Preliminary draft

Occupational Segregation, Wage and Job Discrimination against Women across Social Groups in the Indian Labor Market: 1983-2010

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I. Introduction

Labour markets around the world have achieved significant progress. Globally female participation rates have risen by over 2 percentage points since 1980s to 52% in 2012 (according to The World Bank 2013, it has stagnated at around 56%); male participation rates have actually dipped and was 77% in 2012; gender gap in participation rates have narrowed .For instance the OECD countries have experienced a narrow down from 23 percentage points in 1990s to 13 percentage points in 2012. Despite these encouraging developments, a huge gender gap still remains - among the G20 countries the gap in labour force participation rates it is observed to range from 7% in Canada to over 50% in India and Saudi Arabia (ILO, IMF, OECD, The World Bank report for the G20 labor and ministerial meeting 2014). The persistent disadvantage faced by women in the labour market include among others their concentration in informal sector (agricultural activities) especially in developing countries of the world, their predominance in low -paying occupations and lower wages compared to men (Gender at Work: A companion to World Development Report on Jobs, 2013: The World Bank Gender & Development Group). The ILO's Global Wage Report 2104/15 shows that in general, women's average wages are between 4 to 36 per cent less than men's. Thus there is convincing evidence that women are still a disproportionately disadvantaged group in the typically man-made world of work and the male-female divide manifests itself in several dimensions.

Occupational segregation is one important dimension of gender disparity and is said to occur when an occupation or a certain part of it tends to be dominated by individuals of a particular gender or race or other personal characteristic. It is a phenomenon dating back in history and despite concerted efforts to tackle the issue it still exists; but its extent varies across countries. It is important to understand better the magnitude and nature of the problem for informed policy making because it could arise due to underlying preference of women for certain occupations or due to exclusion of women from certain occupations. Further, studies have shown that a primary reason for the unequal pay between men and women is their distribution in

occupations and industry. Thus occupational segregation plays an important role on the gender wage differences. (see, e.g. Blau and Kahn (2000)).

There is a wealth of literature on occupational segregation in developed countries testifying to its continued existence. For instance, in the EU as a whole, segregation as measured by the IP index is still relatively high, 25.3 % in 2007 with wide variation across the 27 member countries. (European Commission's Expert Group on Gender and Employment (EGGE), 2009). The literature in the context of developing countries is scanty and there are even fewer studies for India. The works by Anker (1998). Swaminathan and Singha (2006) Uppal (2007), Chakrabhorthy and Barthi (2013) are some attempts in this direction. These studies are by and large carried out at national level, pertain to earlier time periods and excepting Chakrabhorthy and Bharthi (2013) combine all the occupations together. Attempts have also been made to study the impact of trade liberalization on gender segregation in India. The present work constitutes a significant extension by considering disaggregated occupations across states and over time spanning three decades, using unit level data from the National Sample Surveys on employment and unemployment from 1983/4 to 2011/12. The time period covered is long enough to reflect the effect of liberalization and globalization, which was given a strong impetus in the 1990s, on gender gap in the Indian labor market.

The present study also examines wage discrimination in India using OLS and quantile regression methods to account for differences across the wage distribution. While there are several studies on wage discrimination in India using the large scale NSS data, there is hardly any attempt to apply the preferred and more appropriate quantile method.

The present study thus contributes to the literature by focusing on occupational segregation at the sub national level and over time for disaggregated occupations and using more appropriate estimation techniques.

II. Data source

The study uses the data from the employment and unemployment surveys of the National Sample Survey (NSS) for the years 1983 (38^{th} round), 1993-94 (50^{th} round), 2003-04 (61^{st} round) and 2011-12 (68^{th} round). These are quinquinnel surveys covering a larger number of households and based on common survey

methodology and questionnaire. Duraisamy (2002) gives the details of the survey methodology and was the first to utilize the unit level data of 1983 and 1993-94 to estimate the returns to education. The data sets used in this study are spread over a long time span capturing the years before and after the introduction of economic reforms and hence enables us to gauge the effects of reforms on labor market especially on changes in occupation structure and wages. These surveys are divided into four sub-samples of three months each and cover all parts of the country. The samples are drawn on a mutli-stage stratified random sampling method giving due weightage for rural and urban areas and households economic status. Each survey covers over 100,000 households and over 500,000 individuals. The data on individual characteristics such as age, sex, education, marital status, activity status, wages and days worked, among others are collected. The unit level data is available for ‘researchers. The study uses the unit level data of individuals aged 15 to 64 years.

IV. Labor Force Participation Over Space and Time in India

The Indian economy was a slow growing economy with growth of rate of 3% before 1980s. This increased to 4-5% during 1980s and the economy achieved a remarkable growth of 7-9% after 1990 due to liberalization, privatization and globalization policies adopted by the government. The transition of the economy from predominantly primary to services, particularly sectors such as information technology and marginally to manufacturing is a visible change. The shrinking size of government giving way to a rapidly growing private sector presence in the labor market is yet another development. This with standards of living going up, higher education aspirations rising and globalization and reforms opening up more and newer job opportunities, the employment opportunities in terms of quality job, described as well-paying service sector jobs, are looking up and likely to be so in the foreseeable future.

However, the situation is rather grim if one looks at the trend in labor force participation rates. The overall participation rate has remained more or less around 43% between 1983 and 2004/5 and then declined to 39.5% in 2011-12 (table 1). While the male participation rate has been around 56%, female participation rate has registered a fall between 203-04 and 2011-12.

Table 1: Labor Force Participation in India by Gender, 1983-2011/12

Year	Male	Female	Both Sexes	Female/Male Ratio
1983	55.1	30	42.9	0.483
1993-94	55.6	29	42.8	0.520
2003-04	55.9	29.4	43	0.552
2011-12	55.6	22.5	39.5	0.654

Source: Computed from unit level data by the authors.

Data for the recent period, 2011-12 shows marked variation in LFP across the Indian states, industry, employment (job) and occupational categories. The LFP is the lowest in Bihar (28.3%) followed by Uttar Pradesh (33.6%) and highest in Himachal Pradesh (52.6%) and Tamil Nadu (52.5%).

Among the usual category workers about 49 per cent, 24 per cent and 27 per cent were engaged in agriculture, industry and tertiary sectors respectively. The sectoral distribution of workers by gender indicates that a majority of female workers, about 63 per cent, were engaged in the agricultural sector in contrast to male workers of whom 56 per cent were in secondary or tertiary sector. This clearly shows that women were concentrated in the low paying agricultural activities.

V. Occupational and Job Segregation by Gender in the Indian Labor Market

The gender wise distribution of workers by broad occupational categories is displayed in table 2 for the most recent year 2011/12. It can be noticed that there is a concentration of workers in major occupation divisions. About 73 per cent of the workers (usual and subsidiary status) were engaged in three occupation divisions, namely (i) skilled agricultural and fishery workers (ii) craft and related trades workers and (iii) elementary occupations; 68 per cent of males and 83 per cent of females were engaged in these three occupations, indicating an overrepresentation of women in these occupations. Other subtle points to note are; managerial positions, sales jobs and extraction and building related trade workers are mostly held by males while fisheries related and craft related vocations seem to be female oriented in nature.

Next we examine the male and female shares in top 7 occupations. (table 3). 58 per cent of males and 64 per cent of females are concentrated in 7 occupations shown in the table. The top two occupations, market gardeners, crop growers and agriculture fishery and related labors where nearly 44% of women are employed, the

share of males is only 27%. The share of women in Middle and primary education teaching is around 4 percent but this occupation category does not figure in the top 7 men's share in occupations. The share of men in executive categories jobs is higher compared to the share of women in this occupation. Similarly, in mining and construction laborers the predominance of men's share is apparent.

Table 3: Distribution of Workers by Occupation and Gender in India, 2011/12

Highest Share in Occupations			
Men	**%**	**Women**	**%**
Market Gardners & Crop Growers	19.9	Market Gardners & Crop Growers	29.54
Directors and Chief Executives	9.15	Agricultural, Fishery and Related Laborers	13.88
House Keeping and Restaurant Services Workers	7.82	Directors and Chief Executives	5.08
Agricultural, Fishery and Related Laborers	6.55	Textile, Garment and Related Trades Workers	4.3
Mining and Construction Laborers	6.51	Middle & Primary Education Teaching Associate Professionals	3.98
Motor Vehicle Drivers	4.12	Domestic and Related Helpers, Cleaners and Launderers	3.77
Painters, Building Structure Cleaners and Related Trades Workers	3.61	Mining and Construction Laborers	3.11
% to Total	57.66	% to Total	63.66

Source: Computed from unit level data by the authors.

It is usual to compute indices of occupational segregation and literature is replete with measurements of segregation. No one measure can be considered to be fully satisfactory and appropriate for all times and contexts. In the present study we use the popular Duncan dissimilarity index (ID) and the IP index. An underlying assumption in these two indices is that segregation leads to a different distribution of women and men across occupations. Both measures denote the share of the employed population that would need to change occupation in order to restore equality in the distribution of men and women among occupations.

The Duncan index (ID) is defined as

(1) $ID = 0.5\sum|(m_i - f_i)|$

Where, m_i and f_i is the share of male and female in the ith occupation. The ID index lies between 0 and 100 in percentage terms where the extreme values point to

complete equality and inequality respectively.

The standardized or Karmel and MacLachlan (IP) is also widely used to measure the occupational segregation and it is defined as

(2) $ID = (1/N)\sum| [(1-m_i)M_i - m_i F_i)] |$

where m_i is the share of male in employment and M_i and F_i are the numbers of male and female workers in the ith occupation. The IP-index can, as such, be interpreted as the proportion of the workforce (persons in employment) which would need to change jobs in order to remove segregation - considering the female and male shares of occupations. The IP index, however, takes into account differences in the female and male share of employment The IP index is zero when there is complete equality and takes the maximum value of 50 implying that men and women are in completely segregated occupations. The value of IP could move up or down depending on change in female share of employment and hence this measure is a little problematic to use for comparing changes over time in segregation. The ID index is only indirectly dependent on the level of female employment and hence lends itself for comparisons over time.

Both these are computed and presented in table 4 for three time periods 1993/94, 2003/04 and 2011/12. The notable finding is that gender segregation (ID) has increased rather sharply over the decade 1993/94 to 2003/04 and increased marginally to 28 in 2011/12.

Table 4: Occupational gender segregation in India, 1993/4-2011/12

Year	Duncan Index (ID)	IP
1993-94	16.6	7.64
2003-04	27.61	12.48
2011-12	28.14	11.3

Source: Computed from unit level data by the authors

The discussion so far on gender segregation in occupations has been at the national level, which is indeed informative. But India is a country of substantial variations across states in culture, labor market characteristics and composition and role of state specific institutions and policies. Conducting the analysis at sub national state levels would be more rewarding. The ID and IP indices for job and occupational segregation are computed at state level for the year 2011/12 and presented in table

5. The indices clearly point to an alarming high level of segregation by gender in regular wage worker activity (40.57% & 12.82%) followed by self-employed activities (25.88% and 10.9%). Casual wage-work is the least segregated job.

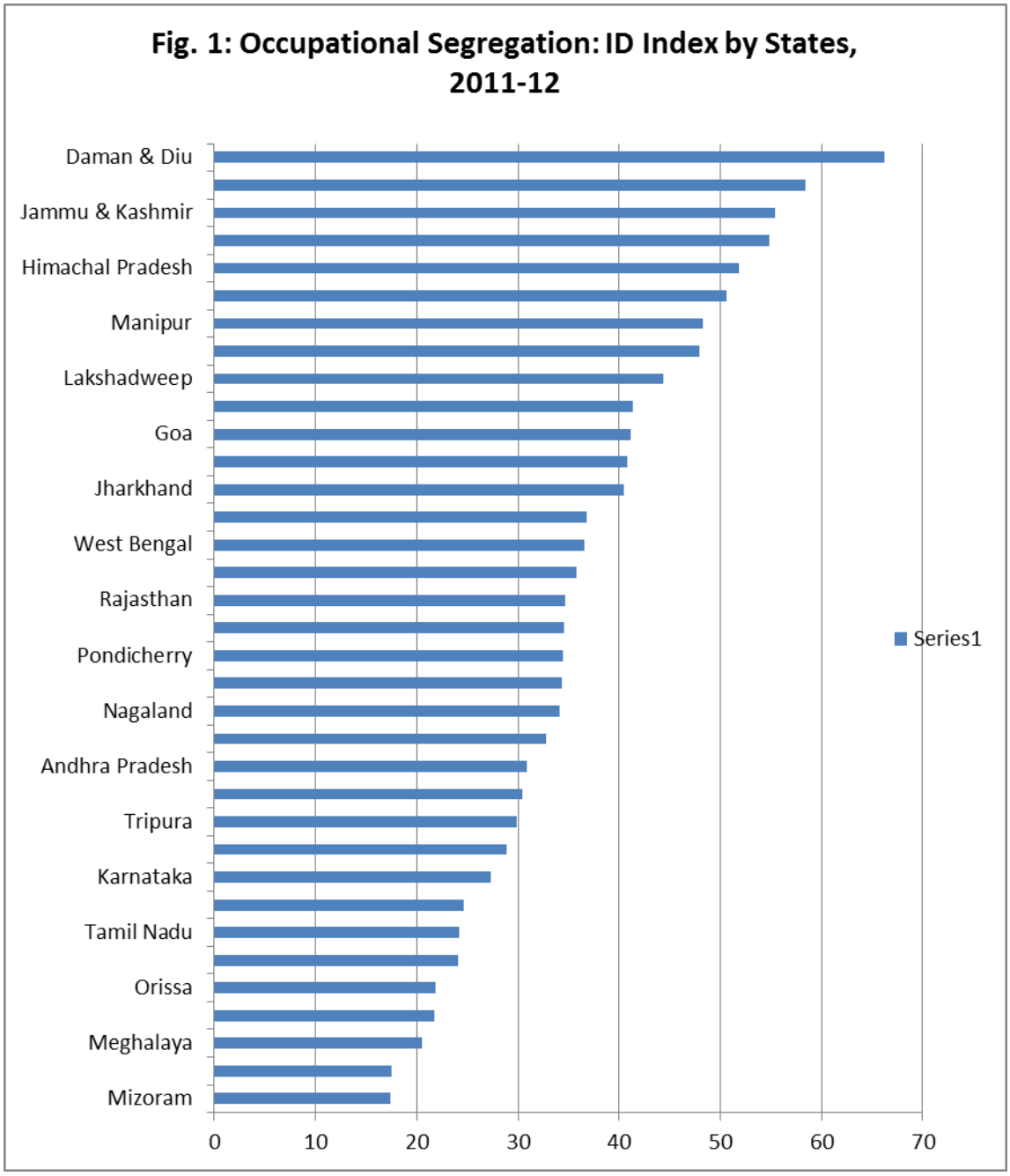
There is a wide variation in the segregation measures is seen across the states with the ID index ranging from 66.18% in Daman & Diu to 17.42% in Mizoram. In six of the 35 states the Duncan index of dissimilarity is above 50%; the segregation index lies between 40-50 % in eight states and twelve states show evidence of segregation in the range of 30-40%. This is indeed alarming considering that in over two-thirds of the states the segregation in occupations is really high 30% and above. The relatively less developed states like Bihar and Orissa,, Madhya Pradesh and the southern states of Tamil Nadu and Karnataka seem to fare better in terms of occupational segregation with index value in the range of 20-30%.Similar story is conveyed by the IP index.

Having examined male-female occupational distribution and index of segregation, we now move on to gender wage gap**.**

Table 5: Occupational sex segregation by Job and State in India, 2011-12

Job Segregation	**ID**	**IP**
Self-Employment	25.88	10.9
Regular Wage Worker	40.57	12.82
Casual Wage Worker	22.57	9.92
State		
Bihar	28.89	4.88
Assam	24.1	7.19
Mizoram	17.42	8.15
Chhattisgarh	17.49	8.46
Madhya Pradesh	21.71	8.5
Orissa	21.86	8.92
Meghalaya	20.52	10.02
Delhi	41.33	10.31
Daman & Diu	66.18	10.34
Arunachal Pradesh	24.59	10.89
Tamil Nadu	24.24	10.97
Karnataka	27.28	11.08
Uttar Pradesh	32.82	11.77
Tripura	29.92	11.93
Chandigarh	47.97	12.01
Lakshadweep	44.39	12.17
Pondicherry	34.42	12.67
Haryana	40.79	12.68
Gujarat	34.54	12.77
West Bengal	36.56	13.11
Jharkhand	40.42	14.45
A & N Islands	35.84	14.52
Andhra Pradesh	30.9	14.66
Sikkim	30.42	14.84
Maharashtra	34.33	14.93
Nagaland	34.1	15.21
Kerala	36.78	15.57
Goa	41.11	15.63
Rajasthan	34.72	16.01
D & N Haveli	58.47	17.83
Punjab	50.66	18.78
Manipur	48.27	21.02
Jammu & Kashmir	55.39	22.43
Uttaranchal	54.89	24.82
Himachal Pradesh	51.9	25.9

Source: Computed from unit level data by the authors



V. Trends in Gender Gap in Wages by Age, Education, Sector, Employment Status, Caste and Religion, 1983-2011/12

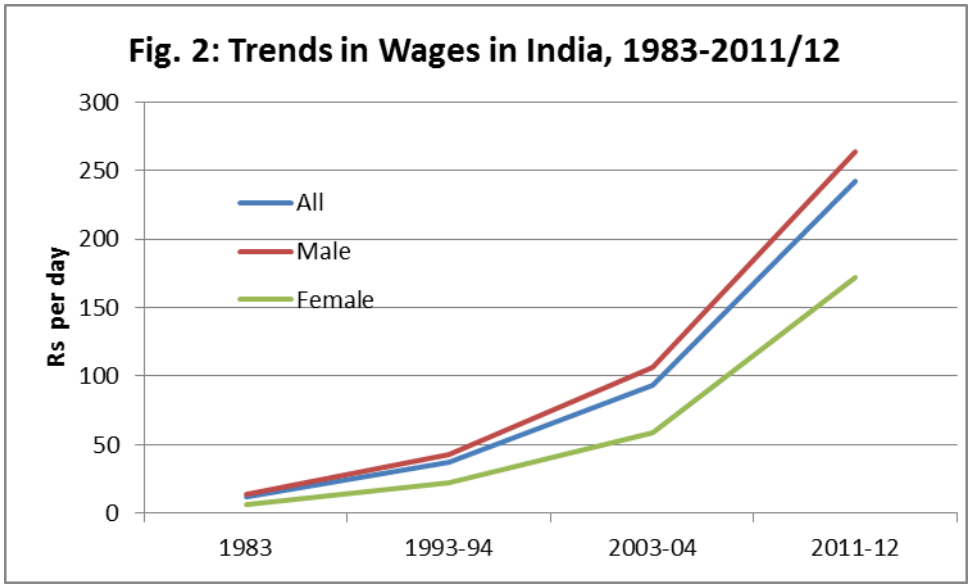
The growth in average daily wages of wage workers seems to have been slow during the pre and early years of the economic reform period (1983 to 1993/4); the growth momentum picked up during the first decade of reform (1993/4 to 2003/4) and the country has experienced a high growth in the past decade (2003/4 to 2011/12). The average nominal daily wage has increased from Indian rupees 12 in 1983 to 57 in 1993/4, to 94 in 2003-04 and to Rs. 242 in 2011/12 (table 6 and fig. 2).

The real wage has increased at an average rate of 3% which is lower than growth of the GDP during this period.

Table 6: Trends in Wages in India, 1983 – 2011/12

Year	All	Male	Female
1983.00	11.94	13.87	6.70
1993-94	36.91	42.52	22.11
2003-04	93.80	106.69	58.89
2011-12	242.69	263.70	172.40

Source: Computed from unit level data by the authors.



The trends in average wage rates of males and females show that the gender gap has narrowed during this period. Women earned only 48% of the wages of men in 1983 and the ratio has increased to 52% in 1993/4, to 55% in 2003/4 and 65% in 2011/12. Thus women seem to be benefited from the economic reforms.

The gender gap in daily wage by socio-economic characteristics is reported in table 7. It is interesting to observe that the gender wage gap has narrowed down in both rural and urban labor markets; the gap is however much wider in rural than in urban areas. There is considerable variation in the growth of women's wage compared to men's and hence the decline in wage gap is not uniform. Across all educational levels, the share of women's wage has increased during the period 1983 to 2011/12; but for higher levels of education, the gender wage gap has widened during 1993/4 and 2003/4 and started to narrow down since 2003/4.

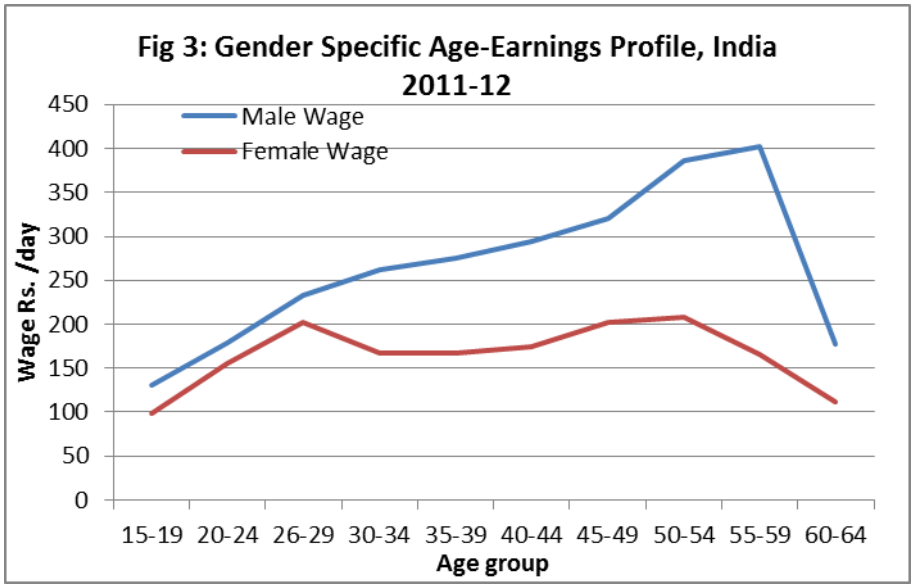
Table 7: Female-Male Wage Ratio in Indian Labor Market, 1983-2011/12

Category	1983.00	1993-94	2003-04	2011-12
All	0.48	0.52	0.55	0.65
Region				
Urban	0.57	0.64	0.71	0.77
Rural	0.53	0.55	0.54	0.63
Education Level				
Illiterate	0.62	0.65	0.64	0.69
Literate	0.56	0.60	0.62	0.70
Primary	0.53	0.54	0.59	0.63
Middle	0.64	0.56	0.52	0.60
Secondary	0.88	0.85	0.67	0.65
Higher Sec.	n,a	0.89	0.79	0.79
Diploma	0.76	0.82	0.89	0.85
Graduate -General	0.81	0.83	0.79	0.78
Graduate - Technical	0.74	0.75	0.67	0.76
Age Group				
15-19	0.71	0.71	0.68	0.75
20-24	0.60	0.68	0.74	0.87
26-29	0.55	0.60	0.65	0.87
30-34	0.49	0.54	0.54	0.64
35-39	0.45	0.52	0.54	0.61
40-44	0.39	0.47	0.56	0.59
45-49	0.41	0.43	0.45	0.63
50-54	0.39	0.41	0.43	0.54
55-59	0.40	0.40	0.40	0.41
60-64	0.52	0.59	0.48	0.63
Caste				
ST	0.63	0.62	0.58	0.64
SC	0.57	0.58	0.57	0.64
OBC	n.a	n.a	0.52	0.63
Others	0.47	0.52	0.70	0.79
Religion				
Hindu	0.47	0.50	0.53	0.63
Muslim	0.50	0.54	0.66	0.69
Christian	0.73	0.70	0.74	0.76
Others	0.46	0.58	0.60	0.72

Source: Computed from unit level data by the authors.

The wage profile across the age groups for men and women is constructed and shown in fig. 3. As we observe the growth in women's wage has plateaued in the 30 to 49 years, perhaps due to child bearing and child rearing. However, the ratio of female to male wage has increased across all age groups which indicate that the

female wage is growing at a faster pace than male wages and thus gender wage gap is reducing. It can also be noted that the gender gap is narrowing across the caste groups (SC, ST, OBC, Others) and religious groups (Hindu, Muslim, Christian and Others) over the past three decades, The gender wage ratio of upper caste (Others") is about 15 percentage points higher than the SC, ST and OBC ratios. We can also observe that the gender wage gap is lower among Christians and others (minority religious groups).



VI. Gender Specific Wage Discrimination in Indian Labor Markets

6.1 Methodology

The comparison of unadjusted average male and female wages is valid for homogenous groups in narrowly defined occupations or jobs in which the characteristics such as education, age or professional experience and other skills are the same. However, it is not the same among workers. Hence, the gender wage gap observed across the socio-economic characteristics cannot be attributed to discrimination or labor market imperfections such as segregation and segmentation. A part of the difference could be on account of differences in productive characteristics such as education, labor market experience, location and type of job. To ferret out the wage difference which is due to labor market discrimination, we employ the familiar three methods (i) Becker method which consists of estimating a wage function including gender as a dummy variable (ii) the Oaxaca-Ransom method based on OLS wage functions and (iii) Quantile wage regressions including

dummy variable for gender. The last one enables us to check whether wage gap increases or decreases across the wage distribution and also verify “sticky floor” or glass ceiling” in women’s wages. These methods are briefly described below:

The differences in productive characteristic can be controlled using the following wage function

(2) $\ln W_i = X'_i \beta + \delta D_i + u_i$, i= 1,2,…N individuals.

where $\ln W_i$ is the logarithm of daily wage rates, X_i is the set of productive characteristics of the individual (education, labor market experience, ability etc.,) and, D_i is a gender dummy variable which takes the value of 1 if the individual is male otherwise 0 and the coefficient of the dummy variable δ is the average percentage difference in the wages between the groups which is considered as a measure of discrimination. Several studies show evidence that a semi-log form (logarithm of wages) with non-linear term in labor market experience is the preferred specification for equation (1).

The above methodology presumes that the effect of the characteristics (X) across the two groups is the same but that may not be true. Hence, it is necessary to unconstrain the effects of the characteristics, which can be done using the decomposition method. Let the wage function of males and females be specified as

(3) $\ln W_{ij} = X'_j \beta_j + u_{ij}$, i= 1,2,…N individuals, j=m (male) and f (female).

Following Oaxaca and Ransom (1995), the mean log daily wage difference between male and female workers can be written as

(4) $(\ln W^*_m - \ln W^*_f) = X^*_m (\beta_m - \beta^*) + X^*_f(\beta^* - \beta_f) + (X^*_m - X^*_f)\beta^*$

where W^*_j is the mean wage, X^*_j is the mean value of the human capital variables and β_j are the parameter estimates of the wage equation (3), β* is the parameters of non-discriminatory wage structure and the subscript j represents for males (m) and females (f). The logarithmic wage difference between males and females can be expressed as three components (i) male wage advantage (ii) female wage disadvantage and (iii) wage differences due to differences in productive characteristics of the two groups. The first two components are wage differences due

to differential reward for the same characteristics or credentials and these are termed as unexplained or residual wage difference which is attributed to labor market discrimination.

The methodological question is what would be the non-discriminatory wage and we compute the third component using the reward to group 'm' (males or forward caste) but not 'n' (females or others)as the base. There are several alternative methods proposed in the literature on discrimination (Rodgers 2006). Oaxaca (1973) suggested use of both male and female wage coefficients. Cotton (1988) suggested using the non-discriminated wage structure, which is the wage estimates based on the pooled sample of both the groups. This will enable one to compute the wage differences due to male advantage and female disadvantage separately. Newark (1988) and Oaxaca and Ransom (1994) recommended using the wage function estimated pooling the data for both the groups. The latter also derived the standard errors for the discrimination component, which will enable us to test whether the discrimination component of wage is statistically significant from zero.

The Oaxaca and Ransom wage decomposition method can be written as

(5) $\beta^* = \Omega\, \beta_p + (1-\Omega)\, \beta_q$

where β^* is the non-discriminatory wage coefficient, β_m and β_f are the estimated coefficients from the wage equation (3), and Ω is the weight estimated using the sample of both the groups - discriminatory and non-discriminatory groups.

The above model estimated using OLS regression provides the wage effects at the conditional mean of the log wage distribution, The effects of the explanatory variables may vary at different quantiles of the log wage distribution (Duraisamy and Duraisamy 2004). Hence, the log wage functions are estimated at different quantiles of log wage distribution using a quantile regression (QR) framework. The QR model can be specified for the qth ($0 < \theta < 1$) conditional quantile as

(6) $Quant_\theta (W_i \mid X_i) = X'_i\beta(\theta)$, implying

(7) $W_i = X'_i\beta(\theta) + \varepsilon_i$, with $Quant_\theta (\varepsilon_i|X_i) = 0$.

The X vector includes human capital characteristics including a gender dummy variable.

6.2 OLS Estimates of the Wage Function and Decomposition of Wage Gap

The estimates of the wage function for males, females and both sexes are given in table 8. The wage functions are well behaved and confirm the stylized facts. The wage increases at a decreasing rate with potential experience as evident from the experience and experience square coefficients and we also observe higher reward for higher levels of education. The wage earners from rural areas on average earn 14% less than the urban wage workers. All the parameter estimates of the wage function are statically significant at 1% level.

The estimates of wage functions indicate that females earn about 42% less than the males controlling for education, experience, sector, job type and caste. This is indeed quite high and one of highest wage difference observed across the countries.

The wage estimates are used to disentangle the male advantage, female disadvantage and discrimination components of wage difference using the decomposition method described above. The decomposition results in table 9 shows that the male advantage is 18% and the female disadvantage is 63%. Thus the discrimination component is about 81% which is quite high. The high discrimination component may due to the differences in the industry and occupational choice of men and women which are not controlled here. The wage difference accounted by the differences in productive endowments is only 19%.

Table 8: Wage Function by Gender, 2011-12

Explanatory	Male		Female		Both Sexes	
Variable	Coeff.	t	Coeff.	t'	Coeff.	t'
Experience (years)	0.054	67.22	0.053	34.19	0.055	75.22
Exp. Square	-0.001	-44.71	-0.001	-26.21	-0.001	-52.44
Primary	0.176	19.01	0.146	7.42	0.240	27.79
Middle	0.368	43.17	0.309	15.53	0.449	55.71
Secondary	0.598	65.55	0.646	29.19	0.696	80.06
Higher Secondary	0.926	94.55	1.166	53.62	1.040	112.58
Graduate-General	1.366	152.58	1.613	84.12	1.471	176.1
Technical Diploma	0.323	27.09	0.317	12.5	0.319	28.33
Sector (Rural-1)	-0.135	-25.29	-0.098	-8.44	-0.136	-26.97
Constant	4.195	352.77	3.732	144.76	4.036	362.48

Adj R-square	0.430		0.435		0.421	
F-value	4694.33		1329.16		5783.36	
N	56115		15506		71621	

Source: Computed from unit level data by the authors.

Table 9: Decomposition of Gender Wage Difference, India 2011-12

Explanatory Variables	Male Advantage	Female disadvantage	Productivity Difference
Experience (years)	-0.027	0.050	-0.101
Exp. Square	0.025	-0.004	0.086
Primary	-0.008	0.010	0.006
Middle	-0.015	0.015	0.033
Secondary	-0.014	0.004	0.042
Higher Secondary	-0.014	-0.013	0.028
Graduate-General	-0.019	-0.027	-0.004
Technical Diploma	0.000	0.000	0.000
Sector (Rural-1)	0.001	-0.022	0.006
Constant	0.159	0.304	0.000
Sum (in logs)	0.088	0.318	0.095
%	17.524	63.444	19.033

Source: Computed from unit level data by the authors.

6.3 Quantile Regression Estimates of Wage Functions

The estimates of Quintile regression estimated by maximum likelihood method are shown in table 10. The effects of the covariates such as education, experience and experience square and dummy variables for sector (rural) are as observed in the OLS regression model. The coefficient of gender is of specific interest and the estimates show that the gender wage gap is 57%, 48%, 43%, 36% and 28% respectively for the 10th, 25th 50th 75th and 90th percentiles.

The “glass ceiling” effect exists if in the 90th percentile the wage gap is higher than the estimated wage gaps in other parts of the wage distribution by at least two percentage points (Arulampalam, Booth, Bryan, 2007). The result does not support the existence of glass ceiling effect in the Indian labor market. The sticky floor”” phenomenon is defined to exist if in the 10th percentile the wage gap is higher than the 25th percentile wage gap by at least two percentage points and results show evidence for the existence of sticky floor effect.

Table 10: Quintile Regression Estimates, 2011-12

Explanatory variables	0.10		0.25		0.50		0.75		0.90	
	Coef.	**t**	**Coef.**	**t**	**Coef.**	**t**	**Coef.**	**t**	**Coef.**	**t**
Experience	0.044	44.03	0.047	63.3	0.051	89.73	0.054	75.41	0.046	43.49
Exp. square	-0.001	-34.18	-0.001	-47.03	-0.001	-64.44	-0.001	-51.62	0.000	-25.08
Primary	0.056	4.73	0.104	11.6	0.172	25.1	0.225	25.69	0.294	20.93
Middle	0.155	13.82	0.233	27.69	0.341	53.1	0.466	55.8	0.563	41.97
Secondary	0.297	24.61	0.403	44.69	0.563	81.47	0.799	87.84	0.907	62.09
Higher Sec.	0.472	37.44	0.673	71.43	1.003	137.19	1.235	128.09	1.269	82.38
Graduate	0.830	72.48	1.211	142.43	1.534	232.47	1.634	191.71	1.670	126.26
Dip. The	0.325	21.16	0.340	29.16	0.291	32.83	0.293	26.22	0.320	18.44
Rural	-0.065	-9.13	-0.104	-19.74	-0.118	-29.78	-0.146	-29.05	-0.170	-21.67
Sex (male=1)	0.570	69.17	0.475	76.18	0.431	91.02	0.364	60.37	0.284	29.8
Constant	3.279	200.55	3.568	297.21	3.797	410.22	4.098	341.95	4.523	241.34
Pseudo R Sq	0.150		0.192		0.288		0.366		0.343	
N	71621		71621		71621		71621		71621	

Source: Computed from unit level data by the authors.

VII Conclusion

The occupational segregation and wage discrimination in the Indian labour market is examined using the National Sample Survey employment and unemployment surveys data for the period 1983 to 2011/12. The labor force participation rates have remained more or less stagnant over the three decades. However, the participation rates in wage work have increased. The occupational segregation is examined over the period mentioned above and across the employment type and Indian states using Duncan index and IP index. The results suggest that the occupational segregation has increased over the period under consideration. There is considerable variation across the states and employment type.

The trends in wages and gender wage gap are also analyzed for the period 1983 to 2011-12. There is a remarkable increase in wages in the past decade and female wage growth has been faster than male wag growth. The gender gap in wages has declined. We also examined the gender wage gap by age, education, sector, employment type, caste and religion. The unadjusted wage gap is decomposed using the familiar decomposition method. The estimates of wage functions not controlling for industry and occupation suggest that about 81% of the wage difference between males and females are unaccounted and could be due to discrimination and part of this may be due to difference in the choice of occupation and industry.

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