Analysing the glass ceiling and sticky floor effects in Bangladesh: Evidence, extent and elements

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Analysing the Glass Ceiling and Sticky Floor Effects in Bangladesh: Evidence, Extent and Elements

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Abstract

With deep-seated gender imbalances prevalent in Bangladesh, it is compelling to understand how those women, who do manage to get employed, are faring in terms of equity. A popular approach involves analysing the gender wage gap across the entire distribution. With the assistance of data from QLFS 2016-17, the Mincerian model is estimated under various specifications, and then the final model decomposed using Oaxaca-Blinder decomposition method. Using these analyses at the mean as benchmarks, the entire distribution is examined by employing the conditional quantile regression model and Quantile Counterfactual Decomposition technique. The paper has then proceeded to posit the existence of a strong sticky floor effect and a weaker glass ceiling effect in Bangladesh, with discriminatory rewards to observed characteristics being the dominant feature of the observed wage gap across the entire distribution. Policy prescriptions and potential avenues for further scope concerning the paper are also mentioned in the end.

1. Introduction

Gender inequalities within labour force participation and employment opportunities are both essentially two sides of the same coin. World Development Report (WDR) 2019 paints a dire picture globally: female employment rate for those aged above 15 years is close to half, whereas the same figure is three quarters for men. Women hold powerful positions in less than 20% of firms, and tend to be employed in low-productivity sectors and in jobs with limited on-the-job training scopes.

Given such worrisome worldwide statistics, Bangladesh has been exemplary among South Asia countries for gender equality for three successive years, as measured by the Global Gender Gap Index (GGGI) 2017 (The Daily Star, 2017). However, one needs to carefully interpret these rankings: Bangladesh is topping the second-worst performing region and also evidently underperforming in the Economic Participation and Opportunity category (one of the subindexes the index itself is composed of). Despite a steady rise in the overall score over the years, the Economic Participation and Opportunity score had deteriorated after a peak in 2013, only to pick up again recently.[1] An in-depth investigation unveils more troublesome figures: female labour force participation rate (LFPR) stood at 36.3%, employment rate at 33.9%, and share of females in high-status occupations at 10.4%, whereas the corresponding figures for their male counterparts were 80.5%, 78.0% and 89.6% respectively in 2016-17 (BBS, 2018). A disproportionate female representation is found in the contributing family helper category.[2] Returns to work experience for females is about 50% of that of males—a mere 0.8% (WDR 2019).

With such deep-seated gender imbalances, it is of great interest to know how those women, who do manage to get employed, are faring in terms of equity. A popular approach to this involves analysing the gender wage gap across the entire distribution. One related concept is the 'glass ceiling', which refers to the phenomenon whereby there exists a wider gender wage gap at the top of the wage distribution and an underrepresentation of females in well-paying occupations. Another related issue is the 'sticky floor', which refers to the situation where the pay gap is wider at the bottom, with women being trapped in those low-paid jobs.[3]

South Asia, home to a population where 48.5% are women (WDI[4], 2017), is unlikely to make sustainable progress disregarding women. Highlighting a contrast in performance with the neighbouring region is sufficient to convey the dismal scenario: while only South Asian country (Bangladesh) out of seven surpassed the GGGI global average score, the number is seven out of eleven for Southeast Asia, with one of them (Philippines) even making it to the top 10 in 2017.[5]

[1] See Figure 1, Figure 2 and Figure 3 in the Appendix.
[2] See Figure 4 in the Appendix.
[3] See Chi and Lee (2008) and Xiu and Gunderson (2014).
[4] WDI stands for World Development Indicators.
[5] See Figure 5 in the Appendix.

This paper proposes to investigate the existence of glass ceiling and sticky floor effects in the Bangladeshi context. There are two reasons for this: most South Asian countries have similar prevailing social norms and culture values when it comes to female upbringing or advancement, and, to our best knowledge, there exists no econometric work focusing exclusively on these two issues in the case of Bangladesh. By examining the case at hand successfully, the model can be replicated for the others countries as well in the future.

Thus, with the assistance of data from Quarterly Labour Force Survey (QLFS) 2016-17 and appropriate methodology, we approach the problem and, in the end, analyse the findings and make conclusions and recommendations based upon them.

The paper is structured as follows: Section 2 provides an overview of the importance of gender equity and the Bangladeshi scenario concerning it; Section 3 examines the existing relevant literature and posits the research objective in the end; Section 4 deals with the data and methodology used to establish this paper; in Section 5, the empirical analysis is presented and the last portion, Section 6, comprises of the concluding remarks, policy suggestions and future scopes for the study.

2. Overview

WDR 2012 had emphasized on the dual nature of relationship between gender parity and development. While the first linkage is rather obvious, the reverse one from gender equality towards development posited two arguments: not only is gender equality a moral objective in itself but also a major driver of efficiency and other development goals. The latter can be further divided into three broad mechanisms: greater productivity gains, better development outcomes for the immediate generation, and considerably representative institutions.

Mahmud and Bidisha (2018) remarked on the prevailing low female LFPR in Bangladesh, with women getting stuck in a narrow range of low-pay work with less working hours. Improvements in human capital and other factors have failed to deliver desired results, suggesting a supply-driven growth in participation instead of demand-driven.

Under Millennium Development Goal (MDG) 3 of "Promote Gender Equality and Empower Women", Bangladesh had successfully achieved Target 3.A.[6] However; it has drastically lagged behind in the following indicators' targets in 2015: 3.1c, 3.2 and 3.3.[7] In particular, Indicator 3.2—a key measure of decent work and female empowerment—stood at 26.9% in 2016-17, a sharp decline from 31.6% in 2013 and well below the target of 50% (GED, 2016;

[6] Target 3A was specified as "Eliminate gender disparity in primary and secondary education preferably by 2005, and in all levels of education no later than 2015" (GED, 2016).

[7] Indicators 3.1c, 3.2 and 3.3 were specified as "Ratio of girls to boys in tertiary education (Gender Parity Index = Girls/ Boys)", "Share of women in wage employment in the non-agricultural sector (%)" and "Proportion of seats held by women in national parliament (%)" respectively (GED, 2016).

BBS, 2018). Sustainable Development Goal (SDG) 5, under the banner of "Achieve gender equality and empower all women and girls", covers a more holistic set of targets, and it is incumbent upon Bangladesh to overcome any challenges in achieving those by 2030.

3. Literature Review

The importance of examining both upper and lower tails of the wage distribution had been highlighted by many, with Bjerk (2008) placing more importance on sticky floors for the lackluster representation of women at the higher end of managerial jobs. The paper in question will draw heavily on the methodologies of the below papers, albeit not rigidly due to data limitations.

On a global scale, Fang and Sakellariou (2015) demonstrated that the glass ceiling is more of a developed and transition economies' problem, and the rest of the world either suffers from the sticky floor or a blend of the two. What is more, the sticky floor is peculiar to Asia universally. Bain and Cummings (2000) and Jalalzai (2008) examined the special cases of glass ceiling in academic professions and executive positions respectively. There exists a sizeable literature in the context of developed economies and economies in transition, analysing either or both of these effects by employing versatile methodologies. In Europe, Arulampalam et al. (2007) found glass ceiling to be more common than sticky floor, and Christofides et al. (2013) observed substantial glass ceiling in 'better' occupations. Some other works include: Kee (2006) on Australia; Baert et al. (2016) on Belgium; Yap and Konrad (2009), Pendakur and Woodcock (2010), and Boudarbat and Connolly (2013) on Canada; Smith et al. (2011) on Denmark; Jellal et al. (2008) on France; Van Der Velde et al. (2013) on Poland; Atencio and Posadas (2015) on Russia; De la Rica et al. (2008) on Spain; Albrecht et al. (2008) on Sweden; Booth et al. (2003) on the UK; Bass and Avolio (1994), Cotter et al. (2001), Miller (2009), Smith (2012), Richey and Tromp (2016), and Blau and Kahn (2017) on the US. In contrast, there appears to be a dearth for developing economies: Chi and Li (2008), and Xiu and Gunderson (2014) on China; Hejase and Dah (2014), Hejase et al. (2014), and Hejase et al. (2015) on Lebanon; Tromp (2016) on South Korea; Adireksombat et al. (2010) and Fang and Sakellariou (2011) on Thailand, to name a few.

With respect to Asia, a qualitative study by Yukongdi and Benson (2005) focusing on managerial glass ceiling exists. For South Asia, Ranjan (2015) conducted a qualitative examination of glass ceiling in foreign policy. In India, Agrawal (2013) had found evidence of glass ceiling for pooled and rural samples, and of sticky floor for urban sample; Khanna (2012) identified the case of sticky floors for the period of 2009-10, and Duraisamy and Duraisamy (2016) later corroborated the same phenomenon for all labour market segments for the period of 1983-2012. For Pakistan, Channar (2010) using primary data remarked that women were at a disadvantage compared to men for majority of earning groups, and were subject to prejudice from both bosses and colleagues alike. The works by Hyder and Reilly (2005) and Sabir and Aftab (2007) both nullify the case for glass ceiling in Pakistan, but Ahmed and Hyder (2008) found presence of both effects in 2005-06, with the gap increasing

at the lower tail. The latter also scrutinised occupational segregation using Duncan Dissimilarity Index (D-Index) and found education as being the major driver. Gunewardena et al. (2008) demonstrated sticky floors and negligible glass ceilings in both Sri Lankan public and private sectors for the period 1996-2004.

There have been some notable Bangladeshi studies concerning the gender wage gap. Zafarullah (2000) undertook a qualitative study of glass ceiling in public administration using primary data. Kapsos (2008) using Bangladesh Occupational Wage Dataset found the average woman earns 23.1% less per hour than her male counterpart, after fully controlling for covariates. Ahmed and Maitra (2010) conducted decomposition at the mean using 1999–2000 Labour Force Survey (LFS) and also addressed the issue of selectivity bias. Their results suggested higher pay gaps for urban workers than rural ones, and emphasized on the significance of discrimination on the said gaps. Ahmed and McGillivray (2015) considered the time period of 1999–2009 and employed three decomposition techniques to demonstrate greater wage gaps at the bottom of the distribution. They further mentioned gender disparity in access to education hinders the access to high-pay work. Decomposing unconditional quantile regressions for 2005–2009, Ahmed and Maitra (2015) remarked on the presence of sticky floor effect and the salience of gender discrimination. Both of these studies took into account sample selection, with the latter detecting an understatement of the gap otherwise. Based on LFS 2005-06, Anjum (2016) employed a variety of decomposition methods and also demonstrated smaller gender gap in earnings in the public sector than the private. Siddiquee and Hossain (2018) decomposes wages for the urban workers using LFS 2010 dataset and observed bigger wage differences in the lower tail. Rahman and Al-Hasan (2018) corroborated the former phenomenon for all workers using QLFS 2015-2016, and added evidence on the role of informal employment for the large gaps in the lower quantiles.

Finding no empirical investigation focusing solely on the glass ceiling and sticky floor phenomena in Bangladesh, our research objective is to evaluate this caveat in literature. In particular, our research question stands as follows. Do glass ceiling and/or sticky floor effects exist in Bangladesh? If so, then to which degree and what are the factors affecting them, along with their relative importance?

4. Data and Methodology

4.1. Data Description

This study uses the Quarterly Labour Force Survey (QLFS) 2016-2017 of Bangladesh, a nationally representative cross-sectional random sample, conducted by the Bangladesh Bureau of Statistics (BBS). The sample uses information on both individual and household level characteristics contained in the dataset.

The total number of observations for the Quarterly Labour Force Survey (QLFS) 2016-2017 was 493,886. Total number of households was 123,000. As it is a rotating panel, the annual weight provided by BBS for the data is used.

Our selected sample for analysis is restricted to those in wage-employment who are aged 15 or older and holding only a primary job, aggregating to 70, 035 observations, of which 73.73% are male.

4.2. The Empirical Model

The Mincerian Regression is estimated under five different specifications, followed by Oaxaca-Blinder Decomposition (OBD) on the final model. Understanding the fact that the wage gap may be underestimated due to sample selection problem (Ahmed and Maitra, 2015), Inverse Mills Ratio (IMR) will be employed to correct it. This is because only earnings information for those who are working is available, as well as participation into wage employment may not be random.

Afterwards, quantile regressions (QRs) and Quantile Counterfactual Decompositions (QCD) are performed to get an elaborate understanding of the scenario along the entire wage distribution.

We mainly focus on the existing literature regarding Bangladesh while choosing the variables, to ensure both appropriateness and data availability. Since these works were based on existing international literature, scholarly validity is ensured.

For the dependent variable, which is the natural log of monthly wages of those aged 15 and above in wage-employment holding only a primary job, we have excluded child labour, the self-employed, unpaid family workers (referred to as contributing family members in the dataset), and those still studying (Ahmed and Maitra, 2015; Rahman and Islam, 2013; Atencio and Posadas, 2015).[8] Although the self-employed consist of a majority of the employed in 2016-17 (47.79%), their earnings are unlikely to be comparable (Atencio and Posadas, 2015). We take the natural log of wages since it enables us to calculate percentage wage gaps (Rahman and Al-Hasan, 2018). Monthly wages are taken into account instead of hourly; otherwise it might be misleading as females in general work fewer hours per week compared to men in the sample. Moreover, the periodicity of payment is usually monthly and the proportion of day labourers is also lower in the selected sample.[9] Furthermore, Rahman and Al-Hasan (2018) point out working hours are unimportant in the Bangladeshi context as payments are usually made on a monthly basis. Hereafter, we shall refer to this selected sample of workers as wage employees in this paper.

[8] The official retirement age in Bangladesh is 59 years (60 years for freedom fighters) but this is only applicable for the public sector, whereas the bulk of our sample is employed in the private sector (Bdnews24.com, 2018). Hence we impose no age ceiling.

[9] See Figure 6, Figure 7 and Figure 8 in the Appendix.

Explanatory variables for the probit regression for participation have been categorized into five major groups: (i) Personal Characteristics; (ii) Region of Residence; (iii) Household Circumstances; (iv) Household Head Characteristics and (v) Household Socioeconomic Status.[10]

Observed characteristics for the Mincerian regression model can be subsumed into three major groups: (i) Personal Characteristics; (ii) Region of Residence and (iii) Occupation, Sector of Work and Economic Activity.[11] We elaborate on these three groups in Table 1.

4.2.1. Mincerian Regression

The augmented Mincerian model stands as follows (Siddiquee and Hossain, 2018; Jellal et al., 2008):

$$w_i = f_i\alpha + x_i'\beta + \varepsilon_i$$

where w_i is the log monthly earnings of the ith individual in wage employment holding only a primary job, f_i is a gender dummy, x_i is a vector of observed characteristics of individual i except gender, α measures the intercept shift due to gender differences, β represents the vector of slope coefficients and intercept, and ε_i is the error term.

The Inverse Mills Ratio (IMR) is estimated for participation into the selected sample using Heckman Two-Step (Heckit) in order to deal with selection bias and the resulting biased and inconsistent estimates (Heckman, 1976). The first stage involves calculating the IMR from a probit regression for participation that is estimated for the entire sample of working-age population[12], and in the second stage, it is included in the augmented Mincerian model to correct for sample bias.

4.2.2. Oaxaca-Blinder Decomposition

A popular technique in the gender wage gap literature to examine group differences at the mean is the Oaxaca-Blinder counterfactual decomposition (OBD) method for linear regressions. The results are utilized as a yardstick for comparison of the wage gap across the distribution (Ahmed and Maitra, 2015), and also to point out the merits of QCD.

Rewriting the above linear model with slight modifications as (Jann, 2008):

$$w_\ell = x_\ell'\beta + \varepsilon_\ell, \qquad E(\varepsilon_\ell) = 0 \qquad \ell \in (f, m)$$

[10] See Mahmud and Bidisha (2018) and Rahman and Islam (2013).

[11] See Siddiquee and Hossain (2018) and Ahmed and Maitra (2015).

[12] Working-age population is defined here as those aged 15 and older, i.e. above the legal working age (BBS, 2018).

The following two-fold decomposition model is obtained, using the 'pooled' option in Stata, as suggested by Jann (2008):

$$Difference = \{E(x_m) - E(x_f)\}'\beta^* + \{E(x_m)'(\beta_m - \beta^*) + E(x_f)'(\beta^* - \beta_f)\}$$

where the first term on the right-hand side gives the explained effect and the second term gives the unexplained effect. The explained effect (also called the "quantity effect") refers to the portion of gender wage differential owing to the differences in covariates or predictors. On the other hand, the unexplained effect is generally referred to as discrimination, albeit it may contain differences due to the impact of potential unobserved covariates.

4.2.3. Quantile Regression

In order to study the glass ceiling and sticky floor effects in Bangladesh, it is necessary to look at wage differences at various points over the whole wage distribution, not just at the mean. It involves the specification of wage categories (or "quantiles") by replacing observed wage differentials with the distribution of the error obtained from the Mincerian regression.

Regarding the suitability of quantile regression (QR) for the purpose of this study, there are four reasons. Firstly, they provide more robust estimates than OLS in the presence of non-normal or heteroskedastic errors and outliers. Secondly, whenever the subpopulation of interest is not limited to the mean of the dependent variable, it enables study of the impact and significance of any covariate over the entire distribution instead. Thirdly, QR is insensitive to monotonic transformations of the like of log(.), so we can always reverse our results to the original form. Lastly, truncated regressions run on the stratified unconditional distribution of the dependent variable as an alternative would have resulted in smaller sample sizes and severe sample selection bias.[13]

Thus, the conditional QR model stands as follows, assuming a linear specification (Jellal et al., 2008):

$$q_{\theta(w_i|x_i)} = f_i\alpha(\theta) + x_i'\beta(\theta)$$

where w_i is the log monthly earnings of the ith individual holding only a primary job, f_i is a gender dummy, x_i is a vector of observed characteristics of individual i except gender, and q_θ is the θth conditional quantile of w_i. As per Koenker and Bassett (1978), the error distribution is not specified for such a model.

The model is applied only for the final augmented Mincerian model to the following quantiles: θ=0.10, 0.20, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80 and 0.90. Given the relatively large size of the sample, bootstrapping is not pursued.

[13] See Jellal et al. (2008), Baum (2013) and Lê Cook and Manning (2013).

4.2.4. Quantile Decomposition

Quantile Counterfactual Decomposition (QCD) over the whole distribution enables us to decipher if the proportion of discrimination is larger than the explained part for all females, or only certain subgroups, and if so, on whom the impact is the greatest. Conventional OBDs at the mean cannot answer these.[14]

To decompose the wage gaps at different quantiles instead of just at the mean, the QCD approach suggested by Machado and Mata (2005) is followed using the statistical tools developed by Chernozhukov et al. (2013).

The decomposition model stands as follows:

$$q_{w(m|m)}(\theta) - q_{w(f|f)}(\theta) = [q_{w(m|m)}(\theta) - q_{w(m|f)}(\theta)] + [q_{w(m|f)}(\theta) - q_{w(f|f)}(\theta)]$$

where the first term on the right-hand side gives the characteristics effect (composition effect) and the second term gives the coefficients effect (or wage structure effect). The characteristics effect corresponds to the explained part of the OBD, whereas the coefficients effect refers to the unexplained part. Here, $q_{w(m|f)}$ is the counterfactual wage distribution that females would earn if remunerated according to the male wage structure (Blau and Kahn, 2017),

100 equations per quantile are estimated. Once again, given the large size of the sample and the excessive time commitment involved, we do not resort to bootstrapping for standard errors.

5. Empirical Analysis

5.1 Descriptive Analysis

All Figures and Tables are presented in the Appendix. Figure 9 depicts the distribution of the natural log of monthly wages for males and females. The male distribution is left-skewed compared to the female one, with three distinctive surpassing peaks for males and a small one for females nearby the upper tail. Table 2 reveals that the wage gap is in general present throughout the entire distribution; however, it is important to note that these are the unadjusted gaps and does not account for the gaps between male and female workers possessing approximately homogenous observable characteristics, leading to overstating or understating the degree of discrimination if women are systematically less or more qualified than men respectively (Majchrowska et al., 2014).

[14] See Atencio and Posadas (2015).

Noticeable differences are not only restricted to wages between males and females but also present in the averages of observable characteristics. Table 3 provides the descriptive statistics for the whole sample of working-age population while Table 4 provides for the selected sample of wage employees. The Adjusted Wald Test is also performed for the differences, since the conventional t-test cannot be performed over survey data.

Table 3 reveals that around 30% men and 10% women are engaged in wage employment, and the difference is highly statistically significant. This goes on to show the extensive gender disparity in both participation and employment rates for wage employment. Women are on average younger than men in 2016-2017, demonstrating both the low levels of participation of older women and greater ease of access to employment for their successors.[15] Educationally, women again fall short of men, except for primary and secondary levels, with men clearly dominating the higher educational levels. All the differences are highly statistically significant too. More males are single in comparison to females proportionately, whereas the reverse is true in case of other marital statuses. Greater proportion of females is concentrated in the urban region compared to men, albeit the difference is not statistically significant. On the other hand, majority of the sample resides in rural areas.

Table 4 reports that the average monthly wage is lower for women by 12.40%, and the difference of BDT 1,495.24 is highly statistically significant. Women are also younger in the selected sample. In terms of educational levels, they are behind men at all levels with significant differences at the 1% level, except for the primary and secondary levels where differences are significant at the 10% level and insignificant respectively. However, a higher percentage of women have received vocational training compared to men, and the difference is highly significant. Around 75% of wage employees are married. Proportionately, more men are single and married than women, while the opposite holds true for widowed and divorced/separated. All the differences are highly significant in the marital status category. Majority of the selected sample is concentrated in the rural regions (around 60%). Divisionally, a greater percentage of women can be found in Chittagong and Dhaka. All the differences across the various occupations are highly significant, and women perform better only in case of professionals, craft related trades workers and elementary occupations. Around 91% of the selected sample is further observed to be employed in the private sector. Men are found to be dominating the jobs in the agriculture and construction sectors, and women in the manufacturing and service sectors. However, the gender difference is insignificant in the manufacturing sector. Lastly, a higher percentage of females are employed in jobs with a written contract in place.

[15] See Siddiquee and Hossain (2018).

5.2. Econometrics Analysis

5.2.1. Results from Mincerian Regression

Table 5 displays the OLS results from the Mincerian model for various specifications, where Model (1) reports the unadjusted wage gap. Thereafter, subsequent sets of explanatory variables are added step by step so as to decipher their effects on the gap.

From Model (1), the raw or unadjusted wage gap in Bangladesh for wage employees stands at 12.29%, or 13.08% to be exact[16]. Accounting for all factors, the gender wage gap stands at 11.4%, or 12.09% to be exact, in the final specification. Thus controlling for all factors only causes a slight drop in the rate. It is worth noting that the only substantial fall in wage gap occurs after controlling for education and training, which is consistent with our descriptive findings where the majority of women had little or no education. Educational attainment and vocational training thus explains the gender wage gap to a large extent. However, in the final model, the "Others" educational category and training become insignificant. Moreover, vocational training is also found to have a negative effect there. While highly significant positive impacts are associated with residing in urban regions and holding a job with a written contract, being employed in the private sector renders a highly significant negative effect on wages. The overall R^2 value is 65.55% for Model (5), suggesting moderately good explanatory power of the model.

From the probit regression for participation in wage employment, the calculated IMR of (-0.0131) is insignificant, with a standard error of 0.0081, in the final model. Therefore, concluding the absence of selection bias in the sample, the IMR is not included in any further regressions or decompositions.[17]

5.2.2. Results from Oaxaca-Blinder Decomposition

Table 6 presents the results of the OBD, which will serve as the benchmark for comparison against the QCD results. Robust estimates are ensured with survey estimation technique.

A statistically significant difference of 0.1255 log points is found between the log of monthly wages for males and females at the mean. The explained portion outlines the average rise in women's wage if they had shared the same characteristics as men. The insignificant increment of 0.0094 log points implies that differences in endowments account for a mere 7.49% of the gender wage gap. The unexplained component measures the change in women's wages upon the exertion of men's coefficients to the women's characteristics.

[16] Exact Gap=[(exp(0.1229)-1)*100], see Siddiquee and Hossain (2018).
[17] See Rahman and Al-Hasan (2018).

Retransforming the results to the original scale (Bangladeshi Taka) from the logarithmic scale, the geometric means of wages for men and women are BDT 11,680.46 and BDT 10,302.56 respectively. This leads to a gap of 13.37%, where adjusting women's endowment levels to that of men's would raise women's wages by a negligible 0.94%, leaving 12.32% of the gap unexplained.

Panel B of Table 6 reveals that the majority of the explained part of the outcome differential can be attributed to the differences in age, education, division and occupation. While training and marital status do not appear to be of much import, contributions of the remaining predictors, although significant, are of lesser magnitude.[18]

5.2.3. Results from Quantile Regression

Table 7 provides the results of the conditional QRs by assuming similar returns to included labour market characteristics for men and women[19], and the coefficients differ from quantile to quantile. The adjusted wage gaps as measured by the female coefficients are highly significant across all the nine quantiles. Use of QR is justified as the coefficients differ substantially from the OLS coefficient in Model (5) of Table 5, including at the median. Moreover, equality of female coefficients across the specified quantiles has been tested using a simultaneous-quantile regression with 100 bootstrap replications. The paper soundly rejects the null hypothesis of coefficient equality at an estimated F(8,60942) value of 6.91.[20]

Focusing only on the female coefficient, which measures the degree of unexplained gender wage gap after controlling for differences in individual characteristics (Jellal et al., 2008), the highest gender wage gaps are observed in the lower quantiles, Q10, Q20 and Q30. Women's earnings are lower than men's by 14.27% in the first quantile. The lowest wag gap is reported in the sixth decile, which is 10.22%. The adjusted wage gap is higher than the raw wage gap (from Table 2) at Q20, Q30, Q60 and Q90, indicating that women should earn more than men at those deciles, if only their productive characteristics are taken into account.[21]

Figure 10 depicts a graphical comparison between the QR coefficients and the OLS coefficient for female. A distinct inverted-U shape can be seen for the QR ones till Q80, implying larger gaps at the lower and upper end of the wage distribution. At Q90, the wage gap reduces slightly, but it is still higher than both the median and mean levels. The wage gap is lower at the fifth, sixth and seventh deciles in comparison to the OLS, which is estimated at the mean. At the lowermost and uppermost quantiles, the gap is higher than the OLS by 2.86% and 0.71% respectively. Except for Q10, Q20, Q30 and Q60, the results do not appear to differ much statistically from OLS. The Pseudo-R^2 value for the various quantiles ranges from 0.2597 to 0.4938, suggesting the model is a very good fit for the data.

[18] See Jann (2008).
[19] See Jellal et al. (2008).
[20] See Siddiquee and Hossain (2018).
[21] See Van Der Velde et al. (2013).

5.2.4. Results from Quantile Decomposition

The assumption of identical returns to characteristics for males and females at the various quantiles for the pooled sample in the previous section is *a priori* impractical, and thereby it makes sense to carry out decomposition at the quantiles rather than simply at the mean.[22]

Table 8 reports the QCD results. In comparison to the middle and top portions of the distribution, estimated total wag gap is largest at the bottom. The gap ranges from 7.76% to 17.64% across the distribution, with the difference being lower at Q90 compared to anywhere else. Along the entire wage distribution, majority of the gap can be attributed to discrimination, ranging from 67.92% at Q80 to 112.33% at Q20. This goes on to indicate extensive wage discrimination against women in Bangladesh, especially for those belonging to the bottom half of the distribution.

Focusing on the proportionate contribution of different productive characteristics towards the gender wage gap, differences in endowment levels are in favour of men at the upper tail. Contributing negatively at the lower end by (-6.4%), it constitutes to 18.07% between high-income men and women, stressing the pertinence of the characteristics effect at the upper tail. The negative composition effect till the median suggests the presence of more overqualified women than men for the bottom half of the distribution; for instance, if women shared similar characteristics as men, ceteris paribus, the gender wage gap would have been higher by 1.46% at Q20 (Atencio and Posadas, 2015). Thus in the bottom half, the better endowment levels of women should have resulted in a smaller pay gap. In addition, the positive and substantial wage structure effect makes the case for severe gender discrimination at this end.[23]

Figure 11 depicts QCD results against OBD. The gap is observed to fluctuate across the distribution, and is higher than the result obtained with the mean for the first and seventh deciles. Moreover, although discrimination accounts for the majority of the gap everywhere, gender differences in labour market characteristics are evidently more relevant for the upper tail.

Overall, following the lines of reasoning provided by Chi and Lee (2008) and Xiu and Gunderson (2014), the paper affirms the presence of a strong "sticky floor" effect and a weaker "glass ceiling" effect in Bangladesh, due to larger observed gaps in the bottom tail than the upper. The findings are consistent with Ahmed and Maitra (2015). The strong sticky floor effect is manifested in terms of both the raw and adjusted observed wage gaps, unexplained differences in returns to similar characteristics, and proportion of gap attributed to discrimination. Women at the bottom are subject to extensive discrimination despite being superior to men in terms of endowment. On the other hand, limited evidence of glass ceiling effect is exhibited in the same manner, especially at seventh and ninth deciles, although it is

[22] See Jellal et al. (2008).
[23] See Majchrowska et al. (2014).

lesser at Q80. The hypothesis is mostly weakened both by the raw wage gap and the prevalence of greater pay gaps at the median than at Q90. Women face discrimination at the upper end chiefly due to differences in returns, and to a lesser extent, due to lower endowment levels of productive characteristics than men.

6. Findings, Policy Recommendations and Conclusions

Using QLFS 2016-17, the study has found evidence of both unadjusted and adjusted gender wage gaps and variations in their magnitudes across the entire wage distribution. The paper has then proceeded to posit the existence of a strong sticky floor effect and a weaker glass ceiling effect in Bangladesh, with discriminatory rewards to observed characteristics being the dominant feature of the observed wage gap across the entire distribution.

Addressing the underlying causes is crucial for the design of policies to tackle such gendered wage inequalities. Low-earning women require access to jobs which reward their skills as much as their male counterparts; the same holds true for the high-income group, except women there also need to be equipped with adequate labour market skills on a par with men. The private sector could be incentivised to offer apprenticeships and training to females.[24] Rahman and Al-Hasan (2018), having demonstrated that the gap at the bottom is essentially driven by informal employment, had suggested interventions towards greater ease of access to the formal labour market for women.[25] For instance, mandatory inclusion of a nondiscrimination clause in recruitment improves female employment in formal sector by 8.6% (WDR 2019). The driving factor for the gap being the unexplained portion will require a change in the mindset and/or social norms, possibly in the form of information campaigns and stringent laws. Gender sensitive educational materials are also needed.[26] It is possible that women are more inclined towards less demanding jobs due to a lack of daycare facilities or to preserve family-work balance, since the traditional role of women at home are still greater in Bangladesh than their male counterparts. In turn, employers may show similar prejudices while making hiring or promotion decisions, by way of presuming less career commitment from female employees (Albrecht et al., 2003). This might be one explanation for the persistence of the strong sticky floor effect, which in turn boosts the glass ceiling effect from below. The government's focus on gender parity in primary and secondary education has clearly had positive impact, but it is time to focus on higher levels of education which have higher returns attached with them, in order to enhance the human capital of women at the upper tail (Table 7).[27] As noted by Gupta et al. (2008), undue exercise of family-friendly policies may also serve as backlash towards female career advancement. Xiu

[24] See Indrawati and Albrectsen (2018).

[25] It is worth noting that the unregulated informal employment in Bangladesh constitutes 85.1% of those employed, and the figure stands at 91.8% and 82.1% for women and men respectively (BBS, 2018).

[26] See Indrawati and Albrectsen (2018).

[27] GED (2016) offers the following explanations for low female tertiary enrollment: poverty and hidden educational costs, gender-based violence, limited mobility, insufficient girls' hostels, wage rise and labour market expansion.

and Gunderson (2014) further mention the influence of "old boy" networks in high-status positions as an impediment.

So far, gender equality has been enshrined in the constitution (Article 19) and Bangladesh Labour (Amendment) Act (BLA) 2018 in terms of vague statements and plenty of loopholes on the enforcement end. Even the recently approved amendment to the BLA only has one female-friendly stipulation: the mandatory eight-week maternity leave. Although a commendable move, it is important to acknowledge these laws only pertain to the smaller formal sector of the country. As a result, the status quo as it is leaves a lot to be desired from the government.

While acknowledging the case of unobservable variables such as mentality and social norms which form part of the unexplained gap, another severe limitation of the study is the lack of data capturing major relevant aspects such as transitions in employment status, promotions, firm-level data (policies, firm and industry growth etc) and so on. There is neither a large dataset of those in high-status occupation nor a panel dataset for examining the scenario over the years. Moreover, there is no standard questionnaire for labour force surveys internationally or even for South Asia, hampering the scope for comparison. In addition, gender differences in opportunity are not reflected in the adjusted wage gap (Gould et al., 2016).

Future scope regarding the study is extensive, but largely dependent on the availability of adequate quality datasets. Moreover, it is possible to examine the case for a number of periods using decomposition techniques based on unconditional quantile regression models as proposed by Fortin et al. (2011), which makes possible the calculation of partial effects.

Bangladesh will deprive itself of $30 billion worth of annual GDP or an 8% rise above the usual by 2025 if gender inequality remains unaddressed.[28] The genesis of the glass ceiling and sticky floor effects in Bangladesh is, all in all, a complex issue calling for investigation from multiple dimensions and immediate government attention, since there appears to be simply no room for complacency.

[28] See Indrawati and Albrectsen (2018).

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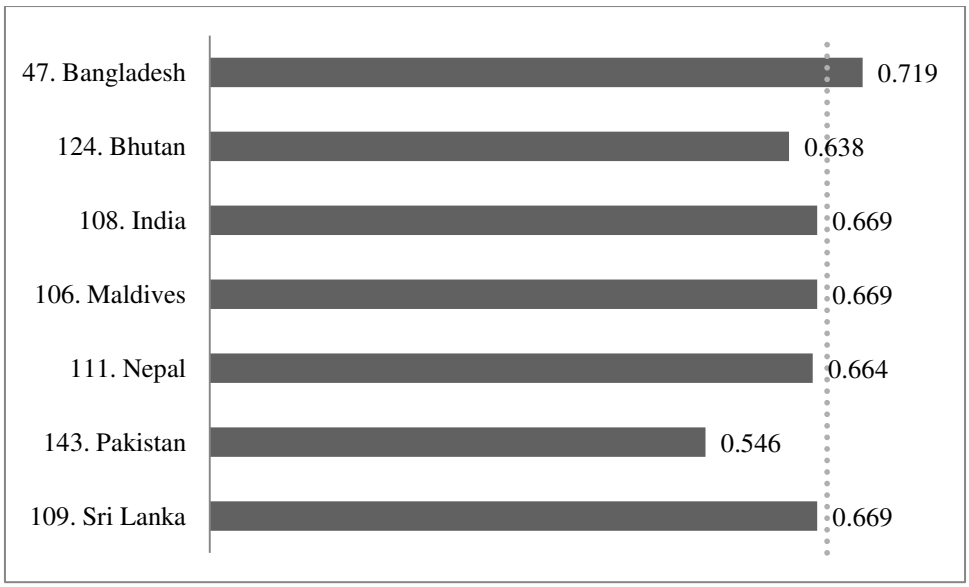
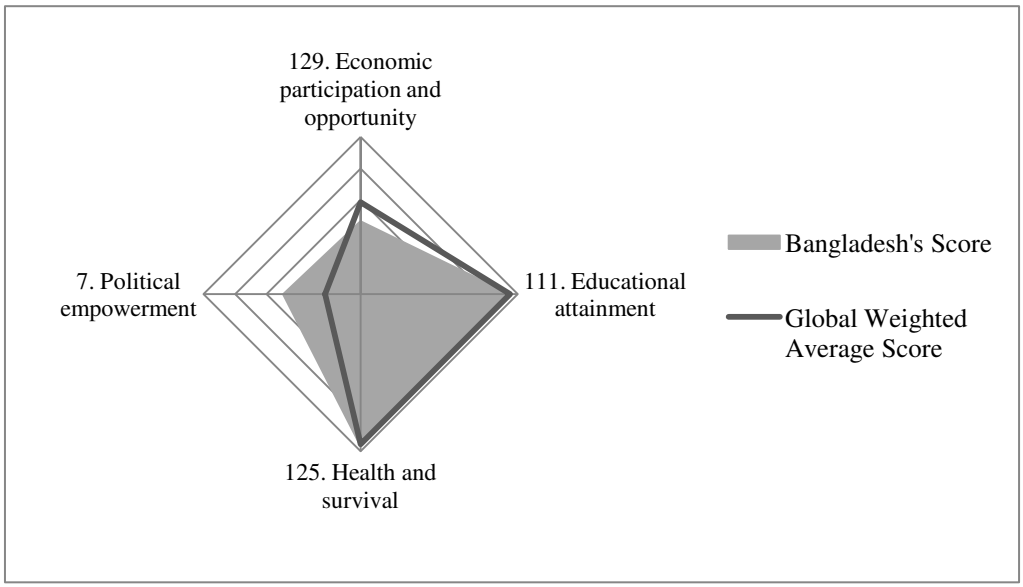
APPENDIX
(Figures and Tables)

Figure 1: South Asia's Performance in GGGI 2017



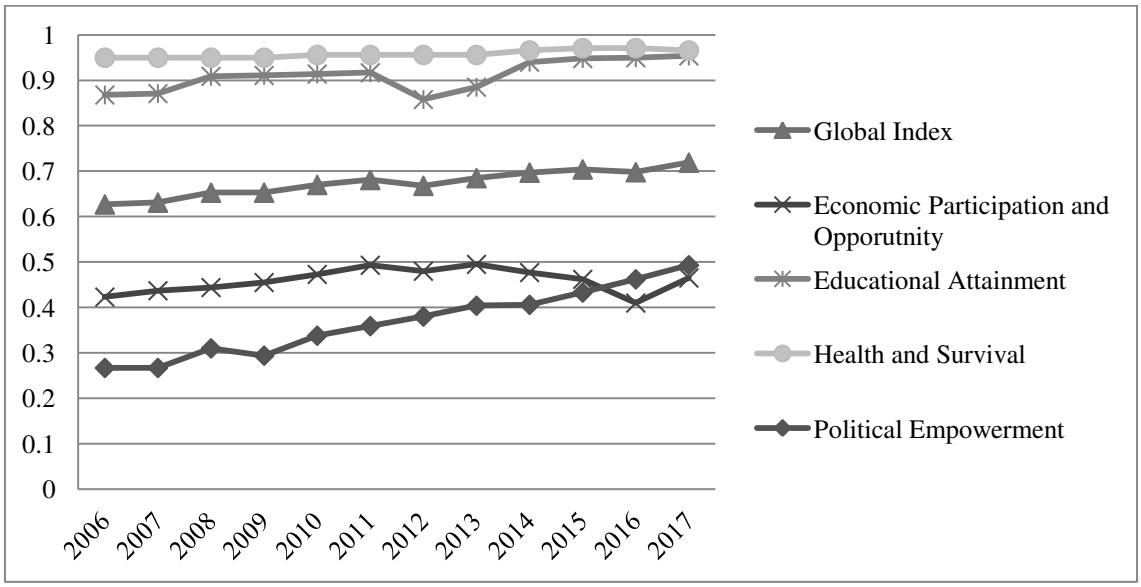
Notes: Global Rankings (out of 144 countries) are mentioned before countries' names. The dotted line represents the global weighted average score. Score was unavailable for Afghanistan.
Source: Global Gender Gap Report 2017, World Economic Forum.

Figure 2: Bangladesh's Performance in GGGI 2017



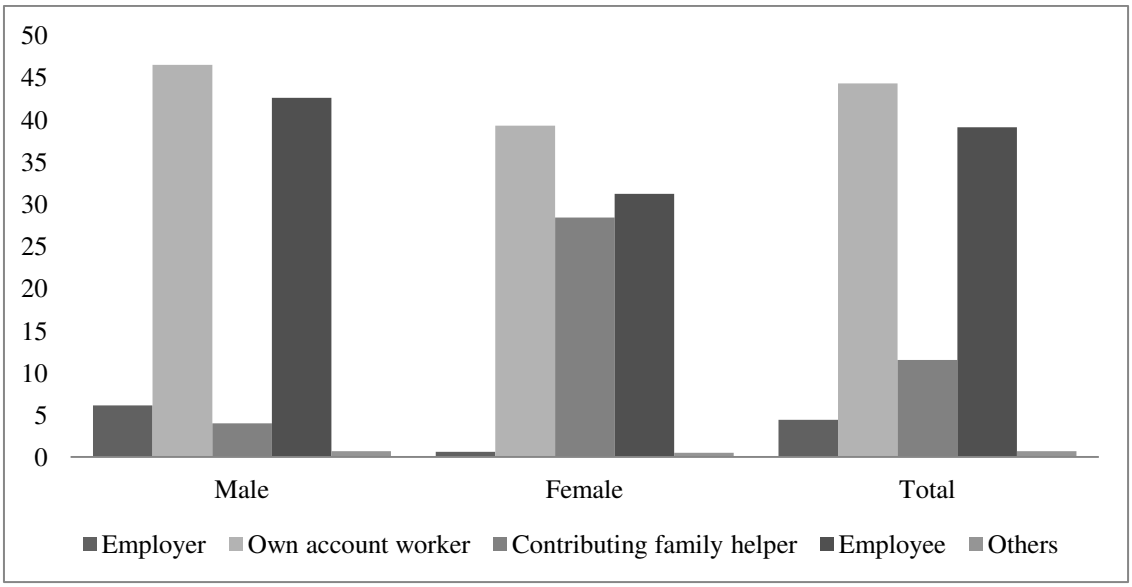
Note: Rankings by Subindex (out of 144 countries) are mentioned before countries' names.
Source: Global Gender Gap Report 2017, World Economic Forum.

Figure 3: Evolution of Bangladesh's Score in GGGI (2006-2017)



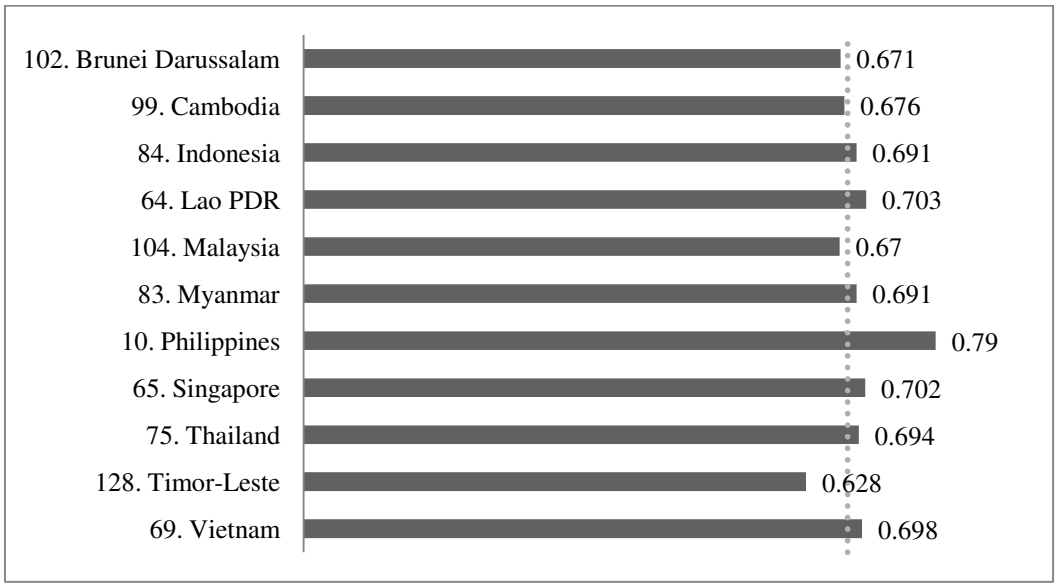
Source: World Economic Forum.

Figure 4: Distribution of Employed People, by Status in Employment & Gender (%)



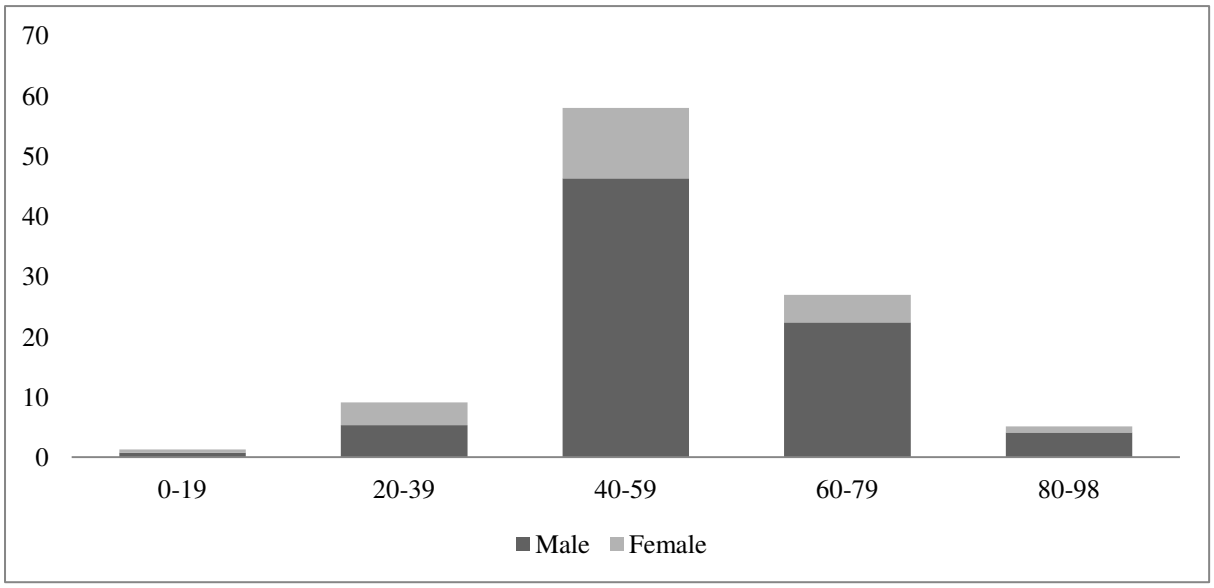
Source: Author's own calculation based on Report on LFS 2016-17, BBS (2018).

Figure 5: Southeast Asia's Performance in GGGI 2017



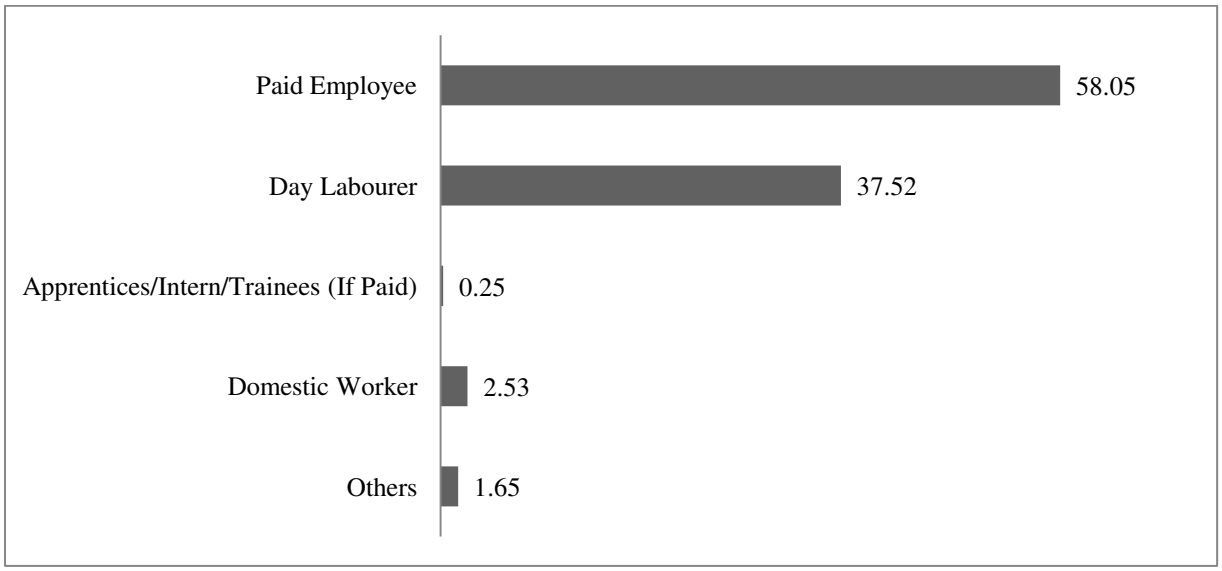
Notes: Global Rankings (out of 144 countries) are mentioned before countries' names. The dotted line represents the global weighted average score.
Source: Global Gender Gap Report 2017, World Economic Forum.

Figure 6: Working Hours per Week, by Gender (%)



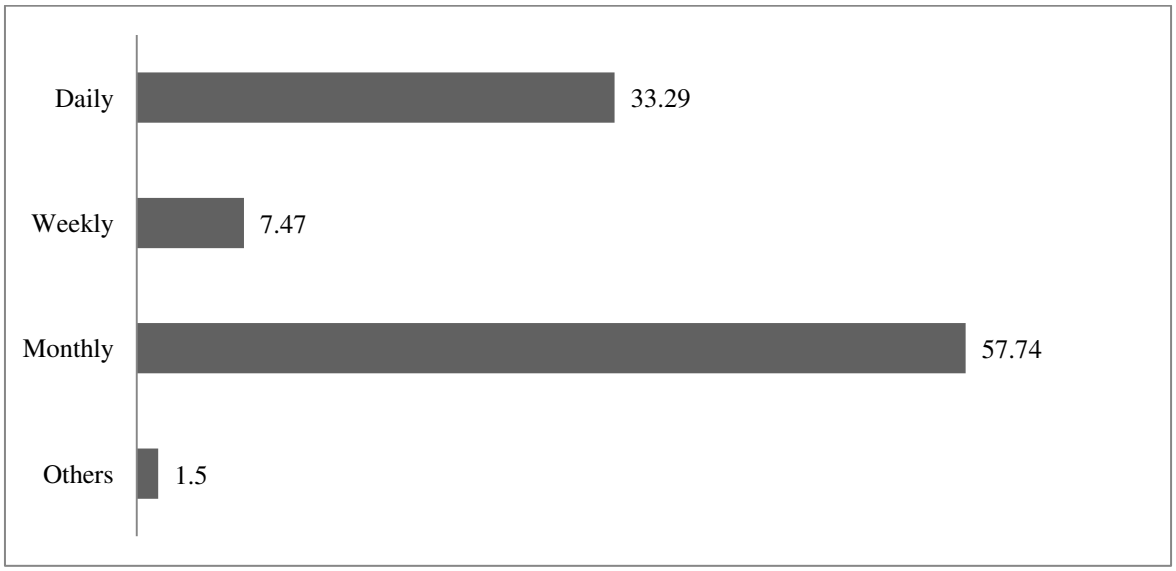
Source: Author's own calculation from QLFS 2016-17, BBS.

Figure 7: Employment Status (%)



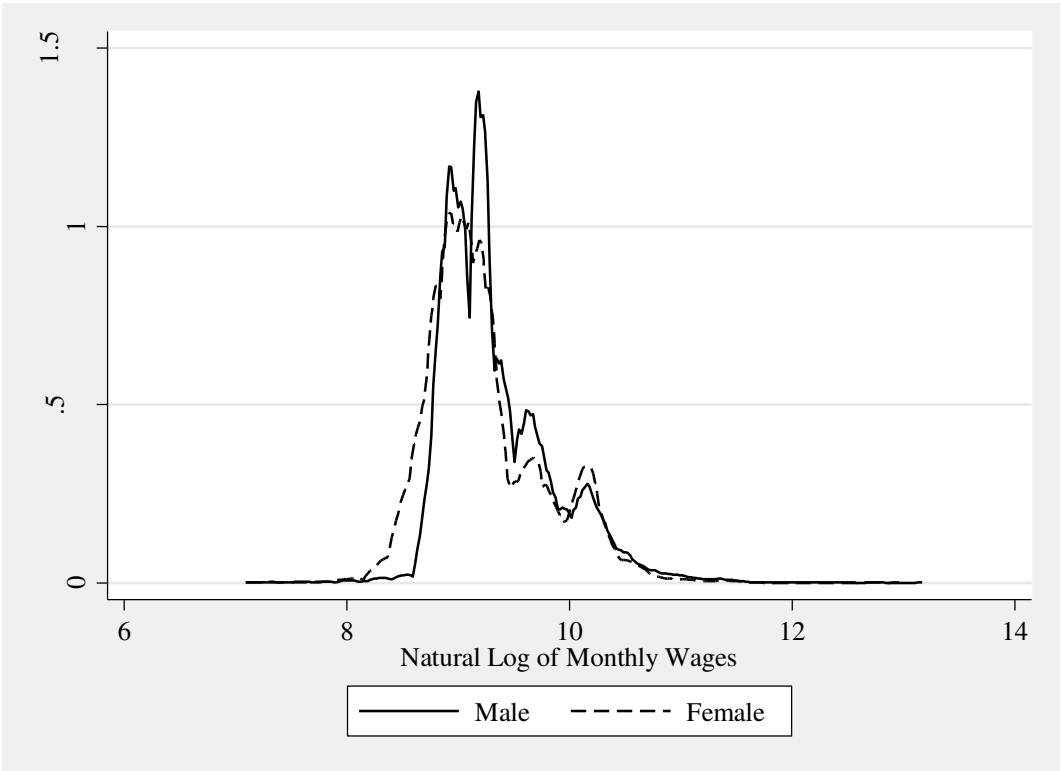
Source: Author's own calculation from QLFS 2016-17, BBS.

Figure 8: Periodicity of Payment (%)



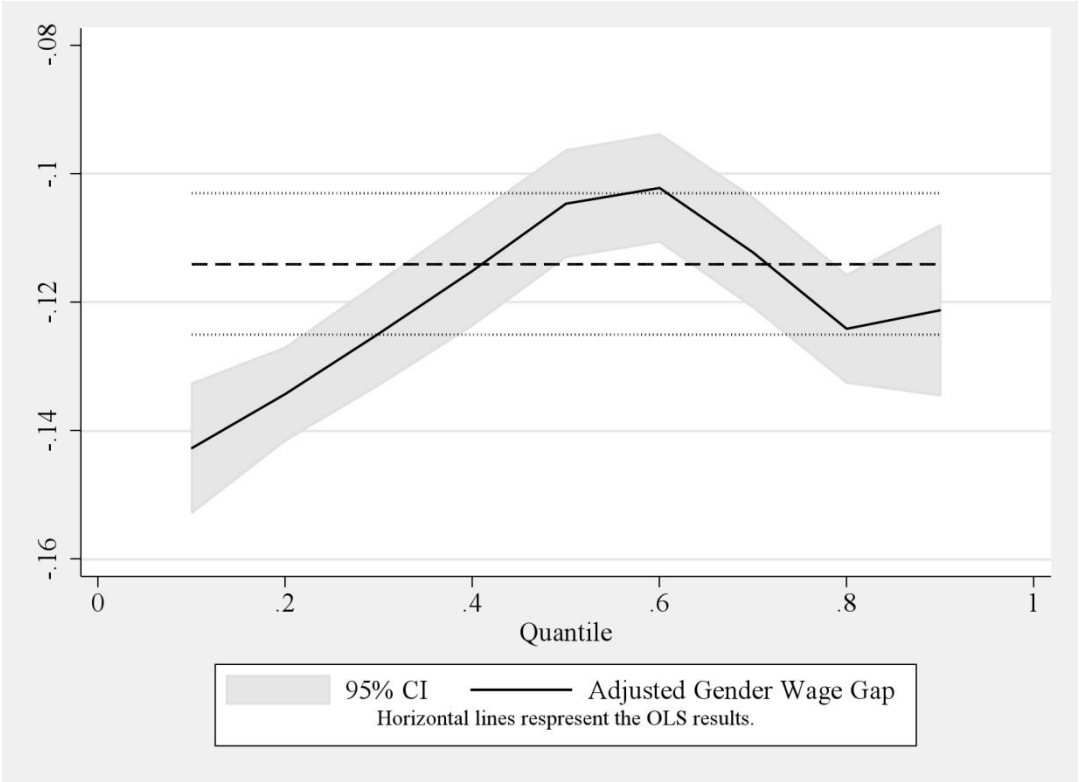
Source: Author's own calculation from QLFS 2016-17, BBS.

Figure 9: Distribution of Natural Log of Monthly Wage by Gender



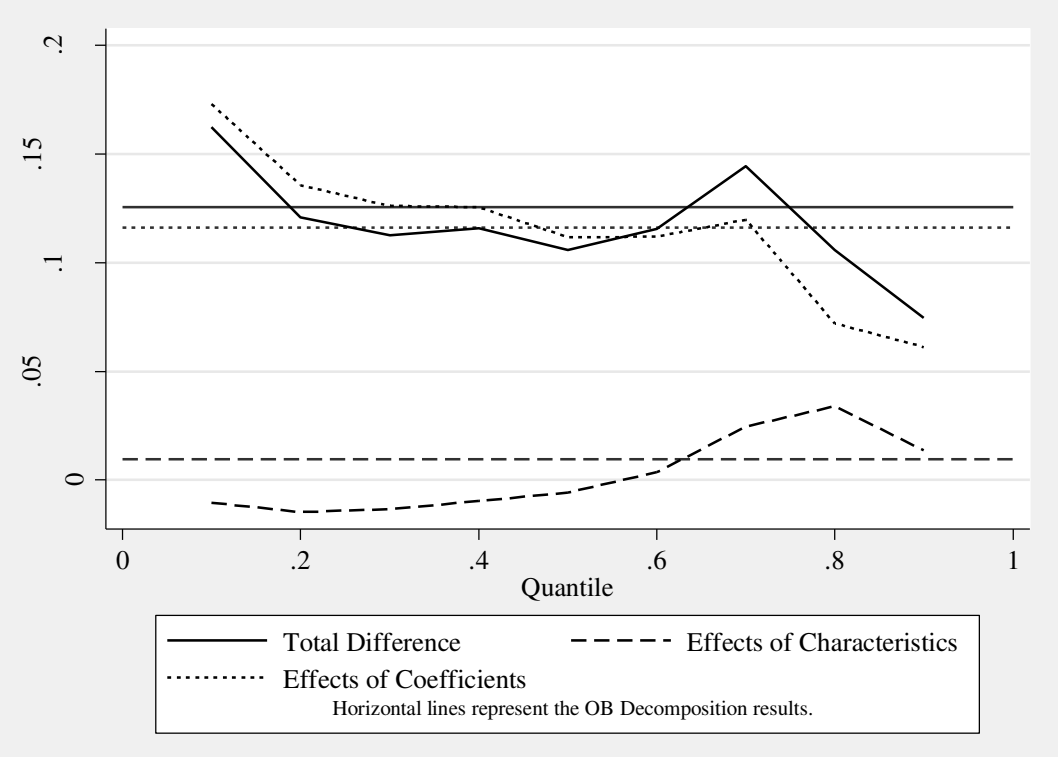
Source: Author's own calculation from QLFS 2016-17, BBS.

Figure 10: Results of Conditional QR



Source: Author's own calculation.

Figure 11: Results of QCD



Note: QCD results differ from QR ones due to the incorporation of the counterfactual.
Source: Author's own calculation.

Table 1: Full List of Independent Variables

Category	Variables
Personal Characteristics	(i) Dummy for gender (1 if female, 0 if male) (ii) Age (iii) Square of age (iv) Seven educational qualification dummies (with no education being the base) (v) Dummy for vocational training (1 if any training received, 0 if otherwise) (vi) Four dummies for marital status (with single being the base)
Region of Residence	(i) Dummy for urban (1 if urban, 0 if rural) (ii) Eight divisional dummies (with Dhaka as the base)
Occupation, Sector of Work and Economic Activity	(i) Ten occupational dummies (Armed Forces Occupations being the base)[a] (ii) Dummy for private sector (1 if private, 0 if otherwise) (iii) Four broad economic sector dummies (agriculture sector being the base)[b] (iv) Dummy for the type of work contract (1 if written, 0 if otherwise)

Notes: [a] Jellal et al. (2008) points out that there is a lack of any definitive consensus regarding the inclusion of occupation and economic sector. Employer prejudice while hiring for certain occupations can be attributed to employer practices rather than personal choice or productivity dissimilarities. Excluding them may underestimate the significance of background and choice-based factors on earnings, whereas fully controlling for these might understate the importance of labour market constraints on earnings (Altonji and Blank, 1999).
[b] Jellal et al. (2008) argue that sector of work is an endogenous factor to a degree since the decision is most likely made upon completion of education.

Table 2: Natural Log of Monthly Wages and Gender Wage Gap over the Various Quantiles and the Mean

Quantile	Total	Male	Female	Gender Wage Gap
0.01	8.5172	8.6995	8.2940	0.4055
0.05	8.7483	8.8247	8.5172	0.3075
0.10	8.8537	8.8537	8.6995	0.1542
0.20	8.9227	8.9872	8.8537	0.1335
0.25	8.9872	8.9872	8.8537	0.1335
0.30	8.9872	9.0360	8.9227	0.1133
0.40	9.1050	9.1590	8.9872	0.1718
0.50	9.2103	9.2103	9.1050	0.1053
0.60	9.3057	9.3057	9.2103	0.0954
0.70	9.4727	9.4727	9.3057	0.1670
0.75	9.6158	9.6158	9.4727	0.1431
0.80	9.6803	9.7410	9.6158	0.1252
0.90	10.1266	10.1266	10.1266	0.0000
0.95	10.3090	10.3090	10.2400	0.0690
0.99	10.8396	10.9151	10.6454	0.2697
Mean	9.3269	9.3581	9.2352	0.1229

Note: Gender wage gap calculated as the difference between the natural log of male wages and the natural log of female wages (Ahmed and Maitra, 2011).
Source: Author's own calculation.

Table 3: Descriptive Statistics: Working-Age Population

Variable	Full Sample		Male		Female		Difference Adjusted Wald Test
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	
Wage –Employment (Only Primary Job)	0.2003	0.0028	0.3003	0.0038	0.1020	0.0029	0.1983***
Personal Characteristics							
Age:							
15-24	0. 2516	0.0016	0.2508	0.0020	0.2525	0.0020	-0.0018
25-34	0.2391	0.0017	0.2176	0.0021	0.2602	0.0021	-0.0425***
35-44	0.1956	0.0013	0.1947	0.0018	0.1965	0.0017	-0.0018
45-54	0.1447	0.0011	0.1474	0.0015	0.1421	0.0015	0.0053***
55-64	0.0963	0.0010	0.1047	0.0014	0.0881	0.0012	0.0165***
65-74	0.0517	0.0007	0.0607	0.0010	0.0430	0.0008	0.0177***
75+	0.0208	0.0005	0.0242	0.0007	0.0175	0.0006	0.0067***
Educational Qualification:							
No Education	0.3059	0.0045	0.2793	0.0047	0.3321	0.0045	-0.0529***
Below Primary	0.0787	0.0022	0.0839	0.0024	0.0736	0.0022	0.0103***
Primary	0.2272	0.0022	0.2195	0.0026	0.2348	0.0023	-0.0153***
Secondary	0.1664	0.0018	0.1559	0.0020	0.1768	0.0022	-0.0209***
Higher Secondary	0.1705	0.0026	0.1888	0.0029	0.1526	0.0027	0.0362***
Tertiary	0.0473	0.0021	0.0663	0.0027	0.0286	0.0017	0.0377***
Others	0.0039	0.0004	0.0063	0.0007	0.0016	0.0002	0.0047***
Marital Status:							
Single	0.1916	0.0016	0.2657	0.0022	0.1186	0.0016	0.1471***
Married	0.7436	0.0019	0.7171	0.0022	0.7696	0.0022	-0.0524***
Widowed	0.0556	0.0008	0.0128	0.0004	0.0977	0.0014	-0.0849***
Separated/Divorced	0.0092	0.0003	0.0043	0.0003	0.0141	0.0006	-0.0097***
Household Head	0.3641	0.0014	0.6301	0.0029	0.1025	0.0022	0.5277***
Region of Residence							
Residence:							
Urban	0.2931	0.0059	0.2919	0.0061	0.2943	0.0059	-0.0024
Rural	0.7069	0.0059	0.7081	0.0061	0.7057	0.0057	0.0024
Division:							

Variable	Full Sample		Male		Female		Difference Adjusted Wald Test
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	
Barisal	0.0544	0.0020	0.0537	0.0022	0.0551	0.0018	-0.0014*
Chittagong	0.1761	0.0052	0.1668	0.0052	0.1851	0.0055	-0.0183***
Dhaka	0.2654	0.0093	0.2666	0.0095	0.2641	0.0093	0.0025
Khulna	0.1145	0.0034	0.1155	0.0036	0.1136	0.0033	0.0019
Rajshahi	0.1370	0.0030	0.1393	0.0033	0.1348	0.0029	0.0045***
Rongpur	0.1373	0.0052	0.1437	0.0056	0.1310	0.0049	0.0126***
Sylhet	0.0696	0.0020	0.0682	0.0021	0.0710	0.0022	-0.0028**
Household Circumstances							
Presence of Young Children:							
No Children under 13	0.8073	0.0026	0.8158	0.0025	0.7990	0.0027	0.0168***
Number of Children Aged 0-5	0.4688	0.0050	0.4492	0.0050	0.4881	0.0052	-0.0389***
Number of Children Aged 6-12	0.6464	0.0061	0.6307	0.0064	0.6619	0.0062	-0.0312***
Number of Males Aged 65 or Higher	0.1495	0.0024	0.1599	0.0026	0.1392	0.0023	0.0208***
Number of Females Aged 65 or Higher	0.0994	0.0020	0.0792	0.0018	0.1192	0.0024	-0.0400***
Number of Earning Males	0.5807	0.0074	0.6431	0.0082	0.5192	0.0068	0.1240***
Number of Non-Earning Males	1.1050	0.0086	1.2470	0.0097	0.9652	0.0078	0.2819***
Household Head Characteristics							
Sex of Household Head:							
Male	0.9002	0.0027	0.9481	0.0022	0.8532	0.0033	0.0949***
Female	0.0998	0.0027	0.0520	0.0022	0.1469	0.0033	-0.0949***
Education of Household Head:							
No Education	0.3980	0.0062	0.4048	0.0064	0.3915	0.0061	0.0133***
Below Primary	0.0860	0.0028	0.0871	0.0029	0.0849	0.0027	0.0022***
Primary	0.2055	0.0030	0.2028	0.0031	0.2082	0.0030	-0.0054***
Secondary	0.1187	0.0022	0.1159	0.0023	0.1214	0.0022	-0.0056***
Higher Secondary	0.1280	0.0028	0.1261	0.0029	0.1298	0.0028	-0.0037***
Tertiary	0.0610	0.0031	0.0606	0.0030	0.0613	0.0032	-0.0007
Others	0.0031	0.0005	0.0030	0.0005	0.0031	0.0005	-0.0001
Occupation of Household Head:							
Agricultural Self-Employment	0.2291	0.0050	0.2389	0.0053	0.2194	0.0048	0.0195***

Variable	Full Sample		Male		Female		Difference Adjusted Wald Test
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	
Agricultural Wage-Employment	0.0824	0.0028	0.0860	0.0030	0.0788	0.0027	0.0072***
Non-Agricultural Self-Employment	0.2894	0.0043	0.2984	0.0045	0.2805	0.0041	0.0179***
Non-Agricultural Wage-Employment	0.2282	0.0040	0.2275	0.0042	0.2289	0.0040	-0.0014
No-Earning	0.1710	0.0032	0.1492	0.0030	0.1924	0.0036	-0.0431***
Household Socioeconomic Status							
Home Ownership:							
Owns an Accommodation	0.8049	0.0066	0.8061	0.0067	0.8038	0.0065	0.0023
Pays No Rent	0.1355	0.0060	0.1357	0.0061	0.1352	0.0059	0.0005
Pays Rent	0.0596	0.0033	0.0582	0.0033	0.0610	0.0033	-0.0028***
Net Household Income	6842.25	173.32	5538.84	140.96	8124.44	217.04	-2585.60***
Household Asset:							
No Land or Non-Land Asset	0.0108	0.0008	0.0094	0.0008	.0122	0.0009	-0.0028***
No Land, Other Asset	0.1247	0.0055	0.1246	0.0056	0.1247	0.0055	-0.0001
Small Land Owned	0.8076	0.0059	0.8072	0.0060	0.8080	0.0059	-0.0008
Larger Land Owned	0.0568	0.0030	0.0587	0.0032	0.0550	0.0029	0.0037***
***** p<0.01, ** p<0.05, * p<0.1**							

Note: The following was omitted due to multicollinearity: Mymensingh.

Source: Author's own calculation.

Table 4: Descriptive Statistics: Selected Sample

Variable	Full Sample		Male		Female		Difference Adjusted Wald Test
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	
Monthly Income from Primary Job	13170.71	239.89	13550.46	260.43	12055.22	227.12	1495.24***
Personal Characteristics							
Age:							
15-24	0.2182	0.0037	0.2174	0.0040	0.2205	0.0066	-0.0032
25-34	0.3165	0.0039	0.3086	0.0040	0.3393	0.0063	-0.0307***
35-44	0.2398	0.0030	0.2338	0.0033	0.2575	0.0062	-0.0237***
45-54	0.1356	0.0026	0.1396	0.0027	0.1242	0.0044	0.0153***
55-64	0.0664	0.0017	0.0731	0.0020	0.0469	0.0027	0.0262***
65-74	0.0199	0.0008	0.0233	0.0010	0.0101	0.0011	0.0132***
75+	0.0036	0.0003	0.0043	0.0004	0.0014	0.0003	0.0029***
Educational Qualification:							
No Education	0.2632	0.0054	0.2425	0.0059	0.3232	0.0084	-0.0807***
Below Primary	0.0973	0.0032	0.1007	0.0036	0.0873	0.0046	0.0134***
Primary	0.2504	0.0041	0.2532	0.0043	0.2424	0.0065	0.0108*
Secondary	0.1368	0.0031	0.1377	0.0032	0.1340	0.0051	0.0037
Higher Secondary	0.1389	0.0034	0.1470	0.0041	0.1154	0.0044	0.0316***
Tertiary	0.1085	0.0054	0.1125	0.0054	0.0967	0.0065	0.0158***
Others	0.0050	0.0009	0.0064	0.0011	0.0010	0.0004	0.0053***
Training	0.0248	0.0018	0.0225	0.0018	0.0315	0.0032	-0.0090***
Marital Status:							
Single	0.1958	0.0033	0.2280	0.0039	0.1028	0.0046	0.1252***
Married	0.7549	0.0037	0.7613	0.0039	0.7361	0.0071	0.0252***
Widowed	0.0319	0.0012	0.0057	0.0005	0.1076	0.0043	-0.1019***
Separated/Divorced	0.0174	0.0009	0.0050	0.0004	0.0535	0.0031	-0.0485***
Region of Residence							
Residence:							
Urban	0.3988	0.0099	0.3650	0.0091	0.4967	0.0160	-0.1317***
Rural	0.6012	0.0099	0.6350	0.0091	0.5033	0.0160	0.1317***
Division:							
Barisal	0.0488	0.0037	0.0499	0.0035	0.0456	0.0052	0.0043

Variable	Full Sample		Male		Female		Difference Adjusted Wald Test
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	
Chittagong	0.1583	0.0080	0.1526	0.0082	0.1750	0.0113	-0.0224**
Dhaka	0.3460	0.0123	0.3175	0.0114	0.4284	0.0181	-0.1109***
Khulna	0.1004	0.0047	0.1078	0.0052	0.0790	0.0058	0.0288***
Rajshahi	0.1166	0.0043	0.1277	0.0045	0.0845	0.0064	0.0432***
Rongpur	0.1382	0.0073	0.1509	0.0081	0.1032	0.0073	0.0477***
Sylhet	0.0586	0.0038	0.0629	0.0038	0.0470	0.0055	0.0159***
Occupation, Sector of Work and Economic Activity							
Occupation/Job Title/Type of Worker (BSCO Major Groups):							
Armed Forces Occupations	0.0064	0.0014	0.0082	0.0018	0.0012	0.0004	0.0069***
Managers	0.0230	0.0015	0.0273	0.0017	0.0103	0.0015	0.0170***
Professionals	0.0850	0.0036	0.0709	0.0036	0.1263	0.0063	-0.0554***
Technicians and Associate Professionals	0.0330	0.0013	0.0355	0.0015	0.0260	0.0020	0.0095***
Clinical Support Workers	0.0335	0.0016	0.0372	0.0019	0.0225	0.0017	0.0147***
Service and Sales Workers	0.1139	0.0030	0.1276	0.0035	0.0736	0.0039	0.0540***
Skilled Agricultural, Forestry & Fishery Workers	0.0262	0.0026	0.0289	0.0034	0.0183	0.0018	0.0106***
Craft Related Trades Workers	0.2893	0.0074	0.2727	0.0065	0.3383	0.0138	-0.0656***
Plant and Machine Operators and Assemblers	0.0839	0.0032	0.0941	0.0036	0.0543	0.0039	0.0398***
Elementary Occupations	0.2910	0.0066	0.2805	0.0073	0.3218	0.0106	-0.0414***
Private Sector	0.9050	0.0042	0.9091	0.0046	0.8929	0.0056	0.0162***
Broad Economic Activity:							
Agriculture	0.1769	0.0066	0.2013	0.0074	0.1051	0.0079	0.0962***
Manufacturing, mining and quarrying and other industrial activities	0.4255	0.0089	0.4231	0.0081	0.4324	0.0154	-0.0093
Construction	0.1175	0.0042	0.1440	0.0051	0.0396	0.0027	0.1044***
Service	0.3976	0.0085	0.3755	0.0080	0.4624	0.0145	-0.0869***
Written Contract	0.3078	0.0095	0.2942	0.0094	0.3478	0.0130	-0.0536***
***** p<0.01, ** p<0.05, * p<0.1**							

Note: The following was omitted due to multicollinearity: Mymensingh.
Source: Author's own calculation.

Table 5: Mincerian Regression Results from Various Specifications

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Female	-0.1229*** (0.0095)	-0.1261*** (0.0095)	-0.0706*** (0.0070)	-0.0881*** (0.0071)	-0.1141*** (0.0056)
Age		0.0330*** (0.0016)	0.0118*** (0.0010)	0.0123*** (0.0011)	0.0090*** (0.0010)
Age Squared		-0.0004*** (0.0000)	-0.0001*** (0.0000)	-0.0001*** (0.0000)	-0.0001*** (0.0000)
Educational Qualification (ref: No Education):					
Below Primary			0.0905*** (0.0080)	0.0842*** (0.0078)	0.0361*** (0.0066)
Primary			0.1467*** (0.0067)	0.1414*** (0.0066)	0.0439*** (0.0054)
Secondary			0.2593*** (0.0088)	0.2490*** (0.0091)	0.0727*** (0.0072)
Higher Secondary			0.5834*** (0.0120)	0.5622*** (0.0129)	0.1691*** (0.0088)
Tertiary			1.0897*** (0.0291)	1.0631*** (0.0288)	0.3856*** (0.0235)
Others			0.5193*** (0.0552)	0.5073*** (0.0607)	0.0483 (0.0366)
Training			0.1205*** (0.0194)	0.1036*** (0.0204)	-0.0036 (0.0187)
Marital Status (ref: Single):					
Married			0.0294*** (0.0065)	0.0252*** (0.0070)	0.0180*** (0.0056)
Widowed			-0.0640*** (0.0134)	-0.0536*** (0.0142)	-0.0015 (0.0121)
Separated/Divorced			-0.0221 (0.0170)	-0.0220 (0.0176)	0.0021 (0.0155)
Dummy for Urban				0.0631*** (0.0079)	0.0500*** (0.0068)
Divisional Dummies				Yes	Yes
Occupational Dummies				No	Yes
Dummy for Private Sector				No	-0.2094*** (0.0136)
Broad Economic Activity Dummies				No	Yes
Dummy for Written Contract				No	0.0926*** (0.0076)
Constant	9.3581*** (0.0099)	8.7178*** (0.0268)	8.7681*** (0.0192)	8.7928*** (0.0210)	9.9317*** (0.0471)
No. of Observations	69,219	69,219	69,219	60,986	60,976
Prob>F	0.0000	0.0000	0.0000	0.0000	0.0000
R-Squared	0.0113	0.0428	0.4991	0.5117	0.6555

Standard errors in parentheses
***** p<0.01, ** p<0.05, * p<0.1**

Note: The following were omitted due to multicollinearity: Mymensingh and Rajshahi.
Source: Author's own calculation (up to 4 d.p.).

Table 6: Results Using Blinder-Oaxaca Decomposition

Panel A: Overall	
Male	9.3657*** (0.0098)
Female	9.2401*** (0.0109)
Difference	0.1255*** (0.0098)
Explained	0.0094 (0.0084)
Unexplained	0.1161*** (0.0056)
Panel B: Explained	
Age	0.0149*** (0.0025)
Age Squared	-0.0130*** (0.0023)
Education	0.0145*** (0.0020)
Training	0.0000 (0.0001)
Marital Status	0.0004 (0.0015)
Urban	-0.0061*** (0.0011)
Division	-0.0103*** (0.0015)
Occupation	0.0120** (0.0053)
Private Sector	-0.0028** (0.0013)
Broad Economic Activity	0.0047*** (0.0014)
Written Contract	-0.0045*** (0.0011)
Unexplained	
Age	0.1822*** (0.0617)
Age Squared	-0.0904*** (0.0287)
Education	0.0321 (0.1505)
Training	-0.0013 (0.0008)
Marital Status	0.0351 (0.0298)
Urban	-0.0071 (0.0048)
Division	0.0884*** (0.0184)
Occupation	0.1893*** (0.0625)
Private Sector	-0.1170*** (0.0160)
Broad Economic Activity	-0.0341*** (0.0109)
Written Contract	0.0089** (0.0039)
Constant	-0.1701 (0.1709)
Number of Observations	61,688
Standard errors in parentheses	
***** p<0.01, ** p<0.05, * p<0.1**	

Source: Author's own calculation (up to 4 d.p.).

Table 7: Quantile Regression Results

Variable	Q10	Q20	Q30	Q40	Q50	Q60	Q70	Q80	Q90
Female	-0.1427***	-0.1343***	-0.1249***	-0.1151***	-0.1047***	-0.1022***	-0.1123***	-0.1241***	-0.1212***
	(0.0051)	(0.0037)	(0.0041)	(0.0043)	(0.0042)	(0.0043)	(0.0043)	(0.0043)	(0.0068)
Age	0.0064***	0.0061***	0.0073***	0.0079***	0.0088***	0.0106***	0.0099***	0.0093***	0.0083***
	(0.0008)	(0.0007)	(0.0007)	(0.0007)	(0.0008)	(0.0008)	(0.0009)	(0.0010)	(0.0013)
Age Squared	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Educational Qualification (ref: No Education):									
Below Primary	0.0436***	0.0340***	0.0368***	0.0234***	0.0250***	0.0364***	0.0257***	0.0250***	0.0257***
	(0.0053)	(0.0047)	(0.0041)	(0.0048)	(0.0065)	(0.0059)	(0.0058)	(0.0070)	(0.0068)
Primary	0.0488***	0.0434***	0.0444***	0.0378***	0.0417***	0.0425***	0.0370***	0.0381***	0.0257***
	(0.0050)	(0.0038)	(0.0039)	(0.0043)	(0.0047)	(0.0051)	(0.0051)	(0.0053)	(0.0067)
Secondary	0.0504***	0.0514***	0.0626***	0.0665***	0.0748***	0.0814***	0.0766***	0.0783***	0.0636***
	(0.0066)	(0.0050)	(0.0054)	(0.0053)	(0.0058)	(0.0066)	(0.0065)	(0.0065)	(0.0075)
Higher Secondary	0.1164***	0.1183***	0.1278***	0.1409***	0.1698***	0.1875***	0.2005***	0.1966***	0.1755***
	(0.0079)	(0.0068)	(0.0072)	(0.0079)	(0.0072)	(0.0074)	(0.0080)	(0.0074)	(0.0091)
Tertiary	0.2750***	0.2917***	0.3063***	0.3143***	0.3377***	0.3444***	0.3640***	0.4192***	0.4871***
	(0.0099)	(0.0114)	(0.0097)	(0.0102)	(0.0098)	(0.0103)	(0.0129)	(0.0132)	(0.0169)
Others	0.0013	0.0136	-0.0034	0.0002	0.0255	0.0670***	0.0636	0.1050***	0.1037***
	(0.0522)	(0.0214)	(0.0366)	(0.0163)	(0.0424)	(0.0203)	(0.0564)	(0.0363)	(0.0122)
Training	0.0621***	0.0338**	0.0200***	0.0007	-0.0109	-0.0132	-0.0064	-0.0328*	-0.0438**
	(0.0084)	(0.0143)	(0.0068)	(0.0094)	(0.0116)	(0.0124)	(0.0136)	(0.0179)	(0.0219)
Marital Status (ref: Single):									
Married	0.0239***	0.0295***	0.0244***	0.0234***	0.0142**	0.0124**	0.0242***	0.0101	-0.0148*
	(0.0056)	(0.0048)	(0.0048)	(0.0052)	(0.0055)	(0.0056)	(0.0065)	(0.0074)	(0.0083)
Widowed	-0.0426***	-0.0050	0.0036	0.0017	0.0095	0.0154	0.0197*	0.0149	-0.0059
	(0.0140)	(0.0098)	(0.0099)	(0.0113)	(0.0146)	(0.0120)	(0.0108)	(0.0131)	(0.0135)
Separated/Divorced	-0.0206	0.0015	-0.0056	-0.0042	-0.0057	0.0065	0.0165	0.0106	0.0089
	(0.0134)	(0.0087)	(0.0141)	(0.0090)	(0.0144)	(0.0165)	(0.0133)	(0.0251)	(0.0141)
Dummy for Urban	0.0273***	0.0275***	0.0294***	0.0303***	0.0301***	0.0369***	0.0435***	0.0537***	0.0609***
	(0.0040)	(0.0032)	(0.0032)	(0.0035)	(0.0036)	(0.0037)	(0.0040)	(0.0041)	(0.0052)

Variable	Q10	Q20	Q30	Q40	Q50	Q60	Q70	Q80	Q90
Divisional Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Occupational Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dummy for Private Sector	-0.1667*** (0.0085)	-0.1639*** (0.0070)	-0.1782*** (0.0074)	-0.1979*** (0.0074)	-0.2092*** (0.0091)	-0.2247*** (0.0080)	-0.2222*** (0.0096)	-0.2229*** (0.0084)	-0.2207*** (0.0067)
Broad Economic Activity Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dummy for Written Contract	0.0633*** (0.0056)	0.0809*** (0.0046)	0.0852*** (0.0047)	0.0850*** (0.0051)	0.0817*** (0.0047)	0.0830*** (0.0050)	0.0905*** (0.0057)	0.1041*** (0.0057)	0.0991*** (0.0063)
Constant	9.6125*** (0.0206)	9.6957*** (0.0225)	9.7573*** (0.0223)	9.8366*** (0.0205)	9.8716*** (0.0243)	9.9036*** (0.0231)	9.9876*** (0.0309)	10.1542*** (0.0303)	10.4638*** (0.0327)
No. of Observations	60,976	60,976	60,976	60,976	60,976	60,976	60,976	60,976	60,976
Pseudo R2	0.2597	0.3044	0.3357	0.3637	0.3845	0.4244	0.4619	0.4867	0.4938

Robust standard errors in parentheses

***** p<0.01, ** p<0.05, * p<0.1**

Note: The following were omitted due to multicollinearity: Mymensingh and Rajshahi.

Source: Author's own calculation (up to 4 d.p.).

Table 8: Results Using Quantile Counterfactual Decomposition

Quantile	Observed Wage Gap	Percentage Gap	Characteristics Effect	Coefficients Effect	Proportion Due to Discrimination
0.10	0.1625	17.6448	-0.0104	0.1730	1.0646
0.20	0.1208	12.8399	-0.0148	0.1357	1.1233
0.30	0.1128	11.9408	-0.0134	0.1261	1.1179
0.40	0.1158	12.2771	-0.0098	0.1256	1.0846
0.50	0.1059	11.1711	-0.0059	0.1117	1.0548
0.60	0.1155	12.2435	0.0035	0.1120	0.9697
0.70	0.1444	15.5346	0.0246	0.1198	0.8296
0.80	0.1060	11.1822	0.0339	0.0720	0.6792
0.90	0.0747	7.7561	0.0135	0.0612	0.8193
OB	0.1255	13.3715	0.0094	0.1161	0.9251

Notes: QCD results differ from QR ones due to the incorporation of the counterfactual. Percentage gap calculated as [(exp(Observed Wage Gap)-1)*100] (Ahmed and Maitra, 2011).
Source: Author's own calculation (up to 4 d.p.).