

**Wage gap in labor market, Gender Bias and Socio-Cultural Influences:  
A Decomposition Analysis for India**

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**Abstract**

This paper captures the payment gap by integrating labor market performance with that of family decision making practices. We conjecture that women from patriarchal families are earning less than men as they are likely to face more severe participation constraint. Women sacrificing their career growth for household duties are more likely to come from families with stronger patriarchal values. We use Mincer wage function incorporating patriarchy as one of the explanatory variables, which conforms the role of family culture. Then we use Oaxaca-Blinder methods of decomposing inequality in female-male hourly wage earning into the contributing factors like observed and unobserved. We see how much of the wage gap of male and female workers is explained by endowment effect and how much of it is due to coefficients and the interaction effect. We found that the patriarchy index plays statistically significant role in India for both blue collar industrial jobs and white collar service related occupations compared to the agricultural works. In fact, for the latter, both female and male are exposed to the clutch of patriarchy to a large extent which may be due to other related family culture and demands more attention in future research.

**JEL Keywords:** J16, J23, J24, J31, J71

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## 1. Introduction

The issue of gender discrimination in labor market in the forms of gender wage gap and low labor force participation for women is a well researched area in labor economics. Unlike the dominant trend in the literature, which explains the gender issue in labor market in terms of prejudiced by the employers leading to discrimination, in this paper we try to capture the payment gap by integrating labor market participation pattern with that of family decision making practices. In particular we conjecture that women's opportunity to earn, besides other factors such as education and experience, depend on their position in their respective families - women from families with liberal values can earn more. This is because women from patriarchal families face stronger cultural constraints in joining the labor market than those from liberal families.

Our paper combines two important strands of literature - gender gap in labor market and effect of culture in economic outcome. The standard literature on gender bias characterizes the discrimination in many ways. It can be measured by gender wage gap and its variants such as sticky floor, glass ceiling, and also by occupational gender sorting. Gender wage gap is measured by the pay differential between male and female workers of same abilities in the same occupations. It has been observed that female to male wage is falling across the countries over time making it an international phenomenon. Sticky floor refers to the phenomenon where earning get stuck in the low wage level. On the other hand, glass ceiling -- a metaphoric invisible ceiling which prevents the women workers from climbing the professional ladder-- refers to the gender wage gap at the top level of the wage. There is a substantial literature which estimates the existence of both of these phenomena for different labor markets (Arulampalam 2007, Chi2008, Christofides2013, Khanna2012). The next form of gender discrimination is the sorting of male and female workforce into "male jobs" and "female jobs", i.e., occupational segregation, where female are more concentrated in the low paying jobs. Anker (1998) estimated the concentration of women in nine comparable female jobs for different countries in the world. For India they found nursing has maximum feminization (93 percent), teaching (28 percent), maid and house-keeping related services (53.2 percent), tailoring services (11 percent) has moderate amount of feminization. Similarly there are some masculine jobs with high concentration of male workers like civil engineers, pilots, drivers, etc. Even though all these forms characterize gender based discrimination, each of them is caused by different stimulus and, therefore, needs different institutional treatments.

Given that we cannot directly observe employers' attitude towards women and subsequent discrimination, usually gender wage discrimination is measured by measuring the occupation specific wage differential between male and female which cannot be explained by any of the observables such as education, experience etc. Measuring discrimination is an empirical challenge because existence of gender wage gap does not necessarily indicate discrimination and cultural bias against women. For example, a woman worker may get lesser wage than his male colleague just because she is less skilled. If the gap is due to any observable economic factor related to labor productivity and efficiency, then that can be explained by the regression analysis. However, if it is due to some unobserved socio-cultural influence like the social expectation regarding the role of women within the household and outside then the regression analysis will club these influences under unexplained residuals, unless proper control can be designed to account for their existence. So, one need to establish first the possible existence of such non-economic socio-cultural factors influencing the pattern of female labor force participation and then the subsequent analysis would be more insightful. The technique proposed to do this is known as the Oaxaca Blinder decomposition (Oaxaca 1973, Blinder 1973). This technique implicitly assumes that if the gender wage gap cannot be explained by any of the observed characteristics of the workers it must be because of the cultural bias of the employers. However, the unexplained wage gap may also arise if women are less productive than their male counterpart and the productivity difference can only be observed by her office supervisor. If this explanation is true, gender wage gap that cannot be explained by observables, does not necessarily indicate gender discrimination in workplace. Such effort differential may be the result of family norms which require the women to take care of household chores, raise kids leaving them with less time and energy to put high effort in their work places.

Our conjecture is that women from patriarchal families are earning less than men. Women sacrificing their career growth for household duties are more likely to come from families with stronger patriarchal values. This allows us to link this work to a newly emerging field of culture and economic outcome which are pioneered by papers looking at the relationship between trust and trade (Guiso 2004), culture and effort (Ichino 2000}, religion and growth (Becker 2009, Weber, Tabellini 2010). A section of this strand of the literature also looks at the relationship between culture and economic outcomes in the historical context (Greif 1993, Botticini 2005).

Many studies reported the existence of such gap in the context of many countries. This present study particularly focuses on gender wage gap and gender based occupation sorting in the context of

Indian labor market based on the Indian Human Development Survey (IHDS) data collected by the National Council of Applied Economic Research (NCAER) in 2004-05. The rest of the paper is organized as follows: section 2 describes the basic methodology of decomposition, section 3 describes the data and the construction of suitable variables for the purpose of our analysis, section 4 presents the major decomposition results and extends discussion of the same; finally, section 5 concludes the paper by indicating the scope for further research.

## 2. Methodology: Gender Wage Gap and Decomposition Analysis

To see how male female wage gap is explained by the explanatory variables and how much of this gap is unexplained, we use decomposition analysis of Oaxaca (1973), Blinder (1973).

We consider two groups working males ,M and working females, F and the outcome variable is their wage income. Here we consider log hourly wage, w, and a set of predictors, Xs are human capital indicators, education, experience, age, cultural indicator as patriarchy of the family.

We measure how much of the mean income difference,  $E(w)$  denotes expected value of the outcome variable, male female earning gap, is accounted for by the group differences (male-female difference) in the predictors. Male-Female Mean income gap :

$$G = E(w_m) - E(w_f) \dots\dots(1)$$

Based on linear model:

$$w_l = w_l' \beta_l + \epsilon_l, \quad E(\epsilon_l) = 0, \quad l = \{m, f\} \dots\dots(2)$$

Here w is the vector containing predictors and a constant,  $\beta$  contains slope parameters and the intercept, and  $\epsilon$ , the error. The mean outcome difference can be expressed as difference in the linear prediction at the group specific means of the regressors.

$$G = E(w_m) - E(w_f) = E(x_m') \beta_m - E(x_f') \beta_f \dots\dots(3)$$

Since  $E(w_l) = E(x_l' \beta_l) + E(\epsilon_l) = E(x_l') \beta_l$  ; where  $E(\epsilon_l) = 0, E(\beta_l) = \beta_l$

Rearranging eq3: For Female Group and male group separately:

$$G_f = [E(x_m) - E(x_f)]' \beta_f + E(x_f)' (\beta_m - \beta_f) + [E(x_m) - E(x_f)]' (\beta_m - \beta_f)^2 \dots (4a)$$

$$G_m = [E(x_m) - E(x_f)]' \beta_m + E(x_m)' (\beta_m - \beta_f) + [E(x_m) - E(x_f)]' (\beta_m - \beta_f) \dots (4b)$$

$$G_f = E + C + I$$

E = Expected change in female income if female group had male predictors;

C = Expected change in female outcome if female group had male coefficient;

I = Expected change in income;

### 3. Data and Variable Construction

#### ***3.1 India Human Development Survey (IHDS) 2004-05***

We use the India Human Development Survey Data (IHDS) of 2004-05 which is a database formed through a survey of 41554 households in 1503 villages and 971 urban areas for 35 Indian states and union territories conducted by Indian Council of Applied Economic Research (NCAER), New Delhi and University of Maryland. The survey consists of two parts, household questionnaire with household characteristics on demography, health, education, income, work, occupation, production, consumption, assets, social capital, fertility, children schooling, etc. and individual questionnaire with work, income, gender relation, fertility decision, marriage practices, exposure to mass media, reading, writing skill etc.

In order to see the impact of family characteristics and family culture on work participation and income of male and female workers we merged the household database with individual level information. The merged database thus pairs the individual information (viz., decision to participate in the labor market) with household level information. Here, we attempt to unravel the influence of household level information like family structure on decision to participate in the labor market for individuals. As discussed in the introductory section, work effort is likely to depend on the cultural aspects and our main hypothesis is: work participation is inversely related with the degree of patriarchies in the family. The IHDS data consists of individual information about total hours of

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<sup>2</sup> Winsborough and Dickinson 1971; Jones and Kelley 1984; Daymont and Andrisani 1984

work in a year. This is given by a binary coded variable WORKANY that takes a value 1 if the individual is working more than 240 hours in a year and 0 otherwise. This has been used as an indicator for workforce participation and effort in the labor market. We use age of the respondent (RO5), education (ED5), households total income (INCOME) where IHDS measures total income of households summed across fifty components of income including wages and salaries, property income, net business income, farm income etc. INCOME5 measures the distribution of household income in different quintiles, household asset (HASSET) counts the possession of number of valuable assets, that includes 30 items including housing, sex (RO3, dummy coded 1 for male 0 otherwise), caste<sup>3</sup> variable grouped as low caste and high caste. In this we follow the specification of the usual earning equation.

The summary statistics of the household characteristics are reported in table 1. The average asset of sample household is 10.25 and 16.48 for rural and urban respectively. Total annual household income comprise of male female earning from agricultural and non agricultural wage, salary, business, remittances, government benefit, pension etc. which is INR 48399.83 for rural and INR 79296.45 for urban households, with average family size of 6.65 and 5.81 respectively. This also implies that per head income in the household is lower for rural areas compared to their urban counterpart. As there are significant differences in asset level and education across rural and urban areas we expect to see this differences being reflected in work force participation as well. Average household size is 6.65 and 5.81 for rural and urban respectively. Highest education of urban female member is almost double the rural female.

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<sup>3</sup> Caste dummies have been incorporated as there were significant variation in work participation and patriarchy across caste groups. Due to the preponderance of Muslim households in the sample (12 percent as against 22 percent of high class), we have considered them as a separate social category as we clubbed Dalit, Adibashi and OBC as lower caste.

**Table: 1: Characteristics of the sample households in IHDS 2004-05**

Household Characteristics	Mean Value (Standard Deviation)	
	Rural (89338)	Urban (50573)
Assets of the Household (HASSET)	10.25 (5.30)	16.48 (4.84)
Household Size (NPERSONS)	6.65 (3.29)	5.81(2.61)
Total Income of the households (INCOME)	48399.83 (81502.1)	79296.45 106978.5)
No. of children (NCHILD)	2.39 (1.90)	1.83 (1.50)
Highest Education of Adult (HEDM5)	6.83 (4.88)	9.81 (4.54)
Highest Education of female (HHED5F)	3.61 (4.46)	6.96 (5.23)
Highest Education of male (HHEDM)	6.54 (4.83)	9.34 (4.65)
No. of married female in household (NMARRIEDF)	1.52 (0.90)	(0.75)
No. of married male in the household (NMARRIEDM)	1.45 (0.90)	1.31 (0.75)
Age of the respondent (RO5)	27.11 (19.67)	27.85 (17.84)
Education level of the respondent (ED5)	3.87 (4.26)	6.55 (5.04)

Based on authors calculation on IHDS data

Table 2 shows summary statistics for workforce participation and income of male and female workers for rural and urban labour market in India. Total annual earning of female in rural labour market is about one-third of that of male annual earning. This gap is less in urban area as urban female wage rate is 15.82 as compared to 5.55 in rural market Average work hours per year of female

workers is 1102.12 and 1257.30 in rural and urban areas respectively, which are much lower than their male counterpart of 1593.80 and 1906.72 for rural and urban areas respectively.

**Table2: Hours of work, hourly wage annual earning. Work participation and work hours per year (t-test):**

Variables	Female	Male	Mean Diff
Work participation in hrs/year (wrkp1)	1023	1677	-653.872***
Hourly wage total (WS8HOURLY)	7.635	15.08	-7.446***
Bonus (WS10A)	57.17	190.1	-132.894***
Annual earning total (WS8ANNUAL)	12000	31000	-1.9e+04***
Work hours/year (WS6YEAR)	1263	1917	-653.872***
Log Hourly wage (l_whr)	1.661	2.357	-0.696***

Author's calculation on IHDS 2004-05 data

### ***3.2 Measuring Household Culture: Index of Patriarchy***

In order to isolate the impact of unobservable patriarchal family culture and values on male-female work participation we construct an index of patriarchy using the decision related information like who is having the most say in the family regarding cooking, marriage, fertility, child illness, expenditure, child marriage. These six decision related variables are coded with 0 for women taking the decision and 1 for male members taking the decision . Combining six most say variable we computed an index of patriarchy in the line of Human Development Index<sup>4</sup>. Here the index can take a minimum value of zero where women take all the decisions and in case male members have the most say the index takes a value of 1 i.e. the maximum value. Thus, higher the value of the index the higher is the level of patriarchy.

$$PI_i = \frac{\mu_i - \underline{\mu}}{\bar{\mu} - \underline{\mu}} \quad (i)$$

<sup>4</sup> Thus, our index of patriarchy is related to the extent of autonomy that a female exercises in household decision making. In a way this also relates to empowerment and entitlement of female member of the households (Sultana 2011).



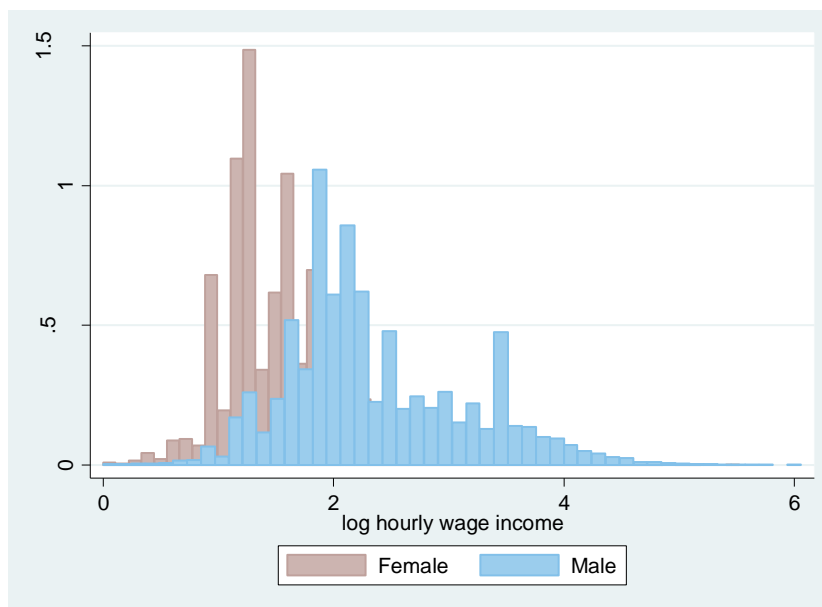
where  $\mu_i$  is the actual number of Most Says in family  $i$ ,  $\underline{\mu}$  is the minimum number of most say and  $\bar{\mu}$  is the maximum numbers of most say. Index of patriarchy varies across rural and urban households. Mean patriarchy for rural families are higher than that of the urban households. According to IHDS 2004-05 data, Indian families are patriarchal and the mean patriarchy score for rural and urban families are 0.66 and 0.63 respectively.

#### 4. Results and Discussion:

##### 4.1 Exploration

The IHDS data has several categories of income like hourly wage in main occupation ( $wg\_hr$ ), total annual earning ( $wg\_yr$ ), work hours per year ( $hr\_wrk$ ). Table 2 reports the male female earnings for each category. In terms of annual earning there exists a significant earning gap between male and female workers in rural areas: the annual earning of male is almost three times that of the female (see table 1 and 2). Though not as pronounced in the rural areas the male earning is almost one and half times that of the female in the urban areas. The same trend is observed for hourly wage as well (see figure 1): here male receives almost twice the female wage per hour in the rural areas while wage gap exists in the urban areas but is relatively less sharp. The result of t-test (see table 2) conforms that male-female wage gap, earning gap, work participation gap is positive and significant in both rural and urban labour market in India.

**Figure 1: Distribution of Male-Female Log Hourly Wage**



#### 4.2 Regression: Male-Female earning

We consider the following wage function for male and female workers separately<sup>5</sup>.

$$w_i^j = w(\text{Experience}, \text{Experience}^2, \text{Edu}, ) \quad (\text{ii})$$

$w_i^j$  Denotes hourly wage rate ith individual and j=male, female.

**Table 3: Mincer Earning**

Log (Hourly Wage rate)	Rural		Urban	
	Female	Male	Female	Male
	Coefficient			
Experience	0.02***	0.04***	0.05***	0.07***
(Experience)sq	0.00***	0.00***	0.00***	0.00***
Years of Education	0.06***	0.07***	0.13***	0.11***
Constant	0.98***	1.10***	0.68***	0.80***
No. of Obsn.	9992	21888	2439	13657
F	455.88	1939.51	559.36	3487.87
R-Sq	0.12	0.21	0.40	0.43

We now use education codes instead of years of education to see the influence of primary and higher educational attainment on earning and wage gap. To capture the influence of unobserved household culture we incorporate index of patriarchy and run the OLS on log hourly wage across sectors, gender and then across jobs.

$$w_i^j = w(\text{Exp}, \text{Exp}^2, \text{Edu2}, \text{Edu3}, \text{Edu4}, \text{Edu5}, \text{Edu6}, \text{Index\_Patri} ) \quad (\text{iii})$$

Where  $w_i^j$  denote log hourly wage of male and female individuals, exp is experience, Edu 2 is primary schooling, Edu3 represents secondary schooling upto class eight, Edu 4 and Edu 5 are Secondary and Higher secondary respectively and Edu6 is undergraduate level. Next we include our main variable of interest -- the patriarchy index as an explanatory variable in the regression. We consider this earning function which incorporates index of patriarchy to see how patriarchal family values influence the male and female earning..

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<sup>5</sup> Mincer and Polachek (1974)

To examine the influence of patriarchal family structure where women face a tradeoff between household commitment and work we estimate the earning equations with hourly wage as the dependent variable<sup>6</sup>. We consider hourly wage depends on education (measured in years)<sup>7</sup>, experience<sup>8</sup>. As predicted by our theory the Patriarchy Index has the negative effect on wages for females for rural and urban areas. On the other hand, higher the patriarchal family structure lower is the male wage in rural areas while the direction of causality is opposite and significant in the urban areas. We conjecture that in rural set up which is mainly characterized by agricultural work, strict division between male and female work does not exist. Male and female workforce are complementary in nature. Hence, patriarchal values affect male wage negatively. In the urban set up however, male-female division of labour is strict creating a positive impact of patriarchal values on male wage. The effect of PI on female wage however is negative across rural and urban setting. Age and experience has the expected positive sign on wage.

**Table 4: OLS of Log hourly wage of male and female workers across sectors**

Log Hourly Wage	Rural		Urban	
	Female	Male	Female	Male
Experience	0.02**	0.04***	0.04***	0.70***
Experience_ square	0.00***	0.00***	0.00***	0.00***
Primary Education	0.03*	0.09***	0.17**	0.90***
Up to Class Eight	0.18***	0.32***	0.33***	0.33***
Secondary Education (Class 10)	0.42***	0.60***	0.76***	0.55***
Higher Secondary	0.94***	0.77***	1.31***	0.99***
Under Graduate	1.35***	1.34***	1.83***	1.48***
<b>Index of Patriarchy</b>	-0.17***	-0.26*	-0.18***	0.06***
Constant	1.25***	1.35***	1.08***	1.08***
No. of Observation	7741	17040	1745	11180
F	154.51	642.24	137.94	1355.91
R square	0.14	0.23	0.39	0.49

<sup>6</sup> Estimates of annual earning yielded identical results and so we only report the hourly wage results.

<sup>7</sup> Here we consider six education dummies as 0 for illiterate, 01 for primary level education, 02 for mid level education (class 8), 03 for secondary education, 04 for Higher secondary level and 05 for degree level

<sup>8</sup> We define experience = (Age in years - Years of education - 5)

IHDS I provide information about occupation in broad groups according to NIC classification: we use NIC code 01 to 05 as white collar employment including service workers, managers and administrative staff, blue collar from code 07 to 09 which includes production and technical workers, and finally a separate group for agricultural labour for NIC code 06. We estimate earning equation for male and female for rural and urban and then across three categories of jobs namely white collar, blue collar and agriculture.

**Table 5: Regression Result: Log hourly wage of male and female workers in White Collar, Blue Collar and Agricultural Work (OLS)**

Log Hourly Wage	White Collar Jobs		Agricultural Work		Blue Collar Jobs	
	Female	Male	Female	Male	Female	Male
Experience	0.05***	0.07***	0	0.02***	0.02***	0.04***
Experience_ Square	0.00***	0.00***	0	0***	0***	0***
Primary Education	0.18*	0.12**	0	0.04***	0.02	0.11***
Up to Class Eight	0.47***	0.37***	0.06***	0.13***	0.16***	0.33***
Secondary Education (Class 10)	0.89***	0.75***	0.66**	0.24***	0.31***	0.48***
Higher Secondary	1.40***	1.00***	0.04	0.21***	0.46***	0.73***
Under Graduate	1.77***	1.50***	0.46***	0.28***	1.39***	1.03***
Index of Patriarchy	-0.22***	-.18	-0.15***	-0.24***	-0.11**	-.08
Constant	0.87***	1.42***	1.46	1.63***	1.39***	1.40***
No. of Observation	1415	7596	6064	8181	1994	12400
F	80.96	582.38	9.83	51.45	14.67	304.5
R square	0.31	0.38	0.01	0.04	0.06	0.16

Authors calculation from IHDS I

For all the three occupation categories education is significantly positive for males only while the wage responsiveness of women is significantly affected by the intensity of skill formation that is likely to be captured by the square of the years of education. The positive and significant age coefficient across all the occupational class matches our expectation. It is interesting to note that square of age is negative and significant for females in Blue Collar Jobs as well Agricultural Jobs. While in case of male the coefficient is positive and significant for Blue Collar Jobs and negative and significant for agricultural jobs. These results lead us to some interesting possibilities. First, square of age is likely to reflect experience but it might also capture age related lags in productivity. Our results indicate that there might be an obscured sorting in the Blue Collar Job where females are mostly engaged in manual work and average male participation in decision making is higher. As a result

higher age for females would signal their loss in productivity and consequent loss in wages while for male the experience factors would ensure higher return. The index of patriarchy holds a negative sign for female wages across all three occupational class but is significant only in case of agricultural jobs. For males, the sign for the index is positive and significant in case of Blue Collar Jobs but negative and significant in case of agricultural jobs.

Though controlling for cultural factors like patriarchy is done in the OLS estimates we need to see the extent to which discrimination in the labour market can be ascribed to explained and unexplained variations in factors like education and experience. To this end we discuss the results of Oaxaca-Blinder decomposition of wage gap in the next section utilizing the explanatory variables used in the regression analysis.

### **4.3 Decomposition Analysis: Log Hourly wage gap (female-male) and its determinants**

We report the decomposition analysis in Table 6. We present three set of results for Rural, Urban and All India level: first we report the difference in hourly earnings across gender groups, secondly we analyse the difference in wage gap that arises from the mean differences of the explanatory variables evaluated at the estimated coefficients (endowments) and finally we also report the impact of the explanatory factors of women (men) evaluated at the estimated coefficient of men (women)- this is shown in the coefficient column. In addition we also show the joint effect of endowment and coefficient on the wage gap and we call this the interaction effect.

**Table 6: Oaxaca-Blinder Decomposition of Female-Male Wage gap**

log Hourly wage	Rural	Urban	All
	Coefficients		
<b>Overall</b>			
<b>Group 1 (Female)</b>	1.51***	2.26***	1.66***
<b>Group 2 (Male)</b>	2.09***	2.79***	2.36***
<b>Difference</b>	<b>-0.58***</b>	<b>-0.52***</b>	<b>-0.70***</b>
<b>Endowments</b>	-0.16***	-0.15***	-0.27***
<b>Coefficients</b>	<b>-0.43***</b>	<b>-0.28***</b>	<b>-0.40***</b>
<b>Interaction</b>	0.01***	-0.09***	-0.02***
<b>Endowments</b>			
<b>Exp</b>	0.03***	0.08***	0.06***
<b>edu_newd2</b>	0.00***	0.00**	0.00***
<b>edu_newd3</b>	-0.04***	-0.01***	-0.04***

edu_newd4	-0.07***	-0.12***	-0.11***
edu_newd5	-0.03***	0	-0.04***
edu_newd6	-0.04***	-0.11***	-0.13***
<b>Coefficients</b>			
Exp	-0.15***	-0.13***	-0.16***
edu_newd2	-0.01**	0	-0.00***
edu_newd3	-0.04***	0	-0.03***
edu_newd4	-0.03***	0.07***	-0.02***
edu_newd5	0.01***	0.03***	0.02***
edu_newd6	0.01***	0.08***	0.022***
_cons	-0.22***	-0.32***	-0.23***
<b>Interaction</b>			
Exp	-0.02***	0	-0.02***
edu_newd2	0.00**	0	0
edu_newd3	0.02***	0	0.01***
edu_newd4	0.02***	-0.02***	0.01***
edu_newd5	-0.01***	2.26***	-0.01***
edu_newd6	0.00**	2.77***	-0.01***
N	31880	16096	47976

The decomposition output reports the mean predictions by groups and their difference in the first panel. This yields a wage gap of -0.58. Male and female wage is higher in urban areas compared to rural and is 2.26 for female and 2.79 for male creating a significant gender gap of -0.52. The gender gap in wage gets sharpened for all India level to -0.70 due to lower female wage. In the second panel of the decomposition output the wage gap is divided into three parts. The first part reflects the mean decrease in women's wages if they had the same characteristics as men. The decrease of -0.16 indicates that differences in endowments account for less than one-third of the wage gap. The second term quantifies the change in women's wages when applying the men's coefficients to the women's characteristics. Coefficient effect accounts for a difference of -0.43, which is more than 90 percent of the gender gap in rural areas. In urban sector, endowment effect is -0.15 and coefficient effect is almost double the endowment effect, -0.28. Both in urban and at all India level coefficient effect explains more than 50 per cent of the gender gap, which could be attributed to the "unexplained" or the discriminatory component. The third part is the interaction term that measures the simultaneous effect of differences in endowments and coefficients.

To capture the influence of social and cultural factors on gender pay gap we decompose the female-male wage gap across different caste group according to IHDS I (2004-05).

**Table 7: Decomposition of female-male wage across caste groups**

Log hourly wage	Bramhin	High Caste	OBC	Dalit	Tribals	Muslim
Coefficient						
group_1 (female)	2.67***	1.93***	1.58***	1.61***	1.54***	1.70***
group_2 (male)	2.94***	2.66***	2.24***	2.37***	1.98***	2.31***
<b>Difference</b>	<b>-0.28***</b>	<b>-0.73***</b>	<b>-0.66***</b>	<b>-0.76***</b>	<b>-0.44***</b>	<b>-0.61***</b>
Endowments	-0.10***	-0.28***	-0.21***	-0.35***	-0.19***	-0.09***
<b>Coefficients</b>	<b>-0.13***</b>	<b>-0.40***</b>	<b>-0.46***</b>	<b>-0.46***</b>	<b>-0.22***</b>	<b>-0.51***</b>
Interaction	-0.05***	-0.05***	0.02	0.05***	-0.03***	-0.01

IHDS reports eight categories of caste namely, Bramhin, High caste, OBC, Dalit, Tribals, and Muslim. Decomposition of wage gap across different caste categories are reported in table 7. Female-male wage difference is significant but it is -0.28 for the Bramhins and all other caste shows high pay gap between male female workers. For High caste except Bramhins this pay gap is -0.73, for OBC it is -0.66 and it is highest among Dalits, which is -0.76. Most of this gap is explained by the coefficient effect for all the respective caste categories.

Next, we incorporate the index of patriarchy as an additional explanatory variable for decomposing the wage gap. Table 8 reports the Oaxaca-Blinder decomposition of log hourly wage of female and male groups incorporating the patriarchy index, reflection of family culture. Result shows negative and significant amount of female-male pay gap of -0.59 for both rural and urban sectors. Table 8 reports that inclusion of patriarchy index sharpens the wage gap in the urban areas as it increases from -0.52 to -0.59 while the wage gap is unchanged in rural areas.

**Table: 8: Oaxaca- Blinder Decomposition with patriarchy as one of the explanatory variables**

Log hourly wage	Rural	Urban
	Coefficient	
group_1 (female)	1.51***	2.19***
group_2 (male)	2.10***	2.78***
<b>Difference</b>	<b>-0.59***</b>	<b>-0.59***</b>
Endowments	-0.20***	<b>-0.35***</b>
Coefficients	<b>-0.44***</b>	-0.24***
Interaction	0.05***	0.01

Influence of patriarchal family culture on gender pay gap depends on rural and urban production and type of jobs. The coefficient of patriarchy index in the OLS of log wage is negative and significant for both male and female but in urban sector it is negative and significant only for female. When we decompose the wage gap across jobs like white collar (service sector jobs), blue collar (industrial work) and agriculture, we find negative and significant role patriarchy for both female and male workers for agricultural work and negative and significant influence only on female wage in white collar and blue collar jobs.

Final decomposition result shows that patriarchy increases the gender pay gap significantly in urban sector. This implies patriarchy reduces female wage significantly below the male wage in urban sector which gets reflected in terms of high persistence of pay gap in white collar and blue collar jobs. Patriarchy has strong influence on gender pay differential and most of the gaps are explained by unobserved, coefficient effect which is called discrimination.



## **5. Concluding Observation**

Gender discrimination in the labor market is usually understood from the demand side of the market, by the discriminatory attitude of the employers. The main contribution of this paper is to understand the issue of lower female wage than their male counterpart from the perspective of family decision making. We conjecture that women coming from strong patriarchal values are forced to devote more time for home management. This leaves less time and effort for more complex and productive and technical work. Consequently women earn less than men. But in rural sector patriarchy creates similar work participation constraints for young male and female workers as ownership of land and production decisions are controlled by senior household members.

Decomposition of female-male wage shows negative and significant amount of gap and major portion of the gap is unexplained across socio-cultural groups and rural/urban. The gender pay gap gets sharpened in urban India after incorporating patriarchal family culture in the decomposition analysis as one of the factors. Our study shows expected result as we found that the patriarchy index plays statistically significant role in India for both blue collar industrial jobs and white collar service related occupations compared to the agricultural works. In fact, for the latter, both female and male are exposed to the clutch of patriarchy to a large extent which may be due to other related family culture and demands more attention in future research.

## Reference:

- Anker, R. et al. (1998). *Gender and jobs: Sex segregation of occupations in the world*. Cambridge Univ Press.
- Arulampalam, W., Booth, A. L., and Bryan, M. L. (2007). Is there a glass ceiling over europe? exploring the gender pay gap across the wage distribution. *Industrial and Labor Relations Review*, pages 163–186.
- Becker, S. O. and Woessmann, L. (2009). Was weber wrong? a human capital theory of protestant economic history. *The Quarterly Journal of Economics*, 124(2):531–596.
- Blinder, A. S. (1973). Wage discrimination: reduced form and structural estimates. *Journal of Human resources*, pages 436–455.
- Botticini, M. and Eckstein, Z. (2005). Jewish occupational selection: education, restrictions, or minorities? *The Journal of Economic History*, 65(04):922–948.
- Christofides, L. N., Polycarpou, A., and Vrachimis, K. (2013). Gender wage gaps, sticky floors and glass ceilings in europe. *Labour Economics*, 21:86–102. 15
- Fernandez, R. (2007a). Alfred marshall lecture women, work, and culture. *Journal of the European Economic Association*, 5(2-3):305– 332.
- Fernandez, R. (2007b). *Culture and economics*. New palgrave dictionary of economics. Fernandez, R. and Fogli, A. (2005). *Culture: An empirical investigation of beliefs, work, and fertility*. Technical report, National Bureau of Economic Research.
- Fernandez, R., Fogli, A., and Olivetti, C. (2004). Mothers and sons: Preference formation and female labor force dynamics. *The Quarterly Journal of Economics*, 119(4):1249–1299.
- Greif, A. (1993). Contract enforceability and economic institutions in early trade: The maghribi traders' coalition. *The American Economic Review*, 83(3):525–548.
- Guiso, L., Sapienza, P., and Zingales, L. (2004). *Cultural biases in economic exchange*. Technical report, National Bureau of Economic Research.
- Ichino, A. and Maggi, G. (2000). Work environment and individual background: Explaining regional shirking differentials in a large italian firm. *The Quarterly Journal of Economics*, 115(3):1057– 1090. Khanna, S. (2012). *Gender wage discrimination in india—glass ceiling or sticky floor?* Centre for Development Economics (CDE) Working Paper, 214.

Mincer, J. and Polachek, S. (1974). Family investments in human capital: Earnings of women. In Marriage, family, human capital, and fertility, pages 76–110. NBER.

Nunn, N. and Wantchekon, L. (2011). The slave trade and the origins of mistrust in africa. *American Economic Review*, 101(7):3221–52.

Oaxaca, R. (1973). Male-female wage differentials in urban labor markets. *International economic review*, pages 693–709.