Analysis of the Gender wage gap in India

Department of Economics

Master of Arts

Copy#1

Gender wage gap in India

By Prachi Singhai

Department of Economics

McGill University, Montreal

December 15th, 2021

A non- thesis submitted to McGill University in partial fulfilment of the requirements of the degree of the Masters of Arts

Acknowledgement

Table of Contents

ABSTRACT

The paper sheds light on the Gender wage gap that exists in the Indian society. The issue is particularly important because it is representative of the discrimination between the two genders where equally competent females are paid less than males for similar level of the job. The dataset is drawn from the 66th round of NSSO. The research uses the traditional OLS regression method for examining the average wage gap between males and females and the standard Blinder Oaxaca (1973) decomposition method. Additionally, to answer the question of whether there exists "glass ceiling" or "sticky floor" in the Indian labor market the paper examines the quantile regressions at different levels of income distribution.

INTRODUCTION

Gender wage gap is an indicator that can be used to measure inequality between men and women. Governments around the world have passed legislations to enforce equality in remuneration between women and men. However, the gender inequality is still a policy issue faced by both the developing countries and developed part of the world. The 2020 Global Gender Gap Report of the World Economic Forum presented that globally, the overall gender wage gap stood at 68.6%. According to the report the difference in the wages between men and women varies between 12% to 40% across various countries around the world. Scandinavian countries performed the best in terms of gender equality where women earn at least 80% of what men earn. Iceland has closed 82% of the wage gap and ranks first among all countries. The worst performer of all was the middle east and North African region which has closed on an average, just 60% of the gap. However, Rwanda which is yet developing has performed better than the developed countries like USA and UK, that have closed 72.4% and 76.7% of the gap respectively. The problem does not end here. Not only is the average gender wage gap huge in many parts of world, it is also not uniform across the wage distributions. The ILO (2015) shows that wage disparity is higher in absolute terms for the women at the higher end of income distribution. This strongly suggests that gender wage gap has persisted over the years with varying magnitudes around the world and across income distributions. Even the developed parts of the world are still unable to achieve gender parity in wages.

India ranked 112th among the list of 153 countries and has so far closed 66.8%of the gender wage gap. This pay gap has prevailed due to multiple factors like disparity in education and job market. Indian women receive inadequate education and training for workforce. The guardians and teachers are unwilling to invest same time and resources as spent on preparing men for the labour market. Therefore, less focus is paid on development of female, and she ends up receiving poor quality of education. The literacy rate for women in India is around 70%, as compared to 85 percent men who receive education. It is also observed that participation rate of Indian women in the workforce has been declining over 20 years and stands at 21% which is

significantly less than the world's average rate of 47% (World Bank 2018). Around 80% of employed women work in rural areas in agriculture sector and the remaining are a part of the urban labour market. This leads to another problem of poor working conditions that women face, as work in rural areas is by its very nature informal with no social security benefits. One of the major reasons for the low participation rate is that the work of women is not considered as remunerative, and majority of women engage in unpaid domestic services for the household members. This gives them lesser time for pursuing careers outside of the home. Restrictive cultural norms relating to women's work is another reason for low participation.

Table1. Trends in monthly wages (Rs.) for Men and Women, wage gaps and wage Inequality in India, 1983-2011

	1983	1993-1994	2004-2005	2010-2011
Mean monthly wage (Pooled)	3298.2	4799.1	6410.7	9368.4
Mean monthly wage(Men)	3760.8	5337.6	7100.4	10028.4
Mean monthly wage (Women)	1859.4	3126.3	4250.1	6939.6
Ratio of mean female/male wage	0.46	0.59	0.61	0.69
Average gender wage differential	102.15	70.73	67.06	44.51

Table 1. shows the analysis of the wage gap over the years. Fig 1. in the appendix shows the trends in the mean wages for men, women and pooled sample. It shows total mean wages received by the individual in cash or kind in a month and are expressed in Rupees (Rs.). The average gender wage differential is the difference in the mean wages of men and women expressed as percentage of women's mean wage. The average wage differential has improved consistently over the years from 102 percent in the year 1983 to about 70 percent in the year 1983 followed by slight fall to 67 percent in the year 2004 to a sharp fall in the year 2010, when the differential is 44 percent. However, large amount of the wage gap still exists which needs to be examined.

The present study contributes to the existing literature by analysing the gender wage gap at the mean and across the wage distribution in India and finding prevalence of sticky floor or glass ceiling effect in the Indian labour market. Also, the analysis examines different divisions of the labour market based on the sector of residence (rural and urban) type of employment (casual or regular) and sector (rural and urban).

The study uses OLS wage regressions and quantile regressions to determine the returns to various covariates and how these returns vary over the wage distribution. The returns are estimated separately for men and women and for the pooled sample.

Section II of the paper presents the literature on the wage gap around the world and of India. Section III discusses the database used for conducting the analysis and Section IV explains the methodology used for the analysis. Section V presents the results and their explanation and Section VI presents the conclusion of the paper.

LITERATURE REVIEW

Blinder (1973) and Oaxaca (1973) in their ground-breaking paper were the first to provide quantitative measure for finding wage discrimination. The method thereafter continues to be used in studies to assess wage discrimination across subgroups. The Blinder-Oaxaca (B-O) decomposition method is discussed in the Methodology Section.

Blau and Kahn (2017) in their paper assess gender wage gap using microdata from USA for the period 1980-2010. They find that female to male earnings ratios of full-time workers was stable at 60 percent for long duration, but began to sharply rise in 1980's. and slowed in the later periods. They also evaluate female to male wage ratio at various income percentiles and find that women at the top gained relatively less as compared to the women at the middle and at the bottom over the years. However, they had a higher pay ratio than those at the middle and slightly lower pay ratio than those at the bottom. To study decomposition of wage gap the authors use the Blinder Oaxaca decomposition. Firstly, the wage model only controls for the education, experience, race/ethnicity, region and metropolitan area residence called the "human capital specification". Secondly, the authors also include industry, occupation and union dummy variables called the "full specification" model. The authors find that the occupation and industry account for the significant portion of gender pay gap and the unexplained gap was considerably small in the full specification model as compared to the human specification model.

The paper by Appleton, Hoddinott and Krishnan (1999) analyzes the gender wage gap in three African countries. They use the method that accounts for the index number problem (using the Neumark method) and differences in the sector of employment. The authors restrict the sample to the urban residents. They firstly estimate log earnings functions for men and women in Cote d'Ivoire, Ethiopia and Uganda individually for private and public employment. Also, they show the mean of the covariates like potential experience, education and marital status. They perform the gender wage decomposition for the three countries, using the Oaxaca and Neumark. They find that neither the Oaxaca blinder nor the Neumark method takes into consideration the differences in sectoral structures between men and women. Therefore, they perform the wage decomposition individually for each sector (public and private) and find that differences between actual and pooled returns account for most of the gender wage gap in Ethiopia and Uganda, and less in the Cote d'Ivoire.

Albrecht, Bjorklund and Vroman (2003), in their paper address the issue of glass ceiling in Sweden. The authors use the microdata from 1998 for the study and find that there exists a significant glass ceiling effect in 1990's, as compared to earlier years. Authors compare the

pattern of wage gap between Sweden with United States. They find that the gender wage gap at top in Sweden is much larger than the gap in Unites States. They also find that gender log wage gap in Sweden increases throughout the wage distribution and accelerates in the upper tail. In the next and the final step the authors carry out Oaxaca Blinder decomposition using the quantile methods. When they add detailed occupational control among other controls, differences in returns(discrimination) accounts for most of the gender wage gap among those in the bottom of the distribution, whereas the differences in returns and differences in characteristics each account for half of the gender wage gap in the model without them. De la Rica (2005) performed a similar study for Spain and found that glass ceiling effect was present in the highly educated groups, whereas among the less educated "glass floor effect" was prevalent. The glass floor effect commonly known as sticky floor effect, is characterized by larger gender (log) wage gaps at the lower quantiles of the distribution and smaller (log) wage gaps at the top of the distribution. Thus, here one can observe a declining gender wage gap. Arulampalam, Booth and Bryan (2007) studied the glass ceiling effect over the European labor market using the dataset from 11 countries for the time period, 1995- 2001. The authors found variation in the raw gender wage gap between European countries. They performed the quantile regression for public sector, private sector and both the sectors combined. They also conducted analysis of wage equations by controlling for covariates occupation and industry and excluding them in the other specification. Fang and Sakellariou (2015) conducted a review of 60 studies and found that glass ceiling effect is common in most of the developed and transition countries while the sticky floor effect is prevalent in Asia and Africa (excluding Morocco and Egypt). Latin American countries showed both the glass ceiling and sticky floor effects.

The paper by Jennifer Hunt (2002) analyzes gender wage gap in the East Germany and finds that gap has narrowed by 10 percentage point over the years. However, more that half of the fall in wage gap in favor of women is due to exits of low skilled individuals which are predominantly women. The paper analyzes the determinants of the wages and employment duration, using the German socio-economic panel data (GSOEP) for 1990-1994. According to author "more emphasis should be placed on the relative fall in the female employment than the relative rise in the female wages". This is because the wage growth of females as a whole is affected by the change in the composition of the workforce. To trace the evolution of the Male Female wage gap the author runs the log wage regressions for 1990 and 1994, firstly just including the sex dummy and then a more complete set of control variables like age, age squared education dummies, tenure, firm sized dummies, set of 22 industry dummies, hours and other covariates. The inclusion of the set of controls led to the fall in the gender wage gap from 33 log point in 1990 to 10 log points.

The study Oostendorp (2009) explains the effect of globalization on the Gender wage gap. Among the other common methods of measuring the gender wage gap, like the residual and raw wage gaps, the paper focuses on within occupation wage gap. The author tries to establish that the occupation wage gap is useful indicator of the gender wage gap. The paper divides the raw wage gap into average occupational wage gap
and the wage gap due to differences in the distribution of men and women across occupations. The author finds a strong correlation between the raw gender wage gap and the occupational gender wage gap, i.e., 0.79. Thus, the occupational gender wage gap can be defined as the measure of the female wage position relative to men arising from occupational segregation. The author finds that both the occupational and the residual wage gap can be seen as the proxies for gender wage discrimination. This is evident from the graphical representation where both proxies move in the same direction with respect to the gender wage gap. Secondly, both are

highly correlated. However, the trends show that the occupational wage gap is the better proxy for gender wage discrimination compared to the residual wage gap.

There are certain important studies on the gender wage gap in India. Reily and Dutta (1996) in their analysis find that the mean wage difference between males and females is relatively uniform in the 1980's and 1990's. Kingdon and Unni (2001), analysed impact of education on labour force participation, using binary profit model. Also, they used Heckman two step procedure to examine the returns of education on earnings. They used 43rd year of NSSO (1987-1988), and studied the wage differential for Tamil Nadu and Madhya Pradesh. The authors observed high wage discrimination among the female workers and the role of education in reducing the wage gap was insignificant. Madheswaran and Khasnobis (2007), in their paper studied the wage gap for regular and casual workers using the NSS, 38th, 50th and 55th round (1983, 1993-1994, 1999-2000). They used the B-O technique and found that raw wage differential between men and women declined over the years for both the regular and casual workers. The study proves that wage differential can be attributed more to discrimination and less to occupational differences. Khanna (2012), studied the gender wage gap using the OLS regression, Blinder- Oaxaca decomposition and Machado-Mata decomposition for quantile regression. The study uses the NSS 66th round of employment unemployment data for the year 2009-2010. The author also finds wage gap at different income quantiles and finds that higher male-female wage gap at the lower end of the wage distribution. Duraiswamy and Duraiswamy (2012) find that the wage gap widens as women accumulate more experience which is opposite to the common wage-experience relationship. Chakraborty and Mukherjee (2014), used NSS data and found considerable gender wage gap across the industries and occupations Deshpande (2018) used similar analysis method using two NSSO surveys (1999-2000 and 2009-2010) and found that Mahajan and Ramaswamy (2017), examined the influence of cultural practices on changes in female labour supply and influence of non-farm employment opportunities on male labour market supply for the agriculture sector. The study uses the NSS Employment and Unemployment survey (2004-2005) data. The study uses a two – stage OLS regression model to evaluate the inverse demand functions for total male and female workers in agriculture. The results of the study present that 55 percent of the wage gap can be explained by covariates and remaining 45 percent of the gap is unexplained. All of the studies mentioned above are limited in their scope as they focus on the wage gap at the mean and not across the wage distribution. Khanna (2012) along with the standard OLS regressions performs quantile regression to measure the wage gap across the income distribution.

METHODOLOGY

The Blinder Oaxaca decomposition

There are two reasons that are responsible for the gender wage gap - (I) differences in the human capital characteristics between men and women (explained) (II) differences in the returns to characteristics (also known as unexplained or residual or adjusted wage gap). The unexplained component is the discrimination (bias or prejudice) against women. The study uses the B-O

decomposition method of wage gap analysis. The method for performing the decomposition can be derived by using log wage regressions. The OLS regression for individual is given by -

$$y_m = x_m \, b_m + \mu_m \qquad\qquad (1)$$

$$y_f = x_f \, b_f + \mu_f \qquad\qquad (2)$$

Here y represents the logarithm of daily wages, x the vector for the set of human capital characteristics like education, experience and set of other control variables, b is the vector for coefficients and μ is the error term. Subtracting (2) from (1) gives us-

$$\bar{y}_m - \bar{y}_f = \beta_m \bar{x}_m - \beta_f \bar{x}_f = \beta_m \, (\bar{x}_m - \bar{x}_f) + \bar{x}_f \, (\beta_m - \beta_f) \qquad\qquad (3)$$

$\beta_m \; and \; \beta_f$ are the OLS estimates of $b_m \; and \; b_f$ respectively. The subscripts 'm' and 'f' refer to male and female respectively. The set of dummy variables chosen for level of education are primary, middle, secondary, higher secondary, graduate/diploma and post-graduation. The NSS data does not have the information about the work experience, duration of employment or unemployment, and therefore the data on this variable is not available. Like other studies, I use the potential experience (variable name Age), which is calculated as age minus years of education minus 5 (pre-school years). Square of this term called Age square is also used in the model as it captures the non-linearity in age-earnings profile. The other control variables included sector of residence (urban or rural), type of job (regular or casual) sector of employment (public or private), occupation and state of residence. The first term on the right-hand side of equation (3) is the effect of gender differences in the explanatory variables calculated using the male coefficients, . The second term on the right-hand side is the unexplained differential and represents then average female residual from the male wage equation. The above procedure is based on the assumption that men are provided women's labor market characteristics but are paid men's wages in the absence of discrimination. Thus, one of the issues with this method is the choice of the non-discriminatory wage structure to be used in the above decomposition.

Quantile regression

Quantile regression is used in the paper to present a series of quantile regressions to investigate the extent to which the gender gap at various percentiles can be explained by the covariates. The analysis is based on the assumption that men and women are paid same rewards for their characteristics. Lastly the decomposition analysis is performed to identify the extent to which the gender wage gap at various percentiles can be explained by differences between the genders in characteristics versus differences in labour market rewards to those characteristics.

The quantile regression model was introduced by Koenker and Bassett (1978). Quantile regression is a technique for estimating the Qth quantile of a random variable y (log wage), controlling for the covariates (such as age, education, caste, job characteristics). The model assumes that the conditional quantile of y, is linear in x.

Quantile regression has an advantage over the OLS regression, that is it allows to estimate the marginal effect of a characteristic on log wage at various points of the distribution, and not just at the mean. In other words, quantile regression allows us to estimate the effect of gender, age, education level and other covariates, on the log wage at the suppose 10th percentile (bottom of the distribution) and at the median (middle of the distribution) and at the 90th percentile (top of

the distribution). The coefficient estimate at a particular quantile is interpreted as the estimated returns to a individual characteristic at the Qth quantile of the log wage distribution.

DATA

The paper uses the 66th round of NSS Employment-Unemployment Survey (EUS) for the year 2009-2010, collected by Department of Statistics and Program implementation, Government of India. The study also uses three other rounds of employment data for the years 1983, 1999 and 2004, to examine the trends in wages over the years. Each of the survey collects the information on demographic characteristics of household members such as age, gender, state of residence, level of education, religion, marital status. The survey also collects the information about the workers weekly work hours, industry of employment, their occupation, type of job, sector employment and presence of union. The paper focuses on the individuals of the age group 18 – 59 consisting of 71822 individuals, where 56234 are males and 15588 are females.

RESULTS

Figure 2 is the density plot of male and female wage distributions. The female distribution lies towards the left of the male distribution which shows that the female wages are lower than male wages and gender wage gap exists for the entire wage distribution.

Table 2 provides the summary statistics for various variables that will be used as independent variables in the regression models. The first three columns of the table provide the proportion of pooled sample, men and women distributed across categories of a particular categorical variable. The next three columns show the average monthly wages for the pooled sample, men and women. The last column shows the gender wage differential as explained above.

As shown in the Table 1. the overall gender wage differential is 44 percent in the year 2009-2010. Hower this varies significantly between the rural and urban areas. The rural gender differential is 80 percent whereas for the urban areas it is about 27 percent.

Fig 2. Distribution of the log daily wage of males and females in India, 2009-2010.
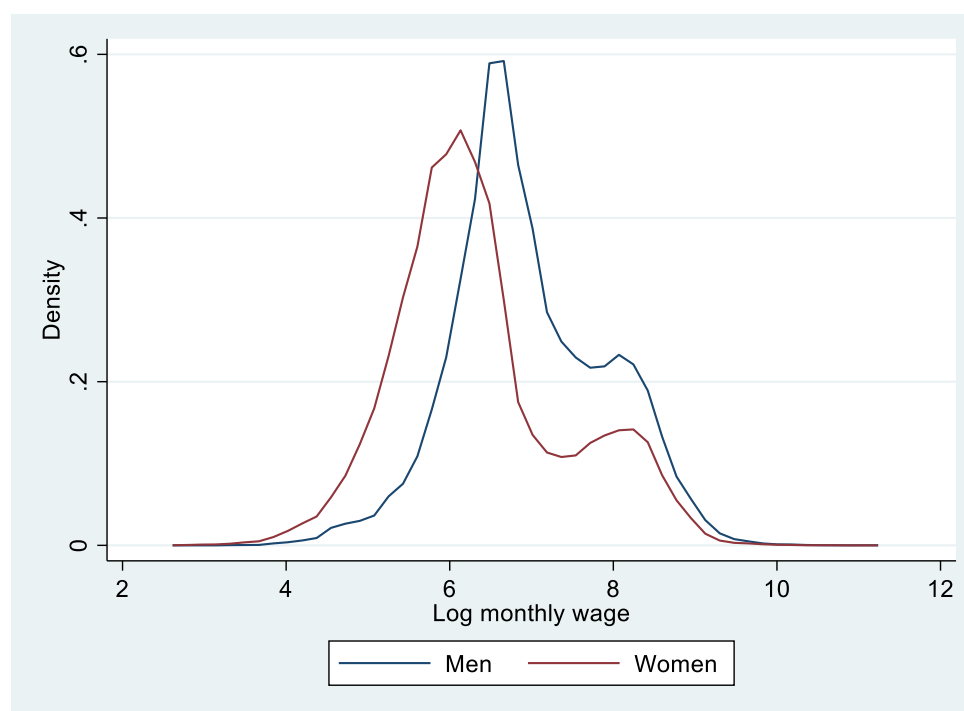
Table 2. Summary statistics – Shares (distribution) and average daily wages, average gender wage differential, 2009-2010

Dependent variables	Share(%)			Average daily wage (Rs.)			Average gender wage differential
	Men	women	Pooled	Men	Women	Pooled	
Sector-Rural/Urban							
Rural	53.11	59.90	54.59	255.60	141.77	228.49	80.29
Urban	46.89	40.10	45.41	414.34	325.11	397.24	27.44
Sector-Public/Private							
Public	26.52	24.20	26.02	646.98	480.07	613.29	34.77
Private	73.48	75.80	73.98	215.63	130.77	196.76	64.90
Education Level							
Illiterates	16.03	37.76	20.75	149.85	88.13	125.47	70.03
Primary	21.29	19.88	20.98	169.48	97.59	154.70	73.66
Middle	18.67	9.97	16.78	216.38	122.95	204.33	75.99
Secondary	14.52	6.99	12.89	322.19	236.17	312.06	36.43
Higher	9.07	5.80	8.36	418.43	359.75	409.59	16.31
Graduate	15.80	13.51	15.30	658.65	532.11	634.40	23.78
Post graduate	4.62	6.09	4.94	879.21	674.88	824.56	30.28

Occupations							
Managers	3.75	4.84	3.99	729.98	467.13	660.77	56.27
Professionals	14.21	16.32	14.67	682.57	530.74	645.94	28.61
Technicians/Assoc. Pro	1.08	0.75	1.01	741.73	622.40	722.50	19.17
Clerical	6.99	4.28	6.40	542.55	447.09	528.71	21.35
Service/Sales	10.25	8.26	9.82	317.35	173.95	291.17	82.43
Craft/Skilled Agr.	22.31	19.99	21.81	223.38	115.84	202.00	92.84
Plant/ Machine Opera	8.93	4.99	8.08	301.28	129.95	278.30	131.84
Elementary	32.47	40.56	34.22	155.39	91.15	138.88	70.47
Industry							
Agriculture	18.37	28.28	20.52	141.40	90.36	126.17	56.48
Manufacturing/Mining	6.55	5.96	6.42	264.49	131.46	237.74	101.19
Elec.,Gas, Water/Constr.	30.66	23.56	29.12	245.24	144.93	227.67	69.21
Food/Hotels	7.94	7.35	7.81	874.40	223.80	1098.20	290.71
Transpor/Comm	9.34	6.77	8.79	331.25	183.95	306.67	80.08
Fin. Intermediation	2.05	1.41	1.91	710.61	560.25	686.54	26.84
Real Estate /Renting	0.23	0.26	0.24	300.92	281.13	296.23	7.04
Public Admin./Defence	12.61	7.98	11.61	612.81	478.34	592.79	28.11
Education	8.39	10.44	8.83	625.61	478.46	587.96	30.76
Health and Social work	1.65	3.26	2.00	589.73	474.17	548.82	24.37
Other Services	2.22	4.73	2.76	213.68	119.31	178.71	79.10
Castes Profiles							
SC	20.78	22.59	21.17	236.62	133.01	212.62	77.89
ST	13.03	15.46	13.56	332.32	221.05	304.78	50.34
OBC	35.59	38.45	36.21	285.90	166.64	258.42	71.57
Others	30.60	23.49	29.06	443.96	370.37	431.05	19.87
Union membership							
No Union	17.93	20.70	18.44	357.30	266.38	338.50	34.13
Union	82.07	79.30	81.56	579.14	502.15	565.97	15.33
Permanent Job							
Temporary	29.28	31.35	29.74	178.71	110.25	162.74	62.09
Permanent	70.72	68.65	70.26	436.81	303.74	409.69	43.81
Written job Contract							
Contract	70.95	66.32	70.17	643.64	492.59	614.69	30.67
No Contract	29.05	33.68	29.83	261.58	205.55	252.59	27.26
Married							

Never married	20.38	13.41	18.87	221.66	235.13	223.74	-5.73
Currently married	77.97	69.14	76.05	359.26	217.91	331.37	64.87
Widowed	1.31	15.21	4.33	280.13	185.12	207.61	51.32
Divorced	0.35	2.24	0.76	313.90	216.90	251.55	44.72

It can be observed from Table 2 that about 74 percent of the individuals work in the private sector whereas 26 percent of the workers work with the government or the public sector. The average wages for both men and women are much higher in the public sector as compared to the private sector. The average wage differential is lower in the public sector as compared to the private sector. It is 34 percent in the public sector and 64 percent in the private sector.

The analysis of the wages of men and women across levels of education. Education have been divided into 7 categories. The education attainment at different education levels is different for both men and women. Illiterates constitute around 20 percent of the entire sample and among all the women around 37 percent of the women are illiterates, which is much higher in comparison to 16 percent of the illiterate men. For higher level of education levels, it can be observed that the proportion of men is much higher as compared to proportion of women attaining a particular level of education. At the top echelon of education i.e., Graduate degree the proportion of men is still higher than women. However, at the postgraduate degree level the proportion of women becomes higher (6.09) than proportion of men (4.62). Also, the average monthly wages for both men and women increase as we move up the education levels. The wage differential also falls as we move up the levels of education and is lowest (16) for the individuals with the higher education. However, the differential is higher for the individuals with graduate and post graduate degree i.e.. 24 percent and 30 percent respectively. The disparity in the wages can also be seen from the observation that the men who are illiterates are paid higher than the women who have completed primary and middle school.

The National classification of occupation (NCO)-2004 provides codes for various occupations, which are used in the paper to categorize occupations in the broad categories. It can be seen in the Table 2. that the women are mostly employed in Professional, Craft and skilled agriculture and Elementary occupations. Also, only a small part of women workforce is employed as Managers. Among men the most predominant occupations are same as women that are Professional, Craft and Skilled Agriculture and Elementary occupations. However, in job like Technicians and Machine operators employ considerable share of male workforce, female workers are comparatively lower. The wages of men are higher in comparison to that of women for all the occupations. Among all the occupations it can be observed that the highest gender wage differential exists for women who work as Plant and machine operators and Craft and skilled agriculture individuals. The lowest gender wage differential exists for the technicians and clerical jobs.

The information about the industry in which a worker is employed can be derived from National Industrial classification (NIC) 2004, of the NSS data. The industries are classified in 62 categories that are used to create 11 broad categories as represented in Table 2. The highest proportion of women work in the agriculture sector whereas large share of men are employed in the Electricity, gas, water and construction industry. The most lucrative industry for men is food and hotel whereas for the women it is final intermediation. Agriculture is the lowest paying industry for

both men and women. The highest wage differential is faced by the women working in the food and hotel industry whereas the lowest disparity exists in the real estate sector.

The summary statistics for caste profile shows that the highest proportion of individuals belong to Other backward castes (OBC's) and Others which is the case for both the men and women. By comparing the average monthly wages among the caste profiles, it can be observed that SC, OBC, ST and others is the increasing order of the wage remuneration. The order is same for both men and women. Due to this the order is reserved when comparing for the wage differential. The women who belong to Scheduled caste are the most disadvantaged.

The analysis of the job characteristics shows that 80 percent of individuals belong to the union. On comparison of the average monthly wages it can be seen that the average monthly wages for both men and women who belong to union are much higher in comparison to the workers who are not a part of union. Also, the gender wage differential is higher for the non-union workers in comparison to the union workers. Around 70 percent of the individuals have permanent jobs and enjoy 1.5 times higher wages in comparison to the workers who have temporary jobs. The wage differential faced by the women who have permanent jobs is lower in comparison to those women who have temporary jobs. Around 70 percent of all the workers in the job market have written contract for their jobs and are likely to earn twice as higher wages as those without any contract. However, the wage differential faced by the women who do not have contract is not significantly different from those who have contract.

The last set of variables shows the Marital status of the individual. The proportion of individuals who are currently married are 69 percent. Around 13 percent of the workers never married and remaining are either Widow/Widower or Divorced. The women who never married receive higher average monthly wages in comparison to the single men. For all the other three categories, men are paid higher average monthly wages in comparison to women. Observation of wage differential shows that women in all the categories except for the ones who never married face a positive wage differential.

THE ORDINARY LEAST SQUARES LOG WAGE REGRESSIONS

The OLS estimation is performed on the pooled sample of workers using the semi log function (similar to equation (1)). The dependent variable is log transformation of wage and independent variables are set of covariates that are included in Table 2. along with Sex dummy. The coefficient of gender dummy is the representative of the average gender log wage gap changes once we account for various characteristics that determine wages. One of the assumptions made in the pooled sample regression is that the return to labour market characteristics are same for both men and women. To know the returns to these characteristics separately for men and women, estimation can be run separately for the two genders, which is referred to as Mincerian wage regressions. In the next part of the paper two specifications of log wage regression equation are estimated.

The regression model with only Personal characteristics.

The variables that are included in the first specification of the regression model pertain to only the personal characteristics of an individual. The covariates include are age, age squared (divided by 100), gender dummy, sector dummy (rural or urban), caste dummies, marital status dummies, dummies for education level and the state dummy. All of these variables are exogenous to the labour market outcomes. These independent variables can be thought as characteristics determined at the time of birth and education level is chosen before the individual enters the labour market. Economics theories suggest a concave wage – age relationship, and therefore like other wage equations the quadratic term for age is included in the model. The gender dummy takes the value 1 for males which implies a positive coefficient on the gender dummy indicating a gender wage gap where men are paid more than women. The reference group for sector is rural area, other castes for caste profile, never married for marital status and Illiterates for the education level. The output of the personal characteristics regression model is given in Table 3. The pooled sample regression is based on 71822 observations. The signs of the coefficients are as expected. The coefficient of age is positive and significant and that of age squared is negative and significant.

The wage in the urban areas on an average are 20 percent higher than those in the rural areas. The coefficient of married, widowed/widower and divorced are positive and they earn 12 percent, 9 percent and 9 percent higher wages in comparison to the workers who are never married. As compared to the omitted variable of illiterates each of the dummies indicating education level are positive and highly significant, which shows that as the level of education increases the returns to education also increases. For example, the coefficient of graduate/diploma is 1.318 which means that everything else being same, completing a graduate degree or diploma is associated with 132 percent increase in wages compared to the wages of the illiterate group. The dummies for caste profile indicate that the Scheduled castes (SC's), scheduled tribe (ST's) and other backward classes (OBC's) earn significantly lower wages as compared to the individuals of category others. The most important coefficient to be examined is that of the gender dummy. The coefficient of the gender dummy without controlling for any of the other variables is 0.60. When controlling for personal characteristics in the PC regression model it is found that this coefficient is has changed to large extent (0.464). Thus, after controlling for the individual differences in characteristics, and keeping the labour market returns to all these covariates same for men and women, the gender wage gap turns out to be 46.4 percent.

Table 3. OLS log wage regression with Personal characteristics, Pooled sample and separately for Men and Women.

Independent Variables	Pooled Coef	S.E	t- value	Sig.	Men Coef	S.E	t-value	Sig.	Women Coef.	S.E	t-value	Sig.
Age	.029	.002	14.36	***	.029	.002	12.94	***	.033	.004	7.64	***
Age_sq	-.015	.002	-6.19	***	-.014	.003	-5.04	***	-.027	.005	-4.96	***
Sex	-.464	.007	-65.25	***	0	-	-	-	0	-	-	-
Sector	.204	.006	35.29	***	.197	.006	31.00	***	.201	.013	15.05	***
ST	-.073	.011	-6.80	***	-.09	.012	-7.43	***	-.028	.024	-1.15	-
SC	-.117	.008	-14.29	***	-.126	.009	-13.96	***	-.068	.02	-3.51	***
OBC	-.111	.008	-14.78	***	-.108	.008	-13.22	***	-.11	.018	-6.09	***
Married	.121	.009	13.02	***	.122	.01	11.80	***	.13	.022	5.99	***
Widowed	.09	.017	5.33	***	-.028	.028	-0.98	-	.228	.028	8.19	***
Divorced	.094	.032	2.92	***	-.036	.051	-0.70	-	.209	.045	4.65	***
Primary_Below	.144	.009	16.58	***	.134	.01	13.25	***	.117	.017	6.73	***
Middle	.344	.009	36.36	***	.334	.011	31.53	***	.261	.023	11.49	***
Secondary	.605	.01	60.11	***	.568	.011	50.97	***	.677	.026	26.43	***
Higher_Secondary	.871	.012	75.69	***	.813	.013	63.92	***	1.073	.029	37.60	***
Graduate_diploma	1.318	.01	134.06	***	1.241	.011	111.01	***	1.574	.022	71.64	***
Post_graduate	1.579	.014	113.06	***	1.502	.016	93.22	***	1.802	.029	62.62	***
STATE Dummies		Yes				Yes				Yes		
Observations		71822				56234				15588		
F-test		1329.34				894.67				313.92		
Prob>F		0.00				0.00				0.00		
R squared		0.481				0.438				0.497		

The second and the third panel represent the regression results for men and women separately. It can be observed that the coefficient of age squared is negative and significant, similarly for the women. Therefore, for both the genders the wage profile is concave with respect to age. The return from living in urban area is higher for women, whereas the return to married worker over the unmarried one is higher for men. Considering the education dummies, men get higher return from Primary and middle schooling whereas for the higher levels of education the coefficients are larger for women. For women, there is no significant differences between the coefficients of the caste profile. Women who belong to SC and OBC category earn significantly lesser wages than women belonging other category. On the other hand, men belonging to all three caste

categories earn significantly lesser than those belonging to others, and OBC men receive the least wages.

The regression model with Personal characteristics and Job characteristics.

In the second OLS wage regression, along with the personal characteristics job characteristics are also included in the model. Two of the main variables are the occupation and industry dummies. The reference category for occupation is chosen as crafts other skilled trade, whereas for industry it is financial intermediation. Other job characteristics that are included in the model are for public sector, union membership and job contract with the reference category being public sector, not a union member, no written job contract and temporary job respectively. The gender dummy shows the average log wage gap within occupation, industry and job category. The coefficient of the gender dummy in the personal characteristics model captured the difference in wages between men and women attributable to working in different occupations and industries. Whereas in the Personal Job characteristic model, since occupation and industry variables are controlled for, the variation in log wage gap due to these is eliminated. Therefore, the coefficient of the gender reflects the unequal pay between men and women for similar work (and similar personal characteristics). The PC specification on the other hand, the gender log wage gap represented unequal pay for similar personal characteristics and different work.

The results for the PJC model are provide in Table 4. The main emphasis of the analysis will be on the differences between the PC regression and PJC regression. The difference in the coefficients to marital status is that the wage coefficient of the married women is insignificant in the PJC specification. Also considering the caste profiles it can be seen that the SC men and OBC women earn the least wages, in comparison to all the other caste categories, which is similar to the caste coefficients of the PC model. All the coefficients of education dummies in PJC model fall in value when compared to PC model and the trend of higher returns with higher level of education is reserved. This implies that acquiring higher level of education leads to upward movement towards higher paying occupations and industries. The difference in two models is that, while in the personal characteristics model the returns to education included the access to high paying occupations and industries. Therefore, these returns are higher in comparison to the education level coefficient of PJC model which represent the advantage of higher level of education within an occupation, industry and job characteristic. The main coefficient of interest i.e. Gender dummy which has coefficient value of 0.418. This is the gender wage gap after controlling for the personal and job characteristics that might affect the wages. The value of the coefficient of PJC model is lower as compared to PC model. When controlling for just the personal characteristics log wage gap reduces from 0.601 to 0.464. The value of coefficient falls from 0.464 to 0.426 when job characteristics are included. This shows that the personal characteristics of women place them at great disadvantage in comparison to men. The types of jobs they work in, contributes somewhat less than the personal characteristics to the gender wage gap. The industry and occupations which women are employed into, still has a significant role in explaining the gender wage gap.

From observing the coefficients it can be seen that for men being educated to the primary level and for women being educated to the primary and middle level does not provide higher wages than the illiterates. The workers who are part of public sector get 33.8% higher wages in

comparison to those who are not a part of union. For women gain from being employed in the public sector is higher that is 25% whereas for men the gain is lesser which is 38%. Being a part of union and having a permanent job benefits women more than men.

Observing the coefficients for occupation shows all the workers earn more than the Crafts and other skilled trade workers except for the women who are Plant and machine operators. Observing the coefficients for industry shows that all the men and women in the financial intermediation earn more than the other sector except for one's in the Electricity/Gas/Water/Construction and Public administration/defence earn more than the women in Financial intermediation.

Table 4. OLS log wage regression with Personal and Job characteristics, Pooled sample and separately for Men and Women.

Independent Variables	Pooled				Men				Women			
	Coef.	S.E	t-value	Sig	Coef.	S.E.	t-value	Sig	Coef.	S.E	t-value	Sig
Age	.018	.002	9.92	***	.019	.002	9.46	***	.017	.004	4.29	***
Age_sq	-.013	.002	-5.86	***	-.014	.002	-5.59	***	-.015	.005	-2.97	***
Sex	-.426	.006	-69.67	***	0	.	.		0	.	.	
Sector	.161	.006	29.21	***	.138	.006	23.05	***	.197	.013	14.95	***
ST	-.092	.01	-9.42	***	-.11	.011	-10.24	***	-.05	.022	-2.21	**
SC	-.112	.007	-14.97	***	-.115	.008	-14.18	***	-.082	.018	-4.44	***
OBC	-.095	.007	-14.06	***	-.091	.007	-12.42	***	-.103	.017	-6.10	***
Married	.06	.008	7.11	***	.076	.009	8.28	***	.03	.02	1.47	-
Widowed	.048	.015	3.16	***	-.03	.025	-1.19	-	.101	.026	3.85	***
Divorced	.061	.029	2.09	**	-.042	.046	-0.93	-	.113	.042	2.69	***
Primary_Below	.053	.008	6.76	***	.045	.009	5.01	***	.042	.016	2.55	**
Middle	.141	.009	16.07	***	.132	.01	13.72	***	.074	.022	3.39	***

Secondary	.253	.01	26.16	***	.222	.01	21.21	***	.292	.026	11.28	***
Higher_Secondary	.367	.011	32.11	***	.316	.012	25.59	***	.531	.03	17.77	***
Graduate_diploma	.628	.011	56.87	***	.545	.012	44.83	***	.918	.027	34.61	***
Post_graduate	.825	.015	55.76	***	.728	.017	43.71	***	1.12	.032	34.67	***
Public	.338	.009	39.18	***	.379	.01	39.59	***	.246	.019	12.68	***
Union	.238	.007	33.86	***	.209	.007	27.92	***	.331	.018	18.29	***
Contract	.256	.008	33.73	***	.272	.008	33.44	***	.187	.019	9.99	***
Permanent	.14	.006	25.30	***	.136	.006	22.30	***	.144	.012	11.63	***
Manager	.373	.015	25.50	***	.439	.016	26.85	***	.219	.032	6.94	***
Professionals	.369	.012	30.17	***	.391	.013	29.39	***	.303	.029	10.49	***
Technicians	.391	.025	15.35	***	.413	.027	15.34	***	.371	.067	5.51	***
Clerical	.186	.013	14.52	***	.2	.014	14.73	***	.183	.034	5.34	***
Services_Sales	.114	.011	10.00	***	.15	.012	12.15	***	.006	.027	0.22	
Plant_MachineOper	.112	.011	10.00	***	.148	.012	12.48	***	-.031	.031	-1.00	
Agriculture	-.151	.01	-14.72	***	-.188	.011	-16.50	***	-.072	.023	-3.12	***
Elec_Gas_water_Con~r	.04	.009	4.35	***	.036	.01	3.61	***	.032	.022	1.46	
Food_hotels	-.206	.013	-15.97	***	-.198	.014	-14.11	***	-.254	.031	-8.31	***
Transp_Comm	-.02	.012	-1.70	*	-.01	.013	-0.74		-.113	.03	-3.72	***
RealEstate_Renting	-.096	.05	-1.91	*	-.076	.056	-1.37		-.192	.111	-1.72	*
Public_admin_Defence	.029	.012	2.42	**	-.007	.013	-0.50		.109	.03	3.58	***
Education	-.131	.014	-9.51	***	-.143	.015	-9.40	***	-.128	.031	-4.10	***
Health_social_serv~e	-.066	.02	-3.32	***	-.114	.023	-4.92	***	-.019	.04	-0.47	
Other_Services	-.16	.017	-9.49	***	-.199	.02	-10.01	***	-.071	.033	-2.17	**

STATE	Yes	.	.	Yes	.	.	Yes	.	.
Observations	71822			56234			15558		
F-test	1402.2			1022.2			293.43		
Prob>F	0.00			0.00			0.00		
R squared	0.578			0.557			0.566		

BLINDER OAXACA DECOMPOSITION

The first column of Table 5. presents the B-O decomposition results for the PC specification and the second column presents the results for the PJC specification. The table represents the pooled wage structure using the coefficients of Pooled sample that includes gender dummies and controls. The first row of the Table shows the average gender log wage gap that was provided by the coefficient of gender dummy in a log wage regression, with no control variables. This represents the overall difference between the average log wage of men and women. This overall gap can be decomposed in the explained and the unexplained component. The second row gives us the explained component of the overall gap, and the third row provides the unexplained component of the gap. Fourth row shows the percentage of the overall gap that is unexplained and is also known as "discrimination". The overall gap of 0.601, is decomposed into the two components.

In the PC regression model the unexplained gap is equal to 0.464. This is same as the coefficient of the gender dummy as seen in the PC regression in Table 3. The assumption here is that the returns paid to men and women are both equal and equal in value to coefficients on the pooled sample. The coefficient of the gender dummy thus represented the gender wage gap that is left unexplained after controlling for the personal characteristics. In the PJC regression model the unexplained gap is equal to 0.426. The discrimination component is once again very large. Also, the explained component is very small and insignificant.

By comparing both the columns, it can be observed that the contribution of the discrimination to the gender log wage gap is close to 70 percent, in the PJC regression. The value of log wage gap due to discrimination is 0.426, whereas the contribution of endowments is 0.175 which is around 30 percent. From the analysis of the previous outputs, it can be seen that in terms of differences in endowments, the women workers are not far behind and in some characteristics, they are better than men. Therefore, most of the gap comes from the differences in coefficients and is unexplained even after controlling for the job characteristics. Thus, this strongly provides evidence of discrimination in pay against women, who are equally qualified as men and are doing similar jobs as men.

Table 5. Oaxaca-Blinder decomposition for model with Personal characteristics and with both Personal and Job characteristics.

	Personal characteristics Coef.	Personal and job characteristics Coef.
Difference	0.601	0.601
Explained	0.137	0.175
Unexplained	0.464	0.426
Percentage unexplained	77.20	70.88

Quantile regression results for the Pooled sample

Table 6. and Table7. present PC and full scale PJC quantile regressions, for the pooled sample. The tables present the value of the coefficient and t-statistics generated from log wage regressions for the 10th , 25th , 75th and 90th percentiles, along with the OLS coefficients for comparison.

The coefficient of interest i.e., gender dummy in Table 6 reflects the gender log wage gap at various percentiles after controlling for the personal characteristics. The assumption of same returns to both men and women across quantiles is reserved. Comparison of coefficients for different percentiles suggests sticky floor effect. The gender log wage gap at 10th percentile is 0.612 which is highest in value, and coefficients decline for higher percentiles of income distribution. The value of gender dummy for 25th and 75th percentiles are 0.578 and 0.384, respectively. At the 90th percentile the log wage gap is 0.322. Thus, it is evident that after controlling for personal characteristics, the log wage gaps at the bottom of the income distribution are much higher in comparison to the top of the distribution.

In Table 7. the coefficient of the gender dummy represents the gender log wage gap at various percentiles with the controls for the personal characteristics and job characteristics. It can be seen in the table that in even in this analysis, the sticky floor effect prevails.

Table 6. Quantile regressions with Personal characteristics for Pooled sample.

ln_wage	10th Coef.	t-value	25th Coef.	t-value	75th Coef.	t-value	90th Coef.	t-value	OLS Coef.	t-value
Age	.038	12.68	.033	10.72	.019	7.69	.022	7.14	.029	14.36
Age_sq	-.031	-7.75	-.024	-6.31	.001	0.36	.003	0.71	-.015	-6.19
Sector	.217	15.97	.222	25.05	.205	34.55	.211	27.17	.204	35.29
Sex	-.612	-44.96	-.578	-65.22	-.384	-44.8	-.322	-31.03	-.464	-65.25
ST	-.08	-3.21	-.106	-7.88	-.076	-7.05	-.052	-2.83	.204	35.29
SC	-.114	-7.64	-.134	-11.19	-.109	-13.72	-.085	-8.01	-.073	-6.80
OBC	-.085	-5.71	-.123	-9.51	-.115	-13.49	-.086	-8.33	-.117	-14.29
Married	.079	3.42	.103	8.17	.056	5.80	.028	3.12	-.111	-14.78
Widowed	-.219	-6.24	-.218	-7.83	-.198	-11.89	-.159	-6.84	.121	13.02
Divorced	-.15	-2.50	-.12	-3.42	-.113	-2.87	-.156	-3.74	.09	5.33
Primary_Below	.241	20.19	.219	17.97	.217	39.10	.246	19.09	.094	2.92
Middle	.462	19.11	.418	36.66	.455	41.94	.537	34.51	.144	16.58
Secondary	.605	25.04	.605	47.84	.822	71.48	.912	52.15	.344	36.36
Higher_Secondary	.764	28.15	.779	37.22	1.149	80.61	1.165	82.14	.605	60.11
Graduate_diploma	1.108	48.28	1.273	63.18	1.528	172.19	1.52	123.44	.871	75.69
Post_graduate	1.259	28.33	1.528	54.38	1.741	113.65	1.73	97.90	1.318	134.06

Table 7. Quantile regressions with personal and Job characteristics for Pooled sample.

ln_wage	10th Coef.	t-value	25th Coef.	t-value	75th Coef.	t-value	Percentile 90th Coef.	t-value	OLS Coef.	t-value
Age	.033	6.81	.024	10.17	.012	6.01	.009	5.97	.018	9.92
Age_sq	-.034	-5.70	-.022	-8.00	-.006	-2.38	-.001	-0.52	-.013	-5.86
Sex	-.651	-41.05	-.589	-50.57	-.383	-47.73	-.33	-37.71	-.426	-73.78
Sector	.182	10.61	.153	24.24	.135	19.57	.154	18.35	.161	29.21
ST	-.093	-4.70	-.106	-6.84	-.09	-10.09	-.098	-7.26	-.092	-9.42
SC	-.108	-8.06	-.116	-9.34	-.095	-12.32	-.1	-9.52	-.112	-14.97
OBC	-.083	-5.83	-.093	-8.25	-.092	-10.15	-.098	-13.50	-.095	-14.06
Married	.081	3.95	.089	8.45	.041	4.80	.023	2.74	.06	7.11
Widowed	.082	1.59	.061	3.48	.048	3.32	.061	6.00	.048	3.16
Divorced	.016	0.27	.059	1.65	.044	1.18	.064	1.82	.061	2.09
Primary_Below	.031	1.55	.045	4.93	.056	7.87	.056	7.15	.053	6.76
Middle	.118	5.61	.121	9.10	.144	19.81	.158	12.82	.141	16.07
Secondary	.182	8.47	.226	18.67	.263	35.82	.306	21.84	.253	26.16
Higher_Secondary	.262	9.23	.306	20.99	.385	22.87	.418	22.95	.367	32.11
Graduate_diploma	.505	24.32	.561	34.93	.637	47.88	.684	35.59	.628	56.87
Post_graduate	.692	13.79	.758	30.52	.846	37.67	.894	37.63	.825	55.76
Public	.261	9.71	.329	23.42	.415	29.08	.372	27.10	.338	39.18
Union	.259	16.73	.265	22.64	.199	31.75	.183	19.02	.238	33.86
Contract	.261	14.16	.245	18.94	.262	37.75	.268	28.60	.256	33.73

Permanent	.118	11.03	.129	21.26	.132	19.06	.151	25.26	.14	25.30
Manager	.112	2.67	.278	12.63	.515	34.80	.594	24.66	.373	25.50
Professionals	.21	6.19	.304	19.58	.448	28.26	.507	25.03	.369	30.17
Technicians	.304	7.06	.324	12.07	.497	12.16	.604	10.66	.391	15.35
Clerical	.153	4.27	.17	11.08	.243	15.77	.263	14.19	.186	14.52
Services_Sales	.033	1.23	.081	7.98	.165	13.45	.193	11.07	.114	10.00
SkilledAgr_Craft	-.099	-7.94	-.029	-3.20	.062	9.87	.091	12.19	.004	0.62
Plant_Machine Oper	.066	2.46	.071	4.75	.159	14.23	.195	15.49	.112	10.00
Agriculture	-.091	-3.43	-.107	-9.93	-.193	-16.90	-.247	-16.63	-.151	-14.72
Elec_Gas_water_Con~r	.128	4.99	.092	7.18	-.008	-0.70	-.05	-3.74	.04	4.35
Food_hotels	-.144	-6.55	-.153	-8.77	-.231	-21.17	-.254	-16.55	-.206	-15.97
Transp_Comm	.012	0.35	.019	1.07	-.052	-4.05	-.074	-3.57	-.02	-1.70
RealEstate_Renting	-.012	-0.09	-.063	-1.51	-.094	-1.76	-.15	-1.87	-.096	-1.91
Public_admin_Defence	.12	4.69	.101	6.16	-.018	-1.51	-.07	-3.30	.029	2.42
Education	-.062	-1.95	-.069	-3.89	-.164	-8.84	-.215	-8.68	-.131	-9.51
Health_social_serv~e	.022	0.57	-.032	-1.04	-.096	-4.04	-.086	-2.49	-.066	-3.32
Other_Services	-.097	-2.86	-.085	-3.42	-.207	-10.63	-.21	-8.64	-.16	-9.49

CONCLUSION

The paper uses the data from NSSO 66th round (2009-2010) of the Employment – Unemployment survey to examine the gender wage gap in India. The main point of the paper was to look at the mean log wage gap and wage gap at different points of income distribution. The main results of the paper include that after controlling for both the personal and job characteristics the discrimination in the job market is 70 percent, which is substantial. The study also finds that the women at the lower end of the income distribution face higher wage discrimination as compared to the women at the higher end of the income distribution. This points to the existence of sticky floor effect in the Indian society.

There are other policy concerns being faced from the study. One of the effective ways for improving the problem of wage gap is improving the level of education among women. Also, share of gender wage gap is higher for the rural areas and private sectors. Labour laws relating to minimum wage, equal pay and social security benefits to the employees need to be effectively implemented. Also, rules relating thar promote unions and written job contracts will leave narrow scope for the discriminatory practices against women in hiring, promotion and remuneration.

REFERENCES

Neuman, S and Oaxaca, R (2003): 'Estimating Labour Market Discrimination with selectivity-Corrected Wage Equations: Methodological Considerations and Illustration for Israel'. Discussion Paper No.2-2003.

Neumark, D (1988): 'Employers' Discriminatory behaviour and the estimation of wage discrimination'

Journal of Human Resources, 23: 279-95.

NSSO 68th Round employment unemployment report (2014).

Blau, F. D and L, M. Kahn. (1994): 'Rising Wage Inequality and the U.S. Gender Gap', *American Economic Review,* Volume 84, Number 2, 23-28.

Cotton, J. (1988): 'On the decomposition of wage differentials', *Review of Economics and Statistics,* Volume 70, Number 2, 236-43.

Mincer, J (1974): 'Schooling, Experience and Earnings', New York: NBER Press.

Oaxaca, R. L (1973) : 'Male-Female Wage Differentials in Urban Labour Markets', *International Economic Review,* 14(3), p. 693-709.

Oaxaca R. (1977) The Persistence of Male-Female Earnings Differentials, in: Juster T. (ed.) Distribution of Economic Well-Being, NBER Press.

Oaxaca R. L. & Ransom, M. R. (1994) On discrimination and the decomposition of wage differentials, Journal of Econometrics, Elsevier, vol. 61(1), pp. 5-21, March.

Zajkowska, O. (2010): 'Gender pay Gap in Poland-Blinder -Oaxaca Decomposition', *Quantitative Methods in Economics*, XIV, No2, 272-278.

Goldin, Claudi (1990). *Understanding the Gender Gap: an economic history of American women,* New York, Oxford University Press.

Polachek S. W. and Xiang J. (2009) The Gender Pay Gap across Countries: A Human Capital Approach, SOEP papers on Multidisciplinary Panel Data Research 227, DIW Berlin, The German Socio-Economic Panel (SOEP).

Weichselbaumer, D. and Winter-Ebmer R. (2005) A Meta-Analysis of the International Gender Wage Gap, Journal of Economic Surveys, Wiley Blackwell, vol. 19(3), pp. 479-511, 07.

Appleton, Simon, John Hoddinott, and Pramila Krishnan (1999). "The gender wage gap in three African

countries." Economic Development and Cultural Change, Volume 47, Number 2, 289–313.

Chakraborty, S., & Mukherjee, S. (2014). Gender wage gap in the Indian labour market: Evidence from the NSS 66th round data. The Indian Journal of Labour Economics, 57(2), 259–280

Chandrasekhar, C. P., & Ghosh, J., (2011, August 9). Women's Work in India: Has anything changed?

Craigie, T. A., & Dasgupta, S. (2017). The gender pay gap and son preference: Evidence from India. Oxford Development Studies, 45(4), 479–498.

Deshpande, A., Goel, D., & Khanna, S. (2018). Bad karma or discrimination? Male–female wage gaps among salaried workers in India. World Development, 102, 331–344.

Duraisamy, M., & Duraisamy, P. (2016). Gender wage gap across the wage distribution in different segments of the Indian labour market, 1983–2012: Exploring the glass ceiling or sticky floor phenomenon. Applied Economics, 48(43), 4098–4111.

Duraisamy, M., & Duraisamy, P. (2016). Gender wage gap across the wage distribution in different segments of the Indian labour market, 1983–2012: exploring the glass ceiling or sticky floor phenomenon. Applied Economics, 48(43), 4098–4111. Dutta, P. V. (2005). Accounting for wage inequality in India. Indian Journal of Labour Economics, 48(2), 273–295.

Javeed, S., & Manuhaar, A. (2013). Women and wage discrimination in India: A critical analysis. International Journal of Humanities and Social Science Invention, 2(4), 6–12.

Khanna, S. (2012). Gender wage discrimination in India: Glass ceiling or sticky floor? (Working Paper No. 214). Centre for Development Economics (CDE), Delhi School of Economics.

Kingdon, G. G., & Unni, J. (2001). Education and women's labour market outcomes in India. Education Economics, 9(2), 173–195.

Madheswaran, S., & Lakshmanasamy, T. (1996). Occupational segregation and earnings differentials by sex: Evidence from India.

Madheswaran, S., & Khasnobis, B. G. (2007). Gender discrimination in the labour market: Evidence from the NSS. WIDER research project on "Gender wage Gap and its Impact on poverty: Evidence from India.

Mahajan, K., & Ramaswami, B. (2017). Caste, female labor supply, and the gender wage gap in India: Boserup revisited. Economic Development and Cultural Change, 65(2), 339–378.

APPENDIX

Fig 1. Trends in the average monthly wages of Males, females and pooled sample.