Intra-occupational gender earnings gaps in Malaysia

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Abstract

This paper focuses on the gender earnings gap of Malaysian employees within each occupational group. The decomposition method is used to determine the extent to which the intra-occupational gender earnings gaps can be explained by differences in the characteristics of male and female workers. The results show that some part of the earnings gap in the various occupational groups is ascribed to gender differences in education, experience and hours of work whilst a substantial portion of the gap is the residual or discrimination component. Interestingly, the residual or discrimination component of the gender earnings gaps tends to be larger in male-dominated occupations compared to female-dominated and gender-integrated occupations.

Keywords: Gender - Earnings Gap – Occupation - Decomposition Method - Discrimination

Introduction

Gender-based occupational segregation has been documented extensively by economists and sociologists. Although women have made in-roads into all types of occupations, Anker et al. (2003) shows that there is persistent occupational segregation by gender in developed and developing countries; i.e., there is a tendency for men and women to be employed in different occupations from each other. The tendency for women to be crowded in lower-paying occupations is regarded as one of the reasons for their lower average earnings. Alksnis et al. (2008) suggest that wage gaps between jobs defined as "male" and "female" is linked to gender-based discrimination, arising from occupational stereotyping and devaluation of work typically done by women. Gunderson (1994) notes that much of the gender wage gap in an economy reflects the fact that women tend to work in female-dominated occupations. Thus, while the issue of occupational segregation is important in its own right, it assumes more importance because of its connection with gender earnings inequality.

This paper addresses the following questions. Firstly, what is the gender composition and gender earnings gap of Malaysian employees in the various occupational groups? Secondly, to what extent is the earnings gap in each occupational group attributed to (i) differences in the characteristics of male and female workers, and (ii) discrimination?

Review of the literature

The gap in gender earnings exists in almost all countries. US statistics suggest that until the late 1970s and early 1980s, there was constancy in the gender earnings ratio which hovered around 60 percent (Blau and Kahn, 2007). This was followed by a period of sustained increase in the ratio during the 1980s and 1990s. Since the 1990s, the gap kept on narrowing but at a very slow rate and the gender earnings ratio in US has stabilised at the 76-77 percent at the turn of the millennium. Analyses of labour markets in Europe reached the conclusion that progress in the reduction of the gender pay gap is slow. In 2005, European women earned 15 percent less than men for every hour worked. But the gender earnings gap is much higher for

some European countries; i.e. the difference between men's and women's average hourly earnings as a percentage of men's average hourly earnings was 20 percent in UK, 22 percent in Germany and 25 percent in Cyprus (European Commission, 2007).

Developing countries statistics are rather scant but the limited evidence available suggests a narrowing of the gender pay gap over time (Horton, 1996) and with increasing levels of economic development (Oostendorp, 2004). A study by Davila and Pagan (1990) suggests gender pay gaps of 30.4 percent and 23.6 percent in El Salvador and Costa Rica, respectively. A study by Javed and Birjees (1993) suggests that male earnings are 65.14 percent higher than those of females in Pakistan. Finally, according to a report by the ILO (2009), the female hourly wage was around 80 percent of that of males in South American countries.

Gender pay differentials are to some extent linked to the negative effect of occupational gender segregation. For example, Nelson and Bridges (1999) analysing wage differences using a case study approach, show that the gender composition of occupations and the gender of individual employees are important predictors of pay disparities. Men and women are allocated to gender-segregated work units or occupations through organisational processes such as hiring and promotion. Many studies show that female-dominated occupations pay relatively lower wages than male-dominated ones, so that both men and women in an occupation are paid less the greater the proportion of women employed in that occupation. For example, England and her colleagues (1988) study, which controls for human capital and skill demands as well as working conditions of an individual's occupation, show that the percentage of females in the occupation has a net negative effect on wages; i.e., 1 percent increase in female representation in an occupation reduces wages by 0.08 percent for white women, 0.11 percent for black women and 0.10 for white men in US. Another study in US by Kilbourne and her colleagues (1994) shows that 1 percent increase in female representation in an occupation decreases wages by 0.04 percent for white males and 0.1 percent for white females. England et al. (1996) estimated separate models for the four main race/sex groups in US and for each group except black men, individuals earn significantly less if they work in a job with a higher proportion of female workers. For the three groups with significant effects, a shift from a job that has 0 percent female representation to a job that was 100 percent female would cause one's wages to decline by 7 to 19 percent. A recent study by Cotter et al. (2004) in US shows that the link between earnings and the gender composition of occupations still persists in the new millennium. The study showed that median earnings of workers in men's occupations averaged $38.24 whilst in women's occupations the average was substantially lower at $27.22. A similar pattern is noted by Polavieja (2007) in Europe where it was found that Europeans employed in female occupations earn on average 7 percent less per hour than those employed in male occupations.

There has not been much research on intra-occupational gender wage differences in Malaysia. An early study was done by Chapman and Harding (1985) which was based on a 1979 survey data set that comprised 733 ex-students of the Mara Institute of Technology. The findings of the study conclude that females' tendency to be crowded in low-paying occupations is one of the prime factors for their lower average wage. Another study was carried out by Mohamad Nor (2000) which utilised the 1988 Second Malaysian Family Life Survey (MFLS-2) data. The study reveals that the female-male earnings ratio is generally higher in female occupations than in male occupations and the gender wage gap within each occupational group is mainly attributed to discrimination.

The analysis of this paper focuses on the male-female occupational earnings of Malaysian employees during the economic boom and tight labour market situation in 1995 (i.e., prior to

the 1997 Asian financial crisis), in contrast to Mohamad Nor's (2000) study which examined occupational segregation and gender earnings gaps in Malaysia in 1988, when the labour market was relatively slack following the mid-1980 recession. In a tight labour market, the scarcity of labour enables workers to move from low-wage industries to high-wage industries, and this not only influences workers' earnings but also affects occupational structure. Furthermore, in economic booms, workers who were unemployed or out of the labour force have better chances of finding suitable employment. However, if the new entrants were more likely to be female workers who are absorbed into lower-level occupations, then the effect of an economic boom in reducing occupational segregation and the gender earnings gap may be reduced to some extent.

The remainder of this paper is organised as follows. The methodology and data used in this study are described in Section 3. The results are presented in Section 4 and Section 5 offers conclusions.

Methodology

The models used to analyse gender earnings gap are the standard human capital earnings model (Mincer, 1974) and the wage decomposition model (Oaxaca, 1973; Blinder, 1973). The general form of the log-linear human capital earnings equation is:

lnY=f(experience, experience^2, education, hours of work)(1)

where lnY is the natural logarithm of annual earnings; experience and experience^2 is potential work experience (age - years of schooling - 6) and its squared; education is a series of dummy variables for different levels of education; hours of work is the natural logarithm of weekly hours of work. The earnings equations of employees are estimated by major occupational categories for both gender groups. A problem that arises in the estimation of wage functions is sample selection bias, which can occur at the stage of the decision to participate in the paid workforce and choice of employment status (employee/self-employed), given that these decisions are likely to be non-random in nature. The problem is corrected using the Heckman (1979) method.

The method used in this study to analyse the gender earnings gap was originally developed by Oaxaca (1973) and Blinder (1973) and subsequently refined by Oaxaca and Ransom (1994). The earnings functions are estimated for men and women, respectively and the mean difference in male and female earnings is decomposed as follows:

$$\ln\overline{Y}_m - \ln\overline{Y}_f = \beta^*(\overline{X}_m - \overline{X}_f)' + \overline{X}'_m(\beta_m - \beta^*) + \overline{X}'_f(\beta^* - \beta_f) \quad (2)$$

where *m* represents the male sample, *f* represents the female sample, X_m is the wage-related characteristics for the male sample, X_f is the wage-related characteristics for the female sample, β_m is the regression coefficients for the male earnings function, β_f is the regression coefficients for the female earnings function and β^* represents the returns to wage-related characteristics in the absence of discrimination. The first term on the right hand side of equation (2) is the male-female earnings gap due to gender differences in wage-related characteristics (i.e., the *characteristic effect* or *explained* portion of the earnings gap). The second term is the gap between the males' current earnings and their earnings in the absence of discrimination (i.e., the *male advantage*) and the last term is the gap between the earnings of females in the absence of discrimination and their current earnings (i.e., the *female disadvantage*). The second and third terms represent the *unexplained* or *residual* amount of

the earnings gap that cannot be attributed to productivity differences; it is conventionally regarded as the portion of the earnings gap due to discrimination.

Oaxaca and Ransom (1994) showed that the non-discriminatory wage structure may be represented by:

where Ω is a weighting matrix and I is the identity matrix. Researchers have proposed different weighting schemes with regard to the estimation of β^* in equation (3). Oaxaca

$$\beta^* = \Omega\beta_m + (I - \Omega)\beta_f \quad (3)$$

(1973) proposes the male wage structure ($\Omega=I$) and the female wage structure ($\Omega=0$) as the non-discriminatory wage structure, using them to establish the range within which the true non-discriminatory wage would presumably fall. Neumark (1988) proposes the use of OLS estimates of the gender-pooled earnings function as the non-discriminatory wage structure. This result is equivalent to a weighting scheme of the form:

$$\Omega = (X'X)^{-1}(X'_m X_m) \quad (4)$$

where X is the observation matrix of the pooled sample, X_m is the observation matrix for the male sample. In this study, the male, female and gender-pooled wage structures are used as benchmarks of non-discrimination.

This study uses the 1995 Household Income Survey (HIS) fielded by the Department of Statistics, Malaysia. This micro cross-section data set surveys a representative sample of Malaysians. The HIS adopted a stratified multi-stage sample design. The two levels of stratification involved are (i) the primary stratum that is made up of the states in Malaysia and (ii) the secondary stratum, which is made up of the urban and rural strata. Information on sampling weights (also called probability weights) is provided in the survey data. The use of the sampling weights in the analysis allows the generalisation of findings to the population and yields consistent estimators of the regression model parameters.

Empirical results

The discussion in this section is divided into three parts. Section 4.1 presents the occupational distribution by gender and a preliminary analysis of intra-occupational gender earnings gaps. Section 4.2 is a discussion of the gender-based occupational earnings regressions. The decomposition analysis of intra-occupational gender earnings gaps is discussed in Section 4.3.

Occupational distribution and earnings gaps: a preliminary analysis

Table 1 shows the gender composition of employees for each occupational group. The list has been ordered from the most male-dominated to the most female-dominated occupational group. The definition of male- and female-dominated occupations employed here is designed to capture the notion that 'male' ('*female*') occupations are not only disproportionately male (*female*) compared to their share of wage employment of about 66 (*34*) percent, but also that each is *predominantly* male or female as well (Blau and Beller, 1988). Based on this definition, the first four groups (i.e., craft and related trade workers; agricultural and fishery worker; legislators, senior officials and managers; plant / machine-operator and assemblers) are regarded as male-dominated occupations, the fifth through seventh groups (i.e.,

technicians and associate professionals; sales and service workers; professionals) are considered gender-integrated occupations and the last two (i.e., elementary workers and clerical workers) are female-dominated occupations.

Table 2 shows the mean logarithmic annual earnings for males ($\overline{lnY_m}$) and females ($\overline{lnY_f}$) by occupation, the difference in the mean logarithmic earnings of males and females and the corresponding percentage earnings gap (i.e., antilogarithm ($\overline{lnY_m} - \overline{lnY_f}$) –1). The gender earnings gap tends to get wider as the proportion of male workers increases. The gender earnings gap was between 47 and 56 percent in the male-dominated occupations, it was between 31 and 47 percent in the gender-integrated occupations and still lower in the female-dominated occupations (i.e., the gap was 13 percent for clerical workers and 29 percent for elementary occupations).

Male and female earnings functions by occupation

In order to analyse the gender earnings gap further using the decomposition method it is necessary to estimate separate earnings functions for each gender group. Tables 3 (A and B) and 4 (A and B) show the gender-specific earnings functions for white-collar occupations (i.e., the managerial, professional, technical and clerical groups) and non-white-collar occupations (i.e., the crafts, operators and elementary occupations, which are blue-collar occupations, plus the agricultural as well as services and sales groups) respectively. The education dummy variables in Tables 3 and 4 differ. In the case of white-collar workers, there is only a small proportion with no formal schooling or no certificate; hence, the two groups are combined with PMR holders and named 'PMR or less'. This is the base group in the earnings functions of white-collar occupations. Conversely, for non-white-collar occupations, there is a small proportion with higher education; thus, the SPM, STPM, Diploma and Degree groups are grouped together and labelled 'SPM and above'. The base group in the earnings functions of non-white-collar occupations is 'no formal schooling'.

The R^2 values show that the fit of the regression is better for white-collar workers than for non-white-collar workers. This is possibly because the human capital variables explain much more of the variation in earnings of white-collar workers than non-white-collar workers. The coefficients for the education dummies are positive as expected. In comparing the returns to education by gender, we see that the premiums are higher for males than for females in three of the male-dominated occupational groups, i.e., managerial, crafts and, operators and assemblers, as well as in the female-dominated elementary occupations group. This could mean that within these occupational groups, males tend to be concentrated in jobs that give better returns to education; in addition, males may be paid higher returns to education even if males and females are in similar jobs.

The other human capital factor that is related to earnings is experience. Whilst experience is positively related to earnings in all occupational groups, it is evident that the returns to experience are greater in white-collar occupations. Given that white-collar workers are more educated than non-white-collar workers, this result is consistent with the theory of human capital which postulates that the age-earnings profiles of more-educated workers tend to increase more rapidly than do those of less-educated workers. The next question is whether there are gender differences in the returns to experience within each occupational group. The results show that females earn slightly higher returns to experience than males except in the case of professionals, agriculture and elementary occupations. The fact that females in the three male-dominated occupations (i.e., craft, managerial and operators) earn returns to experience that are comparable to that of their male counterparts may be partly because

members of the fairer sex who enter these 'non-female' occupations are those who anticipate continuous labour force participation and are willing to undertake the larger investments in on-the-job training required in most of these occupations. In return, they reap high returns to each additional year of their experience.

Finally, earnings are also positively related to hours of work although in two cases, i.e., the male managerial group and the female clerical group, the coefficients are not statistically significant at the customary levels. The earnings elasticity for males range from 0.54 for professionals to 0.08 for service and sales workers as well as the managerial group whilst in all other groups it hovers between 0.15 and 0.35. The earnings elasticity of female employees is relatively high (i.e., around 0.4) in professional, technical, crafts and elementary occupations, it is slightly lower (i.e., close to 0.3) for those in the managerial group, service and sales, as well as operatives and is only 0.2 for agricultural workers and 0.1 for clerical workers.

Decomposition analysis of intra-occupational gender earnings gaps

Having estimated the earnings functions by occupation and gender, the next step is to carry out the decomposition analysis for each occupational group using these regressions. The earning gap in each occupational group is divided into the characteristics effect and the unexplained residual by applying the decomposition method which uses the male, female and pooled wage functions as the non-discriminatory wage structures. The discussion in this section is based upon the results of the decomposition analysis that is presented in Table 5.

The figures in Table 5 show that the characteristics effect has a positive value in favour of men in all occupational groups except managerial and elementary occupations. A positive characteristics effect in these occupational groups implies that men generally have more work experience, education and hours of work than women. The results show that the *explained* portion of the wage gap that is attributed to the characteristics effect (i.e. the higher levels of education, experience and hours of work for men compared to women) ranges from about 4-5 percent for agricultural workers to approximately 18-19 percent for clerical workers. This means that only a relatively small part of the earnings gap can be explained by gender differences in wage-related characteristics such as work experience, education and hours of work.

In the three white-collar occupational groups (i.e., the professional, technical and clerical groups), the positive characteristics effect is mainly due to the greater work experience and hours of work for men compared to women. This is indicated by the positive signs of the said variables in Table 5. On the other hand, the negative sign for the education variable in the three white-collar occupations implies that women in these groups are more educated than men. Therefore, the male-female difference in education is of no consequence in explaining the earnings gap.

Next, we turn to the non-white-collar occupational groups. In the case of service and sales workers, most of the positive characteristics effect of the wage gap arises from men having more work experience than women, whilst male-female differences in education and hours of work explain a much smaller part of the wage gap. But for agricultural workers, the negative sign for the experience variable indicates that women have more experience than men and so this factor actually tends to close the male-female earnings gap; instead, it is the higher education level of men and their greater hours of work that give rise to a positive characteristics effect. Finally, we look at the two blue-collar occupational groups (i.e.,

operators and assemblers, and crafts) where the earnings gap has a positive characteristics effect. In these two groups, women have higher levels of education than men do, as indicated by the negative sign for this variable; however women fall short in terms of experience and hours of work.

The characteristics effect is below 0 percent in the managerial group and elementary occupations. This implies that women in these occupations have higher average endowments than men with respect to experience, education and hours of work. In this case, the wage gap is simply the result of lower returns on women's endowments. In other words, the characteristics effect is in favour of women and in the absence of wage discrimination, women's wages would not only have been higher than their current wages but greater than men's wages too, assuming that women were not less favourably endowed with unobserved productivity characteristics.

The results in Table 5 show a large unexplained residual (i.e., greater than 80 percent) in the earnings gap of all occupational groups. The unexplained residual exceeds 100 percent of the earnings gap in the male-dominated managerial group and the female-dominated elementary occupations. The unexplained residual is at a high of between 90 and 100 percent in the male-dominated craft and agricultural groups and the gender-integrated professional category. Finally, the residual drops slightly to between 80 and 90 percent for the remaining groups, i.e., technicians, clerical workers, service and sales workers, and operators and assemblers. Using the unexplained residual as a rough measure of wage discrimination, the results suggest that whilst wage discrimination possibly exists in all occupations, it is somewhat greater in male-dominated occupations (barring the case of operators and assemblers) than in gender-integrated or female-dominated occupations. This is similar to Mohamad Nor's (2000) findings, which show that the decomposition analysis yields larger unexplained residuals in male-dominated occupations (i.e., over 100 percent in manual jobs and 84 percent in sales) than in other occupations.

Although the unexplained residual is often used as an approximate measure of wage discrimination, the large residuals in Table 5 probably overstate the level of intra-occupational wage discrimination for the following reasons. First, unobserved characteristics (e.g., quality of education, ability, motivation, etc.) and imperfectly measured observed variables (e.g., work experience) undoubtedly influence the magnitude of the residual term. Second, gender differences in the coefficients of wage regressions may not be solely due to wage discrimination; for instance, a smaller coefficient on work experience for women may reflect their decision to invest in less on-the-job training than men. Finally, it is entirely possible that the large residuals may be partly due to job heterogeneity within each broadly defined occupational group. In addition, Solberg and Laughlin (1995) show that if the workers' compensation variable used in the analysis is not restricted to wages and salaries but includes all relevant fringe benefits, this would tend to reduce the unexplained portion of the gender gap.

In general, these results suggest the significance of intra-occupational gender earnings gaps in contributing to the overall gender earnings gap in this country even in a tight labour market situation. Some part of the earnings gap is ascribed to the characteristics effect, i.e. gender differences in wage-related factors (such as education, experience and hours of work), which are mostly in favour of men. However, a substantial portion of the gender earnings gap within occupations is the residual component. We note that gender differences in wage structure is not the only explanation for the large residual; the other likely reasons include job segregation within each broad occupational group and gender differences in fringe benefits between jobs.

Interestingly, the residual component tends to be larger in male occupations than in female or gender-integrated occupations.

Conclusion

The decomposition analysis results indicate that a portion of the gender earnings gap within occupations is ascribed to the characteristics effect. Given that part of the earnings gap in most occupations is traced to the greater hours of work and experience amongst men, measures taken to enhance female labour supply and labour force attachment is expected to reduce the earnings gap. This can be achieved by increasing the availability of affordable child-care services as well as introducing family-friendly policies and alternative work schedules. Gender differences in educational level explain part of the earnings gap in some of the non-white-collar occupations, namely services and sales, agricultural and elementary occupations. However, since the 1990s the enrolment rates of females in Malaysia have been on par with male enrolment rates at all levels of education; hence, the challenge in the future is to improve the education of women in terms of increasing female enrolment in male-dominated courses that will improve their prospects in the labour market.

The results in this study highlight the importance of male-female occupational distribution patterns with regard to the issue of explaining gender earnings gaps. Specifically, gender earnings gaps are found to differ by occupation. The gender earnings gap tends to be positively related to the proportion of males in the occupation, i.e., the higher the proportion of males in an occupation, the wider the gender earnings gap. This implies that efforts to reduce occupational segregation (i.e., measures leading to more gender-integrated occupations) is expected to reduce the overall gender earnings gap in the economy. A wide variety of policies can be used to deal with the problem of gender-based occupational segregation. It includes the following: facilitating policies to reduce women's burden on household duties; consciousness-raising programmes to remove gender stereotypes; educational policies to reduce gender differences in schooling, especially with respect to opening access to non-traditional occupations for men and women; and equal opportunity policies.

Vertical segregation, which is the tendency for men and women to be employed at different levels of the hierarchy within occupations, is another cause for concern. Women tend to be concentrated in lower-ranking positions that are lower paid and have poor training and career development prospects. Further research is needed to enable us to determine the exact extent of vertical segregation in the economy, but it is likely that such hierarchical differences are substantial. For instance, the data in this study show a low female representation in the managerial group in contrast to high female representation in the lower-ranking clerical group. This indicates that not many women make it to the top of the occupational hierarchy at their work place. The ubiquitous 'glass ceiling' blocks women's access to managerial position; the barriers that constitute the glass ceiling include the long working hours and the culture of management. We can extend the idea of invisible barriers in the corporation downward from the glass ceiling at the top to the 'sticky floor' at the bottom. A large number of women in low-paying and low-mobility jobs also face barriers including but not limited to those that make up the glass ceiling. The needs of women in these positions extend beyond those of executives; it includes affordable child-care services and opportunities for higher education and training.

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Table 1: Percentage representation of males and females by occupation

Occupation	Males (%)	Females (%)	Sample-weighted No. Observations
1. Craft & Related Trades Workers	79.6	20.4	820,703
2. Skilled Agricultural & Fishery Workers	76.0	24.0	350,560
3. Legislators, Senior Officials & Managers	75.2	24.8	183,945
4. Plant / Machine-operators & Assemblers	69.0	31.0	779,908
5. Technicians & Associate Professionals	67.2	32.8	607,172
6. Service Workers & Shop/Market Sales Workers	66.6	33.4	573,428
7. Professionals	63.3	36.7	222,082
8. Elementary Occupations	47.2	52.8	304,568
9. Clerical Workers	44.1	55.9	625,399
Aggregate	66.0	34.0	4,467,765

Table 2: Gender earnings gap by occupational category

Occupation	$\overline{\ln Y_m}$	$\overline{\ln Y_f}$	$\overline{\ln Y_m} - \overline{\ln Y_f}$	Percentage Log Earnings Gap
Craft & Related Trades Workers	9.1159	8.6855	0.4304	53.78
Skilled Agricultural & Fishery Workers	8.5976	8.1550	0.4426	55.67
Legislators, Senior Officials &Managers	10.5571	10.1317	0.4254	53.02
Plant/Machine-operators & Assemblers	9.1250	8.7375	0.3875	47.33
Technicians & Associate Professionals	9.6907	9.3449	0.3458	41.31
Service & Shop/Market Sales Workers	9.1616	8.7730	0.3886	47.49
Professionals	10.1577	9.8866	0.2711	31.14
Elementary Occupations	8.8023	8.5487	0.2536	28.87
Clerical Workers	9.3631	9.2432	0.1199	12.74
Aggregate	9.2854	8.9837	0.3017	35.22

Table 3A: Male employees earnings functions in white-collar occupation

Variables	Legislators, Senior Officials & Managers	Professionals	Technicians & Associate Professionals	Clerical Workers
Constant	9.7039***	9.6619***	10.1783***	9.1602***
	(0.694)	(0.540)	(0.368)	(0.308)
Experience	0.0629***	0.0597***	0.0432***	0.0531***
	(0.011)	(0.008)	(0.005)	(0.006)
$Experience^2$	-0.0008***	-0.0005**	-0.0003***	-0.0006***
	(0.0003)	(0.0002)	(0.0001)	(0.0001)
SPM	0.2577***	0.2588***	0.1506***	0.2135***
	(0.078)	(0.096)	(0.026)	(0.026)
STPM	0.3392***	0.4422***	0.3381***	0.4843***
	(0.093)	(0.109)	(0.038)	(0.046)
Diploma	0.6755***	0.6134***	0.3271***	0.6973***
	(0.099)	(0.108)	(0.046)	(0.079)
Degree	0.9666***	1.0616***	0.8453***	1.1123***
	(0.090)	(0.103)	(0.063)	(0.167)
Log hours (weekly)	0.0802	0.5397***	0.2478***	0.1485***
	(0.108)	(0.061)	(0.061)	(0.053)
Work Participation Selectivity (λ_1)	-0.1083	-1.7056***	-1.5126***	-0.9930***
	(0.618)	(0.503)	(0.256)	(0.276)
Employment Status Selectivity (λ_2)	-2.2632*	-7.2006***	-4.9466***	-2.4524***
	(1.207)	(1.027)	(0.432)	(0.444)
Weighted Sample Size	138,313	140,510	407,956	275,711
R squared	0.27	0.47	0.28	0.31
F statistic	33.60	91.18	94.54	80.19

Table 3B: Female employees earnings functions in white-collar occupations

Variables	Legislators, Senior Officials & Managers	Professionals	Technicians & Associate Professionals	Clerical Workers
Constant	10.4717***	7.2490***	7.9683***	8.9271***
	(1.110)	(0.681)	(0.343)	(0.384)
Experience	0.0739***	0.0563***	0.0694***	0.0669***
	(0.014)	(0.008)	(0.007)	(0.004)
$Experience^2$	-0.0008*	-0.0008***	-0.0010***	-0.0010***
	(0.0004)	(0.0002)	(0.0001)	(0.0002)
SPM	0.2337	0.8225***	0.2087***	0.2650***
	(0.248)	(0.135)	(0.052)	(0.028)
STPM	0.4274*	1.1152***	0.4154***	0.5051***
	(0.258)	(0.148)	(0.064)	(0.037)
Diploma	0.4304	1.0700***	0.5511***	0.8318***
	(0.276)	(0.158)	(0.073)	(0.064)
Degree	0.7488***	1.5044***	1.1000***	1.0534***
	(0.274)	(0.151)	(0.118)	(0.105)
Log hours (weekly)	0.2925**	0.4581***	0.4791***	0.0836
	(0.123)	(0.077)	(0.054)	(0.069)
Work Participation Selectivity (λ_1)	-1.6922***	0.0230	-0.2498	-0.0849
	(0.586)	(0.382)	(0.204)	(0.141)
Employment Status Selectivity (λ_2)	-6.4096**	-2.4554	-3.9390***	-2.7400***
	(2.723)	(1.641)	(0.716)	(0.775)
Weighted Sample Size	45,632	81,572	199,216	349,688
R squared	0.37	0.46	0.38	0.29
F statistic	19.33	46.31	104.57	85.52

Notes: a. Dependent variable: Log annual earnings
b. Figures in parentheses are standard errors
c. * significant at 10% level; ** significant at 5% level; *** significant at 1% level
d. Base group is 'PMR or less'.

Table 4A: Male employees earnings functions in non-white-collar occupations

Variables	Service & Shop/Market Sales Workers	Skilled Agricultural & Fishery Workers	Craft & Related Trades Workers	Plant/ Machine Operators & Assemblers	Elementary Occupations
Constant	9.4579***	7.8771***	8.7507***	8.9556***	8.6632***
	(0.263)	(0.279)	(0.247)	(0.206)	(0.385)
Experience	0.0329***	0.0261***	0.0197***	0.0213***	0.0247***
	(0.005)	(0.006)	(0.004)	(0.004)	(0.007)
$Experience^2$	-0.0003***	-0.0003***	0.00002	-0.00005	-0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
No Certificate	0.1257**	0.1286***	0.2762***	0.1737***	0.0756
	(0.058)	(0.031)	(0.039)	(0.042)	(0.047)
PMR	0.3420***	0.3297***	0.4446***	0.3286***	0.2532***
	(0.065)	(0.051)	(0.043)	(0.047)	(0.058)
SPM and above	0.5633***	0.4481***	0.4886***	0.3553***	0.3408***
	(0.067)	(0.066)	(0.046)	(0.049)	(0.070)
Log hours (weekly)	0.0815**	0.2791***	0.3491***	0.2427***	0.2492***
	(0.040)	(0.050)	(0.046)	(0.040)	(0.069)
Work Participation Selectivity (λ_1)	-1.7540***	-1.3230***	-1.8272***	-1.5894***	-1.2300***
	(0.237)	(0.249)	(0.175)	(0.175)	(0.296)
Employment Status Selectivity (λ_2)	-2.1900***	-1.1063***	-2.8415***	-2.2344***	-2.4728***
	(0.369)	(0.363)	(0.354)	(0.267)	(0.459)
Weighted Sample Size	382,139	266,591	653,217	538,212	143,766
R squared	0.29	0.16	0.21	0.18	0.17
F statistic	112.92	34.18	112.51	90.04	24.95

Table 4B: Female employees earnings functions in non-white-collar occupations

Variables	Service & Shop/Market Sales Workers	Skilled Agricultural & Fishery Workers	Craft & Related Trades Workers	Plant/ Machine Operators & Assemblers	Elementary Occupations
Constant	7.6740***	7.6805***	7.7059***	8.3237***	7.9155***
	(0.517)	(0.399)	(0.541)	(0.484)	(0.378)
Experience	0.0401***	0.0198***	0.0260***	0.0299***	0.0188***
	(0.005)	(0.008)	(0.006)	(0.005)	(0.006)
$Experience^2$	-0.0003***	-0.0002	-0.0002	-0.0004***	-0.0001***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
No Certificate	0.1620**	0.2226***	0.1484**	0.1751**	0.0695
	(0.082)	(0.0434)	(0.075)	(0.084)	(0.056)
PMR	0.5106***	0.4831***	0.2756***	0.3311***	0.2789***
	(0.088)	(0.084)	(0.080)	(0.091)	(0.072)
SPM and above	0.6829***	0.2776**	0.2847***	0.3463***	0.2225***
	(0.089)	(0.137)	(0.087)	(0.090)	(0.083)
Log hours (weekly)	0.3086***	0.1827**	0.4653***	0.2613**	0.3541***
	(0.115)	(0.079)	(0.118)	(0.108)	(0.057)
Work Participation Selectivity (λ_1)	-0.4908***	-1.0185***	-0.6650***	-0.5694***	-0.7747***
	(-0.185)	(0.237)	(0.196)	(0.152)	(0.224)
Employment Status Selectivity (λ_2)	-2.1757***	-0.2307	-2.8346***	-2.4783***	-2.0763***
	(0.692)	(0.578)	(0.706)	(0.631)	(0.610)
Weighted Sample Size	191,289	83,969	167,486	241,696	160,802
R squared	0.20	0.10	0.11	0.11	0.11
F statistic	37.21	10.47	16.30	23.22	18.55

Notes: a. Dependent variable: Log annual earnings
b. Figures in parentheses are standard errors
c. * significant at 10% level; ** significant at 5% level; *** significant at 1% level
d. Base group is 'no formal schooling'.

Table 5: Decomposition of gender earnings gap by occupation

	Male Wage Structure		Female Wage Structure		Pooled Wage Structure	
	Characteristics Effect	Unexplained Residual	Characteristics Effect	Unexplained Residual	Characteristics Effect	Unexplained Residual
(1) Legislators, Senior Officials and Managers						
	-13.69	113.69	-18.91	118.91	-17.19	117.19
Experience	-13.63		-18.04		-16.18	
Education	0.16		-0.09		-0.55	
Log hours (weekly)	-0.22		-0.77		-0.47	
(2) Professionals						
	6.03	93.97	3.65	96.35	5.49	94.51
Experience	5.34		3.50		4.69	
Education	-1.30		-1.54		-1.17	
Log hours(weekly)	1.99		1.69		1.97	
(3) Technicians and Associate Professionals						
	9.52	90.48	10.83	89.17	11.79	88.21
Experience	8.77		8.48		8.25	
Education	-2.61		-4.15		-2.27	
Log hours(weekly)	3.36		6.49		5.81	
(4) Clerical Workers						
	18.93	81.07	15.63	84.37	18.39	81.61
Experience	26.66		25.20		26.61	
Education	-8.02		-9.72		-8.47	
Log hours(weekly)	0.30		0.16		0.25	
(5) Service Workers and Shop/Market Sales Workers						
	14.09	85.91	18.96	81.04	14.84	85.16
Experience	10.07		13.60		10.32	
Education	3.77		4.45		3.99	
Log hours(weekly)	0.25		0.91		0.53	
(6) Skilled Agricultural and Fishery Workers						
	4.35	95.65	5.49	94.51	4.83	95.17
Experience	-6.64		-5.66		-7.01	
Education	6.82		8.43		7.65	
Log hours(weekly)	4.17		2.72		4.18	
(7) Craft and Related Trades Workers						
	7.45	92.55	7.70	92.30	7.82	92.18
Experience	6.72		6.22		6.48	
Education	-0.91		-0.70		-0.62	
Log hours(weekly)	1.64		2.18		1.95	
(8) Plant and Machine-Operators and Assemblers						
	16.16	83.84	12.95	87.05	16.42	83.58
Experience	17.19		13.64		16.39	
Education	-2.78		-2.58		-2.15	
Log hours(weekly)	1.75		1.89		2.18	
(9) Elementary Occupations						
	-4.6	104.6	-6.6	106.6	-4.09	104.09
Experience	-6.60		-4.77		-3.39	
Education	7.90		6.55		7.41	
Log hours(weekly)	-5.89		-8.38		-8.12	

Note: Figures are expressed as percentages of the earnings gap

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Biodata

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