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# Working Paper Bad Karma or Discrimination? Male-Female Wage Gaps among Salaried Workers in India

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Forschungsinstitut zur Zukunft der Arbeit Institute for the Study of Labor

# Bad Karma or Discrimination? Male-Female Wage Gaps among Salaried Workers in India

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## ABSTRACT

## Bad Karma or Discrimination? Male-Female Wage Gaps among Salaried Workers in India<sup>1</sup>

We use nationally representative data from the Employment-Unemployment Surveys in 1999-2000 and 2009-10 to explore gender wage gaps among Regular Wage/Salaried (RWS) workers in India, both at the mean, as well as along the entire wage distribution to see "what happens where". The gender log wage gap at the mean is 55 percent in 1999-2000 and 49 percent in 2009-10, but this change is not statistically significant. The Blinder- Oaxaca and the Machado-Mata-Melly decompositions indicate that, in both years, the bulk of the gender wage gap is unexplained, i.e. possibly discriminatory. They also reveal that over the decade, while the wage-earning characteristics of women improved relative to men, the discriminatory component of the gender wage gap also increased. In fact, in 2009-10, if women were 'paid like men', they would have earned more than men on account of their characteristics. In both years, we see the existence of the "sticky floor", in that gender wage gaps are higher at lower ends of the wage distribution and steadily decline thereafter. Over the ten-year period, we find that the sticky floor became stickier for RWS women. Machado-Mata-Melly decompositions reveal that, in both years, women at the lower end of the wage distribution face higher discriminatory gaps compared to women at the upper end.

JEL Classification: J31, J71, O53

Keywords: gender, wage differentials, gender discrimination, India

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#### **1. Introduction**

Satya Nadella, the CEO of Microsoft, in an interview in front of a prominent group of women IT professionals, said that women needed to trust "karma" if they don't get the pay raise they want. "It's not really about asking for a raise, but knowing and having faith that the system will give you the right raise".<sup>2</sup> The statement was widely criticized, leading to a quick apology from Nadella, but it brought to the fore a fundamental question about how labour markets function, especially towards members of disadvantaged and marginalized groups. Should such individuals "have faith" and hope for their rewards to improve? If labour markets do not recognize and appropriately remunerate their worth, is it just a case of bad luck, or of labour market discrimination?

The problem is not simply one of pay raises, but more broadly one of gender parity in wages. Ironically, Nadella's statement came at a time when the White House officially recognized that the Equal Pay Act of 1963<sup>3</sup> has a long way to go before gender parity in pay is achieved. The reality that full-time working women get 77 percent of their male counterparts' earnings prompted the executive order, issued in April 2014, by US President Barack Obama to prevent workplace discrimination and empower workers to take control over negotiations regarding their pay. In addition, he signed a Presidential memorandum that requires federal contractors to submit data on employee compensation by race and gender, helping employers take proactive efforts to ensure fair pay for their workers. There are numerous other examples from other countries of gender disparity in wages. In Britain, the supermarket chain ASDA faced mass legal action from thousands of female employees who claim they are underpaid compared to their male counterparts.<sup>4</sup>

This paper analyses the issue of gender parity in wages by focusing on the evolution of malefemale wage gaps for an emerging economy. India, and decomposes the gaps to understand patterns of gender-based labour market discrimination. We use nationally representative data from the Employment-Unemployment Schedule (EUS) of two large rounds of the National Sample Survey (NSS), viz., the 55<sup>th</sup> round in 1999-2000 and the 66<sup>th</sup> round in 2009-10 to explore gender wage gaps among Regular Wage/Salaried (RWS) workers, not only at the mean, but along the entire distribution to see "what happens where", i.e., assess where in the wage distribution are gaps higher. We then decompose the gaps into an "explained component" (due to gender differences in wage earning characteristics), and the unexplained component (due to gender differences in the labour market returns to characteristics); the literature treats the latter as a proxy for labour market discrimination. We perform the standard mean decomposition (using the Blinder-Oaxaca method, BO hereafter) and quantile decompositions (using Melly's refinement of the Machado-Mata decomposition method, MMM hereafter). We then evaluate changes in each of these over the ten-year time period between the two NSS rounds. Our study presents the latest comprehensive empirical evidence on gender wage gaps and labour market discrimination in India. To the best of our knowledge, this is the first study of gender discrimination along the entire wage distribution for India; thus this adds substantial value to the larger study of the contemporary nature of gender inequality in India.<sup>5</sup>

Our main findings are as follows. In 2009-10, labour force participation rates (LFPRs) are 85 and 32 percent for men and women, respectively. Over the decade LFPRs declined for both men and women, with a greater decline for women. In a four-way division of the labour force into Self-Employed, Regular Wage/Salaried (RWS), Casual Labour and Unemployed, in 2009-10 the largest gender gaps are in the

<sup>&</sup>lt;sup>2</sup> <u>http://recode.net/2014/10/09/open-mouth-insert-foot-microsoft-ceo-tells-women-techies-to-trust-karma-on-pay-inequity/</u>, accessed on 23<sup>rd</sup> November 2014.

<sup>&</sup>lt;sup>3</sup> This requires that men and women at the same workplace get equal pay for equal work.

<sup>&</sup>lt;sup>4</sup> <u>http://asda.payjustice.co.uk/asda-campaign/</u>, and <u>http://www.theguardian.com/business/2014/oct/24/asda-mass-legal-action-equal-pay</u>, accessed on 31<sup>st</sup> October 2014;

<sup>&</sup>lt;sup>5</sup> The idea of this paper took shape when Khanna was working with Deshpande and Goel on his M.Phil. thesis that resulted in Khanna (2012), which can be regarded as a precursor to this larger study.

proportions of male and female workers in Casual Labour and in RWS, such that, in both years, the share of women in Casual Labour is greater and their share in RWS is smaller, compared to corresponding shares for men. We focus on RWS workers who constitute about 15 percent of the Indian labour force and find that gender wage gaps are significant within this category. The (raw/unconditional) gender wage gap at the mean is 55 percent and 49 percent in 1999-2000 and 2009-10, respectively, but this change is not statistically significant. Both in 1999-2000 and in 2009-10, the proportion of women in the highest education category as well as in professional occupations is higher than men. Over the tenyear period, the educational and occupational attainment of women improved relative to men, but in both years, average female wages are less than male within the same education level, within most occupations and industries, and within types of work, i.e. public or private sector, permanent or temporary, union member or not. BO decompositions indicate that the bulk of the gender wage gap at the mean is unexplained, i.e. possibly discriminatory. While average characteristics for women improved over the decade, the discriminatory component of the wage gap also increased. In fact, in 2009-10, if women were paid like men, they would have earned more than men on account of their superior characteristics.

Moving beyond the mean, for both years, male wages are higher than female wages across the entire wage distribution. The (raw/unconditional) gender wage gap at the median declined from 76 percent in 1999-2000 to 53 percent in 2009-10. In both years, the gender wage gaps are higher at lower deciles and decline thereafter. In 2009-10, the gap is highest at the first decile at 105 percent, and it declines to about 10 percent at the ninth decile. Thus, we see the existence of the "sticky floor", in that gender wage gaps are higher at lower ends of the distribution and steadily decline over the distribution. Comparing the gaps over the decade, we see that for most percentiles between the 15<sup>th</sup> to the median the gaps have declined, whereas they have mostly increased between the 70<sup>th</sup> to 80<sup>th</sup> percentiles. Using standard definitions, we find that the sticky floor became "stickier" for RWS women over the decade. Like the BO decomposition, the MMM decompositions also reveal that bulk of the gender wage gaps (at different deciles) are discriminatory. They also reveal that RWS women at the lower end of the distribution face higher discriminatory gaps in wages.

The rest of this paper is organized thus. Section 2 contains a review of the literature; Section 3 explains the decomposition technique; Section 4 describes the data and presents gender differences in characteristics; Section 5 contains the regression and decomposition results; Section 6 discusses the findings in the larger context of gender discrimination and Section 7 offers concluding comments.

#### 2. A Brief Review of the Literature

The overall literature on gender discrimination in India is vast, and covers a very broad array of disciplines and methodologies. Since our study is empirical and focused on the labour market, we refer to the relevant literature here.

#### 2.1 Measuring and Understanding Participation Rates

An important issue that precedes the discussion on women's involvement in productive work is the question of its measurement. Women's participation in economic activities is typically underreported, as women themselves internalize the under-valuation and low worth that society places on their work. Thus, in most surveys, in response to questions such as, "In addition to household work, do you work outside the home?" several women misreport or under-report their participation in productive work. Underreporting also occurs because women's participation in productive work is often unpaid (see for instance, Deshpande, 2011; Chaudhary and Verick, 2014 for a discussion of underreporting). This underreporting is likely to be lower for women working in RWS jobs, as this is paid work, and often outside the home. This is the segment of workers that we focus on in this paper.

For India, gender differences in labour force participation rates (LFPRs), with a focus on the persistently low levels of female LFPRs have been analysed extensively (e.g. Mukhopadhyay and Tendulkar 2006, Chaudhary and Verick, 2014, among others). In a comprehensive study covering the last two decades, Klasen and Pieters (2015) study the stagnation in female LFPRs in urban India between 1987 and 2009, which hovers around 18 percent over the period despite increases in education and wage levels, rising growth and fertility decline. Using five large rounds of NSS data, they try to uncover the demand and supply side factors that might account for this stagnation. They find that on the supply side, rising household incomes, husband's education, stigmas against educated women engaging in manual work; and on the demand side, insufficient growth of jobs suitable for educated women are the main factors contributing to a lack of increase in participation rates of urban Indian women. In an earlier study, (Klasen and Pieters (2012)), they suggest that drivers of labour force participation for women with low education are different from those for more educated women. For the former, they find that LFPRs are driven more by necessity than by improved opportunities. The share of women working as domestic servants, in agriculture and in manufacturing self-employment (e.g. as home-based workers in the garment industry), all of which are low-paying occupations, increased, which mostly employed women with low education. On the other hand, highly educated women are more likely to work in better paying jobs, and thus their participation is a positive function of their education, and expected wages.

Understanding LFPRs is important as there are studies linking it with economic growth, with causality running both ways. Tansel (2002) investigates the widely hypothesized U-shaped association between economic growth and LFPRs, and finds it to be valid in the context of Turkey. Note, however, that the evidence for the U-shaped relationship is widely debated, and in fact, individual countries display a great deal of heterogeneity in the relationship between economic growth and LFPRs. For India, there is no evidence of the U-shape relationship yet (Chaudhary and Verick, 2014). Esteve-Volart (2004), using panel data across Indian states, finds that a reduction in gender discrimination in the labour market, which would increase their participation in productive work, would have a positive impact on growth. In a cross-country cross-sectional comparison of 63 countries, Bhalotra and Umana-Aponte (2010) analyse the links between fluctuations in female labour supply and income volatility. Their discussion of other evidence for India suggests that women's labour supply is counter-cyclical, i.e. they increase their participation in labour market during recessions and lower it during booms.

#### 2.2a Understanding Gender Wage Gaps

In addition to clear and persistent differences in labour force participation rates, there are equally sharp gender wage gaps; a global pattern to which India is not an exception. In a study of agricultural wages between 1970-71 and 1980-85, Jose (1988) documented gender disparities in agricultural wages across all states of India. This is not surprising as agricultural tasks are gender segregated, in that men do the more remunerative tasks such as ploughing and post-harvesting operations, whereas lower paid tasks such as sowing, transplanting and weeding are done predominantly by women. He found substantial inter-state variation in gender gaps, and a tendency for wage gaps to narrow over the period of his study.

Mahajan and Ramaswami (2015) investigate the apparent paradox that gender wage gaps in agricultural wages are higher in south India, a region with more favorable indicators for women, compared to north India. They investigate whether this could be due to Esther Boserup's proposition, viz., that higher gender gaps in the south are due to higher female LFPRs in that region (Boserup, 1970). They find that differences in female labour supply are able to explain about 55 percent of the gender wage gap between the northern and southern states of India. Their paper highlights the importance of looking at LFPR as a determinant of gender wage gaps. However, this analysis would require a separate paper. Therefore, we take the LFPRs as given, and conditional on participation analyse gender wage gaps.

Formal sector, urban labour markets, presumably more meritocratic, are not immune to gender wage differences either. Deshpande and Deshpande (1997) is an early overview study that compares summary statistics drawn from NSS reports for the 38<sup>th</sup> (1983) and 50<sup>th</sup> rounds (1993-94) for the city of Mumbai and the rest of urban India. It documents gender gaps in work force participation rates, unemployment rates, occupational status and wages by broad education levels. While the authors term this gender discrimination, these indicators may be seen, at best, as proxies for discrimination, as the exact extent of discriminatory losses would have to be estimated, as outlined in Section 3.

Varkkey and Korde (2013) document gender pay gaps in the formal sector for India. They use paycheck data between 2006 and 2013 for 21,552 respondents, of which 84 percent were males. This data is based on a *voluntary* internet survey, hence, the sample is not representative. Their sample shows a gender gap (calculated over median wages) of approximately 25 percent in 2013, which had been declining over the period of their study. They find that the gender pay gap increased with age and also with education. They also find that the pay gap increased with skill level and position in the occupational hierarchy.<sup>6</sup>

Duraisamy and Duraisamy (2005) use least squares as well as quantile regressions on data from the 50<sup>th</sup> round NSS EUS for 1993-94 to examine gender differences in wage premia associated with various educational categories across states. They find that at the national level, returns to education rise up to the secondary education level, and decline thereafter. They also find that for all educational categories except primary, wage premia accruing to women with middle, secondary and higher secondary education is higher than for men, with returns to secondary education being twice that for men. Quantile regressions reveal that returns to primary, middle and secondary education increase at the higher quantiles, except at the top decile, again by larger amounts for women. Their results are not directly comparable to ours for several reasons. One, their data pertains to 1993-94 and they combine RWS with casual workers. Also, they work with seven categories of education, while we work with only five. Finally, they calculate wage premia for every year of schooling by dividing the differences in the parameter estimates of successive levels of education by the number of years it takes to get the degree while we capture the returns to completing a particular level of education (relative to remaining illiterate).

#### 2.2b Decomposing Average Gender Wage Gaps

Not all of the raw gender wage gap might be due to discrimination in the labour market. The decomposition of wage/earnings gaps into the "explained" and the "unexplained" components has been widely used in order to tease out the effect of discrimination. In India, the BO decomposition method (Blinder 1973 and Oaxaca 1973) has been used to decompose average wage and earnings gaps by caste (Banerjee and Knight 1985; Madheswaran and Attewell 2007; Deshpande and Ramachandran, 2014, Deshpande and Sharma 2015, among others) and religion (Bhaumik and Chakrabarty 2009).

There are a only a handful of studies that decompose average gender wage gaps in India; with only a couple of studies examining gender gaps at the all India level, and changes therein over time. Studies focusing on a few states include Duraisamy and Duraisamy (1999), who compare gender wage gaps for the year 1981 in one of the highly educated segments of the labour market, viz., scientific and technical labour market between two south Indian states, Kerala and Tamil Nadu. Decomposing average wages, they find that 55-60 percent of the wage gap is explained, with the rest due to discriminatory losses. They find higher gender discrimination in Kerala than in Tamil Nadu.

<sup>&</sup>lt;sup>6</sup> These findings are at variance with our findings of a sticky floor. This is perhaps because their sample is not representative and is restricted to internet users. Also their educational categories are not comparable to ours.

Kingdon and Unni (2001) analyse the 43<sup>rd</sup> round unit level NSS data for 1987 from two states, Madhya Pradesh and Tamil Nadu, in order to assess the contribution of education to work force participation, as well as the relative contribution of education to wages and to labour market discrimination. Their study confirms the U-shaped relationship between schooling and work force participation for females, and they find that only schooling beyond the middle school level increases female work force participation. They also find that women's returns to education are significantly higher than men's. They find substantial labour market discrimination against women, but that education does not contribute to this discrimination: the wage-disadvantage effect of women's lower educational attainment is almost entirely offset by the advantage of women earning higher rates of return on their educational attainment.

Madheswaran and Khasnobis (2007) use all-India data from three rounds of the EUS, the 38<sup>th</sup> (1983), the 50<sup>th</sup> (1993-94) and the 55<sup>th</sup> (1999-2000) and use the standard BO methodology, as well as its various refinements. They find that the raw average wage differential between men and women declined over time, in both the regular and casual labour markets. Decomposing the gender wage differential for regular workers, their BO estimates with male counterfactuals indicate that the decline in endowment (i.e. characteristics) gap largely contributed to the decline in the raw wage differentials over 1983 and 1999-2000, and the ratio of the discrimination component to raw wage gap increased. For the casual labour market they find the opposite trend, an increase in the endowment gap, and a decline in the discrimination component. Their study points to the importance of studying RWS and casual workers separately.

Mukherjee and Majumder (2011) use data from the 50<sup>th</sup> (1993-94), 55<sup>th</sup> (1999-2000) and 61<sup>st</sup> (2004-05) rounds of NSS for all non-farm workers and examine "earning disparity" using the Theil Index, "occupation disparity" using the segregation index, "occupation choice" using a multinomial logit model, and Mincerian wage equations, with decompositions for the latter two. They compare these indicators for rural versus urban, male versus female, regular versus casual, high versus low income workers. On gender gaps, their findings are that overall gender gaps in wages, as well as the discriminatory component, have increased over the period of their study.

Both Madheswaran and Khasnobis (2007) and Mukherjee and Majumder (2011) differ from our paper in terms of the time period, or in types of workers considered, but both point to an increase in the discriminatory component of the average gender wage gap, a finding similar to ours.

#### 2.2c Beyond the Average Wage Gaps: What happens Where?

We use Melly's refinement of the Machado-Mata (MM) methodology,<sup>7</sup> described in Section 3, in order to decompose the gender wage gaps at each quantile of the earnings distribution. This methodology, based on quantile regressions, has been used with Indian data, although not to study gender wage gaps. Azam (2012), applies the Machado-Mata methodology to study the changing urban wage structure in India from 1983-2004, while Azam and Prakash (2015), apply the MM methodology to study the public-private wage differentials in India in 2004-05.

Studies that decompose gender wage gaps along the entire wage distribution raise an important issue within the gender discrimination literature: do women face a "glass ceiling" or a "sticky floor"? For instance, papers (such Albrecht et al, 2003; De la Rica et al, 2008; Arulampalam et al, 2007) show that in several developed European countries, women face a glass ceiling, i.e. the gender wage gap is higher at the higher quantiles, with a sharp acceleration at the upper tail of the distribution. However,

<sup>&</sup>lt;sup>7</sup> MM is only one of the methodologies for decomposition of gaps along the entire distribution. Hnatkovska et al. (2012) use an alternative methodology, viz., reweighted influence function, or RIF regressions (Firpo et al. 2009), and decompositions based on these to study wage differentials between castes over the period 1983-2005 using four rounds of NSS data.

developing countries such as China (Chi and Li 2008), along with Spain and Italy, are characterized by a "sticky floor", a term used to describe the phenomenon of higher wage gaps at the lower end of the wage distribution. These terms are used to describe both the raw wage gaps, as well as the unexplained or discriminatory part of the gap in general discussions. Arulampalam et al (2007) define a "glass ceiling" as existing if the 90<sup>th</sup> percentile wage gap is higher than the wage gap at all other parts of the wage distribution by at least two percentage points. Similarly, they define a "sticky floor" as existing if the wage gap at the 10<sup>th</sup> percentile is higher than that at the 25<sup>th</sup> percentile by at least two percentage points. An alternate weaker definition would be to maintain the 2 percentage points criterion, but compare the 10<sup>th</sup> and the 50<sup>th</sup> percentile instead. These definitions have become fairly popular in the literature and are used in several papers as a rough rule to establish the presence of a sticky floor. We show evidence using both these definition and demonstrate that women in the regular salaried sector in India face a sticky floor, not a glass ceiling.

#### 3. Methodology

Quantile Regression Decomposition methods are a generalization of the BO mean decomposition to decomposing quantile gaps for the two groups. There are several such methods and we use Melly's refinement of the Machado Mata (MM) methodology (Machado and Mata 2005).

#### 3.1 Melly-Machado-Mata Method

The MM decomposition estimates the entire distribution using conditional quantile regressions. The four steps of the MM procedure to generate a counterfactual log wage distribution are:

- 1) Generate a random sample of size n from a uniform distribution  $U[0,1]: u_1, u_2, \dots, u_n$
- 2) For men and women separately, estimate n QRs using the draw values as the quantile value at which to estimate the QRs. Thus, we get two sets of vectors,  $\{\hat{\beta}_{u_j}^m\}_{j=1}^n$  and  $\{\hat{\beta}_{u_j}^f\}_{j=1}^n$ , n for men and n for women.
- 3) Draw a random sample of size n, with replacement, from the covariate distribution of men and women separately. Denote these two sets of n vectors by  $\{\tilde{X}_j^m\}_{i=1}^n$  and  $\{\tilde{X}_j^f\}_{i=1}^n$
- 4) Finally, two counterfactual distributions are estimated as  $\{Y_i^{cf} = \tilde{X}_i^m \hat{\beta}_{u_i}^f\}$  or as  $\{Y_i^{cm} =$

$$\widetilde{X}_{j}^{f} \widehat{\beta}_{u_{j}}^{m}$$
, for  $j = 1, 2 \dots, n$ .

The first counterfactual distribution represents the distribution of log wages of men if they are paid according to the female wage structure, while the second counterfactual represents the distribution of log wages of women if they were to be "paid like men".

At the  $\theta^{\text{th}}$  quantile, the difference between the estimated unconditional quantile of log wage for men,  $\widehat{Q^m}(\theta)$ , and the estimated unconditional quantile of log wage for women,  $\widehat{Q^w}(\theta)$ , can be decomposed in two alternate ways,

$$\widehat{Q^{m}}(\theta) - \widehat{Q^{f}}(\theta) = \underbrace{\left[\widehat{Q^{m}}(\theta) - \widehat{Q^{cf}}(\theta)\right]}_{Effects of Coefficients} + \underbrace{\left[\widehat{Q^{cf}}(\theta) - \widehat{Q^{f}}(\theta)\right]}_{Effects of Characteristics}$$
(1)

$$\widehat{Q^{m}}(\theta) - \widehat{Q^{f}}(\theta) = \underbrace{\left[\widehat{Q^{m}}(\theta) - \widehat{Q^{cm}}(\theta)\right]}_{Effects \ of \ Characteristics} + \underbrace{\left[\widehat{Q^{cm}}(\theta) - \widehat{Q^{f}}(\theta)\right]}_{Effects \ of \ Coefficients}$$
(2)

where  $\hat{Q^{cw}}(\theta)$  is the estimated counterfactual unconditional quantile of log wage for men created using the coefficients of women and  $\hat{Q^{cm}}(\theta)$  is the estimated counterfactual unconditional quantile of log wage for women created using the coefficients of men.

Melly (2006)'s procedure is numerically equivalent to the MM procedure described above. Unlike the MM procedure that relies on a random draw of n vectors from the distribution of covariates, the MMM uses all observations on covariates and combines with each observation the n quantile regression coefficients to generate the unconditional (marginal) distribution of log wages. Estimating the unconditional distribution this way has the advantage of using all the information contained in the regressors. This makes the MMM estimator more efficient than the MM estimator.

#### 4. Data and Descriptive Statistics

We use data from the 55<sup>th</sup> and 66<sup>th</sup> rounds of NSS-EUS for the years 1999-2000 and 2009-10 respectively. The EUS provides wage information for both casual labourers (CL) and regular wage/ salaried (RWS) workers. NSS defines RWS workers as those who worked in others' farm or non-farm enterprises and received salary or wages on a regular basis (as opposed to the daily or periodic renewal of work contracts). We focus on RWS workers because for the most part, they are in formal sector jobs that are presumed to be meritocratic, as well as governed by regulations that do not sanction discrimination. It is therefore more interesting (and troubling) if we find evidence of labour market discrimination among RWS workers. Furthermore, the link between characteristics such as education and wages is likely to be tenuous for CL, given that CL are mainly employed in unskilled manual work. Thus, wage decompositions for RWS workers are likely to give a more accurate picture of discrimination.

#### Working Sample

Our sample consists of full-time RWS workers between the ages 15 and 59.<sup>8</sup> We calculate daily wage rates by dividing the total weekly earnings by the total days worked in that week.<sup>9</sup> Nominal wage rates are converted into real terms (1999-2000 prices) using separate state level deflators for urban and rural areas.<sup>10</sup> Finally, we trim the sample at the two ends, removing the top and bottom 0.05 percent of the wage distribution in order to remove outliers and possible data entry errors. We are left with 34,131 observations for 1999-2000 and 33,676 observations for 2009-10.

#### 4.1 Labour Force Participation

From Table 1 we see that in 2009-10, LFPRs are 85 and 32 percent for men and women, respectively. Between 1999-2000 and 2009-10, LFPRs for both men and women have declined, with a

<sup>&</sup>lt;sup>8</sup> To be sure that we captured only RWS workers, we only considered those individuals who reported RWS to be their principal activity in the week preceding the survey.

<sup>&</sup>lt;sup>9</sup> EUS allows an individual to report multiple jobs during a week. However, overwhelming majority of RWS workers (above 98 percent in both years) report being involved in only one activity. We restrict our analysis to these workers and calculate the wage rate using this single activity that they are involved in.

<sup>&</sup>lt;sup>10</sup> For urban areas we use the Consumer Price Index for Industrial Workers (CPI-IW) and for rural areas we use the Consumer Price Index for Agricultural Labor (CPI-AL).

larger decline in female LFPRs.<sup>11</sup> The latter continue to be low by international standards,<sup>12</sup> and this persistence of low female LFPRs in the context of high growth and a diversification of employment avenues is both a theoretical and empirical puzzle, the analysis of which is beyond the scope of this paper.

Table 2 gives the breakup of labour force into four mutually exclusive work categories. In both years, women in the labour force are roughly equally divided between being casual labourers and self-employed, with these two categories comprising a little under 90 percent. In both years, a larger share of women work as casual labourers compared to corresponding shares for men, and a smaller share work as RWS workers. The change over the decade shows that the RWS share among men has declined (from 18.3 to 16.4 percent), whereas there has been a slight increase for women (from 9.4 to 10.1 percent), resulting in a decline in the gender difference in RWS shares over the decade.

#### 4.2 Regular Wage Salaried (RWS) Employment

As seen in Table 2, RWS workers constitute about 15 percent of the labour force. Among all RWS workers, Table 3 shows that over the ten-year period, there has been a small, albeit statistically significant, increase in the proportion of women (from 15.5 to 17.4 percent), and a corresponding decrease in the proportion of men (from 84.5 to 82.6 percent). However, men continue to get the overwhelming share of RWS jobs.

Table 3 also shows that the gender wage gap among RWS workers is substantial in both years. The (raw/unconditional) gender wage gap at the mean is 55 percent in 1999-2000 and it is 49 percent in 2009-10.<sup>13</sup> This change over the decade is not statistically significant. In both years, the gap is substantially higher at the first decile compared to the median and the ninth decile, even though there is a significant decline in the gender wage gap at the median from 76 to 53 percent.

Figure 1 shows the CDFs of male and female real log wage rates for the two years 1999-2000 and 2009-10. The female CDF lies to the left of the male CDF for both years, indicating that at all points in the wage distribution, male wages are higher than female wages.

Figure 2 shows the gender wage gaps for both years at the mean and across percentiles. Looking at the gaps across percentiles, we see that in both years, the gaps are higher at lower end of the wage distribution and decline, with some fluctuation, across the distribution, revealing the "sticky floor" phenomenon for RWS women in India. For most percentiles between the 15<sup>th</sup> to the median, the gaps have declined over the ten-year period, whereas they have mostly increased between the 70<sup>th</sup> to 80<sup>th</sup> percentiles. For 2009-10 the unconditional log wage gap at the 10<sup>th</sup> percentile is 0.72, whereas the gap at the 25<sup>th</sup> percentile is 0.52. This is a 20 percentage point difference, far greater than the 2 percentage point difference usually referred to. The percentage point difference between log wage gaps at the 10<sup>th</sup> percentile and the 50<sup>th</sup> percentile is even greater (29 percentage points). For 1999-2000, the gender gap is the same for the 10<sup>th</sup> and the 25<sup>th</sup> percentile (0.69). However, the gap between the 10<sup>th</sup> and 50<sup>th</sup> percentile is of 13 percentage points. Hence, even in 1999-2000, gender gaps were characterized by a

Throughout the paper, the gender wage gap at the mean expressed in percentage refers to  $\frac{GM_{men}-GM_{women}}{GM_{women}} * 100.$ 

<sup>&</sup>lt;sup>11</sup> We have tested for the statistical significance of all results in this section. We use a test of difference in proportions when comparing within year gender differences in shares, and an OLS wage equation with a gender dummy when looking at within year gender wage gaps. Additionally, we use a Difference-in-Differences specification (interaction of gender and year dummies) when examining whether the changes over the decade were significantly different for men and women.

<sup>&</sup>lt;sup>12</sup> Globally, female LFPRs have remained stable over 1990-2010 at roughly 52 percent. This average conceals a great deal of regional heterogeneity: Female LFPRs vary between around 33 percent in North Africa, West and South Asia; and 66 percent in East Asia and sub-Saharan Africa. Global male LFPRs have declined over this period from 81 to 77 percent, reflecting an increase in educational enrolment rate among younger men (ILO, 2014)

<sup>&</sup>lt;sup>13</sup> Gender wage gap at the mean is defined as the difference between the arithmetic means of logarithm of wages of men and women and is mathematically equivalent to  $\log\left(\frac{GM_{men}}{GM_{women}}\right)$  where GM refers to the geometric mean for that group.

sticky floor using the alternate weaker definition. Therefore, the sticky floor has become "stickier" for RWS women over this ten year period.

#### **4.3 Gender Differences in Characteristics**

There are several factors that account for these gender wage gaps within RWS workers. One reason could be that men and women could differ in terms of their observable characteristics such as age; sector of residence (urban versus rural); educational attainment; occupation and industry of employment; type of job such as public sector versus private sector, temporary versus permanent, unionized versus non-unionised; their social groups such as caste and religion; and their region of residence (geographical location within the country). We examine each of these factors below.

#### a) Age

Women often drop out of jobs during childbearing years and resume after a few years, so they might have lower experience than men of the same age who would have been working continuously. Even though age is an imperfect proxy for experience in the labour market, in the absence of direct data on experience, it is used as such. In 2009-10, the average age for all RWS workers is 35.6 years. Table 4 shows that in both years, men are older than women by about a year. This may explain some of the gender wage gap if there are positive returns to experience.

#### b) Urbanisation

From Table 5 we see that in both years, there is no significant difference in the degree of urbanisation between men and women. Men earn higher wages than women within each sector. Notably, the gender wage gap in the rural sector is higher than in urban.

#### c) Educational Attainment

Table 6 shows clear gender differences in educational attainment among RWS workers. The proportion of illiterates and the proportion of "graduates and above" is higher among women than that among men for both years. In 2009-10, 43 percent of female RWS workers had at least a graduate degree, compared to only 34 percent for males. Not only is the share of women in the highest educational category greater than that of men, it records a larger increase over the decade (16 percentage points for women) compared to men (11 percentage points for men). The decline in the share of illiterates is also greater for women (7.5 percentage points) compared to men (3.4 percentage points). Thus, over the decade, the educational attainment of women has improved relative to men.

Table 6 also shows that, for both years, gender wage gaps exist within each category of education. Similar to the sticky floor phenomenon for overall gender wage gaps, the gender wage gaps are much higher at the lower end than at the higher end of the educational spectrum. Gender wage gaps did not change significantly over the decade for any of the education categories except for secondary and higher secondary education. For this category, the gap increased from 38 to 63 percent over the period.

## d) Occupational Distribution

In Table 7, we see clear gender differences in occupational distribution in both years. <sup>14</sup> Professionals and Associate Professionals (representing the higher end of the earning spectrum) form

<sup>&</sup>lt;sup>14</sup> Workers are divided into seven occupational categories that correspond roughly to the NCO 2004 one-digit occupational classification used in 2009-10. Two different occupation classification systems have been used for the 55<sup>th</sup> and 66<sup>th</sup> rounds of the NSS: these are NCO 1968 and NCO 2004, respectively. We created our own concordance to arrive at the seven broad

the largest occupational category for women in both years, employing close to 45 percent of all RWS women. The share of women who are 'Professionals and Associate Professionals' is over 17 and 22 percentage points more than the corresponding share for men in 1999-2000 and 2009-10 respectively, representing an improvement in the occupational attainment of women relative to men. This is consistent with the greater educational attainment of women over the decade, as noted earlier. In the category of Craftsmen and Machine Operators, the male proportion is 17 and 23 percentage points more than the corresponding female proportion in 1990-2000 and 2009-10, respectively.

Comparing male-female wages within occupations, there exists a gender wage gap in almost all categories of occupation<sup>15</sup>. At the lower end of the occupational spectrum, viz., Labourers and Unskilled Workers, wage differentials increased from 62 to 93 percent, while for Craftsmen and Machine Operators the gap decreased from 140 to 93 percent over the period.<sup>16</sup>

#### e) Industrial Distribution

Examining the gender differences using a seven-fold division of industries in Table 8, we find that for both years, the proportions of men are significantly different from women in all industries. In 2009-10, the share of women in 'Other Services' is 39 percentage points higher than the corresponding share for men, while their share in Manufacturing and Construction, and in Utilities, is 15 and 11 percentage points, respectively, lower than that of men. Over the decade, the gender concentrations in Manufacturing and Construction, and in Other Services, intensified even more.

In both years, other than for Utilities, and for Finance and Real Estate, the average female wage is lower than the corresponding male wage. For Utilities and for Finance and Real Estate, the gender wage gap is not significant. The gender wage gap in the Manufacturing and Construction declined over the ten year period. For all other industries gender wage gaps did not change significantly over the ten year period.

## f) Public/ Private Sector, Union Membership, and Permanent/Temporary Jobs

Table 9 shows that the proportion of all RWS workers in the public sector has gone down over the decade from 37 to 34 percent. In both years, a higher share of RWS women are in public sector jobs compared to RWS men. Over the ten year period, there has been a greater privatization of jobs for RWS men compared to women such that the share of private sector jobs among RWS men rose from about 64 percent in 1999-2000 to 68 percent in 2009-10, whereas for women the change was minimal. In both years, within each sector, women are, on average, paid less than men. Notably, whereas the gender wage gap increased in the public sector (from 43 percent in 1999-2000 to 69 in 2009-10) it decreased in the private sector (from 68 percent in 1999-2000 to 52 in 2009-10).

Among RWS workers, the proportion of union members has declined by 13 percentage points over the decade reflecting global trends. However, over both rounds, the share of unionized men and women is not different from each other, which is an interesting feature of the Indian labour market. In both years, average wages of women within both members and non-members are significantly less than that for men. The gender wage gap declined significantly for union members over the decade.

occupational categories used in this paper. We broadly followed the concordance that can be found at: <a href="http://econdse.org/deepti-miscellaneous/">http://econdse.org/deepti-miscellaneous/</a>

However, as we lost 10 percent of observations in the 55<sup>th</sup> round if we followed this concordance, we improved the concordance further by reclassifying some lower level categories.

<sup>&</sup>lt;sup>15</sup> Except for 'Administrators and Managers' in both years and for 'Skilled Agriculture and Fishery workers', and 'Clerks and Related workers' in 1999-2000.

<sup>&</sup>lt;sup>16</sup> Although the gender wage gap for Skilled Agriculture and Fishery workers also increased over the decade, we do not comment on this because any errors due to occupational concordance may be exaggerated due to small proportion of workers in this occupational category.

A similar analysis of permanent or temporary work status reveals that overall, the share of permanent workers has gone down over the decade from roughly 73 to 68 percent. The share of permanent workers is no different between men and women. Women are paid less than men within both the permanent and temporary categories. It is also interesting to note that the gender wage gaps declined significantly among temporary workers, but not among permanent workers.

#### g) Caste and Religion

Indian society is marked by multiple cleavages, caste being another critical axis of differentiation and disadvantage. The overlap of gender and caste introduces a new complex dimension in overall disparities, in that restrictions on women's work outside the home, and on their public visibility have historically been greater among higher-ranked castes.

While a detailed assessment of the gender-caste overlap is outside the scope of this paper, <sup>17</sup> we discuss some salient factors in the context of RWS employees. Data on caste are available by broad administrative categories: Scheduled Castes (SC), Scheduled Tribes (ST) and Other Backward Classes (OBC) --- groups of castes, tribes and communities identified as beneficiaries of affirmative action due to accumulated disadvantage, and in the case of SCs and STs added stigmatization on account of their caste/tribe status. Those who are not eligible form a heterogeneous residual category of "Others" (everyone else), a rough proxy for Upper Castes (UC).<sup>18</sup>

From Table 10, we note that the proportion of UC RWS workers has decreased from 50.3 to 42.8. This decrease is mirrored in the rise in the proportion of OBC workers from 29.4 to 35.3 and in SC workers from 14.9 to 16.9 percent. In 1999-2000, UC form a smaller proportion among women than they do among men, while in 2009-10, SC form a larger proportion among women than among men.

There are gender wage gaps within all caste categories. There is a significant decrease in the gender wage gap for OBCs over the decade. For other caste categories, gender wage gaps did not change significantly over time. SC women are likely to be concentrated at the lower end of the wage distribution and could possibly account for a large part of the sticky floor.

Turning to the religious distribution of RWS workers (Table 11), Hindus form the largest proportion of RWS, reflecting their share in the population. In both years, the share of Muslims among RWS men is greater than their share among RWS women, while the opposite is true for Christians. Gender wage gaps for Hindus, Muslims and Christians are significant for both years.<sup>19</sup>

#### h) Regional differences

We examine differences by regions (groups of states) as well as by state. In this section, we present major differences by regions (Table 12). Tables for each individual state are in Appendix A and are discussed in Section 6.

In 2009-10, shares of northern states of Chandigarh, Delhi, Haryana, Punjab and Uttar Pradesh among RWS women are lower than the corresponding shares of these states among RWS men. Eastern states of Bihar, Chhattisgarh, and Jharkhand also show lower shares among women. On the other hand,

<sup>&</sup>lt;sup>17</sup> See Deshpande (2007) and (2011) for a discussion of the gender-caste overlap.

<sup>&</sup>lt;sup>18</sup> The "Others" group includes, but is not confined to, the Hindu upper-castes; however, it can be taken as a rough proxy for the latter. NSS data does not allow us to isolate Hindu upper castes. Note that this four-way division understates the gaps between the Hindu upper castes and the most marginalized SCs and STs.

<sup>&</sup>lt;sup>19</sup> Gender gaps for Other religions increased significantly over the decade. However, we prefer to not read much into this because of their heterogeneous composition and small shares in the population of RWS workers.

shares from southern states of Pondicherry, Tamil Nadu, Karnataka and Kerala are higher among women than among men.  $^{\rm 20}$ 

In both years, except for a few regions, there are significant gender wage gaps. In 2009-10 we see highest gender wage gaps (all above 75 percent) in the north-eastern states, Orissa, West Bengal, Bihar, Jharkhand, Chhattisgarh and Andhra Pradesh, (these being parts of the country under the grips of serious insurgency and conflict; Madhya Pradesh is also a conflict zone but the gender wage gap is insignificant here). The only region in which we see a significant change in gender gaps over the decade is in the Chandigarh, Delhi, Haryana and Punjab region, where wage gaps were insignificant in 1999-2000, but increased significantly by 2009-10.

#### 5. Results

The discussion on gender wage gaps in Section 4 was based on raw/unconditional wage gaps calculated within categories of a single factor such as education or occupation, but without controlling for other factors at the same time. In this section, we first present the estimates for the gender wage gap at the mean (using OLS) and at several quantiles (using quantile regressions), conditioning for several observable characteristics at the same time. Gender wage gap estimates based on two different regression specifications, namely partial and full, are presented. In the partial specification, log wages are regressed on only exogenous variables, namely, age, age squared, caste dummies, married, education dummies, urban residence and regions; while in the full specification, additional controls for public sector, union membership, permanent job, occupation and industry are also included. Thus, while the partial specification includes only those characteristics that are determined before entering the labour market and are therefore exogenous characteristics that may themselves have been influenced by discriminatory practices. Later in this section, we present the decomposition of the gender wage gaps using BO and MMM techniques.

#### **5.1 OLS Results**

Table 13 shows the OLS results for the pooled sample, and separately for only men and only women. The regression on the pooled sample includes a male dummy which is the main variable of interest. It captures the gender wage gap conditional on observable characteristics while assuming that the returns to these characteristics are the same for men and women. The top panel of Table 13 shows that, in both years, gender wage gaps exist even after accounting for differences in characteristics. For the partial specifications, in 1999-2000 the gender wage gap at the mean is 39 percent, and in 2009-10 it is 46 percent.

Interestingly, when we move from the partial to the full specification, and additionally control for job characteristics in the latter, the gender gaps *increase* to 45 percent and 54 percent, respectively. This suggests that RWS women have better job characteristics compared to men in terms of the types of jobs, and the occupation and industry of employment.<sup>21</sup>

Separate regressions for men and women reveal that the labour market rewards the same characteristics very differently for men and women. The full specification for 2009-10 shows that the coefficients of all the education variables are larger for women than for men, indicating that being educated has higher returns for women than men. Also, union membership has a stronger positive effect on female wages than male wages.

<sup>&</sup>lt;sup>20</sup> Mahajan and Ramaswami (2015) discuss high female LFPRs in the south as a determinant of wage gaps

<sup>&</sup>lt;sup>21</sup> This was also reflected in the larger share of RWS women in professional occupations (Table 7).

#### 5.2 Estimates from Quantile Regressions

For 2009-10, Tables 14A and 14B present the gender wage gaps and returns to characteristics at the first, third, fifth (median), seventh and ninth deciles for the partial and full specifications, respectively.<sup>22</sup> The first panel using the pooled sample shows that gender wage gaps exists at all quantiles, even after conditioning for observable characteristics. Notably, moving from lower to higher quantiles, the gender wage gaps decrease in both specifications. In table 14B, the results for the full specification show a gender wage of 87.8 percent at the first decile, which decreases to 39.8 at the ninth decile. Thus, the phenomenon of a sticky floor for RWS women exists even after accounting for observable characteristics.

Interestingly, comparing gender wage gaps in Tables 14A and 14B, we find that the gaps at the upper deciles (seventh and ninth) increase as we move from the partial to the full specification. This suggests that RWS women at the higher ends of the conditional distribution are in better jobs in terms of the type of job, occupation and industry. The corresponding tables for 1999-2000 are presented in Appendix B. Similar patterns are observed for 1999-2000 as well.<sup>23</sup>

Finally, separate regressions for men and women reveal that the returns to characteristics are different for men and women. For example, relative to being illiterate, the returns to the highest category of education, i.e. graduate and above, seem to be higher for women than for men. Similarly, the returns to being married are also different for men and women. For women, we notice that the return to being married is positive and significant at the bottom of the distribution, but is negative and significant for the top three deciles. For men, the return is positive and significant at all deciles, and declines at higher deciles.

#### **5.3 Decomposition Results**

The OLS and quantile regressions on the pooled sample assume that the returns to characteristics are the same for men and women. The BO and MMM decomposition methods allow for returns to characteristics to vary between men and women. In this section we present the decomposition results using these methods.

#### 5.3a. Blinder-Oaxaca Decomposition

We decompose the gender wage gap at the mean using three counterfactual wage structuresthe male wage structure, the female wage structure and the pooled wage structure. Table 15 presents the BO decomposition results for the two years using the full specification.

As seen in Table 15, in both years, the overwhelming part of the male-female wage gap at the mean is unexplained, i.e. cannot be explained by differences in observable characteristics of men and women. In 1999-2000, using the male, female and pooled wage structures as the counterfactuals, 92, 78 and 88 percent of the wage gap respectively, was unexplained or discriminatory. The corresponding shares for 2009-10 are 119, 89 and 111 percent, respectively, indicating an increase in the unexplained component. Interestingly, in 2009-10, using the male and the pooled wage structures as counterfactuals, the unexplained part of the wage gap is larger than the total wage gap itself (it is greater than 100 percent). This implies that if the labour market rate of compensation was the same across

<sup>&</sup>lt;sup>22</sup> The results for all the deciles are available with the authors upon request.

<sup>&</sup>lt;sup>23</sup> For both years we see that the return to unionization decline as one moves up the wage distribution. The pattern of declining union wage premium seen here was also noted in Chamberlain (1994). He used 1987 data for U.S manufacturing industries and found that union wage premium declines monotonically as one moves up the wage distribution from 28 percent at the bottom of the distribution to less than 1 percent at the top.

gender, women would have earned, on average, a higher wage than men given their superior characteristics. Compared to 2009-10, the explained component in 1999-2000 is smaller (for all three counterfactuals), indicating that that over the decade the average characteristics of women in RWS employment improved relative to men. Similarly, the unexplained component increased between 1999-2000 and 2009-10, suggesting that wage discrimination against women increased over this period.

To sum up, BO decompositions for the two years reveal that bulk of the gender wage gap at the mean is discriminatory; and that, over the decade, in spite of improvement in average characteristics of women relative to men, there has been an increase in the discriminatory component of the overall gender wage gap.<sup>24</sup>

#### 5.3b. MMM Decomposition

In this section we present the results of the MMM decomposition using the counterfactual wage distribution constructed based on combining the covariate distribution of women and male coefficients (returns).<sup>25</sup> Figure 3 presents the overall gender wage gap, and its decomposition into the explained and the unexplained components for each percentile.<sup>26</sup> Figure 4 is the corresponding plot for 2009-10. Similar to the BO decomposition at the mean, Figures 3 and 4 show that the overwhelming part of the overall gender wage gap across most percentiles is unexplained or discriminatory (in both figures, the unexplained component is only marginally below the overall wage gap).

Figure 3 shows that in 1999-2000, beyond the first decile, the explained component is insignificant throughout, while both the overall gender wage gap and the unexplained component are significant throughout.<sup>27</sup> Thus, in 1999-2000, if women were 'paid like men', i.e. if they faced the same labour market returns to characteristics as men did, we would not see a wage gap between men and women beyond the first decile. Figure 4 shows that in 2009-10, the overall gender wage gap and the unexplained component remain significant over the entire distribution. However, unlike 1999-2000, the explained component is negative and significant beyond the third decile. Consequently, beyond the third decile, the unexplained part of the wage gap is higher than the overall gap itself, a phenomenon captured by the mean decomposition as well. Looking at the confidence intervals in Figure 4, we see that for the top two deciles, if women in RWS were 'paid like men', they would have earned a higher wage than men due to better characteristics than the men.

Both figures also show that the overall gender wage gap as well as the unexplained component get smaller as we move from lower to higher percentiles. Thus, the discriminatory component of the gender wage gap also follows a sticky floor, revealing that women at the lower end of the distribution suffer greater discrimination. In both figures, juxtaposing the MMM decomposition on to the BO decomposition, we see that the unexplained part of the BO decomposition cuts the downward sloping curve for the unexplained part of the MMM decomposition roughly at the middle. This shows that the unexplained component at the mean is not representative of the discrimination faced by women at the lower and upper ends of the wage distribution, validating the need to go beyond the BO decomposition.

Table 16 presents the MMM decomposition results for the nine deciles. The patterns noted in Figures 3 and 4 can also be seen in Table 16.

<sup>&</sup>lt;sup>24</sup> Details of the decomposition exercise (not shown here) reveal the contribution of specific characteristics to the explained part of the overall gender wage gap. For 2009-10, based on the full specification with the male counterfactual, we find that education, in particular secondary education upwards, is a significant determinant of the explained part.

<sup>&</sup>lt;sup>25</sup> The results using the female wage structure are analogous and are available with the authors.

<sup>&</sup>lt;sup>26</sup> We also present the 95 % confidence intervals (dashed lines) for each of these components based on bootstrapped standard errors.

 $<sup>^{\</sup>rm 27}$  The unexplained component is insignificant only for the top two percentiles.

#### 6. Discussion

We focus on the most recent decade, as this has been a period of rapid growth, new job openings, greater integration with the global economy, and increasing domestic privatization in India. While this paper is not a causal analysis of these changes on gender wage gaps and gender discrimination, it raises questions about the likely association between these structural changes and wage disparities, and more broadly about discrimination. First, we note that these widespread changes have not been accompanied by an increase in female LFPRs. Also, in 2009-10, only about 10 percent of women in the labour force are in RWS jobs (as opposed to 16 percent for men), and the overwhelming share of RWS jobs are held by men (83 percent). Equally, if not more, worrying is the fact that women face adverse returns to their characteristics. In 2009-10, throughout the wage distribution, although women have better characteristics than men, they earn less than men due to labour market discrimination. Moreover, at the lower end of the wage distribution, women face higher discrimination.

Lower returns to human capital characteristics is particularly concerning because these returns have feedback effects, in that they could affect the decision to acquire such characteristics in the first place. Kingdon and Theopold (2008), using the 1993-94 and 1999-2000 NSS examine whether returns to education affect schooling participation, and find that especially for the poorer parts of the population, returns to education play a major part in schooling decisions. Their findings confirm that cash cost of education acts as a barrier for female education in the poorest households; for boys in the poorest households, however, higher returns to their education raises the opportunity cost of schooling. Thus, the lower returns to characteristics for women may act as a deterrent in acquiring skills in the first place.<sup>28</sup>

#### 6.1 The Sticky Floor

A major contribution of our paper has been to highlight the sticky floor phenomenon in the gender wage gaps picture for India. Recent studies on China (Chi and Li, 2007), Thailand (Fang and Sakellariou, 2010), Sri Lanka (Gunewardena, 2008), Vietnam (Pham and Reilly, 2007) and the Philippines (Sakellariou, 2004) find a sticky floor effect for all these countries as well. This is in sharp contrast to the glass ceiling that is observed in several developed countries.

In comparison with the international literature, our study finds that the magnitudes of log wage gaps, at the mean and across quantiles, are much larger for India as compared to European nations. Consider the average wage gaps for the 24 countries examined in Christofides et al. (2010). Only three of those European nations<sup>29</sup> had average gender log wage gaps greater than those found in India. Among the 11 nations studied in Arulampalam et al. (2007), the largest average gender log wage gap was found in Britain (0.25) and the lowest in Italy (0.063). Our study reveals an average log wage gap of about 0.4.

The decline in gender wage gaps as one moves from the bottom end to the top of the wage distribution is also quite drastic in the Indian case, as reported in Section 4.2. If we look at the gender gaps due to the unexplained/discrimination component alone in the MMM results, again we find a very steep sticky floor that more than satisfies the Arulampalam et al. (2007) criteria. Thus, the sticky floor effect in India is particularly strong when compared to European nations that find a similar effect, such as Ireland, Italy and Spain.

<sup>&</sup>lt;sup>28</sup> Although, the separate regressions (OLS and quantile) for men and for women suggest that among RWS workers, women may have higher returns to education than men, this concern may still be valid for other women in the labour force and for other skills such as labour market experience.

<sup>&</sup>lt;sup>29</sup> Cyprus, Estonia and the Czech Republic.

#### 6.2 Possible reasons for the sticky floor

One explanation for the sticky floor might be statistical discrimination by employers.<sup>30</sup> In India, social norms place the burden of household responsibilities disproportionately on women. Because of this, men are perceived by employers to be more reliable vis-à-vis women. Also, given the higher probability of dropping out of the labour market (for childbearing and rearing), employers discriminate against women when they enter the labour market because they expect future career interruptions. As women move up the occupation structure and gain job experience, employers become aware of their reliability and may perhaps discriminate less.

Another reason for the sticky floor could be that the nature of jobs are very different at the two ends of the distribution. Women working at the upper end are more likely to be the urban educated elite working in managerial or other professional positions. These high-wage earning women are more likely to be aware of their rights and might be in a better position to take action against perceived discrimination. According to Arulampalam et al. (2007), "only the more articulate and better educated are willing to take legal action against breaches of the law" (p. 176). Employers would be aware of these possibilities themselves and hence, may not be able to discriminate a great deal between similarly qualified men and women at the upper end of the wage distribution. Moreover, the payment mechanism in jobs at the higher end would be far more structured and rigidly defined. Whether in the public sector or the private sector, most high paying jobs will have written contracts with predefined clauses for basic increases in salaries, year on year, thus making it harder to discriminate across genders.

Contrast this to a situation where an employer is paying a regular wage to a woman with no education working in an elementary occupation, a typical example of a worker at the bottom of the wage distribution in the Indian context. It is easier for the employer to discriminate in this case, as these jobs are in the informal sector and outside the jurisdiction of labour laws. Article 39 of the Indian constitution envisaged equal pay for equal work for both men and women. To this end legislations such as the Equal Remunerations Act (1976) were enacted. To the extent minimum wage laws are not strictly adhered to, there would be larger gender wage gaps at the bottom of the distribution. Women at the bottom may also have less bargaining power compared to men due to family commitments or social custom and are more likely to be subject to the firms' market power. Chi and Li (2007) note that compensation practices for jobs at the low end of the distribution in China are much less regulated, and that unskilled and illiterate women workers are treated particularly unfavourably due to an abundant supply of unskilled male labour.

Job segregation is also a known contributor to wider gaps at the bottom as men and women only enter into exclusively 'male' and 'female' jobs. Low skilled jobs for women may pay less than other jobs that require intense physical labour, which men typically do. Our model specifications control for broad industry and occupation groups; however, *within* certain low paying broad industrial categories men and women could be doing different kinds of jobs and that could be picked up as the discrimination component. Chi and Li (2007) find that the sticky floor in China is associated with a particularly lowpaid group of production workers.

Christofides et al. (2010) and Arulampalam et al. (2007) are two notable studies that examine how country specific policies and institutions can affect gender wage gaps on average, and over entire distribution. The OECD work-family reconciliation index is a composite index based on indicators of childcare provisions, maternity leave, voluntary part-time work, etc. Results show that there is a negative correlation between the work-family index and the sticky floor, and a positive correlation between the index and a glass ceiling. The implication is that countries where the index is higher, that is, countries with greater concessions for working women to balance work with household

<sup>&</sup>lt;sup>30</sup> For Spain, de la Rica et al. (2008) explained the sticky floor effect for workers with low education using a similar argument.

responsibilities, exhibit a glass ceiling. On the other hand, countries where the index is smaller are more likely to be characterized by a sticky floor. In India, childcare provisions, maternity leave, voluntary leave and other such concessions are not available to the women at the lower end of the wage distribution. However, these provisions are available to the high-wage earners. While the value of the index is not calculated for India, this set of factors could be another possible reason for the sticky floor effect.

#### 6.3 Is this a demand-side story?

One issue about working with macro data on employment and estimating wages is that it represents the reduced form, which is an interaction of demand and supply, and we are not able to ascertain to what extent the patterns we observe are driven by demand. It is difficult to observe demand empirically; we examine the annual decadal rate of growth of Indian states as a proxy for economic activity and thus, for demand for labour, in particular for RWS work. We calculated the compound annual growth rates (CAGR) of net State Domestic Product (SDP) for all states for the period under consideration.<sup>31</sup> Table A1 in Appendix A shows the distribution of RWS workers across Indian states along with their rates of growth of net SDP. A broad division of states into "high" and "low" growth rates states reveals complicated picture. In the top half of high growth states, we see a few that have large shares of RWS workers – Maharashtra, Andhra Pradesh, Tamil Nadu, Gujarat, Kerala and Delhi. However, we see that some of the low growth states also have large shares (although not the largest) of RWS workers – Uttar Pradesh, West Bengal, Karnataka, Rajasthan, Madhya Pradesh and Punjab. Thus, it is not the case that all or even most states with large shares of RWS workers are high growth states.

Coming to gender gaps in shares of RWS workers, the picture is clearer. We see that among the high growth states, Delhi and Maharashtra have the largest gaps in 2009-10; among the low growth states, Uttar Pradesh (the largest gap among all states) and Rajasthan have the largest gaps. On the whole, the average gender gap for low growth states is positive (i.e. their share among men is larger than their share among female RWS workers), whereas it is negative for high growth states. This indicates a possible positive association between high levels of economic activity and lower gender gaps in shares of RWS workers.

What about gender wage gaps? From Table A2 in Appendix A, we see that Chhattisgarh, Assam and Jharkhand have the highest gender wage gaps among all states. On average, gender wage gaps for RWS workers in 2009-10 are smaller for the high-growth states, compared to the low-growth states, thus indicating a negative association between economic activity and gender wage gaps. Notice that the southern states, which had greater shares of female RWS workers, have positive and significant gender wage gaps. These are rough associations; the point we wish to highlight is that the links between economic activity and participation of men and women in RWS jobs and gender gaps are complicated. While growth might be necessary, it might not be sufficient in closing the gender wage gaps.

#### 6.4 Wage Gaps and Gender Inequality

Gender pay gaps assess only one component of the relative socio-economic position of men and women. While this paper focuses on one segment of the Indian labour force, issues related to the multidimensional nature of gender gaps are ubiquitous. The World Economic Forum recently released its ninth "Global Gender Gap Report 2014" which ranks 142 countries on economic, political and health based criteria, and demonstrates "persistent... divides across and within regions".<sup>32</sup> The top ten countries with the lowest gender gaps include very diverse countries such as Iceland, Scandinavian

<sup>&</sup>lt;sup>31</sup> This was done using data on the Net State Domestic Product from the Central Statistical Organisation (CSO). We linked the constant price series to a common base of 1999-2000, as the original data presented smaller time series with changing base years.

<sup>&</sup>lt;sup>32</sup> <u>http://www.weforum.org/issues/global-gender-gap</u>, accessed on 31<sup>st</sup> October 2014

countries, as well as Rwanda, Nicaragua and the Philippines, suggesting that gender inequality is not neatly correlated with income levels. As the ASDA lawsuit was being discussed in UK newsrooms, this report revealed that this is not an isolated random incident in the UK economy; Britain's position in global rankings had slipped to 26<sup>th</sup> position in 2014 from ninth position in 2006.

The Global Gender Gap is an index based on four elements: health and survival; educational attainment; economic participation and opportunity; and political empowerment. The former two elements perform the best in that absolute gaps are smaller and several countries have managed to close the gaps. However, gender gaps in economic participation and opportunity remain stubbornly large everywhere in the world, the highest gender gaps being in political empowerment.

The index for "economic participation and opportunity", which is the subject matter of this paper, comprises labour force participation; wage equality for similar work; estimated earned income; legislators, senior officials and managers; and professional and technical workers. While gaps in the latter two components are the largest, reflecting persistent under-representation of women in the top decision-making positions, between 2007 and 2014, the gap in wage equality for similar work has increased, underscoring the importance of our study.

Why is gender parity important? In addition to purely egalitarian concerns, there are pragmatic economic reasons that speak in favour of closing gender gaps. The Global Gender Gap report highlights the strong correlation between the national gender gap and the country's competitiveness. As Mao Zedong famously said "women hold up half the sky". Therefore, it is not surprising that the long-term competitiveness should depend on the ability of a country to educate and utilize the talents of half its population.

#### 7. Concluding Comments

Using data from two rounds of the EUS of NSS for 1999-2000 and 2009-10, we focus on gender differences among workers in Regular Wage/Salaried jobs. This category is heterogeneous, and includes jobs that are permanent, well paid with benefits, and are in the formal sector. Several of these workers are unionized and work in jobs that are likely to be governed by labour laws, which include anti-discrimination provisions. Thus, in several aspects, this section of workers is likely to have better outcomes than those in casual work or those at the lower-end of self-employment.

Persistently low and stagnating/declining female LFPRs in India have been discussed widely in the literature. These are a matter of concern from the larger point of view of empowerment of women. Within the existing LFPRs, we find that involvement of women in RWS work has increased over the decade, but remains low, in that of all women in the labour force, only 10 percent are in RWS jobs in 2009-10 compared to 16 percent for men. Over the decade, educational qualifications of women in RWS jobs have increased such that in 2009-10, greater proportions of RWS women have higher education than men. However, we find that the average wage gap has not declined significantly over the decade.

The wage gap continues to be positive, in that average male wages are higher than female. We find that an overwhelming part of the wage gap cannot be explained by characteristics, or is possibly discriminatory. Also, the discriminatory part of the average wage gap has increased over the decade. In particular, given the improvement in female wage earning characteristics over the decade, if women were "paid like men", (in other words, if their characteristics were valued in the labour market at the same rate as the male ones), women would have earned a higher average wage than men. Labour market discrimination is likely to be the main reason their wages continue to be lower than average male wages.

Going beyond averages, decomposing the wage gaps along the entire wage distribution, we find that gaps are higher at the lower end of the distribution than the upper end, i.e. women in India face a "sticky floor", not a glass ceiling. We find that not only are the gaps higher at the lower end, the discriminatory part of the gap is also higher for workers at the lower end of the wage distribution. Over the decade, the gap has declined in the lower middle of the wage distribution.

This picture presents multi-faceted and mammoth policy challenges. It is clear that increasing female labour force participation, increasing women's share in regular wage jobs, and lowering labour market discrimination such that women earn wages commensurate with their qualifications constitute three equally urgent and important policy objectives. Given the evidence from across the globe between women's participation in economic work and higher economic growth, purely from an instrumental point of view, Indian economy would benefit immensely if these three objectives are followed seriously. Going beyond the instrumental view of women's work, the potential benefits of these objectives are immense as these are essential ingredients to achieving women's empowerment and gender equality.

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#### **TABLES AND FIGURES**



Figure 1: Empirical CDF of log daily wages, for men and women, 1999-2000 and 2009-10

Figure 2: Gender Wage Gaps across Percentiles and at the Mean (with Confidence Intervals, CI), 1999-2000 and 2009-10



Figure 3: MMM Decomposition using Male Wage Structure, 1999-2000



Figure 4: MMM Decomposition using Male Wage Structure, 2009-10



Table 1: Labour Force Participation Rate									
	1999-2000 2009-10								
	(% of working age population)								
Male	88.5	85.2							
Female	38.9 32.4								
All Persons	65.4	59.9							

Table 2: Categorising the Labour Force (% of Labour Force)								
		1999-2000		2009-10				
	Males	Females	All Persons	Males	Females	All Persons		
Casual Labour	34.3	45.0	37.2	37.0	43.0	38.6		
Regular Wage Salaried	18.3	9.4	15.9	16.4	10.1	14.8		
Self Employed	45.0	43.6	44.6	44.5	44.0	44.4		
Unemployed	2.4 2.0 2.3 2.1 2.8 2							
Total	100	100	100	100	100	100		

Table 3: Summary Statistics for Regular Wage Salaried Workers									
		1999-2000	)	2009-10					
	Male Female All Persons			Male	Female	All Persons			
Share among RWS (in %)	84.5	15.5	100	82.6	17.4	100			
	Wages (in 1999-2000 Rupees per Day)								
Mean	155.8	120.3	150.3	187.2	149.9	180.7			
Std. Deviation	136.2	124.5	135.0	179.4	170.3	178.4			
First Decile	40.0	20.0	33.3	44.7	21.8	38.8			
Median	117.6	67.0	114.3	118.1	77.2	113.2			
Ninth Decile	300.0	285.7	300.0	419.6	383.0	408.5			
	Gei	nder Log Wag	e Gap (in %)						
		1999-2000			2009-10	)			
at the Mean		55.1***			49.1***				
at the First Decile		100.0***			104.8***	<			
at the Median		75.5***			53.1***				
at the Ninth Decile		5.0**			9.6**				
* indicates significance at 10%, *	* indicates sig	gnificance at	t 5% and *** ind	licates signi	ficance at 19	%.			

Table 4: Average Age by Gender									
1999-2000 2009-10									
Male	36.2	35.8							
Female	34.9	34.7							
All Persons	36.0	35.6							

Table 5: Urban/Rural Shares and Wages by Gender									
		1999-2000			2009-10				
	Male	Female	All Persons	Male	Female	All Persons			
Sectoral Distribution of RWS Workers (in %)									
Rural	37.3	36.6	37.2	34.5	35.7	34.7			
Urban	62.7	63.5	62.8	65.5	64.3	65.3			
Total	100	100	100	100	100	100			
Average Wages (in 1999-2000 Rupees per Day)									
Rural	132.6	87.4	125.7	149.0	99.1	140.1			
Urban	169.5	139.2	164.8	207.3	178.0	202.3			
Overall	155.8	120.3	150.3	187.2	149.9	180.7			
		Gender Log W	age Gap (in % at t	he mean)					
		1999-2000			2009-10				
Rural		77.9***			73.5***				
Urban		43.8***			36.4***				
Overall		55.1***			49.1***				
* indicates signific	cance at 10%, **	indicates signif	icance at 5% and <sup>:</sup>	*** indicates sig	nificance at :	1%.			

Table 6: Education Shares and Wages by Gender									
		1999-2000			2009-10				
	Male	Female	All Persons	Male	Female	All Persons			
Educational Distribution of RWS Workers (in %)									
Illiterates	9.4	22.5	11.5	6.1	14.9	7.6			
Primary and Below	17.3	13.7	16.7	14.0	12.0	13.6			
Middle	17.5	9.6	16.3	16.2	10.6	15.2			
Secondary, Higher Sec.	33.1	28.0	32.3	30.0	19.9	28.2			
Graduate and Above	22.7	26.3	23.3	33.8	42.6	35.3			
Total	100	100	100	100	100	100			
	Average W	/ages (in 1999	9-2000 Rupees j	per Day)					
Illiterates	80.8	47.1	70.6	83.8	49.1	72.0			
Primary and Below	92.1	59.8	88.0	89.8	56.5	84.7			
Middle	106.7	65.2	102.9	108.4	64.2	103.0			
Secondary, Higher Sec.	160.3	140.4	157.7	163.0	116.6	157.3			
Graduate and Above	266.7	212.9	257.2	305.2	248.3	293.3			
Overall	155.8	120.3	150.3	187.2	149.9	180.7			
	Gender	<sup>.</sup> Log Wage Ga	p (in % at the m	iean)					
		1999-2000			2009-10				
Illiterates		76.4***			94.0***				
Primary and Below		62.0***			67.9***				
Middle		84.2***			76.8***				
Secondary, Higher Sec.		38.4***			63.4***				
Graduate and Above		33.5***			30.6***				
Overall		55.1***			49.1***				
* indicates significance at 1	0%, ** indicat	es significanc	e at 5% and ***	indicates sig	gnificance at 1	l%.			

Ta	able 7: Occupa	tion Shares a	nd Wages by G	ender				
		1999-2000			2009-10			
	Male	Female	All Persons	Male	Female	All Persons		
Occupational Distribution of RWS Workers (in %)								
Administrators, Managers	3.7	1.4	3.3	4.5	1.6	4.0		
Professionals, Associate Prof.	22.4	40.2	25.2	21.5	44.4	25.5		
Clerks	12.3	10.7	12.0	11.8	10.7	11.6		
Sales, Service	15.1	12.8	14.7	16.8	12.7	16.1		
Skilled Agriculture, Fishery	1.1	0.4	1.0	0.8	0.7	0.8		
Craftsmen, Machine Operators	32.0	14.5	29.2	32.5	9.2	28.4		
Unskilled Workers	13.5	20.1	14.5	12.2	20.7	13.7		
Total	100	100	100	100	100	100		
ŀ	Average Wage	s (in 1999-20	00 Rupees per	Day)				
Administrators, Managers	358.6	322.5	356.3	426.7	474.2	430.1		
Professionals, Associate Prof.	242.1	171.6	224.7	310.4	198.8	276.6		
Clerks	177.0	175.6	176.8	221.7	208.5	219.6		
Sales, Service	104.3	73.9	100.2	126.9	104.1	123.8		
Skilled Agriculture, Fishery	98.0	95.0	97.9	116.5	50.5	105.2		
Craftsmen, Machine Operators	118.1	50.6	112.9	125.7	69.6	122.5		
Unskilled Workers	88.8	54.7	81.5	100.2	56.0	88.6		
Overall	155.8	120.3	150.3	187.2	149.9	180.7		
	Gender Log	, Wage Gap (in	% at the mea	n)				
		1999-2000			2009-10			
Administrators, Managers		30.1			-9.0			
Professionals, Associate Prof.		72.0***			80.8***			
Clerks		9.1			14.6**			
Sales, Service		68.0***			69.2***			
Skilled Agriculture, Fishery		-6.4			80.0***			
Craftsmen, Machine Operators		139.7***			92.6***			
Unskilled Workers		62.3***			93.1***			
Overall		55.2***			49.2***			
* indicates significance at 10%, *	* indicates sig	gnificance at 5	% and *** indi	icates signif	icance at 1%	).		

Table 8: Industry Shares and Wages by Gender									
		1999-2000			2009-10				
	Male	Female	All Persons	Male	Female	All Persons			
Industrial Distribution of RWS Workers (in %)									
Agriculture, Mining	6.0	8.0	6.3	4.4	3.0	4.2			
Manuf., Construction	26.6	17.8	25.3	28.3	13.2	25.7			
Utilities	14.9	4.5	13.3	14.6	3.6	12.7			
Wholesale Retail	10.0	2.4	8.8	11.4	4.0	10.1			
Finance, Real Estate	3.6	2.6	3.4	4.4	3.4	4.2			
Public Administration	19.8	13.1	18.8	13.9	10.6	13.3			
Other Services	19.1	51.7	24.2	23.0	62.2	29.8			
Total	100	100	100	100	100	100			
	Average	Wages (in 19	99-2000 Rupees	s per Day)					
Agriculture, Mining	91.7	49.8	83.5	131.5	70.6	123.8			
Manuf., Construction	126.8	62.5	119.7	143.2	87.0	138.1			
Utilities	153.0	167.0	153.7	174.1	215.2	176.1			
Wholesale Retail	75.0	64.1	74.5	94.9	83.6	94.1			
Finance, Real Estate	271.5	258.5	270.0	320.7	301.6	318.0			
Public Administration	217.6	172.5	212.8	273.7	205.0	264.2			
Other Services	174.7	129.4	159.7	228.0	149.8	199.7			
Overall	155.8	120.3	150.3	187.2	149.9	180.7			
	Gend	ler Log Wage (	Gap (in % at the	mean)					
		1999-2000			2009-10				
Agriculture, Mining		48.5***			110.1***				
Manuf., Construction		120.1***			76.2***				
Utilities		-7.5			-5.8				
Wholesale Retail		22.2**			17.4**				
Finance, Real Estate		0.2			8.8				
Public Administration		46.1***			58.2***				
Other Services		67.7***			85.2***				
Overall		55.1***			49.1***				
* indicates significance at 1	.0%, ** indic	ates significar	nce at 5% and **	* indicates sig	nificance at	1%.			

Table 9: Shares and Wages across Employment Types by Gender									
	Public/Private								
		1999-2000			2009-10				
	Male	Female	All Persons	Male	Female	All Persons			
Public/Private Distribution of RWS Workers									
Public Sector	36.2	39.1	36.7	32.1	39.8	33.5			
Private Sector	63.8	60.9	63.3	67.9	60.2	66.5			
Total	100	100	100	100	100	100			
	Average	Wages (in 199	9-2000 Rupees	per Day)		-			
Public Sector	229.9	186.9	222.9	291.7	215.2	275.9			
Private Sector	120.4	86.2	115.4	141.4	111.1	136.7			
Overall	160.0	125.6	154.8	189.7	152.5	183.2			
	Gend	er Log Wage G	ap (in % at the i	mean)					
		1999-2000			2009-10				
Public Sector		42.8***			68.5***				
Private Sector		68.2***			52.2***				
		Union/N	lon-Union						
		1999-2000			2009-10				
	Male	Female	All Persons	Male	Female	All Persons			
	Union Di	stribution of <b>R</b>	legular Salaried	Workers					
Non-Union Member	54.1	54.2	54.1	66.6	67.2	66.7			
Union Member	45.9	45.8	45.9	33.5	32.8	33.4			
Total	100	100	100	100	100	100			
	Average Wages (in 1999-2000 Rupees per Day)								
Non-Union Member	112.4	74.8	106.6	143.5	104.7	136.7			
Union Member	207.9	175.5	202.9	275.4	245.8	270.4			
Overall	156.2	120.9	150.7	187.6	151.0	181.3			
	Gend	er Log Wage G	ap (in % at the i	mean)					
		1999-2000			2009-10				
Non-Union Member		68.8***			61.5***				
Union Member		39.1***			23.4***				
		Temporary	/Permanent						
		1999-2000			2009-10				
	Male	Female	All Persons	Male	Female	All Persons			
Peri	manent/Temp	orary Distrib	ution of Regular	Salaried Wor	kers				
Temporary	27.3	28.7	27.5	31.8	31.1	31.7			
Permanent	72.8	71.3	72.5	68.2	68.9	68.3			
Total	100	100	100	100	100	100			
	Average	Wages (in 199	9-2000 Rupees	per Day)					
Temporary	79.1	50.9	74.6	98.32	71.97	93.84			
Permanent	184.7	148.8	179.2	228.72	185.58	221.16			
Overall	155.9	120.7	150.5	187.20	150.22	180.78			
	Gend	er Log Wage G	ap (in % at the	mean)					
		1999-2000			2009-10				
Temporary		70.9***			54.7***				
Permanent		46.3***			47.6***				
* indicates significance at 1	10%, ** indica	tes significanc	e at 5% and ***	indicates sign	ificance at 1%	6.			

Table 10: Caste Shares and Wages by Gender							
		1999-2000			2009-10	)	
	Male	Female	All Persons	Male	Female	All Persons	
Caste Distribution of RWS Workers (in %)							
Scheduled Tribe	5.2	7.2	5.5	4.8	5.0	4.8	
Scheduled Caste	14.8	15.4	14.9	16.3	19.4	16.9	
Other Backward Classes	29.4	29.5	29.4	35.7	34.9	35.5	
Upper Caste	50.7	47.8	50.3	43.2	40.7	42.8	
Total	100	100	100	100	100	100	
Average Wages (in 1999-2000 Rupees per Day)							
Scheduled Tribe	155.5	112.9	146.7	172.5	128.3	164.4	
Scheduled Caste	131.7	89.9	125.0	151.0	90.6	138.9	
Other Backward Classes	128.8	87.3	122.3	166.7	124.8	159.6	
Upper Caste	178.4	151.5	174.4	219.4	202.3	216.6	
Overall	155.8	120.3	150.3	187.2	149.9	180.7	
	Gender	Log Wage Gap	(in % at the me	an)			
		1999-2000	)		2009-10	)	
Scheduled Tribe		54.4***			61.8***		
Scheduled Caste		65.5***			86.5***		
Other Backward Classes		78.5***			50.7***		
Upper Caste		38.0***			28.1***		
Overall		55.1***			49.2***		
* indicates significance at 10%, *	* indicates	significance at	5% and *** inc	licates signi	ficance at 19	/0.	

Table 11: Religious Group Shares and Wages by Gender								
		1999-2000			2009-10			
	Male	Female	All Persons	Male	Female	All Persons		
Religion Distribution of RWS Workers (in %)								
Hindu	83.4	82.8	83.3	83.5	83.3	83.4		
Muslim	9.8	5.1	9.1	10.2	5.6	9.4		
Christian	3.1	9.1	4.1	3.0	6.7	3.6		
Other	3.7	3.0	3.6	3.4	4.5	3.6		
Total	100	100	100	100	100	100		
Average Wages (in 1999-2000 Rupees per Day)								
Hindu	159.1	116.4	152.5	191.3	149.8	184.1		
Muslim	118.5	95.3	116.5	134.8	125.0	133.8		
Christian	164.1	145.1	157.5	229.3	174.9	211.7		
Other	172.3	191.8	174.9	206.8	144.6	193.3		
Overall	155.8	120.3	150.3	187.2	149.9	180.7		
		Gender Log V	Vage Gap (in % a	t the mean)				
		1999-2000			2009-10			
Hindu		63.2***			53.5***			
Muslim		56.3***			41.3***			
Christian		34.6***			43.8***			
Other		5.8			72.6***			
Overall		55.1***			49.1***			
* indicates sign	nificance at 10%	%, ** indicates signi	ficance at 5% an	d *** indicates	significance at i	1%.		

Table 12: Regional Shares and Wages by Gender							
		1999-20	)00		2009-10	1	
	Male	Female	All Persons	Male	Female	All Persons	
Regi	ional Distrib	oution of R	WS Workers (in %	6)			
North East	3.7	6.1	4.1	2.8	3.3	2.9	
Orissa, West Bengal	9.4	7.6	9.1	9.3	8.3	9.1	
Bihar, Chhattisgarh, Jharkhand	4.8	2.7	4.5	4.6	3.2	4.3	
Andhra Pradesh	8.2	11.2	8.7	8.6	9.4	8.7	
Madhya Pradesh	4.3	3.9	4.2	3.9	3.1	3.8	
Maharashtra	16.7	14.1	16.3	16.6	15.1	16.3	
Pondicherry, Tamil Nadu	10.5	17.5	11.5	9.6	12.8	10.2	
Goa, Karnataka	6.2	7.5	6.4	6.2	9.6	6.8	
Kerala	2.9	8.0	3.7	3.3	9.1	4.3	
Jammu and Kashmir	0.8	0.5	0.8	1.1	0.8	1.1	
Himachal Pradesh, Uttarakhand	1.4	1.4	1.4	1.7	1.6	1.7	
Chandigarh, Delhi, Haryana, Punjab	10.4	6.7	9.8	11.0	8.1	10.5	
Uttar Pradesh	10.2	5.6	9.5	9.1	5.9	8.6	
Rajasthan	4.6	2.6	4.3	4.9	3.5	4.6	
Gujarat, Daman Diu, D N Haveli	5.9	4.5	5.7	7.1	6.1	6.9	
Andaman Lakshadweep	0.1	0.1	0.1	0.1	0.2	0.1	
Total	100	100	100	100	100	100	
Observations	28484	5647	34131	27684	5992	33676	
Aver	age Wages (	in 1999-20	00 Rupees per Da	ay)	100.0		
North East	138.8	92.7	128.0	224.6	139.2	207.7	
Orissa, west Bengal	155.6	105.5	149.1	182.1	123.8	172.9	
Binar, Unnattisgarn, Jharkhand	1/5.8	135.7	172.0	201.6	133.0	192.9	
Andnra Pradesh	134.9	84.5	124.9	161.2	101./	150.0	
Madnya Pradesn Maharashtra	134.2	103.8	129.9	146.1	207.0	144.1	
Manarashtra Dondishormy Tamil Nadu	100.7	142.0	138.3	102.0	207.0	175.4	
Coo Korneteke	150.0	101.8	123.9	183.8	145.4	1/5.4	
Korala	152.4	113.1	143.0	220.6	160.4	102.3	
Jammu and Kashmir	196.7	112.4	139.5	203.4	100.4	202.9	
Himachal Pradosh Ilttarakhand	184.6	175 5	180.0	203.4	199.7	202.9	
Chandigarh Delhi Harvana Punjah	201.3	219.7	203.2	183.1	177.1	182.3	
littar Pradesh	143.2	94.2	138.7	169.1	130.1	164.4	
Rajasthan	151.5	137.8	150.1	180.1	136.5	174.4	
Guiarat. Daman Diu. D N Haveli	163.6	150.5	162.0	166.8	135.1	162.0	
Andaman Lakshadween	171.8	166.0	170.8	299.3	245.3	286.4	
Overall	155.8	120.3	150.3	187.2	149.9	180.7	
G	ender Log W	age Gap (i	n % at the mean)				
		1999-20	)00		2009-10	I	
North East		52.7**	:*		86.9***		
Orissa, West Bengal		78.4**	*		77.1***		
Bihar, Chhattisgarh, Jharkhand		46.5**	**		82.3***		
Andhra Pradesh		89.7**	*		81.8***		
Madhya Pradesh		39.9*	*		4.1		

Table	12: Regional Shares and Wages by Gen	der <continued></continued>
(	Gender Log Wage Gap (in % at the mean)	
	1999-2000	2009-10
Maharashtra	31.1***	24.1**
Pondicherry, Tamil Nadu	59.3***	48.7***
Goa, Karnataka	49.0***	93.6***
Kerala	62.2***	55.0***
Jammu and Kashmir	21.8	20.2
Himachal Pradesh, Uttarakhand	14.5	47.7***
Chandigarh, Delhi, Haryana, Punjab	0.8	32.1***
Uttar Pradesh	97.2***	51.3***
Rajasthan	21.3	66.7***
Gujarat, Daman Diu, D N Haveli	27.6**	42.3***
Andaman Lakshadweep	7.3	32.5**
Overall	55.1***	49.1***
* indicates significance at 10%, ** indi	icates significance at 5% and *** indica	tes significance at 1%.

Table 13: OLS Regressions, Partial and Full Specifications, 1999-2000 and 2009-10										
		Pa	rtial			]	Full			
	1999	-2000	200	9-10	1999	-2000	200	9-10		
	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio		
	-	Poole	d (Men and	Women) Sa	mple	-				
Male	0.33	17.02	0.38	17.07	0.37	19.20	0.43	18.51		
Age	0.06	14.36	0.03	5.76	0.04	9.03	0.02	4.65		
Age Squared	-0.04	-7.87	-0.01	-0.87	-0.03	-5.44	-0.01	-2.09		
Married	0.16	8.55	0.13	5.72	0.07	3.97	0.08	3.74		
Urban	0.17	10.93	0.21	10.45	0.18	11.56	0.25	13.59		
ST	0.11	3.59	-0.02	-0.63	0.02	0.52	-0.08	-2.53		
SC	-0.01	-0.39	-0.10	-4.62	-0.08	-4.02	-0.14	-7.01		
OBC	-0.07	-5.23	-0.11	-5.61	-0.08	-6.50	-0.11	-5.89		
Primary and Below	0.22	9.75	0.20	6.67	0.10	4.22	0.10	3.28		
Middle	0.38	18.02	0.36	12.05	0.20	8.98	0.20	7.04		
Secondary, Higher Sec.	0.72	35.95	0.67	23.74	0.39	16.80	0.37	12.87		
Graduate and Above	1.15	47.61	1.30	42.12	0.68	24.54	0.73	17.61		
Public	No		No		0.25	14.20	0.31	13.35		
Union Member	No		No		0.28	15.64	0.23	13.70		
Permanent	No		No		0.26	16.70	0.25	15.23		
Regions	Yes		Yes		Yes		Yes			
Occupation	No		No		Yes		Yes			
Industry	No		No		Yes		Yes			
R Squared	0.48		0.46		0.59		0.56			
Observations	34102		33658		28538		31274			
Male Sample										
Age	0.06	13.59	0.03	6.09	0.04	8.43	0.03	5.30		
Age Squared	-0.05	-8.10	-0.01	-1.59	-0.03	-5.52	-0.02	-2.95		
Married	0.16	7.10	0.12	4.48	0.09	4.21	0.08	3.09		
Urban	0.16	9.77	0.18	8.39	0.15	9.55	0.21	10.78		
ST	0.09	2.88	-0.03	-0.75	-0.01	-0.38	-0.09	-2.66		
SC	-0.03	-1.42	-0.09	-3.87	-0.09	-4.36	-0.15	-7.23		
OBC	-0.06	-4.51	-0.11	-5.15	-0.08	-5.87	-0.11	-5.41		
Primary and Below	0.16	7.21	0.09	3.03	0.03	1.25	0.01	0.39		
Middle	0.32	14.42	0.25	8.22	0.14	5.82	0.12	4.02		
Secondary, Higher Sec.	0.63	30.10	0.54	18.76	0.31	12.92	0.28	9.34		
Graduate and Above	1.05	37.60	1.12	33.39	0.57	18.54	0.56	13.32		
Public	No		No		0.24	13.04	0.33	13.36		
Union Member	No		No		0.25	13.22	0.19	10.92		
Permanent	No		No		0.22	13.81	0.24	13.57		
Regions	Yes		Yes		Yes		Yes			
Occupation	No		No		Yes		Yes			
Industry	No		No		Yes		Yes			
R Squared	0.47		0.44		0.58		0.55			
Observations	28462		27668		23845		25724			
			Female	Sample						
Age	0.05	4.49	0.03	2.62	0.02	1.65	0.02	1.94		
Age Squared	-0.02	-1.66	-0.01	-0.42	0.00	0.15	-0.01	-0.75		
Married	0.11	3.04	0.08	2.01	0.03	0.96	0.03	0.83		
Urban	0.21	5.04	0.33	8.01	0.26	6.26	0.37	9.16		
ST	0.23	2.60	-0.03	-0.40	0.17	2.05	-0.09	-1.11		
SC	0.10	2.18	-0.11	-1.93	0.01	0.2	-0.11	-2.08		
OBC	-0.11	-2.80	-0.11	-2.47	-0.11	-2.53	-0.13	-2.93		

Table 13:	OLS Regre	essions, Pa	rtial and Fı	ıll Specificat	ions, 1999	-2000 and	2009-10 <	Continued>
		Pa	rtial				Full	
	1999	-2000	200	9-10	1999	-2000	200	9-10
	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio
<b>Primary and Below</b>	0.30	4.58	0.31	4.65	0.23	3.5	0.19	2.82
Middle	0.43	7.33	0.49	6.70	0.30	4.26	0.31	4.49
Secondary, Higher Sec.	1.00	20.78	0.96	14.60	0.76	9.53	0.67	7.86
Graduate and Above	1.45	34.06	1.71	30.09	1.11	13.59	1.33	11.75
Public	No		No		0.30	6.59	0.28	5.68
Union Member	No		No		0.40	8.94	0.36	8.56
Permanent	No		No		0.40	9.33	0.29	6.97
Regions	Yes		Yes		Yes		Yes	
Occupation	No		No		Yes		Yes	
Industry	No		No		Yes		Yes	
R Squared	0.46		0.49		0.6		0.59	
Observations	5640		5990		4693		5550	
An intercept is included	in all spec	ifications.	Base categ	ories are: Ill	iterates fo	r educatior	, Others for	caste.

Table 14A: Quantile Regressions, Partial Specification, 2009-10										
	1 <sup>st</sup> D	ecile	3rd E	Decile	Ме	dian	7 <sup>th</sup> [	Decile	9 <sup>th</sup> D	Decile
	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio
			Pooled Sa	mple (N=336	58)					
Male	0.64	25.31	0.49	21.32	0.41	20.39	0.26	15.17	0.25	10.20
Age	0.04	5.30	0.02	3.11	0.02	4.32	0.02	5.32	0.05	8.82
Age Squared	-0.03	-3.78	0.00	0.56	0.01	1.05	0.01	1.60	-0.03	-4.01
Married	0.22	7.25	0.17	7.29	0.11	5.38	0.08	4.62	0.03	1.21
Urban	0.24	8.90	0.21	10.36	0.16	9.98	0.15	11.41	0.16	8.52
ST	-0.13	-2.78	0.01	0.13	-0.05	-1.48	-0.02	-0.88	0.03	0.75
SC	-0.14	-5.23	-0.13	-5.12	-0.11	-5.01	-0.08	-4.44	-0.06	-2.10
OBC	-0.14	-5.35	-0.11	-5.33	-0.13	-6.97	-0.13	-8.26	-0.08	-3.66
Primary and Below	0.19	4.79	0.20	5.16	0.21	6.21	0.19	6.80	0.15	3.69
Middle	0.31	7.74	0.33	8.60	0.35	10.54	0.37	13.59	0.30	8.11
Secondary, Higher Sec.	0.51	14.15	0.58	16.92	0.66	21.97	0.72	28.81	0.69	20.04
Graduate and Above	0.91	23.25	1.26	36.48	1.38	45.86	1.42	57.22	1.33	38.67
Regions	Yes		Yes		Yes		Yes		Yes	
			Male San	nple (N=2766	68)					
Age	0.05	5.30	0.02	3.81	0.02	4.41	0.03	6.10	0.06	13.34
Age Squared	-0.04	-4.25	0.00	-0.13	0.01	1.26	0.00	0.00	-0.03	-6.49
Married	0.24	6.16	0.16	5.97	0.10	4.53	0.05	2.12	0.03	1.63
Urban	0.20	6.76	0.18	8.90	0.15	9.75	0.13	8.39	0.12	9.14
ST	-0.11	-2.07	-0.01	-0.18	-0.04	-1.09	-0.06	-1.82	-0.01	-0.42
SC	-0.12	-4.08	-0.13	-5.18	-0.09	-4.54	-0.08	-4.00	-0.04	-2.07
OBC	-0.15	-5.02	-0.12	-5.54	-0.12	-7.24	-0.12	-6.63	-0.06	-3.74
Primary and Below	0.04	0.85	0.12	2.87	0.12	3.69	0.09	2.53	0.08	2.78
Middle	0.17	3.96	0.24	5.82	0.27	8.13	0.26	7.77	0.21	8.27
Secondary, Higher Sec.	0.35	9.05	0.48	12.88	0.56	18.02	0.58	18.95	0.57	24.08
Graduate and Above	0.70	15.39	1.10	28.57	1.23	39.00	1.26	40.30	1.23	49.65
Regions	Yes		Yes		Yes		Yes		Yes	
			Female Sa	ample (N=59	90)					
Age	0.02	2.61	0.01	1.84	0.04	4.13	0.04	3.81	0.04	5.10
Age Squared	-0.01	-0.42	0.01	0.97	-0.02	-1.27	-0.02	-1.36	-0.02	-2.12
Married	0.12	3.41	0.15	5.99	0.11	3.72	0.07	2.36	-0.05	-1.64

	Tab	le 14A: Quan	tile Regress	ions, Partial	Specification	n, 2009-10	<continued< th=""><th>l&gt;</th><th></th><th></th></continued<>	l>		
	1 <sup>st</sup> Decile		3 <sup>rd</sup> I	3 <sup>rd</sup> Decile		dian	7 <sup>th</sup> Decile		9 <sup>th</sup> Decile	
	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio
Urban	0.28	7.25	0.36	13.55	0.41	12.82	0.32	9.93	0.30	11.36
ST	-0.24	-3.00	-0.03	-0.51	-0.04	-0.58	-0.01	-0.10	0.05	0.96
SC	-0.12	-2.37	-0.12	-3.00	-0.08	-1.67	-0.09	-2.05	-0.16	-4.51
OBC	-0.11	-2.51	-0.10	-3.45	-0.03	-0.72	-0.11	-2.97	-0.15	-4.44
Primary and Below	0.54	8.02	0.35	7.57	0.26	4.77	0.28	4.97	0.20	4.27
Middle	0.51	7.53	0.48	9.30	0.52	8.63	0.49	7.99	0.27	5.97
Secondary, Higher Sec.	0.96	16.00	0.82	19.71	1.03	21.12	1.10	21.56	1.00	24.27
Graduate and Above	1.61	29.29	1.73	45.95	1.88	41.79	1.83	38.38	1.53	42.74
Regions	Yes		Yes		Yes		Yes		Yes	
An intercept is included in all specification	s. Base categ	gories are: Ill	iterates for (	education, Ot	hers for cast	te.				

	Table 14B: Quantile Regressions, Full Specification, 2009-10									
	1 <sup>st</sup> D	ecile	3rd	Decile	Me	dian	7 <sup>th</sup> E	Decile	9 <sup>th</sup> De	cile
	Coeff.	t-ratio	Coeff.	t-ratio <sup>1</sup>	Coeff.	t-ratio <sup>1</sup>	Coeff.	t-ratio	Coeff.	t-ratio
		•	Pooled	Sample (N=312	274)			•		
Male	0.63	28.18	0.49	35.07	0.39	25.98	0.32	19.66	0.34	15.22
Age	0.03	4.75	0.02	5.84	0.02	6.14	0.02	5.62	0.02	4.19
Age Squared	-0.03	-3.74	-0.01	-2.67	-0.01	-2.49	-0.01	-1.75	-0.01	-1.33
Married	0.17	5.88	0.12	8.84	0.05	3.59	0.03	1.89	-0.01	-0.39
Urban	0.28	11.29	0.24	20.96	0.21	18.33	0.19	15.79	0.19	12.12
ST	-0.10	-2.15	-0.10	-4.36	-0.08	-3.10	-0.09	-3.53	-0.11	-3.44
SC	-0.13	-4.94	-0.11	-8.12	-0.15	-9.96	-0.16	-10.14	-0.13	-6.29
OBC	-0.11	-4.49	-0.08	-6.83	-0.10	-7.46	-0.10	-7.47	-0.12	-6.14
Primary and Below	0.12	3.18	0.07	3.01	0.10	3.98	0.09	3.73	0.07	2.22
Middle	0.21	5.44	0.19	8.86	0.18	7.50	0.21	8.51	0.19	5.88
Secondary, Higher Sec.	0.35	9.50	0.34	16.48	0.33	14.58	0.37	15.39	0.38	12.40
Graduate and Above	0.58	10.64	0.66	27.21	0.67	26.17	0.73	26.87	0.79	22.61
Public	0.30	10.48	0.37	25.17	0.40	26.46	0.33	20.40	0.24	9.23
Union Member	0.28	12.30	0.28	23.82	0.23	18.67	0.17	12.82	0.13	6.36
Permanent	0.19	8.39	0.19	16.11	0.23	18.24	0.28	21.17	0.31	18.24
Regions	Yes		Yes		Yes		Yes		Yes	
Occupation	Yes		Yes		Yes		Yes		Yes	
Industry	Yes		Yes		Yes		Yes		Yes	
			Male S	ample (N=257)	24)					
Age	0.04	6.35	0.03	5.60	0.03	6.53	0.02	6.39	0.02	3.81
Age Squared	-0.05	-5.53	-0.02	-3.21	-0.02	-3.41	-0.01	-2.30	-0.01	-1.22
Married	0.17	5.31	0.11	5.62	0.04	2.20	0.03	1.95	0.03	1.27
Urban	0.24	9.64	0.18	12.94	0.18	13.89	0.17	15.30	0.17	9.96
ST	-0.09	-2.03	-0.09	-3.16	-0.10	-3.66	-0.10	-3.90	-0.16	-5.28
SC	-0.13	-5.22	-0.14	-8.32	-0.15	-8.85	-0.16	-10.66	-0.15	-6.44
OBC	-0.10	-4.38	-0.10	-6.70	-0.09	-6.59	-0.10	-7.16	-0.10	-5.00
Primary and Below	0.05	1.24	0.00	0.17	0.03	1.06	0.00	0.06	0.02	0.60
Middle	0.14	3.95	0.12	4.38	0.11	3.83	0.12	5.08	0.14	3.75
Secondary, Higher Sec.	0.27	7.48	0.26	10.08	0.27	10.01	0.29	12.18	0.32	9.22
Graduate and Above	0.42	7.68	0.51	16.51	0.56	18.44	0.59	22.54	0.68	18.12

Table 14B: Quantile Regressions, Full Specification, 2009-10 <continued></continued>										
	1 <sup>st</sup> [	Decile	3rd	Decile	Me	edian	7 <sup>th</sup> [	Decile	9 <sup>th</sup> De	ecile
	Coeff.	t-ratio	Coeff.	t-ratio <sup>1</sup>	Coeff.	t-ratio <sup>1</sup>	Coeff.	t-ratio	Coeff.	t-ratio
Public	0.37	12.62	0.43	23.21	0.41	23.46	0.33	20.60	0.25	9.22
Union Member	0.27	12.42	0.24	16.36	0.19	13.90	0.14	10.64	0.12	5.71
Permanent	0.18	8.02	0.20	13.35	0.22	15.62	0.26	21.00	0.29	16.17
Regions	Yes		Yes		Yes		Yes		Yes	
Occupation	Yes		Yes		Yes		Yes		Yes	
Industry	Yes		Yes		Yes		Yes		Yes	
Female Sample (N=5550)										
Age	0.01	2.18	0.03		0.01		0.03	8.17	0.01	10.33
Age Squared	0.00	-0.04	-0.02		0.00		-0.02	-4.90	0.00	-1.00
Married	0.09	4.43	0.10		0.03		-0.03	-2.68	-0.09	-19.71
Urban	0.36	14.51	0.37		0.40		0.33	25.53	0.29	60.43
ST	-0.25	-4.65	-0.07		-0.04		-0.10	-4.37	-0.02	-3.08
SC	-0.18	-5.09	-0.08		-0.08		-0.12	-7.52	-0.17	-27.81
OBC	-0.18	-7.81	-0.06		-0.06		-0.12	-9.65	-0.16	-28.72
Primary and Below	0.28	7.11	0.19		0.12		0.18	8.53	0.23	28.34
Middle	0.40	9.98	0.32		0.31		0.28	11.80	0.30	33.45
Secondary, Higher Sec.	0.59	12.71	0.75		0.62		0.53	21.58	0.56	51.39
Graduate and Above	1.34	27.62	1.46		1.34		1.05	36.14	1.04	66.55
Public	0.37	12.15	0.31		0.32		0.31	22.59	0.18	28.12
Union Member	0.41	15.41	0.42		0.43		0.34	26.82	0.16	29.83
Permanent	0.21	8.63	0.26		0.22		0.36	29.14	0.39	77.67
Regions	Yes		Yes		Yes		Yes		Yes	
Occupation	Yes		Yes		Yes		Yes		Yes	
Industry	Yes		Yes		Yes		Yes		Yes	
An intercent is included in all specific	ations Base c	ategories are	Illiterates fo	r education O	thers for cas	te				

An intercept is included in all specifications. Base categories are: Illiterates for education, Others for caste. 1. For the only women sample at the 3rd decile and the median, the standard errors are very small and consequently the t-ratios are very large. We prefer not to present these t-ratios, and not to interpret the statistical significance of these coefficients.

Table 15: Blinder- Oaxad	Table 15: Blinder- Oaxaca Decompositions using Full Specification									
		1999-200	0		2009-10					
		I	Alternate Cou	nterfactua	ls					
	Male Female Pooled Male Female Pooled									
Gender Wage Gap at the Mean (in Logs) <sup>1</sup>	0.42	0.42	0.42	0.39	0.39	0.39				
of which Explained	0.03 0.09 0.05 -0.07 0.04 -0.04									
of which Unexplained	0.39 0.33 0.37 0.46 0.34 0									
Percent Unexplained (Discriminatory)	92.3 77.8 88.2 119.1 88.5 1									
Geometric Mean (INR per day)		1999-200	0		2009-10					
Male Wage		118.3			131.0					
Female Wage		77.4			88.9					
28538 observations in 1999-2000 (23845 men and 4693 women) and 31274 observations in 2009-10 (25724										
men and 5550 women). 1. This refers to [AM of {Log(Male Wages)} - AM of {Log(Female Wages)}], where AM refers to Arithmetic Mean.										

	Table 16:	MMM Decompo	sitions using Full Sp	ecification (Using	Male Wage Struc	ture)
		Gender Wa	ge Gaps	959	% Confidence Inte	ervals
Decile	Total	Explained	Unexplained	Total	Explained	Unexplained
			1999-20	000		
1	0.77	0.04	0.73	0.72, 0.83	0.00, 0.09	0.71, 0.75
2	0.68	0.03	0.65	0.64, 0.73	-0.01, 0.07	0.63, 0.67
3	0.61	0.04	0.58	0.54, 0.68	0.00, 0.08	0.56, 0.59
4	0.52	0.03	0.49	0.44, 0.60	0.00, 0.07	0.47, 0.51
5	0.43	0.03	0.40	0.34, 0.52	-0.01, 0.07	0.38, 0.41
6	0.32	0.02	0.30	0.25, 0.39	-0.02, 0.06	0.28, 0.31
7	0.23	0.01	0.22	0.16, 0.30	-0.03, 0.05	0.21, 0.24
8	0.13	0.00	0.14	0.09, 0.18	-0.04, 0.04	0.12, 0.15
9	0.08	0.00	0.08	0.03, 0.13	-0.04, 0.05	0.05, 0.10
			2009-1	0		•
1	0.72	-0.01	0.74	0.66, 0.78	-0.07, 0.04	0.71, 0.76
2	0.61	-0.03	0.64	0.56, 0.66	-0.08, 0.02	0.62, 0.76
3	0.53	-0.06	0.58	0.46, 0.59	-0.11, -0.01	0.53, 0.76
4	0.44	-0.08	0.52	0.37, 0.52	-0.12, -0.03	0.44, 0.76
5	0.36	-0.09	0.45	0.29, 0.44	-0.13, -0.04	0.35, 0.76
6	0.29	-0.09	0.39	0.21, 0.37	-0.14, -0.05	0.26, 0.76
7	0.23	-0.10	0.33	0.15, 0.30	-0.15, -0.06	0.27, 0.76
8	0.16	-0.11	0.27	0.09, 0.23	-0.15, -0.07	0.18, 0.76
9	0.10	-0.10	0.20	0.04, 0.16	-0.15, -0.06	0.19, 0.76

Appendix A

Table A1 Gender Shares Among RWS Workers across Indian States									
	Decadal Growth Rate (in %)	CAGR (in %)			Shares of RW	VS workers (	in %)		
				1999-20	00		2009-10		
State			Male	Female	All Persons	Male	Female	All Persons	
SIKKIM	248.87	13.31	0.08	0.15	0.1	0.11	0.17	0.12	
UTTARAKHAND	206.39	11.85	0.74	0.78	0.74	0.89	0.69	0.86	
CHANDIGARH	160.85	10.06	0.29	0.37	0.3	0.32	0.41	0.34	
HARYANA	133.58	8.85	2.34	1.04	2.14	3.74	2.78	3.58	
ANDAMAN & NICOBAR	131.47	8.75	0.08	0.08	0.08	0.1	0.14	0.11	
DELHI	127.97	8.59	4.21	2.88	4	3.77	1.97	3.46	
NAGALAND	127.22	8.55	0.14	0.22	0.15	0.15	0.09	0.14	
GUJARAT	124.33	8.41	5.79	4.5	5.59	7.03	6.04	6.86	
TRIPURA	122.09	8.31	0.25	0.32	0.26	0.24	0.36	0.26	
PUDUCHERRY	121.06	8.26	0.16	0.32	0.18	0.25	0.39	0.28	
ARUNACHAL PRADESH	110.93	7.75	0.02	0.01	0.02	0.1	0.1	0.1	
MIZORAM	108.28	7.61	0.06	0.11	0.07	0.1	0.1	0.1	
ANDHRA PRADESH	105.76	7.48	8.24	11.17	8.69	8.59	9.44	8.73	
MAHARASHTRA	103.48	7.36	16.74	14.13	16.33	16.59	15.11	16.33	
TAMIL NADU	102.24	7.30	10.29	17.16	11.36	9.39	12.43	9.92	
KERALA	101.85	7.28	2.86	7.99	3.66	3.26	9.09	4.27	
MEGHALAYA	91.00	6.69	0.13	0.33	0.16	0.24	0.4	0.27	
BIHAR	89.34	6.59	1.69	0.62	1.52	1.76	0.92	1.62	
CHHATTISGARH	88.46	6.54	1.23	1.04	1.2	1.42	1.08	1.36	
HIMACHAL PRADESH	88.42	6.54	0.68	0.57	0.66	0.82	0.95	0.84	
ORISSA	83.62	6.27	2.42	1.66	2.3	2.39	1.83	2.3	
GOA	81.31	6.13	0.31	0.38	0.32	0.5	0.67	0.53	
WEST BENGAL	79.64	6.03	7.01	5.93	6.84	6.89	6.47	6.82	
KARNATAKA	78.03	5.94	5.87	7.16	6.07	5.73	8.92	6.28	
RAJASTHAN	74.47	5.72	4.55	2.64	4.25	4.89	3.47	4.64	
PUNJAB	68.35	5.35	3.56	2.36	3.38	3.2	2.89	3.15	
UTTAR PRADESH	64.73	5.12	10.24	5.64	9.53	9.12	5.86	8.55	
JAMMU & KASHMIR	59.90	4.81	0.81	0.48	0.76	1.1	0.81	1.05	
ASSAM	59.12	4.75	2.82	4.79	3.12	1.73	1.98	1.77	
MADHYA PRADESH	58.65	4.72	4.27	3.85	4.2	3.92	3.1	3.78	
MANIPUR	57.23	4.63	0.16	0.2	0.16	0.17	0.12	0.16	
JHARKHAND	52.86	4.33	1.88	1.07	1.76	1.39	1.17	1.35	
Total			100	100	100	100	100	100	
States have been ar	ranged in order o	of Decada	Growth	Rates (in %)	. CAGR refers	to Compound	d Annual Grov	vth (in %).	

	Table A2 Gender Wage Gaps among RWS workers across Indian States									
	Decadal Growth Rate (in %)	CAGR (in %)	A	verage Wag	ges in (in 19	999-00 R	upees per l	Day)	Gende Gap	er Wage in %
				1999-200	0		2009-10	)	1999- 00	2009- 10
State			Male	Female	All Persons	Male	Female	All Persons		
SIKKIM	248.87	13.31	167.6	160.8	165.9	227.1	185.6	216.4	9.0	35.7*
UTTARAKHAND	206.39	11.85	174.6	179.6	175.4	197.6	219.5	200.6	1.4	15.3
CHANDIGARH	160.85	10.06	184.0	210.5	189.0	337.5	215.3	311.5	-6.7	100.3***
HARYANA	133.58	8.85	175.1	181.5	175.6	164.1	161.9	163.8	11.1	36.0*
ANDAMAN & NICOBAR	131.47	8.75	169.6	167.3	169.2	297.0	235.2	282.6	1.3	36.0**
DELHI	127.97	8.59	269.8	274.3	270.3	198.7	202.2	199.0	1.6	6.1
NAGALAND	127.22	8.55	188.0	171.0	184.3	256.8	214.9	252.2	12.2	14.2
GUJARAT	124.33	8.41	164.1	151.2	162.5	167.1	135.0	162.2	27.2**	42.4***
TRIPURA	122.09	8.31	145.7	126.1	142.0	187.9	165.5	182.6	27.1	23.6
PUDUCHERRY	121.06	8.26	129.7	111.9	124.9	230.7	178.8	217.8	74.7***	63.6***
ARUNACHAL PRADESH	110.93	7.75	217.7	146.4	210.8	362.9	260.2	344.5	32.5	39.1***
MIZORAM	108.28	7.61	244.9	248.6	245.8	241.8	266.6	246.2	0.3	-7.4
ANDHRA PRADESH	105.76	7.48	134.9	84.5	124.9	161.2	101.7	150.0	89.7***	81.8***
MAHARASHTRA	103.48	7.36	160.7	142.6	158.3	212.0	207.0	211.2	31.1***	24.1**
TAMIL NADU	102.24	7.30	130.6	101.7	123.8	182.6	144.3	174.2	59.1***	48.4***
KERALA	101.85	7.28	153.4	112.4	139.5	220.6	160.4	198.4	62.2***	55.0***
MEGHALAYA	91.00	6.69	182.5	162.7	176.3	211.6	199.7	208.5	19.3	12.0
BIHAR	89.34	6.59	165.1	181.9	166.2	173.7	218.3	178.2	-19.0	-15.8
CHHATTISGARH	88.46	6.54	166.8	102.1	158.1	217.6	92.3	200.3	106.6** *	154.3***
HIMACHAL PRADESH	88.42	6.54	195.5	169.9	192.1	246.1	172.6	231.7	32.7*	85.9***
ORISSA	83.62	6.27	147.3	114.9	143.7	197.4	129.4	188.0	46.0**	85.9***
GOA	81.31	6.13	174.4	134.1	167.0	160.1	131.4	153.7	38.9**	35.4*
WEST BENGAL	79.64	6.03	158.4	102.9	150.9	176.8	122.2	167.8	89.1***	72.4***
KARNATAKA	78.03	5.94	151.3	114.1	144.5	202.5	131.1	184.9	49.6***	99.0***
RAJASTHAN	74.47	5.72	151.5	137.8	150.1	180.1	136.5	174.4	21.3	66.7***
PUNJAB	68.35	5.35	138.9	171.6	142.5	171.5	169.0	171.1	-0.8	37.2**
UTTAR PRADESH	64.73	5.12	143.2	94.2	138.7	169.1	130.1	164.4	97.2***	51.3***
JAMMU & KASHMIR	59.90	4.81	186.7	185.2	186.6	203.4	199.7	202.9	21.8	20.2
ASSAM	59.12	4.75	126.8	71.7	113.7	218.4	96.2	194.7	65.5***	147.2***
MADHYA PRADESH	58.65	4.72	134.2	103.8	129.9	146.1	131.9	144.1	39.9**	4.1
MANIPUR	57.23	4.63	194.1	203.2	195.8	236.4	236.3	236.4	-9.7	10.1
JHARKHAND	52.86	4.33	191.3	141.6	186.5	220.7	103.5	203.0	48.5**	160.4***
States have been arra significance at 1%. **	States have been arranged in order of Decadal Growth Rates (in %). CAGR refers to Compound Annual Growth (in %). *** indicates significance at 1%. ** at 5% and * at 10%.									

#### Appendix B

Table B1: Quantile Regressions, Partial Specification, 1999-2000										
	1 <sup>st</sup> D	ecile	3 <sup>rd</sup> E	Decile	Me	dian	7 <sup>th</sup> C	Decile	9 <sup>th</sup> D	ecile
	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio
	-	-	Pooled Sa	mple (N=341	l02)		-	-	-	
Male	0.68	23.66	0.41	22.52	0.28	18.02	0.15	8.03	0.13	6.91
Age	0.06	8.14	0.05	11.36	0.06	18.43	0.07	19.19	0.07	14.56
Age Squared	-0.04	-4.91	-0.02	-4.24	-0.04	-9.80	-0.06	-11.98	-0.06	-9.40
Married	0.21	7.67	0.18	10.86	0.15	10.88	0.11	6.80	0.06	2.73
Urban	0.25	11.55	0.16	11.98	0.13	11.72	0.13	10.42	0.14	8.04
ST	0.10	2.30	0.12	3.83	0.10	3.41	0.11	3.17	0.09	2.31
SC	-0.07	-2.32	0.00	0.19	0.01	0.66	0.01	0.83	0.00	-0.19
OBC	-0.13	-5.21	-0.06	-4.13	-0.06	-4.86	-0.05	-4.11	-0.06	-3.60
Primary and Below	0.13	3.58	0.26	11.17	0.26	13.15	0.23	9.87	0.11	4.76
Middle	0.28	8.15	0.42	17.60	0.43	22.20	0.37	17.96	0.28	11.40
Secondary, Higher Sec.	0.58	17.84	0.77	34.26	0.77	43.28	0.72	38.87	0.61	26.99
Graduate and Above	0.93	24.47	1.21	47.98	1.20	61.74	1.14	55.45	1.08	39.80
Regions	Yes		Yes		Yes		Yes		Yes	
Male Sample (N=28462)										
Age	0.06	7.36	0.05	10.09	0.06	14.96	0.08	16.39	0.07	12.25
Age Squared	-0.05	-4.77	-0.02	-3.98	-0.04	-8.32	-0.06	-10.59	-0.06	-8.33
Married	0.22	6.18	0.19	9.07	0.14	7.31	0.11	4.95	0.07	2.23
Urban	0.23	9.07	0.15	10.41	0.12	9.36	0.13	8.80	0.13	6.88
ST	0.10	1.83	0.10	2.93	0.08	2.10	0.12	2.51	0.10	2.20
SC	-0.08	-2.33	0.01	0.34	-0.01	-0.37	0.00	-0.26	-0.02	-1.05
OBC	-0.11	-4.02	-0.05	-3.46	-0.04	-3.18	-0.04	-2.70	-0.06	-3.10
Primary and Below	0.15	3.53	0.21	8.91	0.19	8.90	0.13	5.71	0.10	3.72
Middle	0.28	6.74	0.38	14.80	0.36	16.49	0.28	11.90	0.24	8.54
Secondary, Higher Sec.	0.59	15.04	0.70	30.23	0.67	32.62	0.59	25.83	0.54	20.48
Graduate and Above	0.90	18.62	1.13	43.79	1.09	49.26	1.02	41.38	1.03	30.49
Regions	Yes		Yes		Yes		Yes		Yes	
			Female S	ample (N=56	40)					
Age	0.02	1.68	0.04	4.12	0.05	20.60	0.05	15.17	0.05	16.04
Age Squared	-0.01	-0.34	-0.02	-1.29	-0.03	-9.80	-0.03	-7.42	-0.03	-8.09
Married	0.16	2.89	0.15	4.10	0.16	18.93	0.04	3.75	-0.03	-2.94
Urban	0.29	5.28	0.28	7.00	0.12	12.27	0.10	9.46	0.20	20.19

Table B1: Quantile Regressions, Partial Specification, 1999-2000 <continued></continued>											
	1 <sup>st</sup> Decile		3 <sup>rd</sup> Decile		Median		7 <sup>th</sup> Decile		9 <sup>th</sup> Decile		
	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio	
ST	0.25	2.57	0.22	2.80	0.24	10.08	0.24	14.91	0.18	14.51	
SC	0.01	0.13	0.01	0.22	0.13	10.86	0.12	8.50	0.08	5.90	
OBC	-0.06	-0.93	-0.18	-3.98	-0.18	-17.82	-0.13	-10.14	-0.11	-9.07	
Primary and Below	0.08	0.96	0.30	4.67	0.40	23.38	0.38	23.63	0.10	7.43	
Middle	0.29	3.44	0.39	6.16	0.50	33.35	0.37	19.98	0.39	21.26	
Secondary, Higher Sec.	0.54	7.83	0.93	18.29	1.18	104.37	1.22	82.34	1.01	75.06	
Graduate and Above	1.14	15.62	1.46	26.64	1.56	135.49	1.53	97.72	1.31	99.97	
Regions	Yes		Yes		Yes		Yes		Yes		
An intercept is included in all specifications. Base categories are: Illiterates for education, Others for caste.											

Table B2: Quantile Regressions, Full Specification, 1999-2000											
	1 <sup>st</sup> Decile		3 <sup>rd</sup> Decile		Median		7 <sup>th</sup> Decile		9 <sup>th</sup> Decile		
	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio	
Pooled Sample (N=28538)											
Male	0.66	26.48	0.40	24.91	0.30	22.65	0.22	15.36	0.17	11.81	
Age	0.04	7.35	0.04	9.70	0.04	12.17	0.04	13.33	0.04	10.61	
Age Squared	-0.03	-4.73	-0.03	-5.70	-0.03	-7.18	-0.03	-8.05	-0.03	-6.64	
Married	0.12	5.22	0.09	5.80	0.07	5.86	0.05	4.31	0.03	1.98	
Urban	0.28	15.01	0.15	12.30	0.13	13.53	0.12	12.54	0.16	11.98	
ST	0.00	-0.06	0.01	0.23	0.04	1.42	0.00	0.10	0.02	0.59	
SC	-0.10	-4.24	-0.08	-4.95	-0.06	-4.90	-0.07	-6.14	-0.09	-5.35	
OBC	-0.07	-3.79	-0.08	-6.63	-0.09	-9.06	-0.07	-7.06	-0.07	-5.56	
Primary and Below	0.10	3.03	0.11	5.22	0.10	5.87	0.10	5.73	0.04	1.84	
Middle	0.26	7.95	0.20	9.39	0.19	11.50	0.18	11.02	0.14	6.86	
Secondary, Higher Sec.	0.45	13.40	0.38	17.13	0.38	22.25	0.35	21.76	0.29	13.78	
Graduate and Above	0.72	18.85	0.61	20.42	0.63	30.39	0.64	33.65	0.60	24.93	
Public	0.37	16.53	0.29	21.34	0.25	23.05	0.19	16.19	0.11	6.96	
Union Member	0.33	16.55	0.33	21.66	0.26	24.50	0.22	19.47	0.19	11.22	
Permanent	0.25	10.90	0.23	13.79	0.27	23.80	0.27	26.59	0.26	20.23	
Regions	Yes		Yes		Yes		Yes		Yes		
Occupation	Yes		Yes		Yes		Yes		Yes		
Industry	Yes		Yes		Yes		Yes		Yes		
			Male Sar	nple (N=2384	45)						
Age	0.05	7.54	0.04	11.00	0.04	10.45	0.04	15.54	0.04	12.59	
Age Squared	-0.04	-5.27	-0.03	-6.80	-0.03	-6.13	-0.03	-9.59	-0.03	-8.32	
Married	0.12	4.26	0.09	5.84	0.09	5.80	0.06	4.69	0.04	2.93	
Urban	0.23	11.62	0.13	11.84	0.12	11.34	0.12	14.96	0.15	13.86	
ST	-0.05	-1.01	-0.02	-0.67	0.02	0.70	-0.03	-1.89	0.03	1.18	
SC	-0.12	-4.74	-0.08	-5.80	-0.07	-5.36	-0.08	-7.69	-0.08	-6.34	
OBC	-0.09	-4.30	-0.08	-6.76	-0.07	-6.57	-0.06	-7.02	-0.05	-5.42	
Primary and Below	0.07	2.00	0.04	1.84	0.03	1.63	0.04	2.59	0.01	0.32	
Middle	0.19	5.16	0.13	6.85	0.12	6.68	0.13	9.03	0.10	6.16	
Secondary, Higher Sec.	0.39	10.59	0.29	14.86	0.29	16.42	0.28	20.69	0.24	14.77	
Graduate and Above	0.58	13.64	0.49	18.22	0.52	23.93	0.57	35.11	0.57	29.21	
Public	0.37	15.84	0.28	22.89	0.23	19.22	0.18	17.78	0.11	8.18	
Union Member	0.34	15.96	0.30	22.05	0.24	20.29	0.19	20.24	0.16	12.00	

Table B2: Quantile Regressions, Full Specification, 1999-2000 <continued></continued>											
	1 <sup>st</sup> Decile		3 <sup>rd</sup> Decile		Median		7 <sup>th</sup> Decile		9 <sup>th</sup> Decile		
	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio	
Permanent	0.22	9.26	0.20	13.56	0.23	18.42	0.24	26.65	0.24	23.53	
Regions	Yes		Yes		Yes		Yes		Yes		
Occupation	Yes		Yes		Yes		Yes		Yes		
Industry	Yes		Yes		Yes		Yes		Yes		
Female Sample (N=5550)											
Age	0.03	3.70	0.02	12.16	0.03	21.00	0.03	66.18	0.02	3.57	
Age Squared	-0.01	-1.12	0.00	-1.66	-0.02	-10.14	-0.01	-24.16	0.00	0.32	
Married	0.03	1.14	0.02	2.89	0.02	4.29	-0.02	-14.92	-0.04	-2.65	
Urban	0.40	12.94	0.29	41.14	0.20	36.55	0.16	108.77	0.19	11.93	
ST	0.23	3.73	0.02	1.04	0.13	12.83	0.11	44.17	-0.01	-0.31	
SC	0.00	-0.03	0.06	6.19	0.04	5.04	-0.01	-5.90	-0.12	-5.99	
OBC	-0.08	-2.35	-0.06	-7.66	-0.11	-16.69	-0.12	-67.53	-0.16	-10.10	
Primary and Below	0.17	3.32	0.24	19.99	0.25	31.45	0.23	98.55	0.14	5.56	
Middle	0.36	7.11	0.32	26.57	0.23	24.97	0.33	121.53	0.26	8.82	
Secondary, Higher Sec.	0.68	10.72	0.78	56.84	0.69	73.17	0.77	282.69	0.62	20.56	
Graduate and Above	1.28	19.98	1.18	80.37	0.94	90.87	1.01	341.56	0.86	26.33	
Public	0.32	8.99	0.34	45.25	0.29	48.51	0.24	144.41	0.16	8.59	
Union Member	0.35	8.89	0.51	67.84	0.42	74.15	0.33	202.27	0.25	14.36	
Permanent	0.30	8.01	0.43	56.03	0.46	81.96	0.45	295.09	0.43	28.44	
Regions	Yes		Yes		Yes		Yes		Yes		
Occupation	Yes		Yes		Yes		Yes		Yes		
Industry	Yes		Yes		Yes		Yes		Yes		
An intercept is included in all specifications. Base categories are: Illiterates for education. Others for caste											