage	3.34(.033)	3.45(.039)	3.15(.073)	2.96(.099)
Education	7.78(.172)	8.53(.201)	6.24(.361)	5.5(.557)
Experience	20.69(.411)	20.22(.475)	21.38(.946)	22.65(1.50)
Experience^2	560.66(20.32)	534.35(22.81)	591.60(48.35)	687.62(80.33)
Married	.825(.013)	.810(.016)	.880(.026)	.820(.043)
Rural	.798(.014)	.761(.018)	.934(.020)	.794(.046)
Lnholding('00000)	7.34(.733)	8.44(.994)	6.08(1.04)	2.01(.308)
Small firm	.059(.008)	.043(.008)	.106(.025)	.077(.030)
Medium firm	.419(.017)	.383(.020)	.497(.040)	.526(.056)
Large firm	.522 (.017)	.574(.021)	.397(.039)	.397(.055)
Eastern	.121(.011)	.096(.012)	.139(.028)	.253(.049)
Central	.421(.017)	.447(.021)	.374(.039)	.333(.053)
Western	.136(.012)	.125(.014)	.189(.031)	.116(.036)
Mid-western	.070(.009)	.066(.010)	.083(.022)	.077(.030)
Far-western	.046(.007)	.047(.008)	.063(.019)	-
Abroad	.206(.014)	.219(.017)	.152(.028)	.221(.046)
Unskilled	.184(.013)	.161(.015)	.278(.036)	.167(.042)
Professional	.386(.017)	.451(.021)	.245(.035)	.192(.044)
Clerical	.122(.011)	.133(.014)	.073(.021)	.128(.038)
Service	.057(.008)	.045(.008)	.086(.022)	.090(.032)
Sales	.047(.007)	.054(.009)	.026(.013)	.038(.021)
Agri-worker	.025(.005)	.014(.004)	.046(.017)	.064(.027)
Skilled	.179(.013)	.142(.014)	.246(.035)	.321(.053)
Agriculture	.022(.005)	.019(.005)	.026(.013)	.026(.018)
Mining	.014(.004)	.013(.004)	.020(.011)	.013(.012)
Manufacturing	.193(.014)	.152(.015)	.238(.034)	.397(.055)
Construction	.034(.006)	.029(.007)	.066(.020)	.012(.012)
Trade	.093(.010)	.107(.013)	.060(.019)	.064(.027)
FRE	.034(.006)	.045(.008)	.013(.009)	-
Servicesec	.451(.017)	.471(.021)	.444(.040)	.321(.053)
Others	.159(.013)	.164(.015)	.133(.027)	.167(.042)
Obs.	785	554	153	78

Notes: Standard deviations in parentheses. '-' indicates no observations.

Table A2. Descriptive statistics: 2010

Variables	Total	*Tagadhari*	*Matwali*	*Pani Nachalne*
Caste	1.00	.713(.015)	.214(.014)	.073(.009)
Lhwage	3.89(.029)	3.96(.034)	3.76(.059)	3.47(.102)
Education	9.88(.129)	10.66(.131)	8.56(.304)	6.21(.573)
Experience	19.56(.392)	19.27(.457)	20.77(.892)	18.91(1.48)
Experience^2	510.11(17.95)	495.00(20.51)	569.31(42.33)	487.58(70.51)
Married	.792(.014)	.790(.016)	.810(.029)	.766(.055)
Rural	.731(.015)	.710(.018)	.815(.029)	.786(.052)
Lnholding('00000)	29.92(3.98)	36.80(5.15)	14.74(6.84)	6.00(1.95)
Small firm	.030(.006)	.023(.006)	.052(.016)	.067(.032)
Medium firm	.332(.016)	.290(.018)	.339(.035)	.617(.063)
Large firm	.638(.016)	.685(.019)	.609(.037)	.316(.060)
Eastern	.105(.010)	.094(.012)	.126(.025)	.133(.044)
Central	.608(.016)	.652(.019)	.551(.037)	.350(.062)
Western	.157(.012)	.148(.014)	.167(.028)	.217(.053)
Mid-western	.073(.009)	.064(.010)	.075(.019)	.150(.046)
Far-western	.038(.006)	.027(.006)	.052(.016)	.100(.008)
Abroad	.019(.004)	.013(.004)	.029(.012)	.050(.028)
Unskilled	.084(.009)	.072(.010)	.126(.025)	.083(.035)
Professional	.239(.014)	.283(.018)	.149(.027)	.067(.032)
Clerical	.191(.013)	.224(.017)	.086(.021)	.166(.048)
Service	.127(.011)	.115(.013)	.121(.024)	.267(.057)
Sales	.066(.008)	.071(.010)	.046(.015)	.083(.035)
Agri-worker	.008(.003)	.001(.001)	.023(.011)	.033(.023)
Skilled	.282(.015)	.231(.017)	.448(.037)	.300(.059)
Agriculture	.007(.002)	.008(.003)	.005(.005)	-
Mining	.008(.003)	.008(.003)	.011(.008)	-
Manufacturing	.129(.011)	.106(.012)	.149(.027)	.300(.059)
Construction	.035(.006)	.027(.006)	.052(.016)	.067(.032)
Trade	.079(.009)	.081(.011)	.051(.016)	.133(.044)
Servicesec	.193(.013)	.179(.015)	.247(.032)	.183(.050)
FRE	.065(.008)	.074(.010)	.057(.017)	-
Others	.481(.017)	.515(.020)	.425(.037)	.317(.060)
Obs.	834	594	179	61

Notes: Standard deviations in parentheses.'-' indicates no observations.

Table A3. Wages by occupation and firm size

		Year: 2003			Year: 2010	
Occupation	Small firm	Medium firm	Large firm	Small firm	Medium firm	Large firm
Unskilled	2.26(0.772)	2.90(0.941)	3.09(0.608)	3.26(.769)	3.37(0.617)	3.64(0.715)
Professional	3.08(1.50)	3.48(0.907)	3.91(0.874)	4.50(1.27)	4.50(0.936)	4.52(0.762)
Clerical	2.16(1.26)	3.14(0.628)	3.78(0.761)	-	3.86(0.846)	4.02(0.638)
Service	2.65(0.951)	3.02(1.06)	3.19(0.393)	-	3.19(0.704)	3.83(0.723)
Sales	2.59(0.260)	2.65(0.868)	3.13(.291)	3.09(0.580)	3.23(0.460)	3.66(0.640)
Agri-worker	3.06(.659)	3.14(1.03)	3.67(0.792)	3.17(2.52)	-	3.41(0.431)
Skilled	2.77(0.490)	3.14(0.897)	3.15(0.793)	3.07(0.430)	3.28(0.720)	3.96(0.650)

Notes: Standard deviations in parentheses. '-' indicates no observations.

Table A4. Firm size distribution (before and after imputation)

	Year: 2003						Year: 2010					
	Reported		Imputed		Total		Reported		Imputed		Total	
	Obs.	%	Obs.	%	Obs.	%	Obs.	%	Obs.	%	Obs.	%
Small firm	46	5.85	546	95.62	592	43.63	25	2.99	247	89.49	272	24.50
Medium firm	332	42.37	-	-	333	24.54	278	33.29	-	-	278	25.05
Large firm	407	51.78	25	4.38	432	31.83	532	63.72	28	10.14	560	50.45
Total	785	100	571	100	1357	100	834	100	276	100	1110	100

Table A5. Distribution of male wage workers by occupation and industry (before and after firm size imputation): 2003

	Reported		Imputed		Total	
Occupation	Obs.	%	Obs.	%	Obs.	%
Unskilled	145	18.45	99	17.34	244	17.98
Professional	301	38.30	16	2.80	317	23.37
Clerical	95	12.08	8	1.40	103	7.59
Service	46	5.85	28	4.90	74	5.45
Sales	37	4.71	10	1.75	47	3.46
Agri-workers	20	2.54	15	2.63	35	2.58
Skilled	141	18.07	395	69.18	537	39.57
Industry	Obs.	%	Obs.	%	Obs.	%
Agriculture	17	2.16	20	3.50	37	2.73
Mining	11	1.40	6	1.05	17	1.25
Manufacturing	152	19.34	172	30.13	324	23.88
Construction	29	3.69	299	52.37	328	24.17
Trade	71	9.03	16	2.80	87	6.41
FRE	27	3.44	4	0.70	31	2.28
Service sector	351	44.78	32	5.60	384	28.30
Other	127	16.16	22	3.85	149	10.98
Total	785	100	571	100	1357	100

Table A6. Distribution of male wage workers by occupation and industry (before and after firm size imputation): 2010

	Reported		Imputed		Total	
Occupation	Obs.	%	Obs.	%	Obs.	%
Unskilled	75	8.99	2	0.73	77	6.94
Professional	199	23.86	22	7.97	221	19.91
Clerical	156	18.71	6	2.17	162	14.59
Service	107	12.83	58	21.01	165	14.86
Sales	55	6.59	3	1.09	58	5.23
Agri-worker	6	0.72	6	2.17	12	1.08
Skilled	236	28.30	179	64.86	415	37.39
Total	834	100	276	100	110	100
Occupation	Obs.	%	Obs.	%	Obs.	%
Agricultural	7	0.84	18	6.52	25	2.24
Mining	6	0.72	3	1.09	9	0.81
Manufacturing	109	13.07	65	23.55	174	15.68
Construction	28	3.36	117	42.39	145	13.06
Trade	66	7.91	8	2.90	74	6.67
FRE	158	18.94	30	10.87	188	16.94
Service sector	55	6.59	5	1.81	60	5.41
Other	405	48.57	30	10.87	435	39.19
Total	834	100	276	100	1110	100

Table A7. Oaxaca decomposition results with imputed firm size: 2003

		Education		Job		Other	
	Total	Explained	Unexplained	Explained	Unexplained	Explained	Unexplained
				Tagadhari vs. Matwali			
Occupational	.268***	.063**	.059	.138***	.011	-.053*	.050
	(.053)	(.028)	(.066)	(.034)	(1.83)	(.035)	(.135)
Firm size	.268***	.107***	.071	.083**	.025	-.032	.014
	(.053)	(.028)	(.063)	(.035)	(.070)	(.038)	(.107)
Interaction	.268***	.044*	.073	.211***	.026	-.086**	.000
	(.053)	(.028)	(.063)	(.047)	(.145)	(.039)	(.199)
				Tagadhari vs. Pani Nachalne			
Occupational	.387***	.082**	-.000	.148***	.021	-.039	.175
	(.069)	(.036)	(.070)	(.036)	(.284)	(.042)	(.172)
Firm size	.387***	.140***	.085	.097**	-.031	.010	.086
	(.068)	(.037)	(.065)	(.042)	(.300)	(.043)	(.119)
Interaction	.387***	.057*	.042	.225***	.030	-.069*	.102
	(.070)	(.036)	(.071)	(.052)	(.037)	(.044)	(.224)

Notes: Standard errors in parentheses. * significant at 10 per cent, ** significant at 5 per cent and ***significant at 1 per cent.

Table A8. Oaxaca decomposition results with imputed firm size: 2010

		Education		Job		Other	
	Total	Explained	Unexplained	Explained	Unexplained	Explained	Unexplained
			Tagadhari vs. Matwali				
Occupational	.216***	.202***	.029	.041*	-.299	.001	.242
	(.061)	(.035)	(.137)	(.026)	(.327)	(.027)	(.225)
Firm size	.216***	.245***	.137	.013	-.101	-.011	-.067
	(.061)	(.038)	(.130)	(.016)	(.192)	(.029)	(.167)
Interaction	.216***	.179***	.073	.076**	.131	.003	-.246
	(.068)	(.035)	(.143)	(.033)	(.788)	(.026)	(.642)
			Tagadhari vs. Pani Nachalne				
Occupational	.489***	.387***	.082	.086***	-.022	.034	-.078
	(.084)	(.061)	(.162)	(.033)	(.021)	(.047)	(.443)
Firm size	.489***	.469***	.081	.043	-.063	.045	-.086
	(.082)	(.062)	(.145)	(.034)	(.110)	(.050)	(.205)
Interaction	.489***	.342***	.063	.150***	1.52	.034	-1.62
	(.086)	(.062)	(.171)	(.054)	(1.98)	(.048)	(1.13)

Notes: Standard errors in parentheses. *significant at 10 per cent, **significant at 5 per cent and ***significant at 1 per cent.