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# Sticky Floors and Occupational Segregation: Evidence from Pakistan

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## INTRODUCTION

Ever since the pioneering work on human capital modeling by Becker (1964) and Mincer (1974), estimation of earning potential and wage differentials in terms of differences in human capital endowments has been a favourite topic of research throughout the world. The empirical evidence has established, may be beyond doubt, that low returns are usually associated with low-level of human capital possessed by economic agents. Using appropriate controls for innate abilities, education, experience and training as primary determinants of human capital, the residual differential in wages among differentiated groups (on the basis of gender, race, and region) has often been characterised as discrimination [Blinder (1973) and Oaxaca (1973)]. The empirical estimation made further advances when the issue of sample selection bias was also settled by Heckman (1980).

More recently the focus of research has shifted from differentials measured at the conditional mean (average) value to measurement at different points of wage distribution to test the 'glass ceiling and sticky floor' hypothesis.[1] Some of the studies where quantile regression approach of Koenker and Bassett (1978) and Buchinsky (1998) has been adopted include Bjorklund and Vroman (2001), Dolado and Llorens (2004), and Albrecht, Vuuren, and Vroman (2004). On the basis of this research, the glass ceiling hypothesis has received fair amount of empirical support in much of the developed world. On the other hand, the sticky floor hypothesis has only been observed in some of the countries located in the southern Europe.

The focus of present study is on Pakistan with three main objectives. First, to investigate if analysis at the conditional mean is sufficient to explain wage differential or an extensive work covering different points of wage distribution is required to have proper insight to the issue. This would, in turn, enable us to determine which of the two hypotheses, i.e., the glass ceiling or the sticky floor, is prevalent in the country? For this purpose, gender wage differentials at different quantiles, i.e., 10th, 25th, median, 75th

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[1]When wage gap increases throughout the wage distribution, it is usually referred to as 'glass-ceiling'. The opposite is true in case of 'sticky-floor' hypothesis.

and 90th percentile of the conditional wage distribution will be estimated. Second, to undertake quantile regressions separately for public and private sector male and female employees to gain further insight on sectoral and gender basis; and third, to examine the phenomena of gender sectoral segregation in the labor market of Pakistan using the Duncan Dissimilarity Index. The cross-section data to test these hypotheses has been drawn from the nationally representative Labor Force Survey (LFS) for Pakistan 2005-06. We expect to find substantial gender- and sectoral-based wage differentials confirming sticky floor and occupational segregation in this study.

The paper is arranged as follows. After a brief review of data and variables, model and estimation procedure are discussed in Section III. Detailed discussion of the results is carried out in Section IV and the final section summarises the results.

## DATA AND VARIABLES

This study uses cross-section data drawn from the nationally representative Labour Force Survey (LFS) for Pakistan 2005-06. The working sample used is based on those in wage employment and comprises a total of 10401 workers once missing values and unusable observations are discarded. Among the total sample 54 percent are in public sector, male participation comprises 87 percent of the total labour force. The data collection for the LFS is spread over four quarters of the year in order to capture any seasonal variations in activity. The survey covers all urban and rural areas of the four provinces of Pakistan as defined by the 1998 Population Census. The LFS excludes the Federally Administrated Tribal Areas (FATA), military restricted areas and protected areas of the North West Frontier Province (NWFP). These exclusions are not seen as significant since the relevant areas constitute about 3 percent of the total population of Pakistan.

The definitions of the variables used in the analysis and summary statistics are presented in Tables 1 and 2 respectively. It is evident that the average age of male employees has been higher by about five years in the public sector whereas it is almost the same as that of female employees in the private sector. Not surprisingly, a larger fraction of male employees are head of households compared to female employees. The education and occupation variables are all coded according to standard, internationally analogous definitions. Thus, comparatively stating, more males are married and possess higher level of education. Their investment in human capital has also earned them better positions in the occupational ladder, especially in the public sector jobs. The workers with no formal education are concentrated in the private sector. The highest proportion of females—i.e., 42 percent—appears in the "professional" category, which is defined as degree and above or any other professional education. In contrast to public sector, females are highly concentrated (45 percent) in "no formal education" category. As is usually true in developing countries, female employment is characterised as underemployment and low human capital endowment. In case of Pakistan these statistics clearly indicate that female labour force distribution with high education is more skewed towards public sector. The proportion of trained individuals is high in the public sector as compared to the private sector and this is true for both sexes.

Table 1

*Definition of the Variables*

| Variables | Definition |
|---|---|
| Age | Age in complete years |
| Agesq | Square of Age |
| Head | Head of Household |
| MS | Marital Status |
| NFE | No Formal Education |
| Primary | Five Years of Schooling |
| Middle | Eight Years of Schooling |
| Matriculation | Ten Years of Schooling |
| Intermediate | Twelve Years of Schooling |
| Uni-Prof | University/ Professional Degree |
| Training | Dummy for Training |
| Urban | Dummy for urban residence |
| Punjab | Dummy if residence is in Punjab |
| Sindh | Dummy if residence is in Sindh |
| NWFP | Dummy if residence is in NWFP |
| Balochistan | Dummy if residence is in Balochistan |
| Sincebir | Dummy if residence at the place is since birth |
| Manager | Dummy if Occupational category is Manager |
| Professional | Dummy if Occupational category is Professional |
| Technical | Dummy if Occupational category is Technical worker |
| Clerks | Dummy if Occupational category is clerical staff |
| Service | Dummy if Occupational category is service |
| Skill | Dummy if Occupational category is skilled worker |
| Craft | Dummy if Occupational category is craftsman |
| Plant | Dummy if Occupational category is Plant operator |
| Elementary | Dummy if Occupational category is elementary |

Table 2

*Mean Values of Variables under Consideration*

| Variables | Public-male | Public-female | Private-male | Private-female |
|---|---|---|---|---|
| Age | 39 | 34 | 30 | 30 |
| Agesq | 1602 | 1220 | 1004 | 1026 |
| Head | 0.73 | 0.06 | 0.38 | 0.08 |
| MS | 0.86 | 0.66 | 0.54 | 0.45 |
| NFE | 0.15 | 0.10 | 0.33 | 0.46 |
| Primary | 0.08 | 0.02 | 0.20 | 0.07 |
| Middle | 0.09 | 0.04 | 0.17 | 0.04 |
| Matriculation | 0.23 | 0.23 | 0.19 | 0.12 |
| Inter. | 0.15 | 0.19 | 0.65 | 0.10 |
| Professional | 0.29 | 0.43 | 0.05 | 0.22 |
| Training | 0.04 | 0.05 | 0.03 | 0.02 |
| Urban | 0.58 | 0.68 | 0.65 | 0.72 |
| Punjab | 0.34 | 0.48 | 0.55 | 0.72 |
| Sind | 0.45 | 0.43 | 0.42 | 0.27 |
| NWFP | 0.18 | 0.22 | 0.12 | 0.09 |
| Balochistan | 0.21 | 0.10 | 0.03 | 0.01 |
| Sincebir | 0.79 | 0.74 | 0.80 | 0.74 |
| Manager | 0.07 | 0.03 | 0.04 | 0.01 |
| Professional | 0.07 | 0.14 | 0.03 | 0.05 |
| Technical | 0.25 | 0.70 | 0.07 | 0.37 |
| Clerks | 0.15 | 0.03 | 0.02 | 0.01 |
| Service | 0.14 | 0.01 | 0.27 | 0.05 |
| Skill | 0.02 | 0.00 | 0.01 | 0.00 |
| Craft | 0.06 | 0.01 | 0.25 | 0.15 |
| Plant | 0.05 | 0.00 | 0.16 | 0.02 |
| Elementary | 0.19 | 0.08 | 0.14 | 0.36 |
| Sample Size | 5069 | 651 | 3995 | 686 |

*Source:* Based on Labour Force Survey 2005-06.

To investigate the relationship between earnings and age, the standard specification of the human capital model has been used where age and its quadratic term substitutes for labour force experience. The present analysis is restricted to individuals who are between 14 and 60 years of age to facilitate a more worthwhile comparison between male and female workers in the total labor force. The natural logarithm of the hourly wage is used as the dependent variable because hours worked varies over the life cycle, with the level of education and may also vary across sectors. [2] It is necessary to distinguish the effects on earnings of hours worked from those due to variation in wages.

As the focus of the study is on disaggregated data on the sectoral basis, we do not expect to find "taste of discrimination" among public sector organisations, essentially due to government policies which encourage equal opportunities for all. On the other hand, the private sector working environment is not very attractive for females. The raw data using seven occupational categories, defined according to the standard occupational classification, confirms that the proportion of females is less than 1 percent in private sector in 'Managers and Senior Officers' category, which is not consistent with the evidence from the public sector for this category. Male dominance is seen in professions that are more service and skill-based as compared to women. The highest percentages of the women among the economically active population have been found to be working either as technicians or other low-paid professions. Either low human capital endowment among female labour force or lack of long-term commitment to job could possibly be the reasons for this outcome, which nonetheless needs to be established. Unfortunately, LFS does not provide any information on parental background which plays an important role in female education and occupational choice.

Finally, to control for demand-side factors, dummy variables have been introduced for provinces, urban-rural residence, marital status, gender, and the time spent in current district of living.

We next turn to quantile regression and gender occupational segregation approaches.

## THE BASIC MODEL AND METHODOLOGY

Like elsewhere, estimating gender gap has been a favorite pastime of researchers in Pakistan.[3] However, barring few, most of the studies have restricted themselves to Blinder-Oaxaca type of model where log-linear regressions have been estimated for gender-related sub-samples. This approach assumes a restricted relationship between the conditional wage distribution and selected covariates. The sample selection bias, when present, is removed by estimating the participation equation using Heckman's procedure and inserting Inverse Mills ratio so derived as an additional explanatory variable in the wage equation.

While approaching the problem in the present study, we are not controlling for labor market participation effects, rather the sectoral selection in one of the two

[2]The hourly wages expressed in rupees, was calculated by dividing weekly earnings by number of hours worked per week.

[3]See for example Ashraf and Ashraf (1996), Nasir (2005), Siddiqui, *et al.* (2003), Siddiqui (2005), Hyder and Reilly (2005), and Jabeen and Hyder (2008).

categories, i.e., private and public sector has been examined independently.[4] Furthermore, within the sectors (private and public), a further sub-division on gender basis has allowed us to estimate four equations separately. Thus, the first step is to specify two gender-related wage equations for public and private sectors separately. For this purpose, suppose that the ith worker while serving in the jth sector of the labour market earns wage as follows:[5]

$$W_{ij} = X_{ji}\beta_j + Z_{ji}\lambda_j + \mu_{ji} \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (1)$$

where $W$ is a column vector of logarithmic value of hourly wage of individuals in sector $j$; $X_{ji}$ is a $k \times 1$ vector of person-specific explanatory variables; $Z_{ji}$ is a $q \times 1$ vector of related demographic variables, and $\beta$ and $\lambda$ are the corresponding vectors of unknown parameters.

**Quantile Regression**

To rule out the possibility that there is no variation in magnitude of gender wage gap across wage distribution as might have been inferred from conditional average value of (1), a more general counterfactual wage distribution is used under specific assumption. This alternative is more informative about the impact of covariates at different points of the conditional wage distribution [Hyder and Reilly (2005)]. To derive the desired model, let's assume that the pooled model (1), with explicit binary measure $G_i$ for employment of the worker in private or public sector, is a reasonable characterisation of the wage determining process. The median regression coefficients can be obtained by choosing the coefficient values that minimise L given by

$$L = \sum_{i=1}^{n} \left| w_i - X_i'ß - dG_i \right| = \sum_{i=1}^{n} \left(w_i - X_i'ß - dG_i\right) \operatorname{sgn}\left(w_i - X_i'ß - dG_i\right) \quad \ldots \quad \ldots \quad (2)$$

where sgn(a) is the sign of a, 1 if a is positive, and –1 if a is negative or zero.

The Quantile Regression (QR model) compared to the traditional OLS is less sensitive to outliers and provides a more robust estimator in the face of departures from normality [Koenker (2005) and Koenker and Bassett (1978)]. Similarly, in the presence of heteroscedasticity, the QR models may also have better properties than the OLS [Deaton (1997)]. Using this methodology, one can estimate the log wage equation conditional on a given specification and then calculate at various percentiles of the residuals by minimising the sum of absolute deviations of the residuals from the conditional specification. The possibility of estimating the value of d at the 10th, 25th, 50th, 75th, and 90th percentiles enables us to establish the magnitude to gender pay gap at different points of the conditional wage distribution, other things held constant.

[4]The private sector is defined to include workers employed in, cooperative societies, individual ownership and partnerships. The public sector includes federal government, provincial government, public enterprises and local bodies.

[5]The model specification used by Hyder and Reilly (2005) to estimate the wage differentials between public and private sector is similar to model (1) except for an explicit binary measure for association of worker with either of the two sectors.

**Occupational Segregation**

The most popular measure of occupational segregation is '*Duncan Dissimilarity Index*' or '*D-Index*' presented by Duncan and Duncan (1955). The measurement of occupational segregation is of serious concern therefore the present study uses this analysis for better understanding of occupational segregation in the Pakistani labour market.

As a first step, the indices of occupational segregation are estimated for all different occupational categories and then these are regressed upon education, regional and demographic variables. The aggregated Duncan's D index is also calculated to present an overall picture of occupational segregation. Consequently, the estimation proceeds as follows.

1. For every occupation an index of dissimilarity between the men and women is estimated by the following formula;

$$D = \tfrac{1}{2} \sum[M\_occup_i/LFoccu_i - W\_occup_i/ LFoccu_i]$$

Where

$D$ = Gender based dissimilarity index for each occupation
$M\_occup_i$ = Number of males in occupation i
$W\_occup_i$ = Number of women in occupation i
$LFoccu_i$ = Number of women in labor force.

2. Before aggregating the indices of all nine occupational categories are reported against each observation. Then these indices are regressed (using ordinary least square method) upon wage differential and regional dummies. The model specification is as follows:

$$D = f(WD, urban, Punjab, Sind, NWFP)$$

Where D = D-Index of gender occupational segregation

WD = Gender based wage gap[6]

3. The value of Duncan's Dissimilarity Index is calculated by summing up all the occupational dissimilarity indices.

## RESULTS AND DISCUSSION

We start with a brief review of earlier studies to set the stage for interpreting and analysing the results of the present study. In one of the earlier studies, Ashraf and Ashraf (1996) found significant gender imbalances in Pakistan using the HIES Household Income and Expenditure Survey (1984-85) data. According to the authors, the gender wage differentials in Pakistan were in favour of male. Siddiqui, *et al.* (2003) found that some encouraging changes in favour of women have taken place since then. In fact,

[6]The wage gap is estimated through predicting wages simultaneously for men and women based on Mincerian-type wage equation. Since the primary aim of the study is to estimate the occupational segregation and then magnitude of wage gap in explaining the occupational segregation; thus the issue of selectivity is not addressed.

Siddiqui in her (2005) study has concluded that trade liberalisation policies have resulted in reducing the gender wage gap.

The detailed gender and sectoral based analysis was carried out by [Hyder and Reilly (2005)]. According to them, within the public sector, the gender pay gap was found to be highest at lower quantile of the wage distribution and lowest in the middle quantile of wage distribution. On the other hand, the gender wage gap was high in the private sector and this gap decreased as one moved along the wage distribution towards the upper quantile of the wage distribution. A recent study by Jabeen and Hyder (2008) though provides the basis and motivation behind the present study, but it neither addresses the issue of gender gap between public and private sectors nor attempts to find the evidence of gender occupational segregation. Thus the present study becomes the natural extension of this work.

*Results Related to Earning Differentials.* The results of pooled regression presented in Table A1 show that the public sector male workers are earning 9 percent more than the female employees when conditional mean value of the wage distribution is considered. However, this gap increases to 38 percent for the private sector (Table A2). The huge difference in estimated coefficients between the two sectors could be due to the reason that the public sector is largely regulated with similar rules and procedures for the two sexes whereas the engagement rules are not that stringently abided by in the private sector. The QR model estimates for the pooled data confirm that the gender wage gap is highest at 37 percent at 10th percentile but decreases to 7 percent at the median quantile. One of the important findings is that this gap becomes insignificant at the top two percentiles. Compared to this public sector position, the situation is quite different in the private sector. It turns out that at lowest quantile the gender estimated effect is about 56 percent that reduces slightly to 43 percent at the median, and continues to persist at around 20 percent even at the top quantile. This outcome is not encouraging as it reflects serious biases in the private sector which requires further attention.

Within public sector, the male quantile regression estimates shows that all human capital variables are significant and have expected signs. At median quantile the estimated effect of highest educational category is almost 50 percent more than workers possessing no formal education. The regional categories show that the highest return for male employees in the public sector is in Balochistan and the NWFP raising the possibility that some sort of hardship allowance is included in remuneration. This result is consistent with Hyder and Reilly (2005). At lower quantile of female conditional wage distribution in public sector, the estimated effect of most of the educational categories is poorly determined. There are huge differences in estimated effect of higher and lower educational categories for female conditional wage distribution. This reflects an ever-widening conditional wage distribution for female as compared to male.

The results are quite different for private sector conditional wage distribution. The quantile regression estimates for males related to educational categories go up to 60 percent for the highest educational category. On the other hand, the estimated effect of occupational categories is not significant in almost all of the quantile regression equations. Finally and as expected, those living in urban areas are found to be earning more as compared to their rural counterparts.

*Results Related to Occupational Segregation:* The valued of D-index at occupational level based on gender segregation are reported in Table 3. The value of dis-similarity index explained in methodology section is lies between 0 and 1. Starting from the first category which is the highest paid occupational category; the value .45 shows that there is need to change almost 45 percent of male and females to change their occupation to have an identical distribution. The lowest dis-similarity index is in occupation labeled as 'Technicians' that is .18 indicating only 18 percent males have to move to other professions to have an identical gender based distribution.

The highest calculated dis-similarity index is for those working at plant and machines, this dis-similarity index can be explained as a nature of work required in this occupation and such type of occupations are traditionally male oriented occupation. But almost the same value of the index in service related occupations are a judgment call.

Table 3

*Gender-based Occupational Segregation*

| Occupation | Index of Dis-similarity |
|---|---|
| Managers | .456 |
| Professionals | .3 |
| Technicians | .188 |
| Clerks | .467 |
| Service | .479 |
| Skilled | .475 |
| Craft | .427 |
| Plant | .486 |
| Elementary | .338 |

The results of regression equation are given in Annexure Table 3A. The dependent variable is occupational dis-similarity index based on gender. The independent variables include wage gap, rural and provincial dummies. The coefficient of wage differential is positive and significant. The magnitude shows that one percent increase in gender based wage differential increases the gender based occupational segregation by 14.7 percentage points. Being in the urban area increase the occupational segregation significantly; urban living increases the probability to get jobs in some specific type of occupation and increases the gender based occupational segregation. In provincial categories Punjab is insignificant and but the magnitude and signs of NWFP and Balochistan shows that these two provinces have a negative and significant impact on occupational segregation as compared to Sindh which is base category. These two provinces with negative signs can be explained in terms of very low female participation rate and many unreported female workers.

Overall value of Duncan Index of Dis-similarity (D- index) has been calculated by taking the average value of all occupational indices; i.e.

$$\text{D-index} = \sum_{i}^{9} = 1 \; Dis - similarity\; Index of\; occupation_{i} / 9$$

$$= .40$$

The value of Duncan's D (Duncan Gender Occupational Dissimilarity Index) shows that 40 percent of male and female workers have to change their occupation to have an identical gender based distribution in overall work force. The gender based occupational segregation can be explained both by demand and supply side factors. Demand side factors include the desire to hire an individual based on his/her human capital attainment; the supply side factors are function of utility maximisation of individual based on income earned from the particular occupation, taste of work involved and household characteristics of the individual.[7]

## CONCLUSIONS

The study confirms the existence of '*glass ceilings and sticky floors*' in Pakistan's labor market. The results confirm that the gap between male and female wages increases at the bottom of the distribution. These evidences from Labour Force Survey 2005-06 suggests women in the higher paid jobs in Pakistan are not as disadvantaged as many of their western counterpart.[8] Results also show low female labour force participation and concentration of female in few particular occupations. It is also evident that conditional wage distribution both for men and women are more widen in private sector. Gender differentials are more expanded in private sector, these results might be due to lack of labor regulations in private sector as compared to public sector. The estimation of gender occupational segregation helps to explain that education is the main variable contributing toward gender occupational segregation.

Thus on the basis of results of this study, it is recommended that to remove gender wage differentials and occupational segregation investment in human capital especially in women should be a priority. Among the limitations of the study, the important one is that none of the model specification used in this study includes the number of children that is very important determinant in earnings and occupational choice.

[7]See Brown, *et al.* (1980) for detail discussion on supply side factors and gender based occupational segregation.

[8]See for example Arulampalam, *et al.* (2004) and Luciffora (2004).

***Appendices***

Table 1A

*Bootstrapped Pooled Quantile Regression Estimates for Public Sector: LFS 2005-06*[9]

| Variables | Mean | 10th | 25th | 50th | 75th | 90th |
|---|---|---|---|---|---|---|
| Age | 0.0416*** | .0641*** | .0577*** | .0373*** | .0250*** | .0140 |
| | (0.0062) | (.0136) | (.0089) | (.0060) | (.0063) | (.0089) |
| Agesq | –.0003*** | –.0006*** | –.0005*** | –.0002*** | –.0001* | –.8.94e-06 |
| | (.0000) | (.0001) | (.0001) | (.0000) | (.0000) | (.0001) |
| Head | .0324 | .0867** | .0501** | .0211 | –.0084 | .0083 |
| | (.0210) | (.0417) | (.0253) | (.0183) | (.0196) | (.0271) |
| MS | .0696*** | .0689 | .0472 | .0463* | .0809*** | .0497 |
| | (.0255) | (.0600) | (.0331) | (.02411) | (.0191) | (.0350) |
| Primary | .0323 | .0623 | .0222 | .0091 | .0225 | .0414 |
| | (.0336) | (.0626) | (.0349) | (.0286) | (.0269) | (.0349) |
| Middle | .0720** | .0685 | .0556 | .0637** | .0726** | .1102*** |
| | (.0320) | (.0641) | (.0358) | (.0292) | (.0250) | (.0347) |
| Matriculation | .2142*** | .2466*** | .2159*** | .1897*** | .1818*** | .2256*** |
| | (.0284) | (.0506) | (.0326) | (.0267) | (.0251) | (.0275) |
| Inter. | .3754*** | .4399*** | .3946*** | .3340*** | .3132*** | .3594*** |
| | (.0322) | (.0561) | (.0330) | (.0300) | (.0268) | (.0313) |
| Uni-Prof | .6038*** | .6245*** | .5821*** | .5340*** | .5481*** | .6280*** |
| | (.0319) | (.0573) | (.0369) | (.0295) | (.0334) | (.0401) |
| Training | –.0950*** | –.1465* | –.0979** | –.0314 | –.0578* | –.0805* |
| | (.0367) | (.0774) | (.0548) | (.0348) | (.0325) | (.0442) |
| Urban | .1031*** | .0986*** | .0984*** | .0689*** | .0884*** | .0749*** |
| | (.0161) | (.0287) | (.0177) | (.0139) | (.0145) | (.0203) |
| Punjab | –.0935**** | –.2050*** | –.1043*** | –.0904*** | –.061*** | –.0113 |
| | (.0217) | (.0373) | (.0234) | (.0188) | (.0174) | (.0257) |
| Sindh | –.1124*** | –.2306*** | –.0986*** | –.0749*** | –.053*** | –.0219 |
| | (.0226) | (.0452) | (.0259) | (.0182) | (.0189) | (.0258) |
| NWFP | –.0070 | .0365 | –.0222 | –.0459** | –.0239 | .0337 |
| | (.0224) | (.0523) | (.0265) | (.0198) | (.0192) | (.0254) |
| Sincebir | –.0274 | .0301 | –.0290 | .0710*** | –.077*** | –.084*** |
| | (.0189) | (.0476) | (.0220) | (.0185) | (.0199) | (.0271) |
| Manager | .4213*** | .0933 | .3500*** | .5422*** | .6160*** | .6429*** |
| | (.0360) | (.0885) | (.0530) | (.0387) | (.0453) | (.0698) |
| Professional | .4214*** | .1476* | .3239*** | .5180*** | .6391*** | .6218*** |
| | (.0346) | (.0893) | (.0568) | (.0486) | (.0390) | (.0494) |
| Technical | .0426 | –.0086 | .0414* | .0909*** | .0865*** | .0713** |
| | (.0253) | (.0393) | (.0235) | (.0218) | (.0241) | (.0278) |
| Service | –.0981*** | –.1838** | –.0937*** | –.0899*** | –.096*** | –.123*** |
| | (.0309) | (.0498) | (.0321) | (.0266) | (.0300) | (.0353) |
| Skill | –.1994*** | –.1404 | –.1379** | –.1611*** | –.215*** | –.288*** |
| | (.0629) | (.1044) | (.0674) | (.0471) | (.0525) | (.0485) |
| Craft | –.0261 | –.0325 | –.0524 | –.0068 | –.0080 | .0132 |
| | (.0378) | (.0532) | (.0388) | (.0319) | (.0391) | (.0468) |
| Plant | –.1060** | –.1251* | –.1011** | –.0712* | –.0885** | –.0808* |
| | (.0432) | (.0661) | (.0453) | (.0374) | (.0436) | (.0470) |
| Elementary | –.2020*** | –.2333** | –.1414*** | –.1517*** | –.224*** | –.250*** |
| | (.0313) | (.0505) | (.0312) | (.0274) | (.0301) | (.0384) |
| Gender | .08501*** | .3705*** | .1194** | .0688** | .0438* | -.0009 |
| | (.02774) | (.0874) | (.0497) | (.0284) | (.0271) | (.0435) |
| Constant | 2.146 | .9414 | 1.567*** | 2.341*** | 2.810*** | 3.246*** |
| | (.1189) | (.2311) | (.1899) | (.1263) | (.1203) | (.1917) |
| $R^2$/Psuedo-$R^2$ | 0.3760 | 0.1562 | 0.2018 | 0.2722 | 0.3444 | 0.3682 |
| Sample Size | 5720 | 5720 | 5720 | 5720 | 5720 | 5720 |

[9]*Notes:*

(a) ***, ** and * denote statistical significance at the 1 percent, 5 percent and 10 percent level respectively using two-tailed tests.

(b) Standard errors are in parentheses. The quantile regression model estimates are based on bootstrapping with 200 replications.

Table 2A

*Bootstrapped Pooled Quantile Regression Estimates for Private Sector: LFS 2005-06*[10]

| Variables | Mean | 10th | 25th | 50th | 75th | 90th |
|---|---|---|---|---|---|---|
| Age | .455*** | .0621*** | .0523*** | .5377*** | .0415*** | .0399*** |
| | (.0054) | (.0072) | (.0072) | (.0064) | (.0059) | (.0077) |
| Agesq | –.0004*** | –.0006*** | –.0005*** | –.0006*** | –.0004*** | –.003*** |
| | (.0000) | (.0000) | (.0000) | (.0000) | (.0000) | (.0001) |
| Head | –.0067 | .0390 | –.0095 | –.0018 | –.0033 | –.0436 |
| | (.0249) | (.0499) | (.0341) | (.0253) | (.0267) | (.0302) |
| MS | .5930** | .0139 | .0514* | .0583* | .0474* | .0590 |
| | (.0255) | (.0456) | (.0307) | (.0272) | (.0272) | (.0393) |
| Primary | .0856*** | .1355*** | .1124*** | .0634 | .0451* | .0700* |
| | (.0255) | (.0456) | (.0327) | (.0258) | (.0268) | (.0381) |
| Middle | .1247*** | .1555*** | .1338*** | .0986*** | .0851*** | ..0731* |
| | (.0276) | (.0450) | (.0373) | (.0295) | (.0277) | (.0419) |
| Matriculation | .1919*** | .2342*** | .1883*** | .1561*** | .2106*** | .2075*** |
| | (.0269) | (.0544) | (.0337) | (.0276) | (.0293) | (.0323) |
| Inter. | .3507*** | .2839*** | .3421*** | .3365*** | .3832*** | .3928*** |
| | (.0395) | (.0935) | (.0488) | (.0406) | (.0537) | (.0553) |
| Uni-Prof | .8880*** | .6337*** | .6592*** | .8159*** | 1.027*** | 1.055*** |
| | (.0422) | (.0750) | (.0637) | (.0661) | (.0660) | (.0959) |
| Training | .1418** | –.1509 | .0286 | .1818* | .2095*** | .1125* |
| | (.0541) | (.1489) | (.0907) | (.0982) | (.0593) | (.1160) |
| Urban | .1362*** | .1773*** | .1390*** | .1452*** | .1068*** | .0760*** |
| | (.0191) | (.0335) | (.0254) | (.0201) | (.0201) | (.0295) |
| Punjab | –.6180*** | –.4121*** | –.3878*** | –.4543*** | –.6257*** | –.9828** |
| | (.0569) | (.0683) | (.0738) | (.0732) | (.1180) | (.4072) |
| Sindh | –.5459*** | –.3554*** | –.3120*** | –.3895*** | –.5495*** | –.8783** |
| | (.0579) | (.0743) | (.0730) | (.0733) | (.1201) | (.4068) |
| NWFP | –.0859*** | –.1964*** | –.1424** | –.0650* | –.0665* | –.0591 |
| | .0302) | (.0549) | (.0476) | (.0350) | (.0352) | (.0554) |
| Sincebir | –.0674*** | –.0913** | –.0681** | –.0654*** | –.0678** | –.0656** |
| | (.0220) | (.0383) | (.0299) | (.0225) | (.0276) | (.0328) |
| Manager | .0873 | –.1022 | –.0460 | .0081 | .1204 | .2497** |
| | (.0754) | (.1634) | (.0800) | (.0723) | (.1042) | (.1272) |
| Professional | –.0024 | –.3442 | –.1948* | –.0434 | .1227 | .2382* |
| | (.0789) | (.1816) | (.1029) | (.1080) | (.1096) | (.1345) |
| Technical | –.0979 | –.1250 | –.1242** | –.0600 | –.1129 | –.0663 |
| | (.0678) | (.1746) | (.0620) | (.0753) | (.0902) | (.0926) |
| Service | –.1685** | –.2963* | –.2236*** | –.1193* | –.1588* | –.1852** |
| | (.0645) | (.1580) | (.0602) | (.0635) | (.0808) | (.0804) |
| Skill | .1140 | .0405 | –.0760 | –.0272 | .1689 | .1848 |
| | (.1357) | (.1901) | (.1122) | (.1602) | (.2378) | (.4849) |
| Craft | .0411 | –.0885 | –.0107 | .0889 | .0718 | .0568 |
| | (.0649) | (.1581) | (.0635) | (.0612) | (.0821) | (.0847) |
| Plant | .0640 | .0082 | .0196 | .0928 | .0821 | .0402 |
| | (.0669) | (.1644) | (.0653) | (.0657) | (.0844) | (.0824) |
| Elementary | –.1597** | –.2595 | –.2091*** | –.1226* | –.1150 | –.1673** |
| | (.0667) | (.1632) | (.0659) | (.0700) | (.0834) | (.0832) |
| Gender | .3760*** | .5636*** | .5416*** | .4331*** | .3022*** | .1957*** |
| | (.0286) | (.0451) | (.0432) | (.0378) | (.0408) | (.0446) |
| Constant | 1.844*** | .6855*** | 1.102*** | 1.526*** | 2.333*** | 3.069*** |
| | (.1251) | (.2227) | (.1531) | (.1426) | (.1808) | (.4359) |
| R2/Psuedo-R2 | 0.2744 | 0.1550 | 0.1615 | 0.1577 | 0.1844 | 0.2325 |
| Sample Size | 4681 | 4681 | 4681 | 4681 | 4681 | 4681 |

[10]*Notes:* See notes to Table1A.

Table 3A

*OLS Estimates for Occupational Segregation Equation*
*(Dependant Variable = Index of Gender Occupational Dissimilarities)*[11]

| | |
|---|---|
| Wage-Diff | .1470355*** |
| | (.0043029) |
| Urban | .02406*** |
| | (.002225) |
| Punjab | .0003114 |
| | (.0025128) |
| NWFP | –.0166813*** |
| | (.0034824) |
| Baloch | –.0228863*** |
| | (.0038238) |
| Constant | .3073779*** |
| | (.0032652) |
| Number of Obs = 10401 | |
| F( 5, 10395) = 261.51 | |
| Prob > F = 0.0000 | |
| R-squared = 0.0992 | |
| Root MSE = .10681 | |

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[11]*Notes:*

(a) ***, ** and * denote statistical significance at the 1 percent, 5 percent and 10 percent level respectively using two-tailed tests.

(b) Standard errors are in parentheses.

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