

Is the Public Sector Wage Premium Real? Findings from Bangladesh

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This paper argues that the study of wage gaps between public and private sector employees is sensitive to the selection of the sample. In the context of Bangladesh, Labour Force Surveys is a dominant source of employment-related data, which is disproportionately inflated with large pool of informal sector employees. Since government jobs are highly formal, the studies on wage differentials should select the groups that are as much comparable as possible on the question of formality. However, employing Oaxaca-Blinder mean decomposition method and Melly quantile counterfactual decomposition method, we find a decreasing trend in public sector wage premium as we impose more restrictions to make the sectors fitting formal. The wage differential even disappears in the entire restriction sample, and it is slightly biased towards private in the top quantile only. Therefore, we can conclude that the superiority of the public sector job does not come from wage compensation but non-monetary issues, with a strong implication for labour markets in Bangladesh.

Keywords: Public Sector, Private Sector, Wage Premium, Wage Differential, Decomposition of Wage Differentials, Oaxaca-Blinder Decomposition, Quantile Decomposition Method

JEL Classification: J08, J31, J38, J45

I. INTRODUCTION

Bangladesh's labour market is characterised by the presence of a more significant percentage of informal jobs. According to the Quarterly Labour Force Survey (2016-17) of Bangladesh, about 85 per cent of total employment was in the informal sectors – very similar to the pattern in the labour market prevailing in the developing countries (BBS 2018, ILO 2014). It is noted that the private sector is disproportionately more dominated by informal jobs. It can be attributed to the fact that the public sector is highly characterised by formality (having long-term contracts, pension, paid leave, sick leave, etc.), while the private sector is

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characterised by informality (having no certain job benefits and highly unexpected working conditions) (Gutierrez *et al.* 2019).

Besides the dominance of informal jobs, switching a job, both from public to private and private to the public sector, is another notable feature of the Bangladesh labour market. Evidently, job switching from private to the public sector is significantly low (only 3.5 per cent); the corresponding figure for the public to the private sector is slightly over 36 per cent (Gutierrez, Kumar, Mahmud, Munshi and Nataraj 2019). The same study also found that government employees stay in their current employment for significantly more years (about 15 years measured in median years). Another study by Mahmud, Gutierrez, Kumar and Nataraj (2019) suggested that public sector employees place a much higher value on long-term contracts than other types of employees do. These findings can be attributed to the fact that there are either some labour market rigidities in the public sector or the government employees face different constraints than their private counterparts. In addition to this, there may exist a pattern in a dynamic general equilibrium model. Since job switching is an important aspect of the labour market, wage gaps of the employees compared now may differ in the future, both within and across the sectors (Bales and Rama 2001). However, the phenomena of incentive driven job selection and being rigid to this choice require our attention. Both public and private sector employees choose jobs according to their preferences and comparative advantages. However, Gutierrez *et al.* (2019) and Mahmud *et al.* (2019) found that job switching is more common in the private sector than in the public sector.

In relatively recent times, with the changing structures and compositions of public sector benefits, the prevailing job switching trend started to move in the opposite direction. Comparative analysis of different National Pay Scales (NPS) of Bangladesh shows that public sector benefits (i.e., wage) are re-scheduled and revised with an upward expansion in each political regime. The most recent pay scale (NPS 2015) shows that the salaries (alternatively wages) have doubled for each scale. Consequently, the relative attractiveness for public sector jobs has increased dramatically, as evidenced by the increased application rates for government jobs. The circumstances mentioned above indicate that the incentive scheme is currently positively biased towards the public sector employees. However, the wage is not a single motivator to manage public sector employees. Because the management practices in the public sector are significantly different from the private sector; therefore, soft incentives like autonomy outperform the hard incentives like monitoring and monetary benefits in the public sector (Ashraf, Bandiera and Jack 2014, Rasul and Rogger 2018). Similarly, Rahman and Al-Hasan (2018) concluded that non-wage benefits towards the public sector jobs are

crucial for altering the choice of the prospective job seekers to prefer public sector jobs. Evidence from other countries also suggests the presence of wage premiums in the public sector jobs along with non-monetary benefits.¹ Hospido and Moral-Benito (2016) observed that public sectors offer some values beyond the market mechanism, which attract many people to secure a job in this sector. Moreover, non-monetary benefits (e.g., social status and dignity) work as an impetus to get engaged in public sector jobs. For instance, in India, the ‘*secure jobs with dignity*’ agenda had a social influence throughout the country—attracting a large sum of people in the public sector despite their pay scales being lower than their private sector counterparts (Glinskaya and Lokshin 2007). Gimpelson, Lukiyanova and Sharunina (2019), on the contrary, found wage premium in the private sector for the entire wage distribution for Russia. Against this backdrop, this study attempts to explore whether there is a wage premium between public and private sector jobs taking the formality status of the jobs into account.

As mentioned, there are unobserved incentives (characterised as a motivation towards gaining social status) for choosing a government job. However, there are difficulties associated with the measurement of unobservable issues. Consequently, analysing differences between the public and private sectors in terms of unobserved incentives is a gruesome task on the question of incentives. Given the circumstances, the current study attempts to explain the differential only in terms of some observable and measurable incentives, namely wages. Though we cannot observe the differentiating effect of unobserved factors separately, we can compare the aggregate effects of unobserved factors using the decomposition technique. This study is different from the study conducted by Rahman and Al-Hasan (2018) in the context of Bangladesh, as it deals with the heterogeneous nature of private sector jobs while measuring and decomposing the wage gap between public and private sectors. On the other hand, the focus of our study is to examine the wage gap between public and private sector employees within the domain of formality status of employment.

¹ See studies by Fogel and Lewin (1974), Smith (1976, 1977), Ehrenberg and Schwarz (1986), Poterba and Rueben (1995), Blackaby, Murphy and O’leary (1999), Melly (2005), Leping (2005, 2006), Birch (2006), Lucifora and Meurs (2006), Elliott, Mavromaras and Meurs (2007), Campos and Centeno (2012), Christopoulou and Monastiriotes (2013), Lausev (2014), Nikolic (2014), Hospido and Moral-Benito (2016), Mahuteau, Mavromaras, Richardson and Zhu (2017), Castagnetti and Giorgetti (2018), , Miaari (2018), Rahman and Al-Hasan (2018), Flannery and Turner (2019), Mohanty and Mohanty (2019), Castagnetti, Rosti and Topfer (2019), Biesenbeek and Werff (2019).

The remaining part of the paper is structured as follows. Section II provides a brief review of the literature. Section III describes the methodology and data, and Section IV explains and discusses the results. Section V concludes the paper.

II. REVIEW OF RELEVANT LITERATURE

Over the years, many studies have been conducted in both developed and developing countries focusing on various issues and dimensions. The main focus of most of such literature, in general, was centred on the hourly wage differentials between public and private sector employees. Studies on developing countries suggest that the public sector is characterised by higher premium compared to the private sector (Ehrenberg and Schwarz 1986, Gregory and Borland 1999, Adamchik and Bedi 2000, Skyt-Nielsen and Rosholm 2001, Hyder and Reilly 2005, Gorodnichenko and Sabirianova 2007, Rahman and Al-Hasan, 2018; Mohanty and Mohanty 2019). Cross-country studies also provide similar findings (Panizza 2001, Panizza and Qiang 2005, Lucifora and Meurs 2006). However, the contradictory finding is also evident (Gimpelson *et al.* 2019). It is to mention that various actors and their roles associated with labour markets significantly vary from public sector to private sector, where the former is led by the general public and the latter is driven by labour market forces (Tansel 2004). Despite differences in labour market conditions between the public and private sectors, it is still debatable whether a significant wage difference is present between these two sectors.

Researchers attempted to investigate public-private wage differential employing different methods in many countries. The Oaxaca-Blinder decomposition method – the most common and widely used method – has been employed in many such studies which decompose the gap between two components: the explained gap and the unexplained gap. However, the pattern is not unique in other papers. Aslam and Kingdon (2009) found the explained part of the observed gap is higher; it was about 56 per cent for the female employees while it was even larger for Latin American countries, according to Mizala, Romaguera and Gallegos (2011). The unexplained part, for Japan, was much smaller (21.4 per cent of the total gap), according to Morikawa (2016). Broadly, using this method, it is evident that public sector employees significantly enjoy higher wage premiums than private sector employees (Christofides and Pashardes 2002, Tansel 2004, Panizza and Qiang 2005, Démurger 2012, Hospido and Moral-Benito 2016). Some researchers employed other than the Oaxaca-Blinder decomposition method. Christofides and Pashardes (2002), using a probit model, found that about 79 per cent of the observed wage gap between the public and private sectors can be explained by the superior endowments in the public sector of Cyprus. Employing

Propensity Score Matching (PSM), Mizala *et al.* (2011) concluded that public sector employees earn more than their private sector counterparts only at the lower end of the wage distribution. For Chile, Novarro and Javiera (2014) find that there is no wage difference between public and private sectors using monthly longitudinal data and panel Fixed Effect model for 2002–2009. Maczulskij (2013), using Longitudinal Census File and Longitudinal Employment Statistics data for Finland, covering the period 1990–2004, found that public sector wage premium is countercyclical. The same study also found that a 10 per cent increase in the local unemployment rate increases the public-private wage gap by 1 per cent, employing the Ordinary Least Square (OLS) method.

In recent times, researchers are more prone to use quantile regression (Koenker and Bassett 1978) and quantile decomposition (Chernozhukov, Fernandez-val and Melly 2013). Because Oaxaca-Blinder decomposition has some limitations, e.g., it does not account for the wage gap of the entire wage distribution, rather the mean difference. Evidence suggests there is a wage premium in the lower quantile of the wage distribution and vice-versa (Poterba and Rueben 1995, Mueller 1998, Melly 2005, Lucifora and Meurs 2006, Mahuteau *et al.* 2017, Miaari 2018; Mohanty and Mohanty 2019, Biesenbeek and Werff 2019). Gimpelson *et al.* (2019), on the contrary, found the opposite results using the Russia Longitudinal Monitoring Survey (RLMS-HSE) covering the period 2005–2015. Employing the Unconditional Quantile Regression (UQR), they showed that the wage premium is indeed biased towards private sector employees for the entire wage distribution.

On the question of the gender wage gap, in the context of Bangladesh, there is a large body of literature (Zohir 1998, Akter 2005, Aslam and Kingdon 2009, Ahmed and Maitra 2010, Siddique and Hossain 2018, Rahman and Al-Hasan 2019). However, there is a lack of literature regarding the public-private wage gap when Bangladesh is considered as a case, except for Rahman and Al-Hasan (2018). They conducted a study on public sector wage premium, focusing mainly on the initialisation of the new pay scale in 2015 using Bangladesh labour force surveys data of different years. Employing the Oaxaca-Blinder Decomposition method and Quantile Counterfactual Distributions method, their primary concern was to study the wage differentials for full-time paid individuals. They found that significant wage differential between the public and private sectors increased from 29.5 per cent in 2010 to 52 per cent in 2016–17 with varying results across the deciles. However, our study is primarily different from Rahman and Al-Hasan (2018), considering sample selection criteria and primary arguments as well. Oaxaca-Blinder decomposition and Quantile Counterfactual Decomposition (QCD) are ideally applied to the case where the groups are studied similarly. Amongst a number of criteria, we aimed only to compare the wages of the formal salaried

jobholders. We included only those employees who are working in a firm with at least five employees. Section III provides the rationale of the sample selection procedure in detail.

III. METHODOLOGY AND DATA

The first step involves estimating a regression of hourly wage on individual-specific, firm-specific, and other relevant control variables with appropriate sector dummy using cross-sectional data. The cross-sectional econometric specification of the wage equation is:

$$\ln(W_i) = \alpha + \gamma X_i + \varepsilon_i \quad (1)$$

Here W_i is the individual's hourly wage; X_i includes all the individual-specific, firm-specific and other relevant covariates; γ is the co-efficient of the covariates and finally, ε_i is a stochastic error term. This wage model can also be considered returns to education as used in literature.

Oaxaca-Blinder decomposition (1973) is used in this paper to investigate the sectoral wage differential in the next step. Oaxaca-Blinder decomposition will separate the effect of the changes in endowments of the regressors and the effects of some unobserved factors that are not included in the model; however, their omission changes the parameters of the model. Equation (1) can be reduced to as follows:

$$\ln(W) = \alpha + \phi_m X_m \quad (2)$$

$$\Delta W = \underbrace{\phi[E(X_1) - E(X_0)]}_{\text{Explained gap}} + \underbrace{(\phi_1 - \phi)E(X_1) + (\phi - \phi_0)E(X_0)}_{\text{Unexplained gap}} \quad (3)$$

Equation (3) decomposes the wage differential into two parts: endowment effect and coefficient/coefficient effect. The first part of the difference is due to differences in mean characteristics between the groups (public vs private), which is called endowment effects. The second two terms capture the unexplained part of gaps in wages, which is due to the differences in the coefficients between the groups.

However, the Oaxaca-Blinder (1973) decomposition technique is constrained by some limitations, e.g., this decomposition is concerned with only the mean differences in wages, not the entire wage distribution (Fortin, Lemieux and Firpo 2011). Quantile decomposition, in this regard, provides the opportunity to unearth a broad picture, that is, to investigate the wage gap in the distribution of wages by quintiles. Moreover, exploring the wage gap in the whole wage distribution is increasingly becoming the key methodology to many researchers (Juhn, Murphy and Pierce 1993, DiNardo, Fortin and Lemieux 1996, Gosling, Machin and Meghir

2000, Donald, Green and Paarsch 2000, Machado and Mata 2005, Lemieux 2006, Autor, Katz and Kearney 2005, Melly 2006). This study uses the Quantile Decomposition following Koenker and Bassett (1978), Machado and Mata (2005), Koenker and Hallock (2001), Chernozhukov *et al.* (2013), and Rahman and Al-Hasan (2018). The Quantile Decomposition method decomposes the public-private wage gap between the characteristics effect and coefficient effect. The characteristics effect can be defined as the counterfactual effect on the conditional distribution. On the other hand, the coefficient effect is the counterfactual effect resulting from the changes in the distribution of the control variables due to the difference in the corresponding coefficient at the τ th quantile of both public and private sector wage distribution. The Quantile Decomposition equation is as follows:

$$Q_{Y(0|0)}(\tau) - Q_{Y(1|1)}(\tau) = \underbrace{[Q_{Y(0|0)}(\tau) - Q_{Y(1|0)}(\tau)]}_{\text{Characteristics effect}} + \underbrace{[Q_{Y(1|0)}(\tau) - Q_{Y(1|1)}(\tau)]}_{\text{Coefficient effect}} \quad (4)$$

where $Q_Y(\tau)$, 0 and 1 denote wage/income at τ th quantile, public sector, and private sector respectively.

3.1 Data

This study uses nationally representative Quarterly Labour Force Survey 2016-17 data conducted by the Bangladesh Bureau of Statistics (BBS). The main purpose of using this dataset is largely attributed to the fact that it is the latest available survey data. Moreover, the sample size is much larger in comparison to previous surveys. One of the important advantages of this dataset is that it provides the opportunity to segregate the sample by the formality status of employment.

While Labour Force Survey is a dominant source of employment-related data, this is inflated with a large pool of informal non-government employees. Since government jobs are highly formal, the studies on wage differentials should select the groups that are as much comparable as possible. By realising this fact, the whole dataset is formulated into three sub-samples with a view to making public sector employees more comparable with their private sector counterparts regarding the nature of jobs. We will compare results among three samples from QLFS 2016-17 (Table I). By comparing the public and private sector employees among these three samples, we will be able to comment on whether any incentive of working in government organisations comes as wages. Since one of the major concerns in wage gap studies is the bias from sample selection issue, we incorporated Heckman Two-step sample selection techniques. Hence, the decomposition estimates are adjusted with Heckman's selection correction method.

TABLE I
DIFFERENT SUB-SAMPLES

Sample	Description of samples	Public	Private	Total
Sample 1	Only formal employees	6,247	3,302	9,549
Sample 2	Only formal employees who work in the enterprises with at least 5 paid employees	6,005	1,994	7,999
Sample 3	Only full-time paid employees holding formal jobs, working in the enterprises with at least 5 employees where written account maintained	450	1,802	2,252

Since QLFS 2016–2017 offers a scope to segregate the sample by formality status of employment, we will only compare formal employees of government and non-government firms with written contracts. However, we notice large variations in the mode of formality among private-sector employees who have written contracts for a few reasons. Firstly, heterogeneity in private sector jobs can mainly be explained by the absence of enforcement of Bangladesh's labour market regulations. On the contrary, public-sector jobs are homogenous with respect to the extent of formality, both in Bangladesh and around the world. For example, government sector employees have defined salary structures that are categorised by salary grades (NPS 2015). However, Bangladesh law encourages to fix industry-wise minimum wages, but only the readymade garments employees and journalists have a minimum wage set by respective bodies. Secondly, many firms do not allow or obviate the requirement of a trade union in many ways. For example, 85 per cent of private sector paid employees in LFS reported that the firm size is below 25, while 91 per cent of private sector paid employees said that their firms have less than 100 employees. About 36 (38) per cent of them responded that the employment size in their firms is 1 (below 5). However, we do not have paid public sector employees who reported that their institutions have less than five employees. Considering only the formal sector employees, we attempt to compare our results with the results found in other related studies such as Rahman and Al-Hasan (2018). We also make another estimation by comparing employees, while no condition imposed on firm size, to allow cases of less labour-intensive formal private sector works. In another comparison, we only keep employees who reported that their firms have at least five employees. We do this as we do not have any paid public sector employee reporting their employing enterprises/institutions have less than five employees. Considering the employment size of public sector firms, we compare only those firms with at least five employees in the second estimation.

TABLE II
DIFFERENCES BETWEEN PRIVATE AND PUBLIC SECTOR JOBS

Characteristics	All		Formal employees	
	Public	Private	Public	Private
Written accounts maintained by firm	72.99	36.07	80.13	98.58
Full-time work	96.66	74.22	97.52	92.15
Paid work	94.91	21.88	98.21	10.02
Formal job	73.38	14.65	-	-

Source and note: Authors' calculation from QLFS 2016–17. '-' denotes unavailability of data.

TABLE III
NUMBERS OF FORMAL AND INFORMAL EMPLOYEES

	All		Government employees		Private employees	
	Formal	Informal	Formal	Informal	Formal	Informal
N	9,685	62,459	6,267	2,449	3,418	60,010
(%)	(13.42)	(86.58)	(71.9)	(28.1)	(5.39)	(94.61)

Source: Authors' calculation from QLFS 2016–17.

We only keep the full-time paid employees working in a formal enterprise with at least five employees, along with written accounts. For all three estimations, we keep employees who are between 18 and 59 years old, inclusive, since the minimum age to enter a public job is 18, and the retirement age of public sector employees was 59 during the survey. Table II shows both the differences between public and private sector jobs and heterogeneity within the private sector. Written account keeping is a common feature of a formal enterprise, and this correlation is reflected in Table II. When we consider only formal jobs, we find that private sector jobs respond to such conditions greatly. For example, about one-third of private sector employees reported that their firms maintained written account according to QLFS 2016–17. However, almost all private sector employees with formal jobs reported that condition. While we only compare full-time paid employees working in a formal enterprise in private and public sectors, we consider restricting our sample to the employees whose firms maintain written accounts.

This study, to estimate wage equations, considers individual-specific, firm-specific, and other relevant variables. A detailed description of the variables is provided in Table IV. The variables are included in the wage equation following previous empirical studies (i.e., Mincer 1958, Oaxaca 1973, Ahmed and McGillivray 2015, Rahman and Al-Hasan 2018).

TABLE IV
DEFINITION OF THE VARIABLES

Variables	Description of the variables
<i>Individual-specific characteristics</i>	
Age	Age of the employees
Age squared	(Age*age) of the employees calculated from the previous variable (age)
Sex of the employee (gender)	Male and female
Educational status of the employee	No education, Primary, SSC, HSC, Graduate and Diploma
Marital status	Married and unmarried
Employment type	Public (government) employee if employees work in the government sector, autonomous sector under government and local government and private if work in the private entrepreneurs, non-governmental organizations (NGOs), within household, private sectors and others.
Place of residence	Urban area if employees live in the urban area or rural area if employee lives in rural area
Working sector	Agriculture, Industry, and Service sector
Cognitive ability	Average years of schooling of household head is used as a proxy for cognitive ability of the respondents/employees.
Received any training (in the last 12 months)	1 = Yes, if the employee receives any kind of training and 0 = no otherwise
Hourly wage	Hourly wage of the employees
Work status/job position	Managers; professionals; technicians and associate professionals; clerical support employees; service and sales employees; skilled agricultural, forestry and fish; craft and related trades employees; plant and machine operators and assembler; elementary occupations; other occupations
Occupation	Classified by one-digit BSCO
<i>Firm-specific characteristics</i>	
Number of employees at workstation	1 employee, 2-4 employees, 5-9 employees, 10-24 employees, 25-99 employees, 100-249 employees, 250+ employees
Location of workstation/workplace	Dhaka (Yes=1; 0=Otherwise), Chittagong (Yes=1; 0=Otherwise), and Others
<i>Other relevant variables</i>	
Highest degree completed by household head	No education, primary, SSC, HSC and Graduate
Training types (in terms of training duration)	1-3 months training, 4-6 months of training, 6+ months of training

Note: BSCO – Bangladesh Standard Classifications of Occupations; SSC – Secondary School Certificate, HSC – Higher Secondary Certificate.

It is commonly observed that public sector employees work fewer hours a day than private sector employees. This difference is not reflected in daily or monthly wages. If daily wages are used, the difference in wages will be upward biased toward public sector employees. In addition to this, many private sector employees work a greater number of days a week than public sector employees. As we consider the number of working days and typical working hours in a day, this bias removed (equation—5 below). When the monthly wage is compared, the bias even gets larger toward the public sector employees. Therefore, this paper decomposes the hourly wages instead of monthly to remove the positive bias toward the public sector employees, as discussed by Ahmed and McGillivray (2015). However, the Quarterly Labour Force Survey (2016–17) provides monthly wage data. Therefore, we construct the hourly wage data using equation (5). Finally, the hourly wage was converted to a logarithmic form, enabling us to extract the percentage difference between public and private sector wages.

$$\text{Hourly wage} = [(\text{Monthly income}/30) * 7] / \text{number of hours worked in a week} \quad (5)$$

IV. RESULTS AND DISCUSSIONS

4.1 Descriptive Statistics

Table V shows that the log hourly wage for the formal employees is 4.57. This figure increases if the analysis is restricted to only those formal paid employees working in a firm with at least five employees. The log hourly wage is 4.68, the highest among the three samples when the full set of exclusionary criteria is imposed. As we impose more exclusionary restrictions, the percentage of employees working in the public sector increases, but it falls to 20 per cent in the fully restricted sample. The per cent of private sector employees is 35 per cent in the least restricted sample. Descriptive statistics of other variables are provided in Table V. Summary statistics by government and private employees are included in the annex (Table A1).

TABLE V
SUMMARY STATISTICS

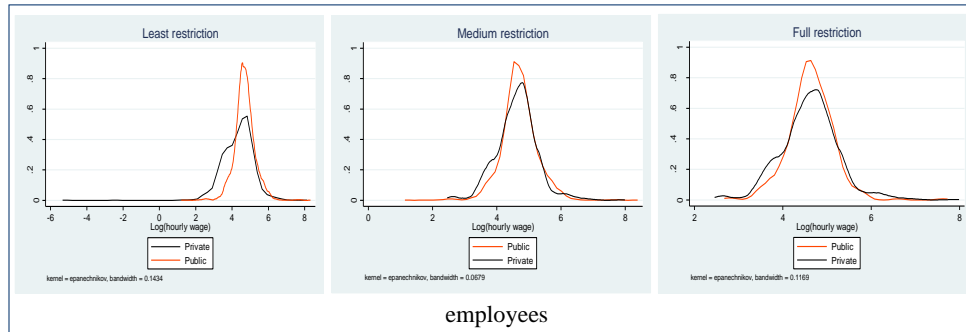
Variable	Least restriction (Only Formal)	Medium restriction	Full restriction
	Mean (SD)	Mean (SD)	Mean (SD)
Log (Hourly Wage)	4.57 (0.68)	4.68 (0.58)	4.61 (0.63)
Private employees (Yes)	0.35 (0.48)	0.25 (0.43)	0.8 (0.4)
Urban	0.39 (0.49)	0.41 (0.49)	0.37 (0.48)
Industry	0.11 (0.31)	0.08 (0.27)	0.15 (0.35)
Service	0.87 (0.34)	0.91 (0.29)	0.83 (0.37)
Age	39.36 (10.12)	39.94 (9.99)	39.25 (9.53)
Married	0.87 (0.33)	0.88 (0.32)	0.88 (0.32)
Training (Yes)	0.15 (0.36)	0.17 (0.38)	0.12 (0.32)
Female	0.24 (0.43)	0.24 (0.43)	0.22 (0.41)
Education of the employees			
Primary	0.15 (0.35)	0.11 (0.31)	0.11 (0.32)
SSC	0.13 (0.34)	0.13 (0.34)	0.09 (0.29)
HSC	0.17 (0.37)	0.18 (0.39)	0.13 (0.34)
Graduate	0.46 (0.5)	0.5 (0.5)	0.6 (0.49)
Diploma	0.05 (0.21)	0.05 (0.21)	0.03 (0.18)
Education of Household head			
Primary	0.08 (0.28)	0.06 (0.24)	0.06 (0.25)
SSC	0.26 (0.44)	0.25 (0.43)	0.2 (0.4)
HSC	0.35 (0.48)	0.39 (0.49)	0.36 (0.48)
Graduate	0.22 (0.41)	0.25 (0.43)	0.32 (0.47)
Location of workstation/workplace			
Dhaka	0.23 (0.42)	0.23 (0.42)	0.21 (0.41)
Chittagong	0.11 (0.32)	0.11 (0.31)	0.1 (0.3)
No. of employees in the workplace			
Only one employee	0.04 (0.18)	0 (0)	0 (0)
2-4 employees	0.04 (0.21)	0 (0)	0 (0)
5-9 employees	0.21 (0.41)	0.22 (0.41)	0.15 (0.35)
10-24 employees	0.28 (0.45)	0.3 (0.46)	0.43 (0.5)
25-99 employees	0.26 (0.44)	0.29 (0.45)	0.23 (0.42)
100-249 employees	0.07 (0.25)	0.08 (0.26)	0.05 (0.22)
250+ employees	0.11 (0.31)	0.12 (0.32)	0.15 (0.35)
Work status/Job position			
Managers	0.04 (0.2)	0.05 (0.21)	0.02 (0.13)
Professionals	0.1 (0.29)	0.11 (0.31)	0.13 (0.34)
Technicians and Associate Professionals	0.35 (0.48)	0.38 (0.48)	0.46 (0.5)
Clerical Support Employees	0.09 (0.29)	0.1 (0.3)	0.08 (0.28)
Service and Sales Employees	0.14 (0.35)	0.16 (0.36)	0.14 (0.35)
Skilled Agricultural, Forestry and Fish	0.13 (0.34)	0.12 (0.33)	0.05 (0.22)
Craft and Related Trades Employees	0.01 (0.09)	0 (0.04)	0 (0.03)
Plant and Machine Operators, and Assembler	0.07 (0.26)	0.04 (0.19)	0.06 (0.24)
Elementary Occupations	0.03 (0.17)	0.03 (0.16)	0.02 (0.14)
Other occupations	0.04 (0.2)	0.03 (0.18)	0.04 (0.19)
Observations	9,549	7,999	2,252

Source and note: Authors' calculation. SD stands for Standard Deviation.

4.2 Public and Private Sector Wage Distribution

Figure 1 shows the density of the log hourly wages of public and private sector employees. The orange-red line is the graph of the wage density of public employees, and the black line is for the private sector employees. When we compare employees with only formal job status, the left tail of the distribution of private employees extends beyond zero. It indicates the absence of minimum wage in the private sector as a whole. On the other hand, the orange-red curves reflect the hourly wage distribution of public sector employees, where the left tail begins with a positive value. It is one of the major contrasting factors between public and private sector employees. However, when we consider the other two sub-samples, the tails of both the public and private sector wage density starts almost from the same points. Findings from the wage distribution are better represented by the measures of skewness and kurtosis as presented in Table VI.

Figure 1: **Distribution of the Wages (log hourly wage) of Public and Private Sector**



Source: Authors’ presentation.

TABLE VI
**STATISTICAL ESTIMATES (KERNEL DENSITY ESTIMATE)
 OF PUBLIC VS PRIVATE JOBS UNDER THREE SUB-SAMPLES**

Estimates	Least restriction		Medium restriction		Full restriction	
	Public	Private	Public	Private	Public	Private
Skewness	0.039	-0.78	0.058	0.135	0.27	0.169
Kurtosis	6.27	10.50	6.19	4.72	6.26	4.56

Source: Authors’ calculation.

4.3 Oaxaca-Blinder Decomposition

Given all the mean and coefficient values of the regression models for both groups, the mean log hourly wages for the public sector employees are 4.70, 4.70,

and 4.63 in the three samples, respectively (Table VII). On the other hand, the mean log hourly wages for an average private sector employee are 4.38, 4.45, and 4.61 in the three samples, respectively. Public sector employees get significantly higher wages than private sector counterparts in the first two samples, but the hourly wage differences fall from 31 per cent in the first sample to 24 per cent in the second sample. The hourly wage differentials are positive and statistically significant at a 1 per cent level of significance for the first two samples. That is, the public sector employees get a wage premium in the first two samples. However, we do not find significant wage differences between these two groups in the third sample. With most exclusionary restrictions to make the two groups more comparable, it is evident that there exists no wage premium for the public sector. It is to be noted that the decomposition results presented in Table VII and Table VIII are found after being adjusted with Heckman Sample Selection.

Likewise, the overall difference, the endowment effect, and the coefficient effect are positive and highly statistically significant for the first two samples. On the other hand, the wage differential for the third sample is not significantly significant, which means that we do not find any significant differentials between the two groups when a larger set of restrictions is imposed. Detailed results of Oaxaca-Blinder decomposition are presented in Annex Table A2.

TABLE VII
DECOMPOSITION OF THE WAGE DIFFERENTIAL BETWEEN PUBLIC AND PRIVATE SECTOR EMPLOYEES

Wage differential	Least restriction	Medium restriction	Full restriction
Public (i)	4.696*** (0.007)	4.696*** (0.007)	4.632*** (0.024)
Private (ii)	4.384*** (0.015)	4.451*** (0.015)	4.606*** (0.015)
Difference (i)-(ii)	0.312*** (0.016)	0.244*** (0.016)	0.026 (0.029)
Characteristics	0.130*** (0.013)	0.080*** (0.013)	-0.079*** (0.027)
Coefficients	0.182*** (0.014)	0.165*** (0.014)	0.104*** (0.032)

Source and note: Authors' calculation. Standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.10. The estimates are adjusted for selection bias.

4.4 Quantile Counterfactual Decomposition

While we focus on the mean decomposition method by Oaxaca-Blinder (1973), it is also conventional to estimate the difference and its decomposition among the quantiles. This disaggregated approach allows us to look beyond mean and discusses what is happening across the wage quantiles. Table VIII presents the results of the quantile decomposition estimates following Melly (2005).

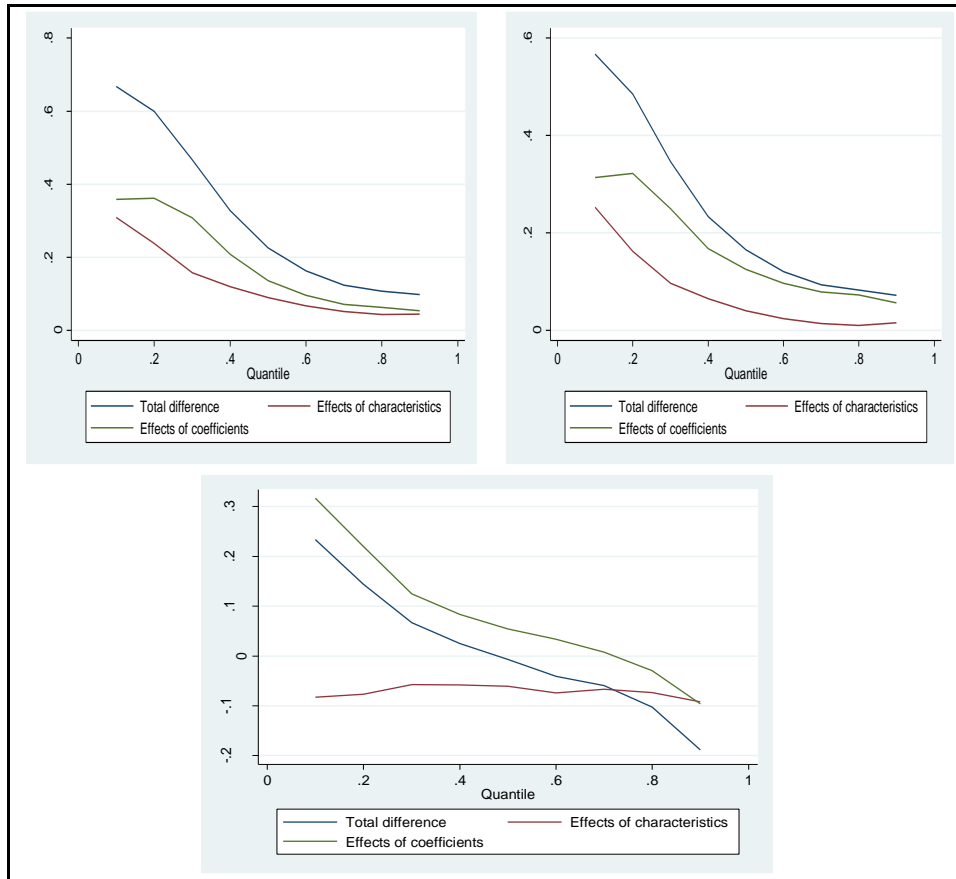
TABLE VIII
PUBLIC-PRIVATE WAGE DIFFERENTIAL USING QCD (DEPENDENT
VARIABLE: LOG HOURLY WAGE)

Quantiles	Least restriction			Medium restriction			Full restriction		
	Total effect	Char. effect	Coeff. effect	Total effect	Char. effect	Coeff. effect	Total effect	Char. effect	Coeff. effect
$\tau(10)$	0.668*** (0.023)	0.309*** (0.024)	0.359*** (0.032)	0.567*** (0.025)	0.253*** (0.023)	0.314*** (0.031)	0.234*** (0.059)	-0.083 (0.054)	0.317*** (0.061)
$\tau(20)$	0.600*** (0.023)	0.239*** (0.020)	0.361*** (0.025)	0.485*** (0.024)	0.163*** (0.019)	0.322*** (0.024)	0.144*** (0.048)	-0.076* (0.044)	0.220*** (0.047)
$\tau(30)$	0.466*** (0.025)	0.158*** (0.015)	0.308*** (0.020)	0.347*** (0.024)	0.097*** (0.013)	0.250*** (0.020)	0.067** (0.033)	-0.058* (0.034)	0.125*** (0.040)
$\tau(40)$	0.328*** (0.023)	0.120*** (0.011)	0.208*** (0.018)	0.233*** (0.020)	0.065*** (0.011)	0.168*** (0.017)	0.025 (0.034)	-0.058* (0.032)	0.083** (0.039)
$\tau(50)$	0.226*** (0.018)	0.089*** (0.010)	0.136*** (0.014)	0.166*** (0.017)	0.041*** (0.010)	0.125*** (0.015)	-0.007 (0.032)	-0.061* (0.032)	0.054 (0.039)
$\tau(60)$	0.163*** (0.017)	0.067*** (0.009)	0.097*** (0.014)	0.121*** (0.016)	0.024** (0.010)	0.097*** (0.014)	-0.041 (0.031)	-0.074** (0.032)	0.033 (0.037)
$\tau(70)$	0.124*** (0.016)	0.052*** (0.009)	0.072*** (0.012)	0.093*** (0.017)	0.014 (0.010)	0.079*** (0.014)	-0.059* (0.031)	-0.067** (0.031)	0.007 (0.035)
$\tau(80)$	0.107*** (0.016)	0.044*** (0.010)	0.063*** (0.013)	0.083*** (0.019)	0.010 (0.011)	0.073*** (0.016)	-0.103*** (0.035)	-0.073** (0.030)	-0.029 (0.040)
$\tau(90)$	0.098*** (0.021)	0.045*** (0.011)	0.053*** (0.018)	0.072*** (0.026)	0.015 (0.014)	0.057** (0.023)	-0.188*** (0.049)	-0.092*** (0.035)	-0.096* (0.054)

Source and note: Authors' calculation. Standard errors are in parentheses. Char. denotes characteristics effect and Coeff. denotes coefficient effect. The estimates are adjusted for selection bias.

*** p<0.01, ** p<0.05, * p<0.10

Figure 2: Public-private Wage Differential for 3 Different Samples



Source: Authors' presentation.

For the least restricted sample, we find that public sector employees get higher wages than private employees for all the deciles, and it ranges from 6.7 per cent (in the first decile) to 9.8 per cent (in the 9th decile). For the second sample, we find significant wage differentials for all of the deciles, but the extent of the difference is smaller than what is found in the first estimation. For the full-time paid and working in the enterprises with at least five employees and keeping a written account (i.e., the full restriction sample), we find a wage premium for public sector employees in the bottom 4 deciles, and the premium goes to private sector employees for the top decile. For the third estimation, opposing results among the top and bottom deciles rule out the hypothesis that the public sector employees get higher wages than the private sector employees, as it is found in Oaxaca-Blinder overall estimation.

The same result is presented graphically in Figure 2. For the first sample, the public sector wage differential is driven by characteristics/endowment effect and coefficient effects; both are positive and statistically significant. However, for the second estimation, coefficient effects are significantly positive toward public sector employees across all the deciles. On the contrary, characteristics effects are significantly negative across all the deciles in the third estimation.

For the third estimations, private sector employees have higher endowments than private sector employees. That is, the mean of the characteristics or covariates played a positive role in the positive differential toward private sector employees given the coefficients of the variables in the top decile. However, public sector employees get higher wages since the overall difference of the coefficients of the variables is positive toward public sector employees. For all three cases, public sector employees at the bottom of the distribution get a higher wage than the private sector employees.

4.5 Household Based Alternative Explanation of Choosing a Public Sector Job

According to the Oaxaca-Blinder, the wage differential is approximately 31 per cent for the sample with the least restriction, while this is about 24 per cent for the second sample with medium restriction and statistically insignificant wage differential for the last sample with full restrictions. Still, relative attractiveness for the public sector jobs is increasing in the post-NPS 2015 years. This fact might be due to some unobservable factors like job security, asymmetric information about the existing labour market conditions, discrepancies regarding different non-wage benefits (e.g., pension, sick leave, maternity leave, contributory fund, food subsidy, etc.) (Miaari 2018, Rahman and Al-Hasan 2018, Mohanty and Mohanty 2019).

Unfortunately, it is difficult to examine the extent of the contribution of those unobservable factors using the LFS dataset. However, we attempt to provide a corroborating result, that is, an employee from a government jobholder family (except himself) is more likely to choose a public sector job in comparison to an employee in a private sector jobholder family (Table IX). But the marginal effect of the previous finding tends to decrease as we move from sample 1 (least restriction) to sample 2 (medium restriction). Hence, it can be concluded that there exist strong social and political benefits of having other government jobholders, which may further create rents for other family members to get engaged in government jobs.

TABLE IX
**MARGINAL EFFECTS FROM A PROBIT MODEL
 OF JOB SELECTION OF EMPLOYEES**
 (public job =1, and private job=0)

Variable (Public job=1; Private job=0)	Marginal effect		
	Least restriction	Medium restriction	Full restriction
Employee of a public jobholder family	0.154*** (0.038)	0.141*** (0.04)	0.012 (0.083)
Log (Hourly Wage)	0.13*** (0.008)	0.082*** (0.009)	0.068*** (0.016)
Age	-0.009** (0.004)	-0.013** (0.004)	-0.013* (0.007)
Age square	0*** (0)	0*** (0)	0** (0)
Female	0.013 (0.011)	0.002 (0.011)	0.008 (0.02)
Married	0.023 (0.015)	0.034** (0.016)	0.03 (0.029)
Primary	0.073*** (0.026)	-0.047 (0.036)	-0.055 (0.058)
SSC	0.186*** (0.028)	-0.006 (0.037)	0.047 (0.062)
HSC	0.207*** (0.029)	-0.014 (0.038)	0.021 (0.063)
Diploma	0.125*** (0.034)	-0.06 (0.043)	-0.058 (0.075)
Graduate	-0.008 (0.028)	-0.218*** (0.037)	-0.185*** (0.063)
Training	0.253*** (0.014)	0.221*** (0.014)	0.152*** (0.026)
Education of household head			
Primary	0 (0.022)	-0.019 (0.028)	0.011 (0.047)
SSC	0.047** (0.021)	-0.004 (0.025)	-0.029k (0.043)
HSC	0.004 (0.023)	-0.052** (0.026)	-0.063 (0.046)
Graduate	-0.067*** (0.024)	-0.118*** (0.027)	-0.099** (0.048)
Rural	0.048*** (0.01)	0.033*** (0.01)	0.012 (0.019)
Industry	-0.108*** (0.034)	-0.118*** (0.042)	-0.283*** (0.057)
Service	0.141*** (0.033)	0.136*** (0.041)	-0.067 (0.055)
Observations	9,546	7,996	2,251

Source: Authors' calculation. Standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.10

However, we found no significant relationship between choosing a government job and having another member doing a public job in the entire restriction case. We can conclude that there is a correlation in the third sample between (i) having other family members doing public jobs and (ii) no significant wage differentials between the sectors. That is, we do not find, within family externality, to choose a public sector job after controlling the hourly wages of the employees.

V. CONCLUDING REMARKS

The paper analyses the wage differentials between public and private sector employees. Among our three cases regarding formal employment status, it is evident that there is a positive and statistically significant wage premium for public sector employees while fewer restrictions are imposed (for samples 1 and 2). In the case of sample 3, we found that private sector employees are significantly more paid compared to their public sector counterparts but at higher quantiles only, which, in turn, implies no wage premium for public sector employees when two groups are more comparable. The endowment effect and price/coefficient effect are positive and significant for samples 1 and 2, respectively. It implies both endowment and coefficient effects are simultaneously effective for the positive wage premium for public-sector employees. For sample 3, nonetheless, the endowment effect is significantly negative, and the coefficient effect is positive and significant. We find the endowment effect negative for all the deciles in samples 2 and 3 from the quantile decomposition analysis. In other words, private sector employees are better than public sector employees in terms of their characteristics or endowments. So, the coefficients effect is the only determining factor fixing the direction of the wage premium.

In sum, the differences in the estimates of the three samples are due to the features of employees in LFS data. Since the LFS collects data from a heterogenous private sector, which is disproportionately more informal than public sector employment, we should focus on the formal counterparts when we aim to find wage differentials between the public and private sectors. In addition to that, there are some benefits such as lien and other leaves that government provides to its employees. Many of those non-monetary benefits are not provided by many of the private sector employers. Since the government is the only employer in the public sector and there are many but heterogeneous private sector employers, the lucrativeness of public sector jobs demands further research focusing on this heterogeneity. Moreover, public-sector employees are motivated differently than the private sector employees. The wage gap is not necessarily an incentive for the public sector to work efficiently.

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Annex

TABLE A1
SUMMARY STATISTICS OF GOVERNMENT AND PRIVATE EMPLOYEES

	Least restricted				Medium Restriction				Full restriction			
	Government		Private		Government		Private		Government		Private	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Log (hourly wage)	4.696	0.563	4.334	0.806	4.700	0.553	4.620	0.634	4.633	0.505	4.606	0.652
Urban	0.426	0.495	0.315	0.465	0.429	0.495	0.365	0.482	0.267	0.443	0.400	0.490
Industry	0.053	0.224	0.213	0.409	0.051	0.220	0.155	0.362	0.058	0.234	0.169	0.375
Service	0.938	0.242	0.747	0.435	0.939	0.240	0.827	0.378	0.904	0.294	0.815	0.389
Dhaka	0.234	0.423	0.209	0.407	0.237	0.425	0.202	0.402	0.216	0.412	0.210	0.408
Chattagram	0.111	0.314	0.112	0.316	0.109	0.312	0.101	0.301	0.124	0.330	0.095	0.294
Age	40.128	10.178	37.900	9.855	40.250	10.175	39.004	9.367	39.876	10.347	39.091	9.317
Married	0.884	0.321	0.852	0.355	0.886	0.317	0.877	0.328	0.880	0.325	0.882	0.322
Training	0.191	0.393	0.077	0.266	0.192	0.394	0.105	0.307	0.156	0.363	0.104	0.306
Female	0.247	0.431	0.235	0.424	0.243	0.429	0.242	0.429	0.213	0.410	0.220	0.415
Primary	0.114	0.318	0.209	0.406	0.111	0.314	0.109	0.311	0.111	0.315	0.115	0.319
SSC	0.154	0.361	0.088	0.284	0.152	0.359	0.078	0.268	0.167	0.373	0.073	0.260
HSC	0.201	0.401	0.101	0.301	0.203	0.402	0.114	0.318	0.216	0.412	0.107	0.309
Graduate	0.454	0.498	0.456	0.498	0.459	0.498	0.639	0.480	0.429	0.495	0.648	0.478
Diploma	0.051	0.219	0.033	0.179	0.051	0.221	0.035	0.184	0.040	0.196	0.032	0.175
HH# Primary	0.063	0.243	0.124	0.329	0.060	0.237	0.060	0.238	0.082	0.275	0.060	0.237
HH# SSC	0.275	0.446	0.232	0.422	0.273	0.445	0.190	0.392	0.263	0.441	0.188	0.391
HH# HSC	0.391	0.488	0.283	0.450	0.395	0.489	0.365	0.482	0.365	0.482	0.361	0.480
HH# Tertiary	0.215	0.411	0.225	0.418	0.219	0.414	0.332	0.471	0.220	0.415	0.340	0.474
Single employee	0.000	0.000	0.100	0.301	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5-9 employees	0.000	0.000	0.128	0.334	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2-4 employees	0.229	0.421	0.164	0.370	0.229	0.420	0.191	0.393	0.220	0.415	0.127	0.333
10-24 employees	0.260	0.439	0.312	0.463	0.257	0.437	0.418	0.493	0.336	0.473	0.450	0.498
25-99 employees	0.312	0.463	0.168	0.374	0.314	0.464	0.212	0.409	0.258	0.438	0.228	0.420
100-249 employees	0.089	0.285	0.025	0.155	0.090	0.286	0.032	0.175	0.104	0.306	0.035	0.184
250+ employees	0.109	0.312	0.104	0.305	0.110	0.313	0.147	0.355	0.082	0.275	0.160	0.367
Observations		6,239		3,302		6,005		1,994		450		1,802

Note: HH indicates household head's education.

TABLE A2
DETAILED RESULTS OF OAXACA-BLINDER DECOMPOSITION

Variables	Least restriction		Medium restriction		Full restriction	
	Char. Effect	Coeff. Effect	Char. Effect	Coeff. Effect	Char. Effect	Coeff. Effect
Urban	0.010*** (0.002)	0.002 (0.009)	0.010*** (0.002)	-0.005 (0.009)	-0.005 (0.007)	-0.046** (0.023)
Industry	0.017* (0.010)	-0.045** (0.022)	0.018* (0.010)	-0.058** (0.023)	-0.023** (0.011)	0.041 (0.027)
Service	0.014 (0.010)	0.064 (0.082)	0.015 (0.011)	-0.097 (0.081)	0.023** (0.010)	-0.041 (0.152)
Dhaka	0.004*** (0.001)	-0.007 (0.006)	0.004*** (0.001)	-0.010 (0.006)	-0.000 (0.000)	-0.046*** (0.014)
Chattogram	0.000 (0.000)	-0.002 (0.004)	0.001 (0.000)	-0.003 (0.004)	0.002 (0.002)	-0.003 (0.007)
Age	0.023** (0.010)	-0.052 (0.393)	0.022** (0.010)	-0.541 (0.393)	0.009 (0.014)	-0.417 (0.760)
Age-squared	0.002 (0.010)	0.251 (0.218)	0.002 (0.010)	0.444** (0.217)	-0.003 (0.016)	0.087 (0.420)
Training	0.002 (0.002)	0.025*** (0.009)	0.002 (0.002)	0.017* (0.010)	-0.000 (0.003)	-0.023 (0.019)
Female	0.000 (0.000)	0.010 (0.009)	0.000 (0.000)	0.006 (0.009)	-0.000 (0.001)	0.014 (0.018)
Primary	-0.007* (0.004)	-0.002 (0.014)	-0.005* (0.003)	-0.011 (0.013)	-0.000 (0.001)	-0.029* (0.016)
SSC	0.019*** (0.004)	0.003 (0.009)	0.021*** (0.004)	-0.001 (0.009)	0.015 (0.011)	-0.025* (0.014)
HSC	0.034*** (0.006)	0.007 (0.013)	0.033*** (0.006)	-0.003 (0.013)	0.028* (0.016)	-0.050** (0.024)

(Contd. Table A2)

Variables	Least restriction		Medium restriction		Full restriction	
	Char. Effect	Coeff. Effect	Char. Effect	Coeff. Effect	Char. Effect	Coeff. Effect
Graduate	-0.018*** (0.005)	-0.054 (0.048)	-0.037*** (0.007)	-0.096* (0.053)	-0.053 (0.036)	-0.385*** (0.129)
Diploma	0.009*** (0.002)	0.001 (0.004)	0.009*** (0.002)	-0.003 (0.004)	0.003 (0.004)	-0.019** (0.009)
HH# Primary	0.001 (0.002)	-0.012* (0.007)	0.001 (0.001)	-0.011* (0.006)	-0.005 (0.004)	-0.016** (0.007)
HH SSC	0.002 (0.002)	-0.011 (0.012)	0.003 (0.002)	-0.013 (0.012)	-0.007 (0.009)	-0.047* (0.025)
HH HSC	0.005 (0.004)	-0.021 (0.018)	0.005 (0.003)	-0.023 (0.019)	-0.001 (0.003)	-0.083* (0.048)
HH Tertiary	-0.007*** (0.002)	-0.029* (0.017)	-0.012*** (0.003)	-0.027 (0.019)	0.001 (0.016)	-0.069 (0.050)
Married	0.001 (0.001)	0.058 (0.038)	0.000 (0.000)	0.043 (0.039)	-0.000 (0.001)	0.070 (0.075)
2-4 employees	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
10-24 employees	-0.009*** (0.002)	0.037*** (0.011)	-0.013*** (0.003)	0.061*** (0.013)	-0.004 (0.007)	0.017 (0.032)
25-99 employees	0.019*** (0.003)	0.034*** (0.011)	0.015*** (0.002)	0.033** (0.013)	0.005 (0.004)	-0.029 (0.028)
100-249 employees	0.012*** (0.002)	0.005* (0.003)	0.011*** (0.002)	0.004 (0.004)	0.011* (0.006)	-0.010 (0.007)
250+ employees	-0.003 (0.002)	0.031*** (0.007)	-0.008*** (0.002)	0.038*** (0.008)	-0.013 (0.009)	-0.003 (0.021)

Source and note: Authors' calculation. Standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

#HH indicates household head's education.