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Determination and Discrimination of Wages in Indian Labour Market

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ABSTRACT

The existence of a global discrimination across economic, social, and political outcomes is well-known. Gender equality, a key objective of the Sustainable Development Goals, is hampered by both explained gaps (differences in characteristics) and unexplained gaps (discrimination). This paper addresses a gap in the literature by analyzing discrimination in wage distribution in India using the Quantile Regression method and Blinder-Oaxaca decomposition method.

Keywords: wage inequalities, Labour Market, Oxaca Blinder, Discrimination

1 INTRODUCTION

The World Economic Forum's Global Gender Gap Report provides an analysis of long-term trends in gender equality across economic participation, educational attainment, health, and political empow- erment. Despite eliminating gaps in primary and secondary education, economic disparities remain significant, with India ranking 136th in economic participation and opportunity. The country also ranks poorly in labor force participation (135th) and estimated earned income (137th), with a ranking of 103rd for wage equality.

There is extreme level of discrimination when it comes to wages being received by men and women or an urban citizen or the rural citizen.Unequal wage is a major reason of income inequality. It has been observed that some section of the society fetch much higher wage remuneration for the same amount of work. There are various factors that affect the wage received by an individual such as their education, location, demographic or the job attributes. Discrimination occurs when participants in the market take into account factors such as gender and race while making the economic exchanges. The discrimination in the labour market is a crucial factor for an economy as it hampers the development and also disincentivizes people to work hard . This study uses the Quantile Regression method and Oaxaca-Blinder decomposition technique to analyze gender wage gaps in India, utilizing data from the NSSO 68th round employment survey.

2 OBJECTIVES

The objective of the study is to find how different factors affect the wage discrimination in India.The socio-economic , demographic, location and job attributes are some of the factors that are responsible for the wage discrimination in the society . Our aim is to decompose the wage discrimination into these factors to know which factors are majorly affecting it and which section of the society is favoured

and which is not. The main aim is to identify the components that can explain the wage differential

.Various independent variables will be used to find the impact of each and every variable on the wage discrimination and the extent to which each variable affects the discrimination .

3 LITERATURE REVIEW

There has been literature that has attempted to identify the wage differential causes which have mainly been caste , religion and gender. **Esperanza Vera-Toscano, Euan Phimister and Alfons Weersink(2004)** find a statistical and significant rural – urban wage gap after controlling for observed and unobserved characteristics. Further, the results also suggest that the rural-urban wage difference is not simply induced by immobility between rural and urban markets , they show the problem also lies in the thin labor market present in rural areas.

Boris Hirsch(2016) in his paper signifies a major element of these wage disparities .They find out that these wage differences can be attributed to differences in worker and workplace characteristics, which are likely to mirror differences in worker productivity.They also talk about the discrimination that women have to face at the workplace.**Richard J. Butler(1982)** finds out that if two people with same productivity but one was white and other black then the white one would receive higher remuneration than the black due to discrimination against the race.He also finds that the marginal wages fall down as minority members increase.**David J. Maume, Jr.(2004)** identifies that younger black and women faced much discrimination as compared to their white counterparts. Majority of these people face wage erosion at their workplace.It has been found that the majority of wage gap arises due to discrimination.**Madheswaran and Attewell (2007)** points out the large-scale prevalence of pre-labor market discrimination based on gender, caste, and location (both rural and urban). This pre-labor market discrimination poses a considerable barrier in securing regular and better-quality employment.

Javier Gardeazabal and Arantza Ugidos(2005) use blinder oaxaca decomposition to find that the gender wage discrimination increases with the quantile index but as a fraction of the gender wage gap reaches a maximum at the ninth percentile. Various national and international studies have investigated gender wage differentials for decades. Notably, **Becker (1971)** highlighted labor market

discrimination, while **Mincer (1974)** showed that gender productivity gaps primarily drive wage disparities. Researchers in women's studies, such as **Hirway (2012)**, have emphasized women's marginalization in the workforce. **Sharif (1991)** identified an inverted-S shape in women's labor supply curve relative to wage rate and income, and other studies observed an inverse relationship be- tween labor supply and wage rate at low wage levels. Numerous theoretical and empirical studies have documented gender-based wage differentials in both developed and developing countries, including India.

Gender-based wage differentials have been well-documented for a long time, such as the agricultural wage gaps between genders noted by **Jose (1988)**. The persistent gender wage gap in India is attributed to labor market discrimination against women. Studies using the Blinder–Oaxaca method- ology have shown the persistence of gender wage differentials through both explained (endowment) and unexplained (discrimination) components.

Madheswaran and Khasnobis (2007) documented narrowing gender wage differentials across regular and casual workers using NSSO data. **Deshpande et al. (2015)** found persistent gender wage gaps among regular workers, with women at the lower end of the wage distribution facing higher discriminatory gaps. India's economy has seen rapid growth and a slowing labor force growth rate **(Motkuri 2016; Ghose 2013)**. These studies collectively indicate a persistent gender wage gap with varying magnitudes over time and regions.

4 DATA AND METHODOLOGY

This study uses Government of India National Sample Survey Organisation socio-economic survey 68th round (July 2011-June 2012) data.The distribution of wage is our main variable of interest Since, wage is highly positively skewed, we have created logarithmic function of wage in order to overcome the problems related to skewed data.

Based upon the literature review done , its has been tried to incorporate as many variables as possible to find out the factors responsible for the wage discrimination as shown in figure 1 above.

To take into account the socio-economic and demographic attributes, paper includes education variable as return to education is widely researched topic in labour economics with the general conclusion that there is direct relationship between education and wage especially in country like India. In this study, education has various categories as different variables as to take in account of heterogeneity in the scale and level of education. Vocational training is also included as it after education gives approximate effect of additional education on wage .

Age is also included as with age people tend to gain experience and therefore receive higher wages

.Status of marriage also plays an important role in amount of wages received by an individual.To find out discrimination in wages , paper also considers the caste of an individual i.e to which social group he/she belongs to and we have also included

religion as an independent variable to know if there is any source of discrimination in religion.Household size is considered since it tells us how urgently an individual needs to take up a job even if he/she receives minimum wages.Land cultivated is also significant since it reduces the urgency of taking up lower wages jobs as a person has certain source of earning and therefore reduces the probability of him compromising.The fact if a person works in government sector or public private ltd also matters to know if there exists any discrimination.

VARIABLES

Age	Age of an individual
Land Cultivated	Land under cultivation (in hectares)
HH_Size	Number of members in household
SC	1 if Scheduled Caste,0 otherwise
ST	1 if Scheduled Tribe, 0 otherwise
OBC	1 if Other backward class, 0 otherwise
Islam	1 if Islam, 0 otherwise
Christianity	1 if Christian, 0 otherwise
Sikhism	1 if Sikh, 0 otherwise
minority	1 if Jainism, Buddhism, Zoroastrianism, 0 otherwise
widowed	1 if widowed, 0 otherwise
married	1 if married, 0 otherwise
divorced/separated	1 if divorced/separated, 0 otherwise
Literate_secondary	1 if literate till secondary, 0 otherwise
literate_graduate	1 if graduate, 0 otherwise
literate_post_graduate	1 if post graduate, 0 otherwise
government_sector	1 if person works in government enterprise, 0 otherwise
public_private_ltd_co	1 if person works in public_private_ltd_co enterprise, 0 otherwise
formal_vocational_training	1 if married, 0 otherwise
informal_vocational_training	1 if acquired education informally,0 otherwise

Figure 1: Variables

5 MODEL

To incorporate the skewness in wages , the quantile regression model has been used .The dependent variable is divided into three quantiles - 25th , 50th and 75th.This is done to find out the impact of independent variables on different percentiles of wages .

5.1 *Regression Equation:*

$$\text{Wages} = \text{HHSize} + \text{Age} + \text{LandCultivated} + \text{SC} + \text{ST} + \text{OBC} + \text{Islam} + \text{Christianity} + \text{Sikhism}$$

+ minority + married + widowed + divorcedSeparated + literateSecondary + literateGraduate + literatePostGraduate + formalVocationalTraining + informalVocationalTraining + governmentSector + publicPvtLtdCo

5.2 *Result and Analysis*

tau: [1] 0.25

Coefficients:

	Value	Std. Error	t value	Pr(>|t|)
(Intercept)	6.39381	0.00606	1055.03135	0.00000
HH_Size	-0.00193	0.00036	-5.44090	0.00000
Land_Cultivated	0.00001	0.00000	28.61187	0.00000
Age	0.00323	0.00014	23.70881	0.00000
SC	-0.15529	0.00565	-27.48868	0.00000
ST	-0.10994	0.00482	-22.81153	0.00000
OBC	-0.12925	0.00411	-31.45456	0.00000
Islam	0.22146	0.00385	57.53340	0.00000
Christianity	0.25358	0.00655	38.69836	0.00000
sikhism	0.26996	0.00810	33.31565	0.00000
minority	-0.06001	0.00989	-6.06855	0.00000
married	-0.03463	0.00428	-8.09050	0.00000
widowed	-0.16978	0.00926	-18.34015	0.00000
divorced_separated	-0.14614	0.00576	-25.35112	0.00000
literate_secondary	0.30539	0.00501	60.95123	0.00000
literate_graduate	0.51038	0.00888	57.49130	0.00000
literate_post_graduate	0.78711	0.01502	52.41638	0.00000
formal_vocational_training	0.00639	0.01127	0.56665	0.57095
informal_vocational_training	-0.17639	0.00477	-36.97293	0.00000
government_sector	0.43149	0.00662	65.19895	0.00000
public_private_ltd_co	0.16688	0.01318	12.66368	0.00000

Figure 2: 25th percentile

tau: [1] 0.5

Coefficients:

	Value	Std. Error	t value	Pr(>|t|)
(Intercept)	6.83244	0.00519	1315.96295	0.00000
HH_Size	-0.00292	0.00036	-8.08183	0.00000
Land_Cultivated	0.00002	0.00000	18.51351	0.00000
Age	0.00420	0.00012	34.26916	0.00000
SC	-0.20034	0.00387	-51.79933	0.00000
ST	-0.14743	0.00456	-32.29685	0.00000
OBC	-0.17996	0.00348	-51.64491	0.00000
Islam	0.25503	0.00369	69.19077	0.00000
Christianity	0.47673	0.00662	72.01666	0.00000
sikhism	0.30676	0.00823	37.27629	0.00000
minority	0.12967	0.01082	11.98015	0.00000
married	-0.03538	0.00316	-11.21052	0.00000
widowed	-0.15293	0.00721	-21.19824	0.00000
divorced_separated	-0.17753	0.02180	-8.14428	0.00000
literate_secondary	0.53813	0.00512	105.16522	0.00000
literate_graduate	0.86187	0.00599	143.81199	0.00000
literate_post_graduate	1.09887	0.01272	86.36131	0.00000
formal_vocational_training	-0.00770	0.00933	-0.82566	0.40899
informal_vocational_training	-0.18273	0.00351	-52.08739	0.00000
government_sector	0.54492	0.00494	110.37499	0.00000
public_private_ltd_co	0.10544	0.00832	12.66925	0.00000

Figure 3: 50th percentile

tau: [1] 0.75

Coefficients:

	Value	Std. Error	t value	Pr(>|t|)
(Intercept)	7.30663	0.00789	926.08606	0.00000
HH_Size	-0.00165	0.00052	-3.18753	0.00144
Land_Cultivated	0.00006	0.00000	59.03615	0.00000
Age	0.00770	0.00018	42.94911	0.00000
SC	-0.31307	0.00546	-57.34776	0.00000
ST	-0.12644	0.00700	-18.05237	0.00000
OBC	-0.23974	0.00478	-50.18607	0.00000
Islam	0.29165	0.00580	50.31415	0.00000
Christianity	0.53071	0.00816	65.04936	0.00000
sikhism	0.18255	0.01630	11.20137	0.00000
minority	0.34998	0.03034	11.53615	0.00000
married	-0.12171	0.00528	-23.03787	0.00000
widowed	-0.21484	0.01260	-17.05205	0.00000
divorced_separated	-0.19649	0.02246	-8.74783	0.00000
literate_secondary	0.66174	0.00531	124.59905	0.00000
literate_graduate	0.87972	0.00537	163.70560	0.00000
literate_post_graduate	1.08288	0.00991	109.23565	0.00000
formal_vocational_training	0.05687	0.01059	5.36877	0.00000
informal_vocational_training	-0.18866	0.00726	-25.99917	0.00000
government_sector	0.53854	0.00613	87.78450	0.00000
public_private_ltd_co	0.03164	0.01409	2.24457	0.02480

Figure 4: 75th percentile

Household size as a variable has a negative impact on wage as higher the household size , the higher the burden on earning member and therefore he would settle for lower wages.

Age and Education as expected have positive sign since they have a positive impact on wages. The higher the age of an individual , the higher the experience and hence higher remuneration.

Education has been divided into secondary , graduate and post graduate and clearly coefficients on all the three categories are positive and increasing with education that implies that as an individual acquire higher and higher education he/she will tend to receive higher wages as well.

Land cultivated has a positive sign since a person having land under cultivation wouldn't settle for lower wages as he already has a source of earning and therefore wouldn't compromise.

There is also discrimination in wages due to caste which is reflected in the negative signs of the coefficients of SC, ST and OBC. This signifies the difference in wages received by general category and people belonging to backward and other classes.

A person who's married also receives lower wage as compared to single and also the widowed and separated receive much lower wage in comparison to single which again reflects discrimination. This implies that people who are married , divorced or separated are at a disadvantage as compared to singles.

For the lower quantile, being in minority is again discriminating as it leads to lower wages received. This is an important result as it shows that discrimination related to

religion exist in occupations that offer lower wages i.e lower wages jobs . The higher position jobs don't discriminate against people based on their religion.

Both government and public private ltd co. have a positive relationship with wages. Formal vocational training has a positive sign for lower and upper quantile but negative for median that reflects it creates a difference in wages for lower and upper quantile jobs.

5.3 *B-O Decomposition*

Another methodology to study labour market outcomes by groups (sex, race, and so on) is to de- compose mean differences in log wages based on regression models in a counterfactual manner. The procedure is known in the literature as the Blinder–Oaxaca decomposition (Blinder 1973; Oaxaca 1973) and divides the wage differential between two groups into a part that is 'explained' by group differences in productivity characteristics such as education, training or work experience and a residual part that cannot be accounted for by such differences in wage determinants. This 'unexplained' part is often used as a measure for discrimination.

Using pooled coefficients as the benchmark, we will now divide the wage disparity between males and feamles into parts that can be explained and parts that cannot. The average log of wages at the aggregate level is 5.34399 for males (Gender=1) and 5.10512 for females (Gender= 2). The difference between these values, 0.319202, is statistically significant at the 5% level of significance. It demon- strates unequivocally that there is a statistically significant difference in the log wage between males and females, and that the unexplained portion of the difference is greater than twice the explained portion. Consequently, while the difference in observable characteristics that account for a portion of the statistically significant wage gap between males and females at the aggregate wage market explains some of the gap, the majority of the gap remains unexplained, indicating discrimination against women in the Indian wage market. When analyzing the data holistically, it becomes clear that discrimination in the labor market—is the only plausible explanation for the unexplained gap, rather than unobservable traits that are impossible to measure analytically.

Group 1: male = 1
Group 2: female = 2

	Coeff.	Robust SE	z	$P > \|z\|$	95% confidence interval
Overall					
Group_1	5.34399	0.011675	274.89	0.000	[4.678999, 5.34231]
Group_2	5.10512	0.035413	166.53	0.000	[5.235444, 5.39978]
Difference	0.319202	0.050431	7.56	0.000	[0.236368, 0.454522]
Explained	0.102513	0.040245	3.78	0.000	[0.076102, 0.113180]
Unexplained	0.216689	0.055442	7.71	0.000	[0.1232, 0.39950]

Figure 5: B-O DECOMPOSITION OF WAGES

6 CONCLUSION

Using the Government of India National Sample Survey Organisation socio-economic survey 68th round (July 2011-June 2012) data. , the various determinants of wage have been determined and also which factor affects the wage with what intensity. Socio-economic , enterprise type , religion , Social Group , education and age are some of the factors that affect wages significantly . There exists discrimination in wages , however , the extent of discrimination varies within different percentiles and also the factors that affect the discrimination are different in different percentile.

At an aggregate level, the gender gap in wages is not just significant, but major portion of it cannot be explained on the basis of observable and relevant labour market characteristics; and by implication, major part f this gap is attributed to discrimination in the pooled wage market against females compared to males.

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