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

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Abstract

We use data from the Employment-Unemployment Schedule of two large rounds of the National Sample Survey, viz., the 55th round in 1999-00 and the 66th round in 2009-10 to explore gender wage gaps among Regular Wage/Salaried workers, not only at the mean, but along the entire distribution to see "what happens where". The average wage gap for RWS workers, expressed as a percentage of female average wages, has declined from 30 percent to 26 percent over this decade. Blinder- Oaxaca decompositions indicate that the bulk of the wage gap is unexplained, i.e. possibly discriminatory. While average characteristics for women in RWS have improved over the decade, the discriminatory component of the wage gap has also increased. In 2009-10, if women were paid like men, they would earn more than men on account their characteristics. Moving beyond averages, for both years, male wages are higher than female wages across the entire wage distribution. Also, for both years, we see the existence of the "sticky floor", in that wage gaps are higher at lower ends of the distribution and steadily decline over the distribution. Machado-Mata-Melly decompositions reveal that RWS women at the lower end of the distribution face higher discriminatory gaps in wages.

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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".[2] 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[3] 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.[4]

This paper analyses the issue of gender parity in wages by focusing on the evolution of male-female wage gaps for an emerging economy, India, and decomposes the gaps to understand patterns of gender-based labour market discrimination. We use data from the Employment-Unemployment Schedule (EUS) of two large rounds of the National Sample Survey (NSS), viz., the 55th round in 1999-00 and the 66th 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

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[2] http://recode.net/2014/10/09/open-mouth-insert-foot-microsoft-ceo-tells-women-techies-to-trust-karma-on-pay-inequity/, accessed on 23rd November 2014.

[3] This requires that men and women at the same workplace get equal pay for equal work.

[4] http://asda.payjustice.co.uk/asda-campaign/, and
http://www.theguardian.com/business/2014/oct/24/asda-mass-legal-action-equal-pay, accessed on 31st October 2014;

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) and quantile decomposition (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, and thus this adds significant value to the larger study of the contemporary nature of gender inequality in India.[5]

Our main findings are as follows: over the decade from 1999-00 to 2009-10, labour force participation rates (LFPRs) have declined for both men and women. In 2009-10, these were 85.2 and 32.4 percent for men and women, respectively. In a four-way division of workers into Self-Employed, Regular Wage-Salaried (RWS) workers, Casual Labour and Unemployed, in 2009-10, the sharpest gap is in the proportion of male and female workers in RWS work, The average (raw/unconditional) wage gap for RWS workers, expressed as a percentage of female average wages has declined from 30 percent to 26 percent over this decade. At the same time, educational attainment of women has increased over the decade and a greater proportion of women are in professional occupations than men, which could explain some of the decline in average wage gap. Both in 1999-00 and in 2009-10, average female wages are less than male within the same education level, occupation and industry, and type of work, i.e. public versus private sector, permanent or temporary, union member or not.

Our estimates of BO decomposition indicate that the bulk of the wage gap is unexplained, i.e. possibly discriminatory. While average characteristics for women in RWS have improved over the decade, the discriminatory component of the wage gap has also increased. In 2009-10, if women were paid like men, they would earn more than men on account their characteristics

Moving beyond average wages, for both years, male wages are higher than female wages across the entire wage distribution. For both years, we find that the gender wage gap decreases as we move from lower to higher deciles. ,In 2009-10, the highest gap across deciles is at the 1st decile (103 percent), and it declines steadily thereafter to reach approximately 7 percent at the 9th decile. Thus, for both years, we see the existence of the "sticky floor", in that wage gaps are higher at lower ends of the distribution and steadily decline over the distribution. However, comparing the estimated gaps over the decade, we see that while overall gaps have declined for 10th to 60th percentiles, for the 70th to 90th percentiles, gaps have increased. In both years, the MMM decomposition reveals that coefficients effect is higher at the lower end of the distribution than

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at higher ends, suggesting 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 outlines the methodology; Section 4 describes the data and presents summary statistics; Section 5 contains the 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

2.1 Measuring and Understanding Participation Rates

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. A significant 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.

There are studies linking labour force participation rates (LFPRs) with the 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.[6] 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.

For India, gender differences in LFPRs, with a focus on the persistently low levels of female LFPRs have been analysed extensively (e.g. Mukhopadhyay

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[6] 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 (See Chaudhary and Verick, 2014 for an extensive list of references on this debate).

and Tendulkar 2006, Chaudhary and Verick, 2014, among others). In a comprehensive study covering the last two decades, Klasen and Pieters (2013) 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 samples of National Sample Survey (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.

2.2a Understanding the Gender Wage Gap: Returns to Characteristics

In addition to clear and persistent difference 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. For reasons, discussed below, we take the LFPRs as given.

Formal sector, urban labour markets, presumably more meritocratic, are not immune to these differences either. Deshpande and Deshpande (1997) is an early overview study that compares summary statistics drawn from NSS reports for the 38th (1983) and 50th 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[7].

Duraisamy and Duraisamy (2005) use least squares as well as quantile regressions on data from the 50th round NSS EUS for 1993-4 to examine gender differences in wage premia associated with various educational categories across states. Their study includes both RWS and casual workers. 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. Also, they work with seven categories of education. Finally, they calculate wage premia by dividing the differences in the parameter estimates of successive levels of education by the number of years it takes to get the degree.

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 internationally 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 2014, 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.

Kingdon and Unni (2001) analyse the 43rd 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

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[7] These findings are different from ours. We discuss this discrepancy in Section 4.

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 38th (1983), the 50th (1993-94) and the 55th (1999-00) and use the standard BO methodology, as well as its various refinements such as the Neumark, Cotton and Reimers methods. 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 50th (1993-94) 55th (1999-00) and 61st (2004-5) rounds of NSS for all nonfarm 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. These two studies differ in terms of the time period, and types of workers considered, but both point to an increase in the discriminatory component, on average, for regular wage workers.

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

We use Melly's refinement of the Machado-Mata (MM) methodology,[8] 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), using three rounds of NSS data, applies the Machado-Mata methodology to study the changing urban wage structure in India from 1983-2004, and finds that the increase in inequality after the 1990s is due to an

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[8] 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 based on caste over the period 1983-2005 using four rounds of NSS data.

increase in returns to covariates or the coefficients effect. Specifically, he finds that returns to education, especially tertiary education, account for increasing inequality. Azam and Prakash (2010), using the 61st round NSS-EUS data (2004-05), apply the MM methodology to study the public-private wage differentials in India, restricting their sample to RWS workers. They find that public sector workers earn more than private sector workers at all quantiles regardless of gender and area of residence, but that the contribution of coefficients rises at higher quantiles of the wage distribution and is largely responsible for the differences at the very top.

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, 2005; Arulampalam et al, 2007show 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, 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. While 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, we can evaluate them more precisely. Arulampalam et al (2007) define a "glass ceiling" as existing if the 90th 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 10th percentile is higher than that at the 25th percentile by at least two percentage points. Evaluation of whether women in the regular salaried sector in India face a glass ceiling or a sticky floor forms the crux of our paper.

3. Methodology

3.1 The Blinder-Oaxaca Methodology

The Blinder-Oaxaca (BO) decomposition method decomposes the difference in the arithmetic mean of logarithm of wages between two groups, in our case, men and women.

The following semi-log regression equation is run for both groups separately

$$\ln(W_i{}^s) = \beta_0{}^s + \sum_{k=1}^{K} X_{ki}{}^s \beta_k{}^s + u_i{}^s \qquad (1)$$

where s is either 'm' or 'w' (men or women), i stands for an individual observation. W stands for daily wage (in Rs. per day), X is a vector of K covariates, i.e. wage earning characteristics such as age, education and caste status. β is the vector of corresponding coefficients (returns to the K covariates). u captures all other factors that influence wage rates. We assume that $E(u_{si}|X_i) = 0$.

We can write the difference in average male and female wages as:

$$\overline{\ln(W^m)} - \overline{\ln(W^w)} = \left[\widehat{\beta_0^m} + \sum_{k=1}^{K} \overline{X_k^m} \widehat{\beta_k^m} \right] - \left[\widehat{\beta_0^w} + \sum_{k=1}^{K} \overline{X_k^w} \widehat{\beta_k^w} \right] \qquad (2)$$

where the coefficients are estimated from separate OLS regressions for males and females. To decompose this total difference, we add and subtract a counterfactual average wage. This counterfactual could be created by assuming that the non-discriminatory wage structure is the one faced by men. If women were to be paid this non-discriminatory wage, then the counterfactual average wage for women would be,

$$CF^w = [\ \widehat{\beta_0^m} + \sum_{k=1}^{K} \overline{X_k^w} \widehat{\beta_k^m}\ ] \qquad (3)$$

Adding and subtracting CF^w to equation (2) above, we get,

$$\overline{\ln(W^m)} - \overline{\ln(W^w)}$$

$$= \underbrace{\left[\widehat{\beta_0^m} - \widehat{\beta_0^w} \right] + \sum_{k=1}^{K} \overline{X_k^w} \left(\widehat{\beta_k^m} - \widehat{\beta_k^w} \right)}_{\text{"D" Unexplained (Discrimination)}}$$

$$+ \underbrace{\sum_{k=1}^{K} (\overline{X_k^m} - \overline{X_k^w}) \widehat{\beta_k^m}}_{\text{"E" Explained (characteristics)}} \qquad (4)$$

The first two terms are that part of the total difference in average logarithm of wages which arises out of the differing returns of men and women to the labour market characteristics that they possess. This difference in coefficients can be thought of as the discrimination component, as it will lead to a wage difference between the two groups even if both were to possess exactly the same characteristics/covariates. The final term represents the difference in average logarithm of wages that is due to different characteristics that men and women possess. This is the explained component of the average gender log wage difference.

If we assume the non-discriminatory wage structure to be the wage structure faced by women, then we get an alternative decomposition,

$$\overline{\ln(W^m)} - \overline{\ln(W^w)}$$

$$= \underbrace{\left[\widehat{\beta_0^m} - \widehat{\beta_0^w} \right] + \sum_{k=1}^{K} \overline{X_k^m} \left(\widehat{\beta_k^m} - \widehat{\beta_k^w} \right)}_{\text{"D" Unexplained (Discrimination)}}$$

$$+ \underbrace{\sum_{k=1}^{K} (\overline{X_k^m} - \overline{X_k^w}) \widehat{\beta_k^w}}_{\text{"E" Explained (characteristics)}} \qquad (5)$$

The issue of which particular counterfactual wage to choose is the familiar index number problem. The two examples of counterfactuals given above can be

thought of as two extremes, one representing an upper limit and the other a lower limit of discrimination. Other assumptions of non-discriminatory wage structures can be thought of as weighted averages of the two sets of coefficients. We provide estimates using the two counterfactuals explained above, and a third structure that uses coefficients from the pooled (men and women combined) OLS regression as the non-discriminatory wage structure.

3.2 Quantile Regression Decomposition Method

These methods are a generalization of the BO mean decomposition to decomposing quantiles. There are several methods that could be used for decomposing quantiles. Our focus is on the Machado Mata (MM) methodology (Machado and Mata 2005) that relies on quantile regressions.

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 $U[0,1]: u_1, u_2 \ldots., u_n$
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 n vectors, $\left\{\hat{\beta}_{u_j}^M\right\}_{j=1}^n$ and $\left\{\widehat{\beta}_{u_j}^W\right\}_{j=1}^n$, 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 $\left\{\tilde{X}_j^M\right\}_{j=i}^n$ and $\left\{\tilde{X}_j^W\right\}_{j=i}^n$
4) Finally, the counterfactual distributions are estimated as $\left\{Y_j^{cf} = \tilde{X}_j^M \widehat{\beta}_{u_j}^W\right\}$ or as $\left\{Y_j^{cm} = \tilde{X}_j^W \widehat{\beta}_{u_j}^M\right\}$, for $j = 1,2 \ldots, n$.

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

Melly (2006)'s procedure is numerically equivalent to the MM procedure described above, but is computationally less intensive. 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. We therefore use Melly's refinement of the MM methodology (hereafter, MMM).

At the θth 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,

$$\widehat{Q^m}(\theta) - \widehat{Q^w}(\theta) = \underbrace{\left[\widehat{Q^m}(\theta) - \widehat{Q^{cw}}(\theta)\right]}_{Effects\ of\ Coefficients} + \underbrace{\left[\widehat{Q^{cw}}(\theta) - \widehat{Q^w}(\theta)\right]}_{Effects\ of\ Characteristics} \qquad (\textbf{6})$$

$$\widehat{Q^m}(\theta) - \widehat{Q^w}(\theta) = \underbrace{\left[\widehat{Q^m}(\theta) - \widehat{Q^{cm}}(\theta)\right]}_{Effects\ of\ Characteristics} + \underbrace{\left[\widehat{Q^{cm}}(\theta) - \widehat{Q^w}(\theta)\right]}_{Effects\ of\ Coefficients} \qquad (\textbf{7})$$

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

4. Data and Descriptive Statistics

We use data from the 55th and 66th rounds of NSS-EUS (NSS-55 and NSS-66, henceforth) for the years 1999-2000 and 2009-10 respectively. The EUS provides wage information for casual labourers (CL) and regular wage and salaried (RWS) workers.[9] We exclude CL and only focus on RWS workers in this paper. This is because RWS workers for the most part 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 returns to characteristics such as education for CL and RWS should be very different given that CL are mainly employed in unskilled manual work, while RWS workers are employed in a whole range of unskilled, semi-skilled and skilled jobs.

Working Sample

We consider all those in the labour force[10] between the ages 15 and 59 (both years included). Based on their usual principal activity status, we identified the RWS workers (upa status 31). Within the RWS workers, we consider the full-time workers. Within these, we focused on those whose current weekly status is also RWS. NSS allows for multiple activities per person; however, the overwhelming majority (98.29 percent in 1999-2000 and 99.88 percent in 2009-10) of such individuals were working only in one activity, thus, we restrict our sample to such individuals. We calculate daily wage rates by dividing the total weekly earnings (received in kind or in cash) by the total days worked in that week. Following standard practice, we trim the sample at the two ends,

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[9] NSS defines these workers as those who worked in others' farm or non-farm enterprises (both household and non-household) and received salary or wages on a regular basis (as opposed to the daily or periodic renewal of work contract).

[10] These are all individuals whose usual principal activity (upa) status is 11, 12, 21, 31, 41, 51 and 81 in EUS data.

removing the top and bottom 0.05 percent of the wage distribution, in order to remove outliers and possible data entry errors. We are thus left with 34,131 observations for 1999-2000 and 33,676 observations for 2009-10.

4.1 Labour Force Participation

The next issue is selection into RWS employment, as opposed to Self-Employment, Casual Work and Unemployment. What factors determine these selections? Also, are the probabilities of workers selecting into these channels differentiated by gender? If yes, how does the importance of factors change according to gender? Other studies, such as Klasen and Pieters (2012) have analysed determinants of LFPRs. Our main focus is on wage gaps, but we start with some descriptive statistics on LFPRs.

Table 1: Labour force participation rates, by gender, 1999-2000 and 2009-2010

Labour Force Participation Rate
(% of working age population)

	Male	Female	All Persons
1999-2000	88.5	38.9	65.4
2009-2010	85.2	32.4	59.9
Difference over the decade	-3.3	-6.5	-5.5
% change	-3.7	-16.7	-8.4

LF participation rate is the percentage of population in the age-group 15-59 who is employed or unemployed

From Table 1 we see that over the last decade, labour force participartion rates (LFPRs) for both men and women have declined, with a larger decline in female LFPRs (FLFPRs). The latter continue to be low by international standards,[11] and this persistence of low FLFPRs in the context of high growth and a diversification of employment avenues is both a theoretical and empirical puzzle, the analysis of which needs a separate paper. For our purposes, we take the LFPRs as given, and we analyse gender wage gaps in this context.

However, there is one point that is worth mentioning here, and to which we will return in the discussion section, as we discuss the evidence of a "sticky floor". Klasen and Pieters (2012) analyse determinants of LFPRs for urban Indian women for the period 1987-2004 and find 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

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[11] Globally, female LFPRs have remained stable over 1990-2010 at roughly 52 percent. This average conceals a great deal of regional heterogeneity: FLFPRs 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)

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. Thus, the overall picture that characterizes women's participation in economic activity is one of low participation by conventional measures, and within that, concentration of economically active women in a limited range of home-based, and often unpaid activities.

Table 2 gives the break up of labour force, by gender, into four mutually exclusive and exhaustive work categories for the two years considered:

Table 2: Work categories in labour force, by gender, 1999-2000 and 2009-2010

Work Categories in the Labour Force
(shares as percentage of Labour Force)

	1999-2000			2009-2010			1999-00	2009-10
	Males	Females	All Persons	Males	Females	All Persons	Diff in share	Diff in shares
Casual Labour	34.3	45.0	37.2	37.0	43.0	38.6	-10.7	-6.0
Regular Wage Salaried	18.3	9.4	15.9	16.4	10.1	14.8	**8.9**	**6.3**
Self Employed	45.0	43.6	44.6	44.5	44.0	44.4	1.4	0.5
Unemployed	2.4	2.0	2.3	2.1	2.8	2.3	0.5	-0.8
Total	100	100	100	100	100	100		
Observations	203400	272204	68804	185696	139778	45918		

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 of women who are in the labour force. Compared to men, in both years, a larger share of women work as casual labourers, and a smaller share work as RWS workers. The change over the period shows that the RWS share for 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). The proportions of self-employment among men in the labour force are not very different from those among women, but the significant difference is in the share of men who are in RWS jobs.

Thus, gender differences in RWS shares have declined over the period.

4.2 Regular Wage Salaried (RWS) Employment

Within RWS workers, looking at the male-female shares over the ten year period, we find a small, albeit statistically significant, increase in the proportion of women (from 15.5 to 17.4 percent), and a corresponding decrease in the proportions of men (from 84.5 to 82.6 percent). Thus, men continue to get the overwhelming share of RWS jobs.

4.2.1 Daily Wages for RWS Workers

The EUS asks questions on weekly earnings and on the number of half-days worked in the week preceding the survey interview, both of which we use to estimate the daily wage rate. In this paper, raw wages refer to nominal daily wage rates measured in Indian Rupees.

	1999-2000			2009-2010		
	Male	**Female**	**All Persons**	**Male**	**Female**	**All Persons**
Regular Wage Salaried Workers						
Share (in %)	84.5	15.5	100	82.6	17.4	100
No. of Observations	28484	5647	34131	27684	5992	33676
Wages (in Nominal Rupees per Day)						
Average	155.8	120.3	150.3	332.1	264.2	320.3
Std. Deviation	136.2	124.5	135.0	320.1	303.4	318.3
First Decile	40.0	20.0	33.3	78.6	38.6	70.0
Median	117.6	67.0	114.3	214.3	136.1	200.0
Ninth Decile	300.0	285.7	300.0	714.3	667.0	714.3
Gender Wage Gap (as % of Female Wage)			1999-2000			2009-2010
at the Mean			29.5			25.7
at the First decile			100.0			103.6
at the Median			75.5			57.5
at the Ninth Decile			5.0			7.1

Table 3 shows that the gender wage gap (calculated as difference in male and female wage rates as a percentage of female wage rate) is substantial in both years. The average gender wage gap declined from 29.5 percent in 1999-00 to 25.7 percent in 2009-10, while at the first decile, it increased from 100 to 103.6 percent. It declined at the median from 75.5 to 57.5 percent and increased marginally at the ninth decile. The detailed results below in Section 5 show that the gaps declined between the 2nd and the 6th deciles, thus, the sticky floor became "stickier" for the bottom 10 percent of workers, whereas the gaps decreased in the middle deciles of the wage distribution.

4.2.2 The Wage Distribution for RWS Workers

The average figures are revealing, but we need to go beyond the mean to look at the entire distribution. Figure 1and Figure 2 show the CDFs of male and female nominal log wage rates for the two years 1999-00 and 2009-10. The graph shows that 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. The graph shows that, in both years, the raw gender wage gaps are highest at the lowest deciles and steadily narrow towards the upper parts of the wage distribution.

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Figure 1: Empirical CDF of log daily wages, for men and women, 1999-2000
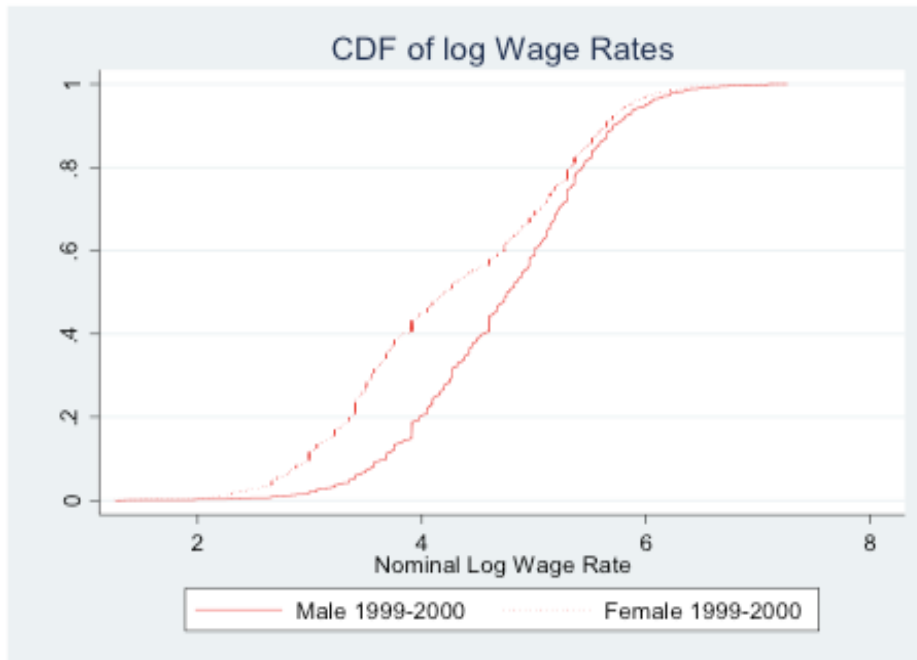
Figure 2: Empirical CDF of log daily wages, for men and women, 2009-2010
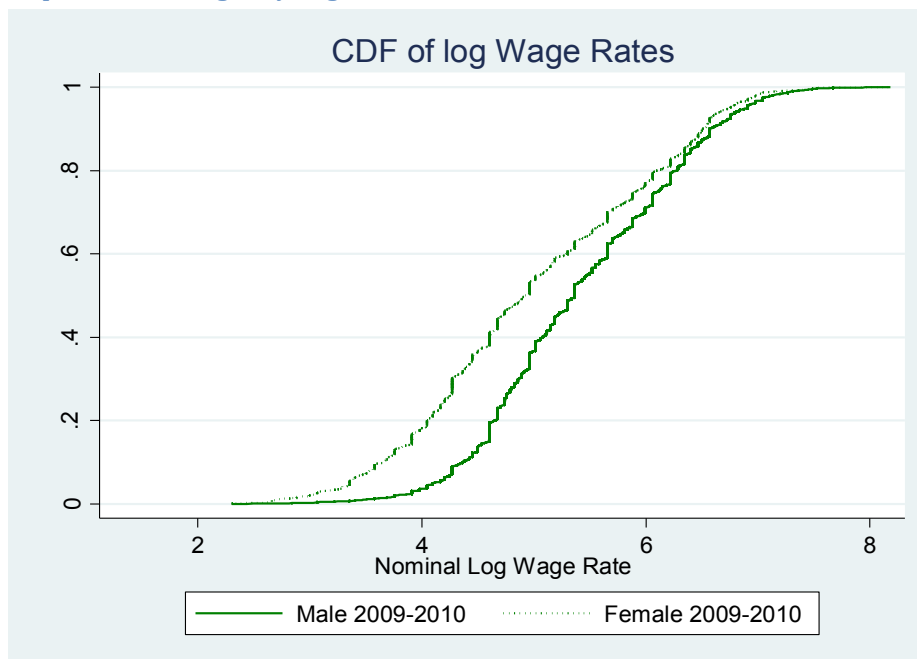
4.3 Other Key Descriptive Statistics

There are several factors that would account for these wage differences within RWS workers by gender: the distribution of men and women could differ in terms of their 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; and their social groups such as caste and religion. We examine each of these factors below.

a) Age

Ideally, we would have liked information on experience. Women often drop out of jobs during childbearing years, and resume after a few years, so they might have lower experience than men who have been working continuously. However, in the absence of direct data on experience, age is used as proxy for experience. The average age for all RWS workers is 35.6 years in 2009-10, with significant gender differences. We find that among RWS workers for both years, the average age of men is significantly higher than that of women (by about a year). Over time we find that the average age among RWS workers has fallen, a result being driven by males.

Table 4: Average age, by gender, 1999-2000 and 2009-2010

	1999-2000	2009-10
Male	36.2	35.8
Female	34.9	34.7
All persons	36.0	35.6

b) Urbanisation

The rural-urban division among all RWS has become more urban over the period, in that the percentage of urban workers in RWS has increased from 62.8 to 65.3 percent. However, in both years, there is no significant difference in the degree of urbanization between men and women.

Table 5: Average daily wage and sectoral shares, by gender, 1999-200 and 2009-2010

	1999-2000			2009-2010		
	Male	Female	All Persons	Male	Female	All Persons
Sectoral Distribution of Regular Wage Salaried 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
Observations	5295	28836	34131	27822	5854	33676
Average Wages of Regular Wage Salaried Workers (in Nominal Rupees per Day)						
Rural	132.6	87.4	125.7	255.9	166.7	239.9
Urban	169.5	139.2	164.8	372.2	318.3	362.9
Overall	155.8	120.3	150.3	332.1	264.2	320.3
Average Gender Wage Gap (as % of Female Wage)						
			1999-2000			2009-2010
Rural			51.7			53.5
Urban			21.8			16.9
Overall			29.5			25.7

In both years, within each sector, men earn higher wages than women. Examining changes in average wages for rural and urban areas separately, we find that the decline in overall gender wage gap, from 30 to 26 percent over the ten year period, is mainly driven by a decline in the urban wage gap from 22 to 17 percent, whereas the rural wage gap increased slightly, from 51.7 to 53.5 percent.

c) Educational Attainment

Table 6 shows the distribution of men and women across educational categories for both years.

Table 6: Educational Distribution and Wages of RWS workers by Gender, 1999-2000 and 2009-2010

	1999-2000			2009-2010		
	Male	Female	All Persons	Male	Female	All Persons
Educational Distribution of Regular Salaried Workers						
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 and Higher Secondary	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
Observations	28814	5288	33676	27818	5854	33672
Average Wages of Regular Wage Salaried Workers (in Nominal Rupees per Day)						
Illiterates	80.8	47.1	70.6	148.8	87.7	128.0
Primary and Below	92.1	59.8	88.0	158.3	99.0	149.2
Middle	106.7	65.2	102.9	190.8	110.8	181.1
Secondary and Higher Secondary	160.3	140.4	157.7	288.1	203.2	277.7
Graduate and Above	266.7	212.9	257.2	543.6	439.4	521.7
Overall	155.8	120.3	150.3	332.1	264.2	320.3
Average Gender Wage Gap (as % of Female Wage)						
		1999-2000			2009-2010	
Illiterates		71.5			69.7	
Primary and Below		54.1			59.9	
Middle		63.6			72.1	
Secondary and Higher Secondary		14.2			41.8	
Graduate and Above		25.3			23.7	
Overall		29.5			25.7	

The first panel of the table shows clear and statistically significant gender differences in educational attainment among RWS workers. Proportion of illiterates among women is greater than that among men for both years, but it decreases from 22.5 percent to 14.9 percent. At the other end of the educational spectrum, viz, "graduates and above", proportions of women in this category are greater than the proportion of men for both years. In 2009-10, 42.6 percent of female RWS workers were graduates and above, compared to 33.8 percent of men. Thus, not only is the share of women in the highest educational category higher than men, it records a greater increase (16.3 percentage points for women) compared to men (11.1 percentage points).

For all categories of education, and for both years, average female wages are less than those for men. Matching the sticky floor effect, the gaps are much higher at the lower end than at the higher end of the educational spectrum. Gender wage gaps have declined for the two opposite ends of the educational spectrum: for illiterates from 71.5 to 69.7 percent, and for graduates and above from 25.3 to 23.7 percent. For the intermediate educational levels, these gaps have widened, with the largest increase seen in the "secondary and higher secondary" category, from 14.2 to 41.8 percent[12].

Madheswaran and Khasnobis (2007) summarize wider research that shows how gender differentiation begins prior to women's entry into the labour market. Highly educated women either do not enter the labour market, or might

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[12] This is different from the results in Varkkey and Korde (2013), but as discussed above, their sample is not representative, and their educational categories are not comparable to ours.

choose stereotypical female jobs, such as nursing, teaching administrative or clerical jobs (p.17). This occupational segregation might explain part of the gender wage gap among the most educated segment of RWS workers.

d) Occupational distribution

Dividing workers into seven occupational categories, that correspond roughly to the NCO 2004 one-digit occupational classification used in 2009-10,[13] we find that overall, while changes within each category over the ten year period are statistically significant, there does not appear to be a dramatic shift in the distribution of workers across occupational categories over the decade. The biggest change is in the sales and service workers category, where the proportion of workers has increased from 11.6 in 1999-2000 to 16.1 percent in 2009-10.

From Table 7 we see clear gender differences in occupational distribution in both years. In the category of Administrators and Managers (possibly representing the top of the earning spectrum), as well as in the category of Craftsmen and Machine Operators, the male proportion is more than twice the female share in both years. Professionals and Associate Professionals form the largest category for women in both years, employing close to 45 percent of all women in RWS employment. Notably, the share of RWS women who are Professionals and Associate Professionals is over 19 and 23 percentage points more than the corresponding share for RWS men in 1990-00 and 2009-10, respectively. This is consistent with the higher educational attainment of women, as noted earlier.

Comparing male-female wages within occupations, prima facie, it appears that in both years, and in all categories of occupation (except Administrators and Managers in 2009-10) , women earn a lower average wage compared to men. These differences in male-female wages are statistically significant in all cases, except for Administrators and Managers, Clerks and Related, in both years; for Skilled Agriculture and Fishery Workers in 1999-00; and for Sales and Service Workers in 2009-10; where they are not statistically significant.

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[13] Two different occupation classification systems have been used for the 55th and 66th rounds of the NSS: these are NCO 1968 and NCO 2004, respectively. We created our own concordance to arrive at the seven broad occupational categories used in this paper. We broadly followed the concordance that can be found at: http://econdse.org/deepti-miscellaneous/
However, as we lost 10 percent of observations in the 55th round if we followed this concordance, we improved the concordance further by reclassifying some lower level categories.

Table 7: Occupational distribution and average daily wages, by gender, 1999-2000 and 2009-2010

	1999-2000			2009-2010		
	Male	Female	All Persons	Male	Female	All Persons
Occupational Distribution of Regular Wage Salaried Workers (in %)						
Administrators, Managers	3.8	1.5	3.5	4.5	1.6	4.0
Professionals, Associate Professionals	24.5	44.6	27.6	21.5	44.4	25.5
Clerks and Related	13.4	11.9	13.2	11.8	10.7	11.6
Sales & Service Workers	11.7	10.9	11.6	16.8	12.7	16.1
Skilled Agriculture and Fishery Workers	1.2	0.4	1.1	0.8	0.7	0.8
Craftsmen, Machine Operators	33.8	15.1	30.9	32.5	9.2	28.4
Labourers, Unskilled Workers	11.6	15.7	12.2	12.2	20.7	13.7
Total	100	100	100	100	100	100
Observations	26095	4752	30847	27783	5849	33632
Average Wages of Regular Wage Salaried Workers (in Nominal Rupees per Day)						
Administrators, Managers	367.3	332.3	365.0	765.2	847.7	771.1
Professionals, Associate Professionals	243.6	172.4	225.9	549.9	349.8	489.3
Clerks and Related	177.4	176.3	177.3	393.4	369.5	389.6
Sales & Service Workers	93.6	67.0	89.8	224.0	183.3	218.5
Skilled Agriculture and Fishery Workers	98.0	95.0	97.9	198.6	84.6	179.0
Craftsmen, Machine Operators	118.2	49.2	113.0	223.1	122.4	217.5
Labourers, Unskilled Workers	91.8	56.5	84.8	177.5	99.1	156.9
Overall	160.1	126.6	154.9	332.1	264.2	320.3
Average Gender Wage Gap (as % of Female Wage)						
			1999-2000			2009-2010
Administrators, Managers			10.5			-9.7
Professionals, Associate Professionals			41.3			57.2
Clerks and Related			0.6			6.5
Sales & Service Workers			39.7			22.2
Skilled Agriculture and Fishery Workers			3.2			134.6
Craftsmen, Machine Operators			140.0			82.3
Labourers, Unskilled Workers			62.5			79.2

(Note: the numbers in red are not statistically significant).

We see that in the Professionals and Associate Professionals category, the wage differential has actually increased from 41 to 57 percent. Similarly, at the lower end of the occupational spectrum, viz., Labourers and Unskilled Workers, wage differentials have increased from 63 to 79 percent. The proportion of women in the category of Craftsmen and Machine Operators has decreased, and so has the gender wage gap. In the Sales and Service Workers category, the gender wage gap has decreased over the decade such that it is not significant in 2009-10.

e) Industrial distribution

Dividing RWS workers in a seven-fold division of industries, we find that overall, about a quarter of all workers are in "manufacturing and construction" sector. Other industries with a large proportion of workers are utilities; wholesale and retail trade; public administration and education (other services). Share of the workforce in agriculture and public administration has decreased over the decade, and the share in wholesale and retail trade, finance and education has increased. Examining the gender differences, we find that for both years, the proportions of men are significantly different from women in all industries, except for wholesale and retail trade. Thus, men and women work in different industries.

Table 8: Industrial distribution and average daily wage, by gender, 1999-2000 and 2009-2010

	1999-2000			2009-2010		
	Male	Female	All Persons	Male	Female	All Persons
Industrial Distribution of Regular Wage Salaried Workers (in %)						
Agriculture, Mining	6.0	8.0	6.3	4.4	3.0	4.2
Manufacturing, 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 and Retail Trade, Repair	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 and Defence	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
Observations	28836	5295	34131	27822	5854	33676
Average Wages of Regular Wage Salaried Workers (in Nominal Rupees per Day)						
Agriculture, Mining	91.7	49.8	83.5	230.2	122.2	216.6
Manufacturing, Construction	126.8	62.5	119.7	255.1	154.0	246.1
Utilities	153.0	167.0	153.7	308.8	381.5	312.4
Wholesale and Retail Trade, Repair	75.0	64.1	74.5	168.8	145.3	167.2
Finance, Real Estate	271.5	258.5	270.0	572.1	534.3	566.9
Public Administration and Defence	217.6	172.5	212.8	484.1	363.8	467.4
Other Services	174.7	129.4	159.7	403.8	263.7	353.1
Overall	155.8	120.3	150.3	332.1	264.2	320.3
Average Gender Wage Gap (as % of Female Wage)						
			1999-2000			2009-2010
Agriculture, Mining			84.0			88.4
Manufacturing, Construction			102.9			65.7
Utilities			-8.4			-19.1
Wholesale and Retail Trade, Repair			17.0			16.2
Finance, Real Estate			5.0			7.1
Public Administration and Defence			26.2			33.1
Other Services			35.0			53.2
Overall			29.5			25.7

(Note: the numbers in red are not statistically significant).

Intra-industry gender wage gap

Other than for Utilities and for Finance and Real Estate, for all other industries, the average female wage is statistically significantly lower than the corresponding male wage. Thus, across a whole range of industries, male-female wage gaps are persistent over the decade. While the overall gender wage gap has declined, it has increased for primary industries namely, Agriculture and Mining; for Public Administration and Defence; and for Other Services. The decline in the overall gap is driven largely by the decline in gaps within the Manufacturing and Construction industry. This is due to the large magnitude of decline and because this industry forms a significant share of RWS workers for both men and women.

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

One of the key factors affecting both average wages and the wage distribution is the division of RWS workers between public and private sector jobs. Overall the proportion of all RWS workers in the public sector has gone down over the decade from 37 to 33.5 percent.

In both years, in both the public and private sectors, women are, on average, paid statistically significantly less than men. The noteworthy feature about male-female wage differential is that whereas in 1999-2000, the unconditional (raw) male-female gap was larger in the private sector (40 percent, compared to 23 percent in the public sector), by 2009-10, the picture had reversed, such that gaps in the public sector were higher (at 36 percent), than in the private sector (28 percent).

	1999-2000			2009-2010		
	Male	Female	All Persons	Male	Female	All Persons
Public/Private Distribution of Regular Salaried 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
Observations	25703	4598	30301	27283	5718	33001
Average Wages of Regular Wage Salaried Workers (in Nominal Rupees per Day)						
Public Sector	229.9	186.9	222.9	515.9	378.5	487.6
Private Sector	120.4	86.2	115.4	251.9	196.9	243.3
Overall	160.0	125.6	154.8	336.7	269.2	325.0
Average Gender Wage Gap (as % of Female Wage)						
			1999-2000			2009-2010
Public Sector			23.0			36.3
Private Sector			39.6			28.0
	1999-2000			2009-2010		
	Male	Female	All Persons	Male	Female	All Persons
Union Distribution of Regular Salaried Workers						
Non-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
Observations	27563	5068	32631	26613	5560	32173
Average Wages of Regular Wage Salaried Workers (in Nominal Rupees per Day)						
Non-Member	112.4	74.8	106.6	255.4	185.7	243.3
Union Member	207.9	175.5	202.9	486.6	431.1	477.1
Overall	156.2	120.9	150.7	332.8	266.3	321.3
Average Gender Wage Gap (as % of Female Wage)						
			1999-2000			2009-2010
Non-Member			50.4			37.6
Union Member			18.5			12.9
	1999-2000			2009-2010		
	Male	Female	All Persons	Male	Female	All Persons
Permanent/Temporary Distribution of Regular Salaried Workers						
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
Observations	28464	5223	33687	27574	5790	33364
Average Wages of Regular Wage Salaried Workers (in Nominal Rupees per Day)						
Temporary	79.1	50.9	74.6	175.3	127.6	167.2
Permanent	184.7	148.8	179.2	405.4	327.0	391.7
Overall	155.9	120.7	150.5	332.2	264.9	320.5
Average Gender Wage Gap (as % of Female Wage)						
			1999-2000			2009-2010
Temporary			55.5			37.4
Permanent			24.1			24.0

Union membership

Among RWS workers, the proportion of union members has declined by 13 percentage points over the decade, reflecting global trends as well as a decline in the share of public sector workers that are likely to be more organized in unions. 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.

Average wages of women within both members and non-members is significantly less than that for men for both rounds. However, the wage gap has declined within both members and non-members. A similar analysis of whether the workers are permanent or temporary (bottom panel of the table) 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 non-permanent categories.

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 and public visibility are supposed to be greater, the higher the caste status[14].

While a detailed assessment of the gender-caste overlap is outside the scope of this paper, 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). This group includes, but is not confined to, the Hindu upper-castes; however, 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 (UC) and the most marginalized SCs and STs.

Table 10: Caste distribution and average daily wage, by gender, 1999-2000 and 2009-10

	1999-2000					2009-2010
	Male	Female	All Persons	Male	Female	All Persons
Caste Distribution of Regular Wage Salaried 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	50.7	47.8	50.3	43.2	40.7	42.8
Total	100	100	100	100	100	100
Observations	28836	5295	34131	27822	5854	33676
Average Wages of Regular Wage Salaried Workers (in Nominal Rupees per Day)						
Scheduled Tribe	155.5	112.9	146.7	294.0	219.5	280.5
Scheduled Caste	131.7	89.9	125.0	268.9	160.3	247.2
Other Backward Classes	128.8	87.3	122.3	294.0	216.6	280.8
Upper	178.4	151.5	174.4	391.6	360.2	386.4
Overall	155.8	120.3	150.3	332.1	264.2	320.3
Average Gender Wage Gap (as % of Female Wage)						
			1999-2000			2009-2010
Scheduled Tribe			37.6			34.0
Scheduled Caste			46.6			67.8
Other Backward Classes			47.5			35.7
Upper			17.8			8.7
Overall			29.5			25.7

From Table 10, we note that first, the proportion of upper caste (non-SC-ST-OBC) 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

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[14] See Deshpande (2007) and (2011) for a discussion of the gender-caste overlap.

SC workers from 14.9 to 16.9 percent.. Among women, SCs and STs form a greater proportion than they do for men in both years. The share of upper castes among men is greater than their corresponding share among women.

However, looking at gender wage gaps by social groups, we see not only that SCs have the highest gender wage gap, but also that this has increased over the decade to stand at 67.8 percent in 2009-10. OBCs, STs and UCs see a decrease in the gender wage gap over the decade; in fact, the gender wage gap for UC RWS workers in 2009-10 is not significant. 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.

Religion

Table 11: Religion distribution and average daily wages, by gender, 1999-2000 and 2009-2010

	1999-2000					2009-2010
	Male	Female	All Persons	Male	Female	All Persons
Religion Distribution of Regular Wage Salaried 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
Christain	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
Observations	28836	5295	34131	27822	5854	33676
Average Wages of Regular Wage Salaried Workers (in Nominal Rupees per Day)						
Hindu	159.1	116.4	152.5	339.9	264.8	326.8
Muslim	118.5	95.3	116.5	236.9	218.2	234.9
Christain	164.1	145.1	157.5	388.3	296.1	358.6
Other	172.3	191.8	174.9	376.3	263.0	351.8
Overall	155.8	120.3	150.3	332.1	264.2	320.3
Average Gender Wage Gap (as % of Female Wage)						
		1999-2000				2009-2010
Hindu		36.6				28.3
Muslim		24.4				8.5
Christain		13.1				31.1
Other		-10.1				43.1

(Note: the Other category here comprises of several religions with very small population shares, such as Sikhism, Jainism, Buddhism, Zoroastrianism etc.)

Hindus form the largest proportion of RWS, reflecting their share in the population. The share of Christians has declined over the decade, but the magnitude is very small. Within RWS men, proportion of Muslims is greater than among RWS women, while for Christians, it is the other way around. Gender gaps in proportions for Hindus, very small in 1999-2000 have almost disappeared by 2009-10.

The gender wage gaps among Hindus have declined from 36.6 to 28.3 percent. For Muslims these have declined as well to become insignificant by 2009-10. For Christians, not only have the gender wage gaps increased, but have also become significant for 2009-10.

f) Regional differences

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

Table 12: Zonal distribution and average daily wages, by gender, 1999-2000 and 2009-2010

	1999-2000					2009-2010
	Male	Female	All Persons	Male	Female	All Persons
Zone Distribution of Regular Wage Salaried Workers (in %)						
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, Chattisgarh, 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
Kerela	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, Dadar Nagar Hav‹	5.9	4.5	5.7	7.1	6.1	6.9
Andaman Lakshwadeep	0.1	0.1	0.1	0.1	0.2	0.1
Total	100	100	100	100	100	100
Observations	28836	5295	34131	27822	5854	33676
Average Wages of Regular Wage Salaried Workers (in Nominal Rupees per Day)						
North East	138.8	92.7	128.0	351.3	217.5	324.8
Orissa, West Bengal	155.6	105.5	149.1	318.0	217.1	302.0
Bihar, Chattisgarh, Jharkhand	175.8	135.7	172.0	355.9	233.8	340.3
Andhra Pradesh	134.9	84.5	124.9	300.8	190.3	280.0
Madhya Pradesh	134.2	103.8	129.9	258.5	235.0	255.1
Maharashtra	160.7	142.6	158.3	385.8	375.9	384.2
Pondicherry, Tamil Nadu	130.6	101.8	123.9	311.7	246.6	297.5
Goa, Karnataka	152.4	115.1	145.6	363.3	238.7	332.8
Kerela	153.4	112.4	139.5	356.4	259.3	320.5
Jammu and Kashmir	186.7	185.2	186.6	346.4	345.0	346.2
Himachal Pradesh, Uttarakhand	184.6	175.5	183.3	371.7	325.9	364.1
Chandigarh, Delhi, Haryana, Punjab	201.3	219.7	203.2	334.2	324.8	332.9
Uttar Pradesh	143.2	94.2	138.7	308.8	237.6	300.3
Rajasthan	151.5	137.8	150.1	333.1	252.5	322.6
Gujarat, Daman Diu, Dadar Nagar Hav‹	163.6	150.5	162.0	281.4	227.6	273.3
Andaman Lakshwadeep	171.8	166.0	170.8	505.2	413.3	483.2
Overall	155.8	120.3	150.3	332.1	264.2	320.3
Average Gender Wage Gap (as % of Female Wage)						
			1999-2000			2009-2010
North East			49.7			61.5
Orissa, West Bengal			47.4			46.5
Bihar, Chattisgarh, Jharkhand			29.5			52.3
Andhra Pradesh			59.6			58.1
Madhya Pradesh			29.3			10.0
Maharashtra			12.7			2.6
Pondicherry, Tamil Nadu			28.3			26.4
Goa, Karnataka			32.5			52.2
Kerela			36.5			37.4
Jammu and Kashmir			0.8			0.4
Himachal Pradesh, Uttarakhand			5.2			14.1
Chandigarh, Delhi, Haryana, Punjab			-8.4			2.9
Uttar Pradesh			52.0			29.9
Rajasthan			9.9			31.9
Gujarat, Daman Diu, Dadar Nagar Haveli			8.7			23.7
Andaman Lakshwadeep			3.5			22.3
Overall			29.5			25.7

Table 12 reveals that the North-East part of the country, which consists of seven states, not only accounts for a small proportion of RWS workers, but has also seen a decline over the decade. The other set of states that also have low shares are the eastern, relatively poorer states of Bihar, Jharkhand and Chhattisgarh, again with substantial tribal populations. The shares of Uttar Pradesh and Tamil Nadu have decreased over the decade, whereas the shares of Jammu and Kashmir, Himachal Pradesh, Jammu and Kashmir, Uttaranchal, Gujarat have increased over the decade, even though the increase has been small in some cases.

In 2009-10, northern states of Rajasthan, Uttar Pradesh, Haryana, Punjab and Delhi show the highest gender gaps in proportions of RWS workers, although these have declined over the decade. Western states of Maharashtra and Gujarat, and Bihar, Jharkhand and Chhattisgarh are next in terms of gender gaps in shares of RWS workers. Thus, the traditional BIMARU states, notorious for poor social development, stay true to their reputation. Mahajan and Ramaswami (2015) discuss high female LFPRs in the south as a determinant of wage gaps. We see that southern states of Tamil Nadu, Karnataka, Goa, Pondicherry and Kerala, and to a small extent Andhra Pradesh, have higher shares within RWS women than men.

Coming to gender wage gaps, we see that these are significant for certain groups of states. The north-eastern states, Bihar, Jharkhand, Chhattisgarh, Andhra Pradesh, Madhya Pradesh (parts of the country under the grips of serious insurgency and conflict) have seen significant gender wage gaps in both years, except MP, where the gap becomes insignificant in 2009-10. The relationship between gender wage gaps in RWS work and the underlying socio-economic conditions appears to be complicated in that we also see that the southern states of Goa, Karnataka and Kerala, not conflict-ridden, also have significant gender wage gaps that have increased over the period. In Pondicherry and Tamil Nadu, wage gaps are significant but have reduced. In Uttar Pradesh, gaps have reduced but remain significant whereas in Rajasthan, gaps have increased to 31.9 percent, and are significant in 2009-10.

5. Results

Before we move to the regression results, we examine Figure 3, which shows the gender log wage gaps for both years across percentiles and at the mean, along with confidence intervals. In Section 4, we noted that the average wage gap has declined over the decade, which can be seen clearly in Figure 3. Looking at the wage gaps across the distribution, we notice first, that gaps are higher at lower ends of the wage distribution and decline, with some fluctuation, across the distribution in both years. From the 80th percentile onwards, the gaps have not changed significantly over the decade. The bulk of the change over the decade has occurred between the second and the sixth decile, where gender gaps have reduced over the decade. However, for workers at the lowest end of the unconditional distribution, the bottom 10 percent, gender log wage gaps in

2009-10 are higher than in 1999-2000. Thus, overall we see that it is the change in the middle of the distribution that contributes to a lowering of the wage gap over the decade.

Figure 3: Gender log wage gaps across percentiles and at the mean with 95% CI, 1999-2000 and 2009-2010
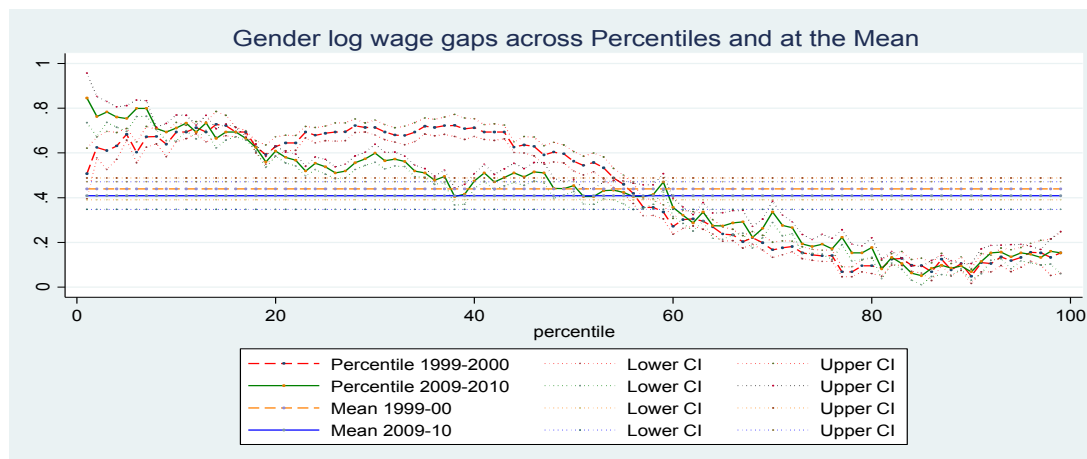
The discussion in the previous section was based on unconditional wage gaps, i.e. average wages were calculated across categories of a single factor such as education or occupation, but without controlling for other factors at the same time. In this section, we first present the estimates for the conditional mean and for the conditional quantile wage functions. This is followed by decomposition of the gender wage gaps, as explained in Section 3 above.

Tables 14 to 17 show the pooled, male and female wage equations for both years with two specifications: the personal characteristics (PC) or the partial specification, where log wages are regressed on only exogenous variables (age, age squared, caste dummies, married, education dummies, urban residence, zones); and the full specification which includes all the personal characteristics and additional controls for public sector, union membership, permanent job, occupation and industry dummies, some of which are potentially endogenous. The tables present both the OLS estimates as well as the estimates for the quantile regressions for the first, third, fifth (median), seventh and ninth deciles[15]. We first discuss the main highlights of the OLS results.

5.1 OLS Results

We see that the explanatory variables have the expected signs. Looking at the equation for 2009-10, we see that age has an inverse U-shaped impact on wages in the pooled sample under the full specification. ST, SC and OBC wages are significantly lower than those for Others. Being married, working in the public sector, being a union member and being in a permanent job has a positive effect on wages.

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[15] The results for all the deciles are available with the authors upon request.

Looking at the estimates of the separate regressions for men and women in 2009-10, we see that while all other social groups earn less than "Others", the coefficients for ST and SC are larger for men than women, but for OBCs, the coefficient for women is larger than men. Being married has a stronger effect on men than it has for women. However, the coefficients of all the education variables are larger for women than for men. Union membership and being in a permanent job has a stronger effect on female wages than male. Among the industrial classifications, being in wholesale and retail trade lowers wages, for both men and women, compared to being in a manufacturing or construction job.

5.2 Estimates from Quantile Regressions

From the pooled estimates for 2009-10 (Table 17), for the full specification, we see that the effect of age on wages remains uniform across the wage distribution. Compared to the Others, workers from the three other caste-tribe categories earn lower wages, controlling for other characteristics. The wage penalty of being ST and SC increases across deciles. For OBCs, this disadvantage diminishes initially, then rises from the 7th decile onwards. Returns to urban residence diminish across deciles.

For both years we see that the return to unionization decline as one moves up the wage distribution. [16] Another interesting result to note from the pooled quantile regressions is the coefficient of the gender dummy. This coefficient declines steadily across quantiles for both years, indicating that even after adding controls, the sticky floor effect persists. This regression, however, assumes that the returns to labor market characteristics are of the pooled sample. The MMM decomposition carried out later will allow for these returns to vary between men and women.

Comparing changes in the returns to the highest category of education, i.e. graduates and above, over the decade, we find that the returns to workers at the median and higher deciles have risen over the period, and that all education categories (relative to being illiterate) fetch higher returns to women compared to men. We also notice that the returns to graduate education rise over the wage distribution for men, but declines for women. These returns are relative to the omitted category (illiterates). The returns to urban location, being in a public sector job and having a permanent job are greater for women than for men at all deciles.

Men get higher returns to being married compared to 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. While the wage premium for being married declines steadily for men too, it is positive throughout the distribution.

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[16] 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.

5.3 Decomposition Results

5.3a. Blinder-Oaxaca decomposition

Corresponding to the OLS regressions, we decompose the average wage gap with the personal characteristics (partial) specification, as well as with the full specification, including personal, industry, occupation and other controls, each with three counterfactuals – the male wage structure, the female wage structure and the pooled wage structure. The full set of results is available with the authors; here we discuss the salient features of the full specification for the two rounds.

Table 13: The aggregate Blinder- Oaxaca decomposition, 1999-2000 and 2009-2010

	1999-2000			2009-10		
	Counterfactual			Counterfactual		
	Male	Female	Pooled	Male	Female	Pooled
Difference (ln wage)	**0.42**	**0.42**	**0.42**	**0.4**	**0.4**	**0.4**
Explained	0.03	0.10	0.05	-0.07	0.05	-0.04
Unexplained	0.39	0.32	0.37	0.46	0.35	0.43
% unexplained	93.23	76.94	88.52	116.53	87.24	108.88
GM male wage (INR)	119.73 (N=21747)			232.07 (N=25724)		
GM female wage (INR)	78.51 (N=4438)			156.14 (N=5550)		
N	**26185**			**31274**		

The geometric mean of daily wages for male RWS workers increased from Rs. 120 per day in 1999-2000 to Rs. 232 per day. As stated earlier in the paper, these are nominal amounts. For women, the corresponding amounts are approximately Rs.79 and Rs. 156 respectively. Note also that the increase in numbers of women in RWS over the decade is larger in proportional terms (25 percent) than for men (18 percent).

The overwhelming part of the male-female wage gap is due to coefficients or unexplained. In 1999-2000, using the male wage structure as the counterfactual, 93.23 percent of the wage gap was unexplained, whereas using the female counterfactual, 76.94 percent of the wage gap was unexplained. Using the pooled model as the counterfactual, 88.52 percent of the wage gap was unexplained.

By 2009-10, the corresponding numbers are 116.53, 87.24 and 108.28 percent, indicating an increase in the unexplained component. Using the male specification, the unexplained part of the wage gap is larger than the wage gap itself. A negative explained part implies that if women had been paid like men, i.e. with the same coefficients as men, they would have earned higher average wage than men, given the fact that their average characteristics have not only improved, but that in 2009-10, women in RWS had better characteristics than men. Thus, over the decade, the average characteristics of women in RWS employment have improved, but discrimination as measured by the market rate of return on their characteristics, has also increased.

Details of the decomposition exercise reveal the contribution of specific characteristics to the explained part. 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.

5.3b. MMM Decomposition

Counterfactual using the male wage structure

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)[17]. Figure 4 presents the total differential, and its decomposition into the characteristics and the coefficients component for each percentile. We also present the 95 % confidence intervals (dashed lines) for each of these components based on bootstrapped standard errors. Figure 5 presents the same components for 2009-10.

In 1999-2000, we see that the wage gap declines steadily across the deciles, with the highest gap at the 3rd percentile (a difference of 0.84 in log wages, which translates to a gap of 132 percent.) and the lowest at the 93rd percentile (a gap of 0.085 in log wages, translating to a difference of 9 percent).

Figure 4: MMM decomposition using male wage structure, 1999- 2000
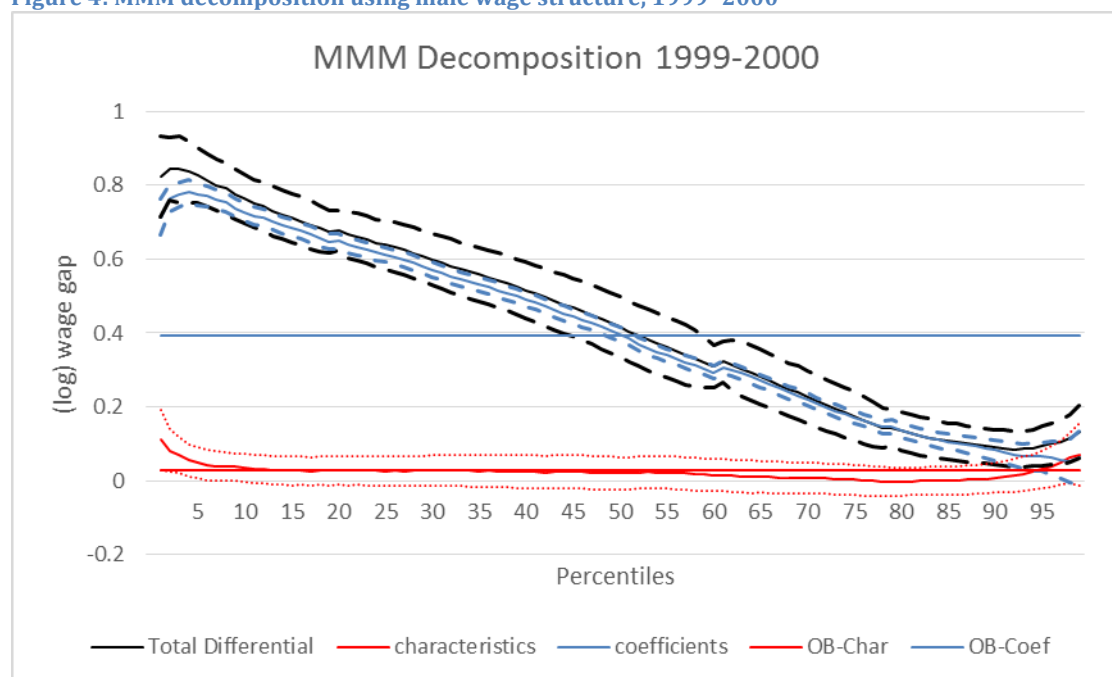
Similar to the BO mean decompositions, the overwhelming part of the wage gap is unexplained or due to coefficients. As the chart above shows, the line for the coefficients component is only marginally below the line for the overall

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[17] The results using the female wage structure are analogous and are available with the authors.

wage gap. Both the total differential and the coefficient component get smaller, but are significant throughout the distribution. Beyond the first decile, the characteristics component is insignificant throughout.

Thus, male-female wage gaps remain significant throughout the distribution, but decline in magnitude moving up the wage distribution. Given that characteristics are not significant for much of the distribution, if women were 'paid like men', i.e. if they faced the same coefficients, or returns to characteristics as men did in the labour market, we would not see a wage gap between men and women. (We see in the graph that the lines for the wage gap and the coefficients almost overlap).

Juxtaposing the MMM decomposition on to the BO decomposition, we see that the characteristics part of the mean (BO) decomposition is very close to the characteristics part of the MMM decomposition. This is not surprising, given that the absolute size of the characteristics effect is small and varies little over the wage distribution. However, the BO coefficients component is roughly at the middle of the quantile decomposition coefficients curve, validating the need to go beyond the mean, and look at the entire distribution.
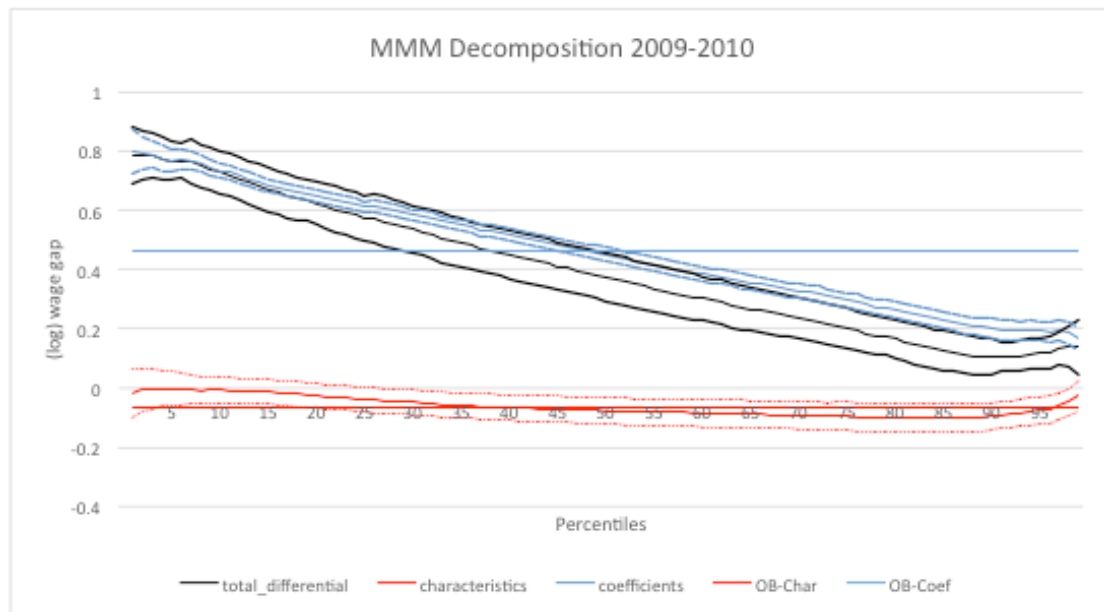
The MMM decompositions for 2009-10 (Figure 5) reveals that the estimated wage gaps, as well as the coefficients effect, remain significant over the entire distribution, like the previous round. However, the composition of the wage gap has changed over the decade. It is the contribution of characteristics that shows several changes over the period. One, unlike in 1999-2000, the characteristics effect is negative and significant beyond the third decile. . This is different from the 1999-2000 picture, where characteristics are significant for the first decile (bottom 10 percent). We see that in 2009-10, from the 3rd decile

upwards, the unexplained part of the wage gap is higher than the gap itself, a phenomenon captured by the mean decomposition as well. Looking at the confidence interval bands, we see that for the top two deciles, if women in RWS were 'paid like men', they would be paid more than men, due to the fact that they have better characteristics than the men.

Again, the B-O characteristics component is a fairly good approximation of the characteristics effect for the entire distribution. But similar to 1999-2000, the mean coefficients effect does not convey the picture for the whole distribution, underscoring the validity of the quantile decompositions.

For both rounds, we see the existence of the "sticky floor", in that wage gaps are higher at lower ends of the distribution (and steadily decline over the distribution), and the coefficients effect is higher at the lower end of the distribution than at higher ends, suggesting that RWS women at the lower end of the distribution face higher discriminatory gaps in earnings.

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. While the paper is not a causal analysis of these changes on wage gaps and gender discrimination, it raises questions about the likely association between these structural changes and wage disparities, and more broadly about discrimination. We see that these widespread changes have not been accompanied by an increase in female LFPRs. Also, only about 10 percent of women are in RWS jobs. Equally, if not more, worrying is the fact that women face adverse returns to their characteristics, in that at the top end of the wage distribution, where women have better characteristics than men, due to labour market discrimination, their average wages are lower than men.

Returns to human capital characteristics in the labour market have feedback effects, in that they could affect the decision to acquire education in the first place. Kingdon and Theopold (2008), using the 1993-4 and 1999-2000 NSS examine whether returns to education affect schooling participation, and find that for the poorer parts of the population, returns to education play a major part in schooling decisions than for the richer part. 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.

6.1 The Sticky Floor

The major contribution of our paper has been to highlight the sticky floor phenomenon in the gender wage gaps picture, in sharp contrast to the glass ceiling that is observed in several developed countries. Recent studies on China (Chi and Li, 2007), Thailand (Fang and Sakellariou, 2010), Sri Lanka

(Gunewardena, 2008), Vietnam (Reilly and Pham, 2006) and Philippines (Sakellariou, 2004) find a sticky floor effect for all these countries.

In comparison with the international literature, our study finds that the magnitudes of log wage gaps, on average and across quantiles are much larger for India as compared to other European nations. Consider the average wage gaps for the 24 countries examined in Christofides et al. (2010). Only three of those European nations[18] had average gender log wage gaps greater than those found in India. Among the 11 nations studies in Arulampalam et al. (2007), the largest average gender log wage gaps was found in Britain (0.25) and the lowest in Italy (0.063). Our study reveals an average log wage gap of 0.42 in 1999-2000, which reduces to 0.4 by 2009-10.

The decline in wage gaps as one moves from the bottom end to the top of the wage distribution is also quite drastic in the Indian case. According to Arulampalam et al. (2007) a sticky floor is defined to exist if the 10th percentile wage gap is higher than the 25th percentile wage gap by 2 percentage points. An alternate weaker definition would be to maintain the 2 percentage points criterion, but compare the 10th and the 50th 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. In this paper for 2009-10 the unconditional log wage gap at the 10th percentile is 0.71, whereas the gap at the 25th percentile is 0.54. This is a 17 percentage point difference, far greater than the 2 percentage point difference usually referred to. The percentage point difference between log wage gaps at the 10th percentile and the 50th percentile is even greater (26 percentage points). For 1999-2000, however, the gender gap is the same for the 10th and the 25th percentile (0.69). However, the gap between the 10th and 50th percentile is of 13 percentage points. Thus we can conclude that even in 1999-2000, gender gaps were characterized by a sticky floor using the alternative criteria outlined above. If we look at the gender gaps due to the 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. Therefore, the sticky floor effect in India is particularly "strong" when compared to other nations that find a similar effect, especially in Europe.

Over the decade, we find that while gender gaps for the bottom 10 percent have increased, the middle deciles (between the second and the sixth) have seen a reduction in gender wage gaps. Thus, the sticky floor has become 'stickier' for workers in the lowest part of the wage distribution, and less sticky for the middle deciles.

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[18] Cyprus, Estonia and the Czech Republic

6.2 Possible reasons for the sticky floor

One explanation for the sticky floor might be the statistical discrimination by employers. [19] In India, social norms place the burden of household responsibilities disproportionately on women. Because of this, men are perceived to be more stable in jobs vis-à-vis women. Given the higher probability of dropping out of the labour market, employers discriminate against women as they enter into 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 therefore, discriminate less. Men usually have more work experience or tenure than women on average. Women who have high levels of education and are at the top end of the distribution might be perceived to have high levels of commitment and due to their past investments in education are thought to be stable employees.

At the higher end of the wage distribution the nature of jobs are very different from those at the bottom. The women working in these jobs 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. Secondly, the payment mechanism in these jobs 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.

Contrast this to a situation where an employer is paying a regular wage to a woman with no education working in an elementary occupation, which is 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. Women at the bottom 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 that illiterate women workers are treated particularly unfavourably due to an abundant supply of unskilled male labour. Thus, a sticky floor could arise because anti-discriminatory policies are more effective at the top of the distribution.

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

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[19] For Spain, de la Rica et al. (2005) explained the sticky floor effect for workers with low education using a similar argument.

remunerations act (1976) were enacted after the equal remuneration ordinance was introduced in the year 1975. Absence of strong minimum wage legislations means that wage gaps can be larger at the bottom of the distribution.

Job segregation is a 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 low-paid group of production workers.

A limitation of a cross-section dataset of one country is that country-specific policies that affect wage distributions are unobservable and are subsumed in the intercept terms[20]. 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[21] 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 responsibilities, exhibit a glass ceiling effect. Countries where the index is smaller are more likely to be characterized by large gaps at the bottom of the distribution and small gaps at the top. 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. By enabling women to preserve their ties with the organisation they are working with and therefore incentivising investment in education and training, these women would earn relatively higher wages as compared to those who do not benefit from these policies. Women at the bottom of the distribution who do not get the benefits of such provisions would have a higher probability of dropping out of the labour force or participate less intensely in the labour market and employers could discriminate against them for this reason. This could be another possible reason for the sticky floor effect.

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[20] The detailed B-O decompositions reveal that a substantial part of the discrimination component stems from the differences in the intercept terms for men and women. Quantile regressions by gender imply similar results across the distribution.
[21]The Glass ceiling is defined based on the 90-50 pay difference and the sticky floor defined on the 10-50 pay difference.

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) for all states for the period under consideration 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. 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 that the picture appears to be more complicated. 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. It is also the case that a greater number of states among the low-growth states have insignificant gender wage gaps in 2009-10. 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 multi-dimensional 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" [22]. The top ten countries with the lowest gender gaps include very diverse countries such as Iceland, Scandinavian 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 26th 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 one, and includes jobs that are permanent, well paid with benefits, and are in the formal sector. Several of these workers are

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[22] http://www.weforum.org/issues/global-gender-gap, accessed on 31st October 2014

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 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. Over the decade, educational qualifications of women in RWS jobs have increased such that in 2009-10, greater proportions of such women have higher education than men. We find that the average wage gap has declined from roughly 29 to 26 percent.

However, 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, while the gap has declined, 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 educational characteristics were valued in the labour market at the same rate as the male ones), women would earn 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 the gaps are higher at the lower end, and also the discriminatory part of the gap is higher for workers at the lower end of the wage distribution. Over the decade, the gap at the first decile, i.e. the bottom 10 percent of workers, has increased but has declined in the middle (from the second to the sixth decile). There is no change in the wage gaps at the top end 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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Table 14: OLS and Quantile Regressions, Partial Specification: 1999-2000

OLS and Quantile Regressions: Personal Characteristics (Partial) specification, 1999-2000

Pooled

Deciles

	1st Coeff	1st t-ratio	3rd Coeff	3rd t-ratio	Median Coeff	Median t-ratio	7th Coeff	7th t-ratio	9th Coeff	9th t-ratio	OLS Coeff	OLS t-ratio
age	0.06	8.14	0.05	11.36	0.06	18.43	0.07	19.19	0.07	14.56	0.06	14.36
agesq_100	-0.04	-4.91	-0.02	-4.24	-0.04	-9.80	-0.06	-11.98	-0.06	-9.40	-0.04	-7.87
male	0.68	23.66	0.41	22.52	0.28	18.02	0.15	8.03	0.13	6.91	0.33	17.02
ST	0.10	2.30	0.12	3.83	0.10	3.41	0.11	3.17	0.09	2.31	0.11	3.59
SC	-0.07	-2.32	0.00	0.19	0.01	0.66	0.01	0.83	0.00	-0.19	-0.01	-0.39
OBC	-0.13	-5.21	-0.06	-4.13	-0.06	-4.86	-0.05	-4.11	-0.06	-3.60	-0.07	-5.23
married	0.21	7.67	0.18	10.86	0.15	10.88	0.11	6.80	0.06	2.73	0.16	8.55
Primary&bel	0.13	3.58	0.26	11.17	0.26	13.15	0.23	9.87	0.11	4.76	0.22	9.75
Middle	0.28	8.15	0.42	17.60	0.43	22.20	0.37	17.96	0.28	11.40	0.38	18.02
Sec&high sec	0.58	17.84	0.77	34.26	0.77	43.28	0.72	38.87	0.61	26.99	0.72	35.95
Grad&above	0.93	24.47	1.21	47.98	1.20	61.74	1.14	55.45	1.08	39.80	1.15	47.61
urban	0.25	11.55	0.16	11.98	0.13	11.72	0.13	10.42	0.14	8.04	0.17	10.93
Constant	1.23	9.74	1.95	27.07	2.12	34.95	2.41	35.12	3.04	34.88	2.16	29.39
zones	Yes		Yes		Yes		Yes		Yes		yes	
N	34102										34102	R-sq= 0.4796

(Base categories: illiterates for education, Others for caste)

OLS and Quantile Regressions: Personal Characteristics (Partial) specification, 1999-2000

Men

Deciles

	1st Coeff	1st t-ratio	3rd Coeff	3rd t-ratio	Median Coeff	Median t-ratio	7th Coeff	7th t-ratio	9th Coeff	9th t-ratio	OLS Coeff	OLS t-ratio
age	0.06	7.36	0.05	10.09	0.06	14.96	0.08	16.39	0.07	12.25	0.06	13.59
agesq_100	-0.05	-4.77	-0.02	-3.98	-0.04	-8.32	-0.06	-10.59	-0.06	-8.33	-0.05	-8.10
ST	0.10	1.83	0.10	2.93	0.08	2.10	0.12	2.51	0.10	2.20	0.09	2.88
SC	-0.08	-2.33	0.01	0.34	-0.01	-0.37	0.00	-0.26	-0.02	-1.05	-0.03	-1.42
OBC	-0.11	-4.02	-0.05	-3.46	-0.04	-3.18	-0.04	-2.70	-0.06	-3.10	-0.06	-4.51
married	0.22	6.18	0.19	9.07	0.14	7.31	0.11	4.95	0.07	2.23	0.16	7.10
Primary&bel	0.15	3.53	0.21	8.91	0.19	8.90	0.13	5.71	0.10	3.72	0.16	7.21
Middle	0.28	6.74	0.38	14.80	0.36	16.49	0.28	11.90	0.24	8.54	0.32	14.42
Sec&high sec	0.59	15.04	0.70	30.23	0.67	32.62	0.59	25.83	0.54	20.48	0.63	30.10
Grad&above	0.90	18.62	1.13	43.79	1.09	49.26	1.02	41.38	1.03	30.49	1.05	37.60
urban	0.23	9.07	0.15	10.41	0.12	9.36	0.13	8.80	0.13	6.88	0.16	9.77
Constant	1.77	11.70	2.38	28.77	2.46	33.20	2.61	31.96	3.15	30.08	2.49	30.19
zones	Yes		Yes		Yes		Yes		Yes		yes	
N	28462										28462	R-sq=0.4699

OLS and Quantile Regressions: Personal Characteristics (Partial) specification, 1999-2000

Women

Deciles

	1st Coeff	1st t-ratio	3rd Coeff	3rd t-ratio	Median Coeff	Median t-ratio	7th Coeff	7th t-ratio	9th Coeff	9th t-ratio	OLS Coeff	OLS t-ratio
age	0.02	1.68	0.04	4.12	0.05	20.60	0.05	15.17	0.05	16.04	0.05	4.49
agesq_100	-0.01	-0.34	-0.02	-1.29	-0.03	-9.80	-0.03	-7.42	-0.03	-8.09	-0.02	-1.66
ST	0.25	2.57	0.22	2.80	0.24	10.08	0.24	14.91	0.18	14.51	0.23	2.60
SC	0.01	0.13	0.01	0.22	0.13	10.86	0.12	8.50	0.08	5.90	0.10	2.18
OBC	-0.06	-0.93	-0.18	-3.98	-0.18	-17.82	-0.13	-10.14	-0.11	-9.07	-0.11	-2.80
married	0.16	2.89	0.15	4.10	0.16	18.93	0.04	3.75	-0.03	-2.94	0.11	3.04
Primary&bel	0.08	0.96	0.30	4.67	0.40	23.38	0.38	23.63	0.10	7.43	0.30	4.58
Middle	0.29	3.44	0.39	6.16	0.50	33.35	0.37	19.98	0.39	21.26	0.43	7.33
Sec&high sec	0.54	7.83	0.93	18.29	1.18	104.37	1.22	82.34	1.01	75.06	1.00	20.78
Grad&above	1.14	15.62	1.46	26.64	1.56	135.49	1.53	97.72	1.31	99.97	1.45	34.06
urban	0.29	5.28	0.28	7.00	0.12	12.27	0.10	9.46	0.20	20.19	0.21	5.04
Constant	1.83	7.82	1.88	10.26	2.09	43.88	2.66	43.76	3.18	57.69	2.16	11.89
zones	Yes		Yes		Yes		Yes		Yes		yes	
N	5640										5640	R-sq=0.464

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Table 15: OLS and Quantile Regressions, Full Specification: 1999-2000

OLS and Quantile Regressions: full specification, 1999-2000

Pooled — Deciles

	1st Coeff	t-ratio	3rd Coeff	t-ratio	Median Coeff	t-ratio	7th Coeff	t-ratio	9th Coeff	t-ratio	OLS Coeff	t-ratio
age	0.04	8.57	0.03	9.87	0.00	16.31	0.04	21.88	0.04	9.68	0.04	8.64
agesq_100	-0.03	-5.47	-0.02	-5.51	-0.03	0.00	-0.03	-13.29	-0.03	-6.09	-0.03	-5.1
male	0.65	30.21	0.39	26.68	0.30	0.01	0.22	31.48	0.17	10.56	0.37	19.03
ST	-0.02	-0.43	0.02	0.63	0.04	0.02	0.01	0.61	0.04	0.91	0.02	0.67
SC	-0.10	-4.55	-0.08	-5.25	-0.06	0.01	-0.07	-8.84	-0.07	-3.67	-0.07	-3.67
OBC	-0.10	-6.22	-0.09	-7.54	-0.09	0.01	-0.07	-11.53	-0.07	-4.74	-0.09	-6.76
married	0.12	5.85	0.10	6.95	0.08	0.01	0.06	7.57	0.04	2.13	0.08	4.24
Primary&bel	0.12	4.35	0.11	5.51	0.10	0.01	0.12	11.98	0.05	2.02	0.11	4.65
Middle	0.26	9.26	0.18	8.99	0.19	0.01	0.18	17.86	0.14	5.70	0.20	8.44
Sec&high sec	0.46	16.07	0.38	18.24	0.38	0.01	0.37	35.96	0.29	12.28	0.40	16.44
Grad&above	0.71	22.06	0.60	21.71	0.63	0.02	0.64	54.07	0.62	22.03	0.68	23.71
urban	0.24	14.47	0.15	13.03	0.13	0.01	0.13	21.18	0.16	9.80	0.17	10.53
public	0.40	20.41	0.31	24.59	0.27	29.84	0.20	27.37	0.12	6.08	0.26	13.91
union_memb	0.33	18.57	0.33	23.50	0.27	30.80	0.22	31.24	0.19	9.45	0.28	14.73
permanent	0.24	12.05	0.22	14.24	0.26	29.27	0.27	42.37	0.26	17.77	0.26	16.03
Agri&mining	0.20	3.51	0.29	7.75	0.28	10.65	0.28	14.71	0.24	5.66	0.26	7.63
Utilities	-0.02	-0.85	0.03	1.39	0.04	3.31	0.05	6.04	0.06	2.88	0.04	1.81
Wholesale, R	-0.23	-8.59	-0.17	-7.09	-0.21	-14.31	-0.22	-20.05	-0.22	-9.92	-0.21	-8.95
Finance, Rea	0.15	3.63	0.20	6.76	0.20	10.90	0.18	12.53	0.16	4.91	0.17	5.8
Public Admin	-0.03	-1.21	0.02	1.24	0.04	3.15	0.04	3.75	0.07	2.40	0.03	1.05
Other service	-0.20	-9.49	-0.08	-4.27	-0.03	-2.78	-0.03	-3.50	-0.02	-0.79	-0.09	-4.64
Constant	1.61	17.96	2.47	38.50	2.82	71.01	3.11	96.80	3.51	44.03	2.69	33.7
zones	yes										yes	
occupation	yes										yes	
N	26185										26185	R-sq=0.6022

OLS and Quantile Regressions: full specification, 1999-2000

Men

	1st Coeff	t-ratio	3rd Coeff	t-ratio	Median Coeff	t-ratio	7th Coeff	t-ratio	9th Coeff	t-ratio	OLS Coeff	t-ratio
age	0.05	10.77	0.04	10.17	0.038	10.4	0.04	17.62	0.04	10.71	0.04	8.45
agesq_100	-0.05	-7.63	-0.03	-6.13	-0.029	-6.44	-0.03	-11.14	-0.04	-7.2	-0.03	-5.58
ST	-0.06	-1.63	-0.01	-0.46	0.041	1.17	-0.03	-1.94	0.06	1.54	-0.01	-0.46
SC	-0.12	-6.13	-0.08	-5.37	-0.077	-5.43	-0.07	-7.34	-0.08	-4.52	-0.09	-4.15
OBC	-0.10	-6.87	-0.09	-7.8	-0.075	-6.71	-0.06	-7.41	-0.05	-4.46	-0.08	-6.1
married	0.12	5.79	0.10	6.47	0.085	5.31	0.05	5	0.04	2.05	0.09	3.97
Primary&bel	0.11	4.19	0.04	1.81	0.033	1.79	0.05	3.85	0.01	0.61	0.03	1.46
Middle	0.20	7.55	0.11	5.7	0.114	5.99	0.13	9.92	0.09	4.29	0.13	5.19
Sec&high sec	0.40	15.01	0.29	14.41	0.295	15.5	0.29	23.54	0.23	11.22	0.31	12.3
Grad&above	0.60	19.42	0.49	17.62	0.521	22.36	0.58	39.06	0.57	23.19	0.56	17.61
urban	0.19	12.74	0.12	10.89	0.117	10.62	0.12	16.42	0.15	10.1	0.15	8.54
public	0.39	22.10	0.30	23.83	0.246	19.05	0.19	20.38	0.12	6.6	0.25	12.87
union_memb	0.34	21.26	0.30	21.37	0.243	19.26	0.19	21.75	0.16	8.99	0.25	12.38
permanent	0.23	13.05	0.19	12.32	0.226	17.02	0.24	29.36	0.24	18.38	0.22	13.26
Agri&mining	0.22	4.45	0.28	7.91	0.270	7.37	0.26	13.01	0.21	5.8	0.26	7.73
Utilities	-0.01	-0.57	0.02	1.22	0.030	1.79	0.04	4.22	0.05	2.59	0.03	1.17
Wholesale, R	-0.23	-9.68	-0.21	-9.11	-0.244	-12.02	-0.26	-19.43	-0.25	-13.06	-0.24	-9.91
Finance, Rea	0.17	4.58	0.23	8.01	0.202	7.71	0.14	8.27	0.16	5.7	0.16	5.27
Public Admin	0.00	0.16	0.04	2.17	0.053	2.99	0.05	3.66	0.06	2.78	0.04	1.82
Other service	-0.13	-6.54	-0.05	-2.78	-0.007	-0.44	-0.04	-3.09	-0.03	-1.66	-0.07	-3.13
Constant	2.17	25.84	2.95	45.34	3.194	50.1	3.40	83.01	3.70	47.75	3.11	34.36
zones	yes										yes	
occupation	yes										yes	
N	21747										21747	R-sq=0.5993

OLS and Quantile Regressions: full specification, 1999-2000

Women

	1st Coeff	t-ratio	3rd Coeff	t-ratio	Median Coeff	t-ratio	7th Coeff	t-ratio	9th Coeff	t-ratio	OLS Coeff	t-ratio
age	0.02	2.82	0.02	5.22	0.03	31.61	0.03	.	0.02	4.12	0.02	1.65
agesq_100	0.00	-0.23	0.00	0.93	-0.02	-14.03	-0.01	.	0.00	0.14	0.00	0.15
ST	0.32	5.73	0.09	3.14	0.14	22.31	0.14	.	0.02	0.76	0.17	2.05
SC	0.08	2.18	0.06	3.88	0.04	9.21	0.00	.	-0.10	-5.85	0.01	0.2
OBC	-0.06	-1.80	-0.05	-4.46	-0.11	-26.25	-0.12	.	-0.16	-11.14	-0.11	-2.53
married	0.02	0.75	0.06	5.67	0.06	18.60	-0.01	.	-0.03	-2.74	0.03	0.96
Primary&bel	0.27	5.47	0.26	12.71	0.25	50.01	0.23	.	0.14	6.33	0.23	3.5
Middle	0.41	7.99	0.32	15.61	0.24	39.85	0.35	.	0.28	9.82	0.30	4.26
Sec&high sec	0.79	13.77	0.87	37.68	0.77	126.04	0.83	.	0.68	23.85	0.76	9.53
Grad&above	1.36	23.19	1.24	50.01	1.01	151.63	1.06	.	0.92	29.39	1.11	13.59
urban	0.38	13.11	0.24	19.96	0.19	54.40	0.15	.	0.19	14.34	0.26	6.26
public	0.37	10.89	0.39	30.57	0.28	74.65	0.25	.	0.15	9.76	0.30	6.59
union_memb	0.35	9.79	0.50	39.85	0.41	114.25	0.35	.	0.24	15.82	0.40	8.94
permanent	0.35	9.78	0.43	33.41	0.45	127.53	0.43	.	0.43	32.07	0.40	9.33
Agri&mining	0.10	0.54	0.45	8.41	0.46	23.60	0.55	.	0.53	8.09	0.40	1.47
Utilities	0.16	2.46	-0.18	-7.30	-0.06	-5.42	0.08	.	0.15	4.07	0.00	0.06
Wholesale, R	-0.27	-3.28	-0.29	-8.91	-0.11	-11.19	-0.20	.	-0.20	-4.88	-0.19	-1.97
Finance, Rea	0.14	1.64	0.01	0.41	0.13	12.32	0.23	.	0.36	10.07	0.16	2.1
Public Admin	-0.22	-3.73	-0.24	-10.03	-0.09	-12.22	-0.01	.	0.16	6.04	-0.11	-1.6
Other service	-0.44	-8.82	-0.25	-13.20	-0.15	-25.00	-0.06	.	0.03	1.41	-0.22	-4.35
Constant	1.65	11.54	2.21	40.05	2.50	148.17	2.79	.	3.36	44.02	2.58	13.97
zones	Yes										yes	
occupation	Yes										yes	
N	4438										4438	R-sq=0.6109

Table 16: OLS and Quantile Regressions, Partial Specification: 2009-10

OLS and Quantile Regressions: Personal Characteristics (Partial) specification, 2009-10

Deciles

Pooled

	1st Coeff	t-ratio	3rd Coeff	t-ratio	Median Coeff	t-ratio	7th Coeff	t-ratio	9th Coeff	t-ratio	OLS Coeff	t-ratio
age	0.04	4.71	0.02	3.55	0.02	4.26	0.02	4.91	0.05	12.30	0.03	5.84
agesq_100	-0.03	-3.29	0.00	0.63	0.01	1.26	0.01	1.23	-0.03	-5.89	-0.01	-0.94
male	0.64	23.50	0.49	23.88	0.41	21.07	0.26	13.57	0.24	13.04	0.38	17.06
ST	-0.15	-2.84	-0.01	-0.16	-0.05	-1.46	-0.02	-0.58	0.01	0.45	-0.02	-0.69
SC	-0.15	-5.10	-0.13	-5.89	-0.10	-4.92	-0.08	-4.16	-0.05	-2.77	-0.10	-4.59
OBC	-0.15	-5.19	-0.11	-5.85	-0.13	-7.18	-0.12	-7.17	-0.09	-5.31	-0.11	-5.58
married	0.23	7.11	0.17	7.99	0.11	5.54	0.08	4.11	0.04	2.25	0.13	5.70
Primary&bel	0.18	4.18	0.20	5.70	0.20	6.35	0.19	6.16	0.16	5.41	0.20	6.73
Middle	0.31	7.13	0.33	9.54	0.35	11.01	0.36	11.57	0.33	11.34	0.36	12.06
Sec&high sec	0.50	12.84	0.59	18.86	0.66	22.56	0.71	25.30	0.70	26.44	0.67	23.76
Grad&above	0.91	21.40	1.27	40.83	1.39	47.74	1.41	50.62	1.35	51.19	1.30	42.09
urban	0.27	9.23	0.25	13.68	0.20	12.78	0.18	12.35	0.18	13.31	0.24	12.13
Constant	2.40	17.38	3.07	30.81	3.37	35.83	3.73	40.01	3.83	45.20	3.25	34.95
zones	Yes		Yes		Yes		Yes		Yes		Yes	
N	33658										33658	R-sq=0.4629

(Base categories: illiterates for education, Others for caste)

OLS and Quantile Regressions: Personal Characteristics (Partial) specification, 2009-10

Deciles

Men

	1st Coeff	t-ratio	3rd Coeff	t-ratio	Median Coeff	t-ratio	7th Coeff	t-ratio	9th Coeff	t-ratio	OLS Coeff	t-ratio
age	0.05	5.56	0.03	3.44	0.02	4.42	0.03	5.71	0.05	12.96	0.03	6.15
agesq_100	-0.05	-4.50	0.00	-0.22	0.01	1.74	0.00	-0.07	-0.03	-6.25	-0.01	-1.64
ST	-0.12	-2.26	-0.01	-0.12	-0.05	-1.66	-0.04	-1.22	-0.03	-0.95	-0.03	-0.82
SC	-0.12	-4.12	-0.13	-4.73	-0.09	-4.78	-0.08	-3.77	-0.04	-2.30	-0.09	-3.84
OBC	-0.15	-5.25	-0.12	-4.90	-0.12	-7.64	-0.12	-6.05	-0.06	-4.08	-0.11	-5.11
married	0.23	6.02	0.16	5.16	0.10	5.03	0.05	2.07	0.04	1.89	0.12	4.49
Primary&bel	0.07	1.51	0.11	2.40	0.13	4.34	0.07	1.93	0.08	2.96	0.10	3.16
Middle	0.18	4.23	0.23	5.00	0.28	9.09	0.24	6.53	0.24	9.02	0.26	8.34
Sec&high sec	0.36	9.15	0.49	11.50	0.56	19.77	0.57	16.79	0.59	24.38	0.54	18.91
Grad&above	0.71	15.56	1.10	25.23	1.24	42.75	1.25	36.31	1.25	49.44	1.13	33.51
urban	0.23	7.84	0.22	9.60	0.18	12.94	0.16	9.63	0.16	12.34	0.21	9.87
Constant	3.01	20.08	3.57	27.40	3.85	45.11	3.99	38.73	4.12	51.76	3.66	36.53
zones	Yes		Yes		Yes		Yes		Yes		Yes	
N	27668										27668	R-sq=0.4452

OLS and Quantile Regressions: Personal Characteristics (Partial) specification, 2009-10

Deciles

Women

	1st Coeff	t-ratio	3rd Coeff	t-ratio	Median Coeff	t-ratio	7th Coeff	t-ratio	9th Coeff	t-ratio	OLS Coeff	t-ratio
age	0.03	3.99	0.01	3.71	0.04	3.46	0.04	4.97	0.04	4.94	0.03	2.67
agesq_100	-0.01	-1.12	0.01	2.15	-0.01	-0.81	-0.02	-1.72	-0.02	-1.60	-0.01	-0.46
ST	-0.28	-4.43	0.00	-0.01	-0.06	-0.83	0.00	0.09	0.05	1.07	-0.03	-0.37
SC	-0.14	-3.59	-0.10	-5.51	-0.06	-1.26	-0.10	-3.01	-0.17	-5.37	-0.11	-1.94
OBC	-0.13	-3.88	-0.10	-7.29	-0.03	-0.63	-0.11	-3.92	-0.16	-5.29	-0.11	-2.48
married	0.12	4.48	0.16	13.26	0.10	3.19	0.07	3.00	-0.04	-1.51	0.08	2.00
Primary&bel	0.56	10.62	0.35	16.39	0.27	4.54	0.28	6.51	0.21	4.88	0.31	4.61
Middle	0.54	10.50	0.48	19.72	0.50	7.78	0.49	10.60	0.26	6.33	0.48	6.60
Sec&high sec	1.00	21.36	0.81	40.89	0.99	19.03	1.07	27.54	1.00	26.54	0.95	14.51
Grad&above	1.64	38.20	1.74	96.82	1.88	38.98	1.82	49.33	1.55	47.70	1.70	29.90
urban	0.31	10.23	0.40	32.62	0.46	13.41	0.34	14.07	0.33	14.11	0.37	8.94
Constant	2.19	15.46	2.93	41.52	2.70	14.20	3.28	23.06	4.14	31.99	2.99	13.76
zones	Yes		Yes		Yes		Yes		Yes		Yes	
N	5990										5990	0.4962

Table 17: OLS and Quantile Regressions: Full Specification, 2009-10

OLS and Quantile Regressions: full specification, 2009-10

Pooled

Deciles

	1st Coeff	1st t-ratio	3rd Coeff	3rd t-ratio	Median Coeff	Median t-ratio	7th Coeff	7th t-ratio	9th Coeff	9th t-ratio	OLS Coeff	OLS t-ratio
age	0.03	4.86	0.02	5.14	0.02	6.23	0.02	5.97	0.02	4.29	0.02	4.72
agesq_100	-0.03	-3.89	-0.01	-2.44	-0.01	-2.59	-0.01	-1.87	-0.01	-1.04	-0.01	-2.15
male	0.63	26.94	0.48	29.35	0.39	25.84	0.33	21.71	0.34	17.27	0.43	18.49
ST	-0.10	-2.06	-0.11	-3.96	-0.08	-3.10	-0.09	-3.86	-0.14	-4.85	-0.08	-2.53
SC	-0.12	-4.48	-0.12	-7.48	-0.15	-9.78	-0.16	-11.08	-0.15	-7.89	-0.14	-6.98
OBC	-0.11	-4.14	-0.09	-6.03	-0.09	-7.04	-0.11	-8.60	-0.12	-7.27	-0.11	-5.88
married	0.17	5.45	0.13	7.92	0.05	3.19	0.03	1.75	0.00	-0.19	0.08	3.71
Primary&bel	0.15	3.66	0.07	2.68	0.10	4.36	0.08	3.49	0.09	3.18	0.10	3.31
Middle	0.23	5.70	0.20	7.99	0.18	7.35	0.19	8.32	0.21	7.49	0.20	7.07
Sec&high sec	0.37	9.58	0.35	14.49	0.33	14.25	0.36	16.25	0.40	14.61	0.37	12.92
Grad&above	0.62	10.67	0.67	23.98	0.66	25.59	0.73	28.90	0.81	26.09	0.73	17.64
urban	0.31	11.72	0.27	19.70	0.24	20.79	0.22	19.60	0.23	17.07	0.28	15.37
public	0.30	9.82	0.38	22.23	0.40	26.36	0.35	22.77	0.24	10.78	0.30	13.28
union_memb	0.28	11.72	0.28	20.45	0.23	18.83	0.17	13.87	0.13	7.65	0.23	13.76
permanent	0.19	7.56	0.18	13.19	0.23	18.21	0.27	22.61	0.31	20.59	0.25	15.17
Agri&mining	-0.60	-3.22	0.13	2.07	0.24	5.12	0.25	6.17	0.24	6.17	0.09	0.64
Utilities	0.03	1.09	0.05	2.51	0.05	2.61	0.04	2.18	0.11	4.90	0.06	2.78
Wholesale, R	-0.19	-4.57	-0.12	-5.27	-0.16	-7.46	-0.20	-9.92	-0.19	-7.58	-0.19	-6.71
Finance, Rea	0.14	2.81	0.16	5.42	0.16	5.91	0.16	5.57	0.12	3.66	0.14	4.13
Public Admir	0.01	0.25	0.05	2.03	0.04	1.95	0.04	2.04	0.09	3.27	0.04	1.49
Other service	-0.22	-8.12	-0.11	-6.25	-0.09	-5.01	-0.08	-4.77	0.02	0.94	-0.11	-4.71
Constant	2.47	18.72	3.27	42.63	3.59	51.29	3.95	59.97	4.39	55.28	3.52	39.30
zones	Yes										yes	
occupation	Yes										yes	
N	31274										31274	R-sq=0.5614

(Base categories: illiterates for education, Others for caste, manufacturing& construction for industry)

OLS and Quantile Regressions: full specification, 2009-10

Men

	1st Coeff	1st t-ratio	3rd Coeff	3rd t-ratio	Median Coeff	Median t-ratio	7th Coeff	7th t-ratio	9th Coeff	9th t-ratio	OLS Coeff	OLS t-ratio
age	0.05	6.06	0.02	5.44	0.03	6.88	0.02	6.01	0.02	3.78	0.03	5.33
agesq_100	-0.05	-5.31	-0.02	-3.03	-0.02	-3.64	-0.01	-2.09	-0.01	-1.01	-0.02	-2.98
ST	-0.11	-2.25	-0.09	-3.20	-0.08	-3.18	-0.10	-4.06	-0.19	-6.20	-0.09	-2.68
SC	-0.12	-4.57	-0.13	-8.09	-0.15	-9.42	-0.16	-10.43	-0.15	-6.44	-0.15	-7.19
OBC	-0.11	-4.15	-0.09	-6.28	-0.09	-6.45	-0.10	-6.97	-0.10	-5.04	-0.11	-5.39
married	0.16	4.48	0.11	5.76	0.05	2.90	0.04	2.06	0.04	1.50	0.08	3.11
Primary&bel	0.04	0.96	0.00	0.17	0.04	1.46	0.00	-0.16	0.02	0.59	0.01	0.49
Middle	0.14	3.42	0.12	4.51	0.12	4.37	0.11	4.55	0.14	3.82	0.12	4.13
Sec&high sec	0.26	6.56	0.26	10.09	0.26	10.25	0.28	11.70	0.31	9.14	0.28	9.46
Grad&above	0.42	6.93	0.51	16.90	0.54	18.89	0.59	21.92	0.69	18.69	0.57	13.40
urban	0.27	9.74	0.21	15.57	0.21	17.24	0.20	17.30	0.21	12.78	0.24	12.39
public	0.35	10.95	0.43	24.14	0.40	24.31	0.33	19.90	0.24	9.49	0.33	13.29
union_memb	0.27	10.86	0.24	17.39	0.21	15.67	0.15	10.90	0.12	6.21	0.20	11.00
permanent	0.17	6.62	0.19	13.36	0.22	16.34	0.26	20.45	0.29	16.53	0.24	13.54
Agri&mining	-0.58	-3.34	0.10	1.70	0.25	5.37	0.27	6.68	0.24	5.75	0.07	0.51
Utilities	0.01	0.42	0.03	1.50	0.03	1.46	0.05	3.19	0.10	4.02	0.04	1.93
Wholesale, R	-0.20	-4.99	-0.15	-6.93	-0.18	-8.61	-0.22	-10.79	-0.20	-6.85	-0.20	-7.17
Finance, Rea	0.10	2.01	0.13	4.29	0.17	6.01	0.17	5.69	0.11	2.60	0.13	3.77
Public Admir	-0.01	-0.15	0.02	0.81	0.06	2.78	0.04	2.85	0.09	2.90	0.04	1.53
Other service	-0.16	-5.87	-0.07	-3.82	-0.03	-1.89	-0.03	-1.77	0.05	1.73	-0.06	-2.44
Constant	3.04	22.15	3.81	47.70	3.97	53.81	4.30	62.80	4.72	48.61	3.96	42.78
zones	Yes										yes	
occupation	Yes										yes	
N	25724										25724	R-sq=0.5562

OLS and Quantile Regressions: full specification, 2009-10

Women

	1st Coeff	1st t-ratio	3rd Coeff	3rd t-ratio	Median Coeff	Median t-ratio	7th Coeff	7th t-ratio	9th Coeff	9th t-ratio	OLS Coeff	OLS t-ratio
age	0.01	22.27	0.03	.	0.01	.	0.03	16.17	0.01	5.28	0.02	1.99
agesq_100	0.00	-0.61	-0.02	.	0.00	.	-0.02	-9.73	0.01	2.53	-0.01	-0.79
ST	-0.24	-44.45	-0.07	.	-0.05	.	-0.09	-8.26	-0.04	-3.40	-0.08	-1.06
SC	-0.17	-45.70	-0.07	.	-0.09	.	-0.12	-15.47	-0.17	-23.75	-0.11	-2.09
OBC	-0.17	-67.61	-0.06	.	-0.06	.	-0.14	-21.75	-0.18	-26.02	-0.13	-2.95
married	0.08	37.85	0.09	.	0.02	.	-0.03	-5.43	-0.10	-16.13	0.03	0.77
Primary&bel	0.29	68.67	0.17	.	0.12	.	0.14	13.55	0.22	20.28	0.18	2.74
Middle	0.42	96.70	0.32	.	0.30	.	0.28	23.55	0.30	27.20	0.31	4.42
Sec&high sec	0.57	113.84	0.75	.	0.62	.	0.52	43.17	0.55	40.93	0.66	7.81
Grad&above	1.31	247.46	1.47	.	1.34	.	1.05	72.11	1.05	53.61	1.32	11.73
urban	0.40	151.40	0.43	.	0.45	.	0.37	57.75	0.34	55.87	0.41	10.14
public	0.36	110.46	0.30	.	0.34	.	0.32	46.18	0.20	24.86	0.29	5.69
union_memb	0.40	142.18	0.42	.	0.43	.	0.34	55.00	0.15	22.23	0.36	8.51
permanent	0.19	72.78	0.26	.	0.22	.	0.36	58.69	0.38	62.98	0.29	6.90
Agri&mining	0.10	15.86	0.05	.	0.08	.	0.29	10.18	0.62	27.19	0.33	1.98
Utilities	0.18	29.51	0.15	.	0.01	.	0.05	2.80	0.17	11.64	0.09	1.07
Wholesale, R	-0.19	-33.86	-0.22	.	-0.15	.	-0.07	-4.34	-0.32	-20.00	-0.24	-2.40
Finance, Rea	-0.01	-2.25	0.19	.	0.17	.	0.15	9.44	0.02	1.29	0.08	0.89
Public Admir	-0.27	-55.41	-0.03	.	-0.14	.	-0.09	-6.97	0.08	6.12	-0.13	-1.70
Other service	-0.51	-161.21	-0.32	.	-0.24	.	-0.22	-22.44	-0.11	-10.51	-0.29	-5.18
Constant	2.79	199.31	2.78	.	3.60	.	3.68	108.79	4.53	149.45	3.34	15.38
zones	Yes										yes	
occupation	Yes										yes	
N	5550										5550	R-sq=0.5889

Appendix A
Growth Rates of Indian States, Shares of RWS workers, and RWS Wage Rates

Table A 1

State	Decadal Growth rate*	CAGR	Shares in RWS 1999-2000			2009-10		
			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 IS	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

| State | Decadal Growth rate | CAGR | Average daily wages in INR 1999-2000 | | | 2009-10 | | | Gender wage gaps (%) 1999-2000 | 2009-10 |
			Male	Female	All persons	Male	Female	All persons		
SIKKIM	248.87	13.31	167.6	160.8	165.9	362.8	297.8	346.1	4.2	21.8
UTTARAKHAND	206.39	11.85	174.6	179.6	175.4	357.6	399.8	363.5	-2.8	-10.6
CHANDIGARH	160.85	10.06	184.0	210.5	189.0	645.4	412.7	595.7	-12.6	56.4
HARYANA	133.58	8.85	175.1	181.5	175.6	309.8	305.6	309.2	-3.5	1.4
ANDAMAN & NICOBAR IS	131.47	8.75	169.6	167.3	169.2	503.5	398.7	479.1	1.4	26.3
DELHI	127.97	8.59	269.8	274.3	270.3	346.9	353.2	347.6	-1.6	-1.8
NAGALAND	127.22	8.55	188.0	171.0	184.3	404.9	340.6	397.8	10.0	18.9
GUJARAT	124.33	8.41	164.1	151.2	162.5	281.6	227.3	273.3	8.5	23.9
TRIPURA	122.09	8.31	145.7	126.1	142.0	275.2	245.0	268.0	15.5	12.3
PUDUCHERRY	121.06	8.26	129.7	111.9	124.9	402.9	313.2	380.6	15.9	28.6
ARUNACHAL PRADESH	110.93	7.75	217.7	146.4	210.8	576.5	413.9	547.4	48.7	39.3
MIZORAM	108.28	7.61	244.9	248.6	245.8	378.8	415.0	385.2	-1.5	-8.7
ANDHRA PRADESH	105.76	7.48	134.9	84.5	124.9	300.8	190.3	280.0	59.6	58.1
MAHARASHTRA	103.48	7.36	160.7	142.6	158.3	385.8	375.9	384.2	12.7	2.6
TAMIL NADU	102.24	7.30	130.6	101.7	123.8	309.3	244.5	295.2	28.5	26.5
KERALA	101.85	7.28	153.4	112.4	139.5	356.4	259.3	320.5	36.5	37.4
MEGHALAYA	91.00	6.69	182.5	162.7	176.3	333.3	312.8	328.0	12.1	6.6
BIHAR	89.34	6.59	165.1	181.9	166.2	297.8	375.5	305.5	-9.3	-20.7
CHHATTISGARH	88.46	6.54	166.8	102.1	158.1	393.7	169.2	362.7	63.3	132.7
HIMACHAL PRADESH	88.42	6.54	195.5	169.9	192.1	387.2	272.5	364.7	15.1	42.1
ORISSA	83.62	6.27	147.3	114.9	143.7	327.6	211.9	311.5	28.2	54.6
GOA	81.31	6.13	174.4	134.1	167.0	302.5	248.8	290.6	30.0	21.6
WEST BENGAL	79.64	6.03	158.4	102.9	150.9	314.6	218.5	298.8	53.9	44.0
KARNATAKA	78.03	5.94	151.3	114.1	144.5	368.5	237.9	336.3	32.6	54.9
RAJASTHAN	74.47	5.72	151.5	137.8	150.1	333.1	252.5	322.6	9.9	31.9
PUNJAB	68.35	5.35	138.9	171.6	142.5	316.4	311.4	315.6	-19.0	1.6
UTTAR PRADESH	64.73	5.12	143.2	94.2	138.7	308.8	237.6	300.3	52.0	29.9
JAMMU & KASHMIR	59.90	4.81	186.7	185.2	186.6	346.4	345.0	346.2	0.8	0.4
ASSAM	59.12	4.75	126.8	71.7	113.7	344.3	152.2	307.0	76.9	126.3
MADHYA PRADESH	58.65	4.72	134.2	103.8	129.9	258.5	235.0	255.1	29.3	10.0
MANIPUR	57.23	4.63	194.1	203.2	195.8	353.8	356.1	354.1	-4.5	-0.6
JHARKHAND	52.86	4.33	191.3	141.6	186.5	391.1	181.9	359.5	35.1	115.1

(Numbers in red are insignificant)