

Drolet, Marie; Mumford, Karen

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Marie Drolet  
Karen Mumford

January 2009

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**Marie Drolet**  
*Statistics Canada*

**Karen Mumford**  
*University of York  
and IZA*

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IZA

P.O. Box 7240  
53072 Bonn  
Germany

Phone: +49-228-3894-0  
Fax: +49-228-3894-180  
E-mail: [iza@iza.org](mailto:iza@iza.org)

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## **ABSTRACT**

### **The Gender Pay Gap for Private Sector Employees in Canada and Britain**

Country-specific factors, such as the wage setting environment, are important determinants in explaining the relative size of the gender wage gap. This paper uses British and Canadian linked employer-employee data to investigate the importance of the workplace for the gender wage gap. Our main findings are that the unadjusted gender earnings gaps are similar between the two countries and that women, especially older women, are disproportionately represented in low-wage workplaces. Workplace effects, however, reduce the wage gap by 14.5% in Canada and increase the gap by 3.2% in Britain.

JEL Classification: J16, J0

Keywords: gender earnings gap, workplaces, Britain, Canada

Corresponding author:

Karen Mumford  
Department of Economics and Related Studies  
University of York  
Heslington York YO10 5DD  
United Kingdom  
E-mail: [kam9@york.ac.uk](mailto:kam9@york.ac.uk)

## **1. Introduction**

Gender wage gaps have been declining in most industrialized countries in the last three decades coinciding with the introduction of anti-discrimination legislation; higher levels of educational attainment among women; substantial increases of women in non-traditional professional occupations; greater access to family friendly work practices; and more choices being made available to men and women both inside and outside the labour market (Blau and Kahn, 2007a). Despite these gains, substantial earnings gaps have remained in Britain and Canada and initiatives aimed at promoting gender equality in the labour market remain high on the policy agenda in both countries.

The literature on gender wage inequality is well established (Altonji and Blank, 1999). While there is some variation in the findings of these studies, (related to time periods, measurement of earnings, and analytical populations to name a few), it is generally concluded that human capital differences alone do not explain the gender wage gap. The recent availability of employee-employer linked data has resulted in several studies which find that firm wage policies play an important role in explaining variations in individual earnings (Groschen 1991; Bronars and Famulari 1997; Abowd et al. 2004; Bayard et al. 2003) while other studies show that women are concentrated in lower-paying workplaces (Carrington and Troske, 1998; Drolet 2002; Mumford and Smith 2007). In a similar vein, Bayard et al. 2003 and Mumford and Smith 2007 provide evidence that gender segregation within occupations and establishments help to explain gender pay differentials. However, after accounting for workers' human capital, job characteristics and segregation, men typically earn more than women.

The objective of this paper to provide a comprehensive picture, circa 2003/4, of the role of the workplace in gender pay differentials in Britain and Canada, despite differences in labour market histories and institutions across the Atlantic. To meet our objective we show

that pay differences between men and women are substantial and significant in both countries; explore multiple and complementary strategies to address the role of workplaces on the gender wage gap; and use decomposition techniques to apportion the gender wage differential to differences in workplace-specific fixed effects and in personal attributes. The paper is organized as follows. The next section briefly describes the institutional settings of wage determination in Britain and Canada. The data are described in Section 3. Section 4 and 5 outline the determinants of earnings and our estimation techniques. The empirical results are presented in Section 6 and concluding remarks follow in Section 7.

## **2. Labour market institutions of wage determination**

Britain and, its former colony, Canada share many common legal and cultural roots. Both countries are categorized by the OECD as having highly decentralized firm-by firm wage bargaining practices (Card et al. 2003, pages 247-251). Changes in the British system of wage determination since the 1970s moved the countries closer in terms of regulatory processes. Canada experienced virtually no change in trade union membership while Britain witnessed a decline in both trade union density (from 50% in 1980 to 24% in 1994) and in the percentage of the workforce covered by a collective agreement (from 70% in 1980 to 47% in 1994). In consequence, the two countries now have similar trade union membership and collective agreement rates, relative to paid employees (Card et al. 2003, table 1). Another important similarity between Britain and Canada is that low wage workers in both countries are protected by minimum wage legislation. Minimum wage legislation is more likely to impact on women since women are on general disproportionately employed in low paying jobs (Blau and Kahn, 2003).

A major difference between Canada and Britain is their adoption of comparable worth principles in wage legislation. The Equal Pay Act was passed in Britain in 1970 in recognition

of women receiving lower pay than men. Whilst the Act included a broad concept of equity allowing for comparisons between jobs typically performed by women and jobs typically performed by men, the emphasis was on equal pay for equal work (Dickens, 2007). More recently, the Women and Work Commission was established (in 2004) to seek ways to tackle the remaining gender earnings gap. The Commission found that, whilst the causes of the current gender earnings gap were complex and interrelated, intrinsic amongst them was occupational segregation, lack of qualifications, discrimination, and fewer job opportunities for women wanting to combine market employment with non-market family responsibilities. The British Government responded to these findings with the introduction of the Commission for Equality and Human Rights (which came into being on October 1<sup>st</sup>, 2007) and a range of policies predominantly targeted at increasing the occupation choices of women (via skill acquisition and broadening attitudes) and increasing their ability to cope with family and work commitments simultaneously (Department for Communities and Local Government, 2007).

In Canada, the Act to Promote Equal Pay for Female Employees was passed in 1956 and prohibited employers from paying women less than men for doing the same work. The emphasis in this early legislation was also on equal pay for equal work. More recent initiatives aimed at promoting gender equality in the labour market are generally categorized in three main areas: pay equity, employment equity and family friendly policies. Pay equity legislation is directed at wage disparities arising from the lower pay of women's jobs with respect to comparably valued men's jobs in a specific workplace. Most Canadian jurisdictions have pay equity requirements and in Ontario and Quebec (the two largest provinces), the legislation covers both the private and public sector. The Employment Equity Act (1995) aims to remove barriers that limit women's representation in male-dominated occupations for reasons unrelated to qualifications and/or ability. Finally, the introduction of family-friendly

policies (such as job-protected maternity leave, flexible work hours, subsidized day-care) aimed at balancing work-family, encourages the labour market participation of women with young children. The existence and persistence of a sizeable gender wage gap is often viewed as the driving force behind gender equality policies. These policies attempt to reduce gender pay differentials by promoting equal opportunity, reducing segregation and by re-assessing the comparable value of women's work. But the efficacy of these policy prescriptions are often passionately debated in policy circles, among academics and in the media.

International comparisons of gender pay differentials are rare, partly because institutional factors differ greatly across nations yet there exists an opportunity to improve our understanding of the how the labour market functions (Blau and Kahn, 2003; Olivetti and Petrongolo, 2008). A great strength in the use of linked employee-employer data for international comparisons is that many of the unobservable institutional factors expected to impact wages operate through the workplace (Blanchflower, 1998).

While these factors may not be able to be measured directly, they can be captured by including workplace specific fixed effects in the analysis (Davies and Welpton, 2005). The growth in the number of highly detailed, linked employee and workplace data sets for different countries over the last two decades is now allowing these types of comparisons to take place (early examples include studies for Australia, Britain, Japan and France (Daly et al, 2006); for Australia and France (Meng and Meurs, 2004); and for Australia and Britain (Mumford and Smith, 2003). We are unaware of any studies that use linked employee-employer data to compare the gender earnings gap directly between Britain and Canada.



### **3. Data.**

Comparable empirical evidence is a necessity when considering an international study of gender pay gaps. The Canadian and British data used in this study are drawn from ‘sister surveys’ that include many overlapping questions and feature a similar surveying approach.

#### *Workplace and Employee Survey*

The Canadian data are drawn from the 2003 Workplace and Employee Survey (WES). The target population of employers is all business locations operating in Canada that have paid employees in March with the exception of those employers operating in (i) Yukon, Nunavut and the Northwest Territories; and (ii) crop and animal production; hunting, fishing and trapping; private household; religious organizations; and public administration. The target population of employees is all employees working or on paid leave in March and who receive a Customs Canada and Revenue Agency T4 Supplementary (income tax) slip. In other words, the WES is representative of employers and their workers in the private, non-agricultural sector of the Canadian economy. The 2003 WES<sup>2</sup> collected data from 6,565 workplaces and 20,834 workers.

The WES has a stratified two-stage sample design: first, workplaces are selected from a frame provided by the Business Register and then stratified by industry, region and size. The size boundaries vary by industry and region combinations and are based on a model design approach. In the second stage, the employee component, respondents are randomly selected based on lists of employees made available to interviewers by the selected workplaces.

### *Workplace Employee Relation Survey 2004*

The Workplace Employee Relations Survey 2004 (WERS) is a nationally representative survey of workplaces in Britain with 5 or more employees<sup>3</sup>. WERS also has a stratified two-stage sample design. Face-to-face interviews were conducted with a senior manager (with day-to-day responsibility for employee relations) in selected workplaces. At those workplaces responding to the manager survey, a questionnaire was presented to 25 randomly selected employees (in workplaces with more than 5 employees) or to all employees (in workplaces with fewer than 26 employees). The 2004 WERS collected information from 22,451 workers in 1,733 of workplaces.

### *Analytical sample*

The data sets are not identical in population coverage. Excluding public sector workplaces in WERS to match the Canadian WES sample, excluding workplaces with fewer than 5 employees in WES to match the British WERS sample, and retaining workers with complete information leaves an analytical sample for Britain of 14,272 employees and 18,837 workers in Canada.

Every attempt was made to harmonize variable concepts between the WERS and the WES. Table A1 in the Statistical Appendix provides the variable definitions used in the paper. Sampling weights are used to calculate the empirical results that follow. For WERS, weights allowing for stratification and clustering in the private sector are provided by the data suppliers (Purdon and Pickering, 2001). The WES portion of the analysis uses bootstrap techniques in the calculation of its standard errors thus accounting for the non-independence of worker observations (i.e. workers in the same location) and the complex survey design.<sup>4</sup>

Macroeconomic conditions in the countries during the period of study (2003-4) were also comparable. Business cycle indicators suggest that in 2003-4 both economies were

growing strongly (GDP growth per capita ranged from 2.3% in Britain to 3.3% in Canada), and that unemployment rates were relatively low (at 5% the UK rate was below the OECD average of 6.9%, whilst the Canadian unemployment rate was closer to 7.5%).

### *Characteristics of the British and Canadian workforces*

Women have been entering the labour force in substantial numbers over the past few decades (see Blau and Kahn, 2007b; Scott et al., 2008 for Britain; and Baker et al., 1995 for Canada). The British experience is, however, unique in two respects. First, of the OECD member countries, Britain has the second highest proportion of part-time workers among women: roughly 2 in every 5 women work part-time (OECD, 2005). The proportion of women working part-time in Canada is close to the OECD average: roughly one in four women work part-time. Second, the labour market outcomes for women working part-time differ between Canada and Britain. Connolly and Gregory (2008 and 2009) show that women who switch from full-time employment to part-time employment experience occupational downgrading and a movement towards low-skilled jobs with consequent declines in wages. There is little evidence to suggest that the relative position of British women working part-time has improved (Manning and Peteronglo, 2008). The Canadian experience is quite different. The small aggregated gender pay gap among part-time workers may be partially due to the fact that, on the one hand, workers with fewer skills may be clustered in low-wage industries or workplaces and, on the other hand, there is a subset of part-time female workers with relatively high earnings.

Table 1 provides selected summary statistics for private sector workers in Canada and Britain (full statistics are provided in Tables A2 and A3 of the Appendix); we can clearly see that part-time employment is less common in Canada than in Britain especially for females.

**Table 1. Selected summary statistics.**

	Britain			Canada		
	Men (1)	Women (2)	Gap (3)	Men (1)	Women (2)	Gap (3)
Percent of private sector workers who are:						
Part-time	8.9	38.6	-29.7	6.9	21.6	-14.7
Married	66.5	63.4	3.1	72.0	64.5	7.5
Percent of private sector workers who are university graduates						
% of all private sector workers who are university graduates	26.3	19.5	6.8	22.7	23.6	-0.9
% of young workers (less than 40 years old) who are graduates	31.1	25.3	5.8	23.1	26.6	-3.5
% of prime age workers (aged 40-49 years) who are graduates	25.7	16.5	9.2	22.2	20.9	1.3
% of mature workers (aged 50 plus years) who are graduates	17.5	9.2	8.3	22.4	21.4	1.0
Percent of private sector workers employed in:						
Management	16.9	10.1	6.8	16.5	8.7	7.8
Clerical	7.7	27.1	-19.4	7.2	21.8	-14.6
Sales and services	6.0	18.7	-12.7	3.3	11.7	-8.4
log of average hourly earnings for:						
all private sector workers	2.199	1.952	0.247	3.030	2.797	0.233
young workers (less than 40 years old)	2.117	1.949	0.168	2.887	2.696	0.191
prime age workers (aged 40-49 years)	2.342	2.005	0.337	3.146	2.871	0.275
mature workers (aged 50 plus years)	2.227	1.907	0.320	3.173	2.901	0.272

Sources: British Workplace Employee Relations Survey 2004 and the Canadian Workplace and Employee Survey 2003.

About one in four private sector workers have a university degree or post-graduate qualification (column one of Table 1). Rapidly rising levels of educational attainment among young women over the past two decades have helped to narrow the overall gender difference in educational attainment in both Britain and Canada. In Canada, there is virtually little difference in any age group (comparing columns 3 and 4 of Table 1). In contrast, gender differences in higher levels of educational attainment are more common among mature workers in Britain (columns 1 and 2). It should be noted that wages differ by fields of study and that many fields of study continue to be dominated by either men or women. One significant caveat is that men and women continue to choose traditional disciplines, a factor that is not accounted for in this study and this choice may also explain part of the gender differences in earnings (Drolet, 2002).

The gender differences in occupational distributions were relatively consistent between the two countries and conformed to *a priori* expectations (Bergmann, 1971; Baker and Fontin, 2001). In both countries, men were more likely to be in managerial, craft or operative positions while women were more likely to be employed as clerks or in sales positions.

Measures of work experience are usually assumed to be positively related to wages for several reasons, not least of which is the ability to acquire skills over the time period the employee has spent working (Becker, 1962). Since the WERS survey does not gather information on actual experience, age and age-squared is used instead. It is common to find that earnings increase with age at a decreasing rate. The results need to be interpreted with caution since women are more likely than men to have taken time out of the labour market, age may not accurately reflect the relationship between work experience and earnings (Regan and Oaxaca, 2008).

#### **4. Earnings and its determinants**

##### *Measuring earnings*

For British workers, hourly earnings are calculated for each employee by dividing their usual gross (before tax and other deductions) weekly wages (including overtime payments) by the hours they usually work each week (including any overtime and extra hours). The WERS data do not give the actual value of gross weekly wages but rather the interval to which the wage belongs for each sampled worker, there are 14 bands. In our regression analysis, the mid-point of the interval is used as the measure of usual weekly wages (some possible implications of this banding are discussed further with estimation results in Section 6 below). Usual hours worked is a continuous measure. The subsequent hourly wage measure is the ratio of weekly

wages to usual hours and is therefore continuous. Any employees showing an hourly rate of pay below £1 or above £100 are excluded from the British dataset.

For Canadian workers, total compensation is based on usual wages and salaries before taxes including any other earnings (i.e. tips, overtime). WES respondents were allowed to report different bases of pay (i.e. hourly, weekly, yearly etc.) and were subsequently converted to an hourly wage rate based on their reported weekly hours and weeks worked.

### *Gender differences in hourly wages*

Gender differences in earnings are remarkably consistent in both Britain and Canada. Men working in the private sector typically earn over 20% more than the average hourly wage rate of women (24.7 log percentage points, lpp, in Britain and 23.3 lpp in Canada, see the final panel of Table 1). These gender differences in earnings vary in magnitude for different age groups (reading down the columns in Table 1). In particular, the gender wage gap is smallest among young workers (those aged below 40 years) and largest among mature workers (those aged 50 years and above).

The smaller gender wage gap among young workers may be partially attributable to young men and women having more similar skills and experience (Regan and Oaxaca, 2008). The fact that the pay gap is larger among older workers may reflect larger gender differences in educational attainment, in career opportunities and upward mobility and the greater possibility of these women having experienced career interruptions, with long withdrawals from the labour force and shorter current job tenure (Regan and Oaxaca, 2008). This observation may have interesting implications for the longer term earnings profiles of young workers and the overall gender wage gap. As older workers retire and younger cohorts enter the labour force, the long-run implication may be a reduction in the overall gender wage gap, ceteris paribus. It is possible to more fully address different earnings gaps between younger

and older employees by dividing the data into sub-samples according to the age of the worker; this is explored in the empirical analysis below.

### **5. Estimating earnings.**

Using semi-logarithmic wage equations, we estimate the earnings equation using ordinary least squares (OLS) as:

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

where  $W_i$  is the natural log of the wage for worker  $i$ ;  $\alpha$  is an intercept term;  $X_i$  is a vector of individual-specific regressors capturing the characteristics of worker  $i$  expected to impact on wages;  $\beta$  is a vector of estimated slope coefficients for the individual-specific characteristics; the variable  $F_i$  indicates whether the worker is female and its corresponding coefficient  $\gamma$  captures the impact of being a woman relative to being a man;  $\varepsilon_i$  is a residual term. The coefficient estimates,  $\beta$  and  $\gamma$ , can be interpreted as the approximate percentage change in wages for a one unit change in the explanatory variable. In this model, the slope coefficients, the  $\beta$ s, are constrained to be the same for men and women, analogous to the fully pooled model used by Bayard et al. (2003).

#### *Estimation strategy with workplace specific fixed effects*

As discussed above, multiple workers are observed for each workplace in the WES and WERS samples used here. Estimation by OLS ignores the hierarchical nature of the data and violates the assumption of independence since the disturbances are likely to be correlated for workers in the same workplace (Deaton, 1998; Purdon and Pickering, 2001). A more appropriate error structure  $\varepsilon_{ij}$  would include a portion varying independently for workers both within and across workplaces, and a portion varying across workplaces but constant for

workers in the same workplace. This second portion captures unobserved characteristics at the workplace-level that affects the productivity of all workers in the workplace.

A useful technique to explore the extent of the workplace having a common impact on the earnings of all of those who are employed there is to use a workplace specific fixed effect (or within estimator) model. We allow for workplace-specific fixed effects by re-estimating (Equation 1) using a fixed effects (FE) model:

$$W_{ij} = \alpha + K_j\delta + X_{ij}\beta + F_i\gamma + \varepsilon_{ij} \quad (2)$$

where  $K$  is an indicator variable for each workplace  $j$  and  $\delta$  captures the ‘workplace-specific effect’. That is,  $\delta$  captures a common effect for workers within a workplace or, alternatively, differences in the wage outcomes across workplaces.

The well-established human capital model is adopted here as the theoretical basis for the earnings function (Becker, 1962). At the employee level, the human capital model predicts that wages increase with measures of accumulated skills such as formal education and training. We augment the earnings function with the inclusion of other explanatory variables capturing individual employee characteristics such as demographic variables (including the presence of dependent children, marital status, ethnic identification, and physical disability); the nature of the employment contract (being a permanent employee, trade union membership, working part-time); and the worker’s occupation.

## 6. Estimation results

Estimates of the earnings functions for private sector employees in Britain and Canada are presented in Table 2. Analogous regression results for young, prime aged, and mature workers in each county are included in Tables A4 and A5, for Canada and Britain respectively, of the Appendix. The expected associations and the magnitude of those associations between hourly wage rates and the determinants of wages are consistent with our expectations.



Robustness of the estimation results is of clear concern. The banded nature of the earnings data in the WERS (discussed in Section 3 above) presents an issue for the construction of the earnings series in the analyses presented here. As Stewart (1983) discusses, it is possible, in principle, that this banding may affect the properties of the ordinary least squares estimates of the earnings function that we estimate. Comparison of the estimates presented here with interval estimates confirms they are very similar. We therefore confine our analysis to the estimates presented in Table 2.

It should also be remembered that our data is only for private sector employees; such workers may not be representative of all employees in the countries. For example, it may be the case that workers with particular unobservable characteristics expected to impact on their earnings are more likely to work in the private sector (for example, perhaps they are more competitive). There are a range of selection issues that it would be desirable to address, such as selection into the private sector; or simply into the labour market itself (Olivetti and Petrongolo 2008). We could not find a suitable instrument to use in order to carry out this cross-country analysis, however, this was an especial constraint for the single wave of data available with the

**Table 2. Earnings functions for private sector employees in Britain and Canada.**

	Britain				Canada				
	OLS		with workplace effects		OLS		with workplace effects		
	Coef.	Std Err	Coef.	Std Err	Coef.	Std Err	Coef.	Std Err	
log hourly pay	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	
age	0.042	0.003	0.031	0.003	age	0.034	0.007	0.024	0.003
age squared	-0.448	0.037	-0.317	0.031	age squared	-0.353	0.083	-0.237	0.036
training	0.006	0.002	0.004	0.001	training	0.0007	0.001	0.000	0.0003
education (not recognised omitted)					education (not recognised omitted)				
cse25	0.075	0.015	0.067	0.013	high school	0.105	0.043	0.031	0.019
cse1	0.127	0.013	0.084	0.011	trade	0.175	0.048	0.065	0.021
gceae	0.142	0.022	0.101	0.018	some pse	0.196	0.050	0.051	0.020
gce2ae	0.240	0.021	0.185	0.016	college	0.264	0.048	0.086	0.019
degree	0.312	0.018	0.205	0.014	university degree	0.374	0.053	0.162	0.021
postgraduate	0.397	0.024	0.252	0.019	post graduate	0.501	0.076	0.289	0.026
					unknown	0.108	0.084	0.033	0.034
youngest dep. child 0-4	0.037	0.013	0.016	0.011	youngest dep. child 0-4	0.041	0.036	0.023	0.015
youngest dep. child 5-11	0.001	0.015	0.013	0.012	youngest dep. child 5-11	0.021	0.032	0.001	0.014
youngest dep. child 12-18	-0.030	0.013	-0.010	0.012	youngest dep. child 12-18	0.016	0.035	0.007	0.014
married	0.053	0.010	0.046	0.008	married	0.071	0.028	0.048	0.011
disabled	-0.019	0.014	-0.003	0.012	disability	-0.042	0.043	-0.004	0.015
visible minority	-0.055	0.021	-0.075	0.017	visible minority	-0.114	0.050	-0.107	0.018
permanent contract	0.038	0.022	0.030	0.020	permanent contract	0.041	0.090	0.051	0.027
part-time	-0.068	0.018	0.057	0.016	part-time	-0.101	0.040	-0.041	0.015
trade union member	0.075	0.013	0.014	0.011	trade union member	0.072	0.028	-0.065	0.016
tenure	0.015	0.005	0.006	0.004	tenure	0.015	0.030	0.002	0.010
tenure squared	0.0004	0.001	0.001	0.000	tenure squared	0.886	2.267	1.085	0.796
<i>female</i>	<b>-0.155</b>	<b>0.012</b>	<b>-0.106</b>	<b>0.010</b>	<i>female</i>	<b>-0.183</b>	<b>0.025</b>	<b>-0.110</b>	<b>0.011</b>
occupations (clerical omitted)					occupations (clerical omitted)				
managerial	0.255	0.020	0.326	0.015	managers	0.423	0.051	0.469	0.019
professional	0.278	0.023	0.262	0.020	professionals	0.348	0.044	0.337	0.018
technical	0.143	0.017	0.148	0.014	technical trade	0.082	0.030	0.141	0.015
craft	-0.076	0.021	0.039	0.019	market sales	-0.176	0.053	0.062	0.025
personal	-0.277	0.024	-0.094	0.024	production	-0.077	0.058	0.006	0.024
sales	-0.269	0.021	-0.071	0.019					
operative	-0.210	0.021	-0.100	0.016					
unskilled	-0.364	0.020	-0.176	0.017					
constant	1.022	0.059	1.189	0.053	constant	1.633	0.157	2.036	0.067
R-squared	0.478		0.670		R-squared	0.523		0.800	
No. observations	14272		14272		No. observations	18837		18573	

Sources: British Workplace Employee Relations Survey 2004 and the Canadian Workplace and Employee Survey 2003.

Note: variable definitions are not identical across the countries; see Table A1 in the appendix for fuller definitions.

WERS. We believe that not being able to control for selection limits the comparative statements we can make about our estimated returns (compared to other groups not included in the analysis) but that it doesn't lessen the results for the actual samples we are investigating (Heckman, 1979).

Beginning with the estimates without workplace specific fixed effects (the OLS regression results presented in columns 1 and 3 of Table 2), we find wages are higher: as the worker ages, albeit at a declining rate<sup>5</sup>; as education levels increase; for those with higher skilled occupations; for trade union members; and for those working full-time. Of particular relevance to our study, we find wages are significantly and substantially lower for women working in the private sector in both countries (15.5% less in Britain and 18.3% less in Canada).

By comparing the estimated parameters for the earnings functions with workplace-specific fixed effects (the FE models in columns 2 and 4) and those without workplace effects (the OLS models in columns 1 and 3), the importance of the workplace in the wage determination process becomes evident. Two observations are noted.

First, including the workplace in the analysis is associated with lower returns to most human capital variables in both countries. For example, Canadian workers with a university degree earn 37.4% more than workers with no education (column 1). Once we control for the workplace, Canadian workers with a university degree earn 16.2% more than workers with no education (column 4). Comparable figures for Britain are 20.5% allowing for workplace effects and 31.2% without. This provides some evidence that part of the variation in individual earnings attributable to, for example, differing levels of education may arise because high-wage workplaces disproportionately employ high skilled workers in both countries.<sup>6</sup>

Second, roughly half of the variation in wages is accounted for when wages are tied solely to the characteristics of the individual worker (47.8% in Britain and 52.3% in Canada). These goodness of fit measures are substantially higher in models that take into account the workplace in both countries. In Canada, over three-quarters of the variation in individual worker wages is accounted for by the characteristics of the worker and by the workplace to which he/she belongs. In Britain more than two thirds is.

Table 3 reports the coefficient estimates on being ‘female’ from the OLS (without workplace effects) and the FE regressions (with workplace effects) for private sector employees in the age groups of primary concern to this study (the young, prime aged, and mature). There are two important findings.

**Table 3. Estimated gender coefficients.**

		Britain		Canada	
		Without Workplace effects	With Workplace effects	Without Workplace effects	With Workplace effects
<i>Young workers (aged &lt; 40 years)</i>					
Female	Coeff	-0.094	-0.077	-0.139	-0.088
	Std err	0.014	0.012	0.034	0.018
<i>Prime aged workers (aged 40-49 years)</i>					
Female	Coeff	-0.217	-0.128	-0.206	-0.136
	Std err	0.022	0.020	0.041	0.022
<i>Mature workers (aged 50 years and over)</i>					
Female	Coeff	-0.218	-0.151	-0.207	-0.09
	Std err	0.026	0.024	0.055	0.031

Sources: British Workplace Employee Relations Survey 2004 and the Canadian Workplace and Employee Survey 2003. Dependent variable is log hourly wages. Independent variables are listed in Table 3, they include age, age squared, training, a education controls, marital status, age of youngest dependent child, visible minority status, disability, permanent contract, trade union membership, tenure, tenure squared, part-time and occupation controls. Note: variable definitions are not identical across the countries, see Table A1 in the Appendix for fuller definitions.

First, reading down the columns in Table 3, the estimated negative wage impact

associated with being for females in the OLS results (without workplace effects) is substantially lower amongst younger employees in both Britain and Canada.

Second, including the workplace effect in the regression is associated with a reduction in the difference in the pay comparable men and women receive in both countries. This is apparent in all the age groups being considered and can be seen by comparing the results with and without workplace effects for each country.

Third, the results show that the representation of women in low-wage workplaces varies by age and that there is little significant difference in the gender pay gap between the various age groups after accounting for the workplace (reading down columns 2 and 4). This is especially the case in Canada.

To summarise, these findings suggests that mature women are more concentrated in low-wage workplaces than are young women and that the sizeable differences in the ratio of the female-to-male hourly wage rate by age reported using OLS are much reduced after allowing for workplace specific effects for both Britain and Canada.

#### *Decomposing the gender pay gap in Britain and Canada.*

We have found that workplaces play an important role in explaining the variation in individuals' earnings. In particular, women are concentrated in low-wage firms; this is especially the case for older women in both Britain and Canada. We next turn to examine the relative contribution of the workplace to the gender pay gap in more detail.

The Oaxaca decomposition (Oaxaca 1973; Blinder 1973; Oaxaca and Ransom, 1994) is widely accepted for analyzing gender pay differentials and is the starting point of our analysis. This approach decomposes the mean gender wage gap in to a portion attributable to differences in the observable characteristics men and women bring to the labour market (such as education or training) and a portion that cannot be explained by such differences. In

general, the decomposition of the mean earnings gap between men and women is calculated from estimates of equation (1) as:  $\bar{W}_m - \bar{W}_f = (\bar{X}_m - \bar{X}_f)\hat{\beta} + \gamma$  where,  $\bar{W}_m - \bar{W}_f$  is the gender difference in predicted log wages;  $(\bar{X}_m - \bar{X}_f)\hat{\beta}$  captures the impact of the difference in the mean value of the explanatory variables weighted by the estimated parameter; and  $\gamma$  is the remaining unexplained gap.

**Table 4. Decomposition Results of Gender Wage Gaps**

	All		Young		Prime-aged		Mature	
	Without workplace	With workplace	Without workplace	With workplace	Without workplace	With workplace	Without workplace	With workplace
<i>Britain</i>								
Total log wage gap	0.247		0.168		0.336		0.320	
difference in characteristics (explained)	0.092	0.141	0.075	0.091	0.121	0.209	0.101	0.169
% explained	37.2%	57.1%	44.6%	54.2%	36.0%	62.2%	31.6%	52.8%
difference in returns (unexplained)	0.155	0.106	0.093	0.077	0.216	0.128	0.219	0.151
% unexplained	62.8%	42.9%	55.4%	45.8%	64.3%	38.1%	68.4%	47.2%
<i>Canada</i>								
Total log wage gap	0.233		0.206		0.275		0.271	
difference in characteristics (explained)	0.05	0.123	0.067	0.118	0.069	0.139	0.064	0.181
% explained	21.5%	52.8%	32.5%	57.3%	25.1%	50.5%	23.6%	66.8%
difference in returns (unexplained)	0.183	0.110	0.139	0.088	0.206	0.136	0.207	0.09
% unexplained	78.5%	47.2%	67.5%	42.7%	74.9%	49.5%	76.4%	33.2%

Sources: British Workplace Employee Relations Survey 2004 and the Canadian Workplace and Employee Survey 2003.

The decomposition results presented in Table 4, both with and without the inclusion of workplace-specific fixed effects and for the various age groups, confirm the observation that

workplace effects play an important role in the gender wage gap in both countries. Several observations are noted.

First, the OLS decomposition results (without the workplace) show that for both Britain and Canada and for all age groups, the portion of the gender wage gap attributable to differences in the returns that men and women receive for the same characteristic (the ‘unexplained’ component) far outweigh the portion of the gender wage gap attributable to differences in the characteristics men and women bring to the labour market (the ‘explained’ component). A larger fraction of the pay gap, however, is due to the gender differential in endowments of characteristics in Britain than in Canada. The OLS decomposition results show that 37.2% of the total earnings gap is attributable to the endowment of different characteristics in Britain whereas this ratio in Canada accounted for 21.5% of the total earnings gap.

Second, the unexplained component of the gender wage gap declines substantially with the introduction of workplace specific-effects. This is true in both Britain and Canada and this effect is stronger amongst older workers. In Canada, the unexplained component for older workers drops some 43 percentage points (from 76.4 to 33.2) once workplace-specific fixed effects are included. In Britain it is 21 percentage points lower. Nevertheless, a substantial portion of the gender wage gap in both countries and all three age groups is not explained by individual characteristics and workplace effects.

The decomposition technique originally developed by Oaxaca (1973) and Blinder (1973) is the conventional approach used for decomposing gender earnings differential. An alternative approach is discussed by Meng and Meurs (2004) who extend the related Juhn-Murphy-Pierce (1991) decomposition to apportion the earnings gap into (1) a part attributable to gender differences in characteristics (the explained component); (2) a part attributable to gender differences in the returns for given characteristics (the unexplained component) and (3)

a part attributable to workplaces paying different wage premiums to their male and female workers (the workplace effect). It is this apportioning of the third component, the workplace effects, of the earnings gap that is of particular interest. As discussed above, we might expect that within workplaces, wages may be affected by a range of factors including: the type of wage bargaining, by union presence in the workplace and the existence of equal opportunity policies in the workplace, etc.

Following Meng and Meurs (2004), earnings equations are estimated separately for men  $m$  and women  $f$  and written as:

$$\ln \hat{W}_{ij}^m = \hat{\beta}^m X_{ij}^m + \hat{\delta}_j^m \quad (3)$$

$$\ln \hat{W}_{ij}^f = \hat{\beta}^f X_{ij}^f + \hat{\delta}_j^f \quad (4)$$

Estimating separate earnings functions for men and women allows for the estimated returns to characteristics ( $\hat{\beta}$ ) to differ across the genders.

The hypothetical wage a women would receive if she were treated identically to men in terms of both the returns paid to her personal characteristics,  $\hat{\beta}_f = \hat{\beta}_m$ , and the firm specific premium,  $\hat{\delta}_f = \hat{\delta}_m$ , given her personal endowments,  $X_{ij}^f$ , would be:

$$\ln \hat{W}_{ij}^{fpredicted1} = \hat{\beta}^m X_{ij}^f + \hat{\delta}_j^m \quad (5)$$

Assuming workplaces have no control over market prices (returns) for personal characteristics but can treat men and women identically in terms of the firm specific premium  $\hat{\delta}_f = \hat{\delta}_m$ , then the hypothetical wage a woman would expect to receive given her personal endowments,  $X_{ij}^f$ , would be:

$$\ln \hat{W}_{ij}^{fpredicted2} = \hat{\beta}^f X_{ij}^f + \hat{\delta}_j^m \quad (6)$$

The gender earnings gap can be decomposed into three components: the characteristics effect is the difference between (3) and (5), or  $(\bar{X}_m - \bar{X}_f)\hat{\beta}_m$ ; the returns effect is the difference



between (5) and (6) or  $(\hat{\beta}_m - \hat{\beta}_f)\bar{X}_f$ ; and the workplace effect is the difference between (4) and (6), or  $\hat{\delta}_m - \hat{\delta}_f$ .

**Table 5. Decomposition results, separating out the workplace effect.**

	Britain	Canada
	Gap in log wage points (1)	Gap in log wage points (3)
Total wage gap	0.247	0.212
differences in characteristics (explained)	0.0079	0.073
% explained	3.20%	34.4%
differences in returns (unexplained)	0.2308	0.171
% unexplained	93.4%	80.6%
Workplace effects	0.0078	-0.310
% workplace effect	3.2%	-14.6%

Sources: British Workplace Employee Relations Survey 2004 and the Canadian Workplace and Employee Survey 2003.  
 Note: To provide a reliable estimate of the workplace effect in the WES data, waves of independent worker data (1999, 2001, 2003 and 2005) were combined with workplace data in order to maximize the number of responding workers per workplace. The resulting gender wage gap is slightly lower (21.2 lpp points versus 23.3 lpp points in the 2003 data) although not statistically significantly so

On average, the gender logarithmic earnings differential is 24.7 and 21.2 log percentage points (lpp) for Britain and Canada respectively.<sup>7</sup> The decomposition results presented in Table 5 uses the decomposition strategy outline above. The characteristics effect accounted for 3.2% and 34.2% of the total gender earnings gap in Britain and Canada respectively. Britain has a larger portion of the total gap attributable to differences in returns (unexplained) than does Canada (93.4% compared to 80.6%). With regards to the workplace effects, it is found that the wage determination strategies of the workplace do indeed play a role in the gender wage gap in both countries. On average, the impact of the workplace narrows the gender wage gap by about 14.5% in Canada and widens the gap by 3.16% in Britain.

## **7. Concluding remarks**

Using linked employee-employer data, this paper compares the role of workplaces in the study of gender pay differentials in Britain and Canada. We find that pay differences between men and women in the private sector economy are similar, substantial and significant in both countries. A novelty of our analysis is the ability to examine the impact of workplace level on the relative size of the gender pay gaps. We find that women are disproportionately represented in low-wage workplaces in the private sectors of both countries and that this is particularly true for older women. Workplace segregation is found to account for more than half of the adjusted earnings differential for older women in both Britain and Canada. We also found that in Canada, women enjoy a higher within workplace wage premium which results in the gender pay gap being reduced. In Britain, the situation is reversed; men receive a higher within workplace wage premium which increases the gender earnings gap.

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### **Endnotes.**

<sup>1</sup> Marie Drolet is a Senior Research Economist with the Business and Labour Market Analysis Division at Statistics Canada (email: marie.drolet@statcan.ca). Karen Mumford is Professor of Economics in the Department of Economic and Related Studies, University of York (email: kam9@york.ac.uk). We are especially grateful to Z. Patak, K. Marchand, L. Marchand and Peter N. Smith for their insights and support. The authors also wish to thank the anonymous referees and the participants at the BJIR Conference on Workplace Issues at the London School of Economics, March 14-15, 2008.

<sup>2</sup> Data from the 2003 employee portion of the WES was used in this analysis. The WES follows workers for 2 years and workplaces for six years. As such, the WES 2003 is an independent sample and is representative of the survey population of workers while the workers used in the WES 2004 represent those workers who were selected in 2003 and remained with the workplace in 2004.

<sup>3</sup> Department of Trade and Industry (2005) *Workplace Employment Relations Survey: Cross-Section, 2004* [computer file]. 1st ed. Colchester: The Data Archive [distributor], 21 December 2005. SN: 5294. NB: wave 2 data released in 2007 are used throughout for Britain. The authors acknowledge the Department of Trade and Industry, the Economic and Social Research Council, the Advisory, Conciliation and Arbitration Service and the Policy Studies Institute as the originators of the 2004 Workplace Employment Relations Survey data, and the Data Archive at the University of Essex as the distributor of the data. The National Centre for Social Research was commissioned to conduct the survey fieldwork on behalf of the sponsors. None of these organisations bears any responsibility for the author's analysis and interpretations of the data.

<sup>4</sup> The WES contains 500 bootstrap weights for workplaces and employees. In a WES type survey, the bootstrap weights would account for most of the variability incurred at the second-stage. As such, standard errors were computed using the bootstrap weights.

<sup>5</sup> The discussion concerning the limits of not having actual work experience for British employees (see Section 3 above) is very pertinent here. It is possible that wage returns to education and age, even for those females who are currently employed full-time, are affected because the employee has had time out of the labour market (or worked less time as a part-

time employee) during some part of their career. The results need to be interpreted with this caveat in mind.

<sup>6</sup> It should also be noted however, that these workplace specific effects may partially capture unobserved worker heterogeneity and this heterogeneity may vary systematically across workplaces.

<sup>7</sup> To provide a reliable estimate of the workplace effect in the WES data, waves of independent worker data (1999, 2001, 2003 and 2005) were combined with workplace data in order to maximize the number of responding workers per workplace. Fixed firm effects for men and women were estimated from 61,912 observations in 3,935 workplaces. The average number of responding workers was 15.7 with 7.3 female and 8.4 male respondents. The resulting gender wage gap is slightly lower (21.2 log points versus 23.3 log points in the 2003 data) although not statistically significantly so. As such, the qualitative conclusions remain.

## Appendix.

**Table A1. Variable definitions**

Britain		Canada	
Variable Name	Definition	Variable name	Definition
Average hourly pay	Ratio of (the midpoints of the banded measure of) weekly average gross usual earnings (including overtime) and usual hours worked (including overtime and extra hours) per week.	Average hourly pay	Average hourly pay
log average hourly pay	The natural log of average hourly pay	log average hourly pay	The natural log of average hourly pay
Training	Days of training in last 12 months (apart from health and safety) paid for or organised by the employer	Training	Days of training in last 12 months
Education		Education	
None/Other	Doesn't have a recognised academic qualifications (May have other academic qualifications but doesn't have a listed recognised qualification)	None/Other	Below high school
cse25	Has GCSE grades D-G; CSE grades 2-5 SCE; O grades D-; SCE Standard grades 4-7	High school graduate	High school graduate
cse1	Has GCSE grades A-C; GCE O-level passes; CSE grade 1 SCE; O grades A-C; or SCE Standard 1-3	Trade or technical school	Trade or technical school
gceae	Has GCE A-level grades A-E; 1-2 SCE; Higher grades A-C, As levels	Some post secondary	Some post secondary
gce2ae	Has 2 or more GCE; A-levels grades A-E; 3 or more SCE; or Higher grades A-C	College diploma	College diploma
degree	Has a first degree, eg BSc, BA, HND, HNC Ma at first degree level	University degree	University degree
Post graduate	Has a higher degree, eg MSc, MA, PGCE, PhD	Post graduate degree	Post graduate degree
Female	Female	Female	Female
child 0-18	Dependent child aged below 18	Dependent children	Dependent child aged below 18
child 0-4	Youngest dependent child aged 0-4	child 0-4	Youngest dependent child aged 0-4
child 5-11	Youngest dependent child aged 5-11	child 5-11	Youngest dependent child aged 5-11
child 12-18	Youngest dependent child aged 12-18	child 12-18	Youngest dependent child aged 12-18
Married	Married or living with a partner	Married	Married or living with a partner
Disabled	Has a long term (expected to last more than 1 year) illness or disability.	Disabled	Has difficulty hearing, seeing, communicating, walking, climbing stairs, bending, learning or doing any similar activities

	Britain	Canada	
Visible minority	Employee considers they are white and black Caribbean; white and black African; white and Asian; any other mixed background; Indian; Pakistani; Bangladeshi; any other Asian background; Caribbean; African; any other black background; Chinese; or any other ethnic group.	Visible minority	Canadians come from many ethnic, cultural and racial backgrounds. From which groups did your parents or grandparents descend? If Arab, Black, Chinese, East Indian, Inuit, Japanese, Korean, Latin America, Metis, North American Indian, North African, South east Asia, West Asian, or Other
permanent contract	Employed on a permanent contract.	permanent contract	Regular employee with no contractual or anticipated
part time	Working part time, if usual working hours is less than 30 per week	part time	Usual hours less than or equal to 30 per week
Trade union	Worker is a member of trade union or staff association	Union	Worker is unionized or covered by a CBA
Tenure	Years working at this workplace	Tenure	Years working at this workplace
<b>Occupation</b>		<b>Occupation</b>	
managerial	Managerial	Managers	
Professional	Professional	Professionals	
Technical	Technical	Technical / trade	
Clerical	Clerical	Clerical and administrative	
craft	Craft service	Marketing and Sales	
personal	Personal service	Production	
sales	Sales and customer services		
operative	Operative and assembly workers		
unskilled	Unskilled		

Sources: British Workplace Employee Relations Survey 2004 and the Canadian Workplace and Employee Survey 2003.



Table A2. Characteristics of the British Workforce, WERS 2004.

	Total			Women			Men		
	all	women	men	<40	40-49	>50	<40	40-49	>50
log hourly wage	2.088	1.952	2.199	1.949	2.005	1.907	2.117	2.342	2.227
age	39.684	38.773	40.418	28.664	45.000	56.139	29.783	45.000	56.776
training	2.311	2.184	2.417	2.408	2.150	1.693	2.758	2.278	1.884
education not recognised.	0.247	0.226	0.264	0.086	0.245	0.532	0.120	0.256	0.549
cse25	0.105	0.102	0.107	0.118	0.118	0.050	0.140	0.121	0.031
cse1	0.257	0.301	0.220	0.332	0.313	0.217	0.259	0.238	0.128
gceae	0.052	0.060	0.046	0.067	0.056	0.046	0.054	0.043	0.035
gce2ae	0.092	0.099	0.085	0.131	0.085	0.037	0.106	0.075	0.056
degree	0.180	0.155	0.201	0.211	0.114	0.065	0.242	0.199	0.123
postgrad	0.052	0.040	0.062	0.042	0.051	0.026	0.069	0.058	0.052
oldest dep. child 0-4	0.124	0.096	0.148	0.163	0.031	0.003	0.235	0.117	0.009
oldest dep. child 5-11	0.128	0.120	0.134	0.141	0.187	0.004	0.115	0.284	0.036
oldest dep. child 12-18	0.109	0.114	0.104	0.039	0.318	0.088	0.028	0.249	0.121
married	0.651	0.634	0.665	0.543	0.734	0.748	0.532	0.766	0.829
disabled	0.112	0.098	0.123	0.070	0.104	0.156	0.066	0.139	0.218
visible minority	0.064	0.059	0.068	0.068	0.059	0.036	0.098	0.042	0.032
permanent	0.928	0.925	0.930	0.901	0.956	0.950	0.911	0.962	0.937
union member	0.207	0.177	0.231	0.133	0.236	0.221	0.165	0.295	0.300
tenure	4.827	4.515	5.084	3.363	5.309	6.409	3.924	5.981	6.505
female	0.450	1.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
part time	0.223	0.386	0.089	0.345	0.394	0.471	0.100	0.046	0.106
managerial	0.139	0.101	0.169	0.098	0.128	0.083	0.137	0.223	0.184
professional	0.081	0.050	0.106	0.058	0.044	0.038	0.110	0.105	0.100
technical	0.125	0.137	0.116	0.154	0.143	0.094	0.131	0.119	0.084
clerk	0.165	0.271	0.077	0.251	0.262	0.328	0.084	0.062	0.079
craft	0.090	0.016	0.150	0.014	0.022	0.016	0.145	0.163	0.149
personal	0.048	0.086	0.018	0.087	0.081	0.087	0.019	0.016	0.017
sales	0.118	0.187	0.061	0.208	0.159	0.164	0.092	0.028	0.033
operative	0.108	0.039	0.165	0.030	0.052	0.046	0.135	0.188	0.201
unskilled	0.126	0.113	0.137	0.101	0.109	0.144	0.147	0.097	0.155
Sample size	14272	6790	7464	3613	1624	1553	3615	1887	1962

Source: British Workplace Employee Relations Survey 2004.

**Table A3: Characteristics of the Canadian private sector workforce, Workplace and Employee Survey 2003**

Variable	Women					Men		
	Men	Women	< 40	40-49	50+	< 40	40-49	50+
log hourly wage	3.030	2.797	2.696	2.871	2.901	2.887	3.146	3.173
hourly wage \$canadian	23.70	18.57	16.71	19.95	20.42	20.53	25.87	27.35
age	40.419	39.972	29.632	44.434	55.235	30.286	44.505	55.542
age_squared	1.767	1.727	0.916	1.982	3.069	0.955	1.989	3.107
Training time	2.150	2.296	2.710	1.803	2.170	2.400	2.347	1.420
Below high school	0.119	0.079	0.071	0.064	0.120	0.109	0.101	0.162
High School graduate	0.181	0.162	0.125	0.190	0.196	0.200	0.179	0.148
Trade school	0.141	0.068	0.044	0.086	0.092	0.102	0.169	0.183
Some post secondary	0.134	0.169	0.196	0.142	0.152	0.150	0.120	0.119
College	0.178	0.263	0.282	0.285	0.188	0.197	0.185	0.131
University	0.165	0.175	0.201	0.151	0.155	0.180	0.159	0.143
Post-graduate	0.061	0.061	0.065	0.057	0.059	0.051	0.063	0.081
unknown education	0.020	0.023	0.016	0.025	0.037	0.011	0.024	0.033
Has dependent children	0.440	0.396	0.406	0.575	0.098	0.420	0.656	0.219
... 4 years or less	0.164	0.093	0.184	0.026	...	0.267	0.120	...
... aged 5-11	0.148	0.151	0.173	0.210	...	0.128	0.269	...
... aged 12-18	0.127	0.152	0.049	0.339	...	0.026	0.267	0.160
Married	0.720	0.645	0.561	0.733	0.689	0.583	0.835	0.852
Disability	0.105	0.080	0.046	0.092	0.133	0.085	0.105	0.144
Ethnic	0.089	0.090	0.094	0.091	0.079	0.101	0.075	0.082
Permanent	0.962	0.976	0.974	0.976	0.980	0.962	0.982	0.940
Part-time	0.069	0.216	0.246	0.181	0.207	0.092	0.035	0.065
Tenure-years	6.766	6.468	5.108	7.329	8.053	5.491	7.714	8.147
Unionized	0.275	0.279	0.193	0.331	0.385	0.213	0.327	0.333
Managers	0.165	0.087	0.070	0.106	0.092	0.125	0.166	0.242
Professionals	0.130	0.203	0.186	0.197	0.247	0.132	0.131	0.126
Technical Trade	0.522	0.313	0.319	0.309	0.309	0.510	0.560	0.502
Clerical Admin	0.072	0.218	0.209	0.240	0.201	0.084	0.065	0.057
Marketing Sales	0.033	0.117	0.150	0.102	0.070	0.049	0.018	0.019
Production	0.077	0.062	0.065	0.045	0.080	0.100	0.060	0.054
Observations	10,595	8,242	3,629	2,820	1,793	4,420	3,411	2,764

Note: Young refers to workers less than 40 years of age; Prime-aged refers to workers aged 40-49; Mature workers refers to those aged 50+. Notation ... number too small to report

Source: Canadian Workplace and Employee Survey 2003.

**Table A4: Regression results for Canada**

	Without workplace specific effects								With workplace specific effects							
	All workers		Young		Prime-aged		Mature		All workers		Young		Prime-aged		Mature	
	Coeff	Std.err.	Coeff	Std.err.	Coeff	Std.err.	Coeff	Std.err.	Coeff	Std.err.	Coeff	Std.err.	Coeff	Std.err.	Coeff	Std.err.
age	0.0349	0.0071	0.0717	0.0256	-0.0993	0.2361	0.0594	0.0573	0.0240	0.0030	0.0339	0.0144	-0.0685	0.1118	0.1003	0.0372
age_squared	-0.3530	0.0830	-0.8924	0.4332	1.2189	2.6557	-0.5538	0.4819	-0.2367	0.0355	-0.3482	0.2402	0.7936	1.2535	-0.8699	0.3179
training	0.0007	0.0009	0.0004	0.0014	0.0015	0.0012	0.0000	0.0010	0.0000	0.0003	-0.0001	0.0006	-0.0005	0.0008	-0.0003	0.0009
high school	0.1050	0.0431	0.1026	0.0577	0.1024	0.0781	0.1000	0.0804	0.0309	0.0188	0.0789	0.0335	0.0219	0.0418	0.0111	0.0494
trade	0.1754	0.0480	0.1800	0.0653	0.2060	0.0813	0.1151	0.0791	0.0646	0.0210	0.0870	0.0417	0.1197	0.0434	0.0315	0.0490
some_pse	0.1963	0.0500	0.1677	0.0637	0.2276	0.0808	0.1779	0.0954	0.0508	0.0199	0.0473	0.0357	0.0665	0.0432	0.0392	0.0528
college	0.2636	0.0477	0.2224	0.0603	0.2978	0.0820	0.2405	0.0952	0.0856	0.0193	0.0763	0.0350	0.1285	0.0413	0.0652	0.0508
university	0.3738	0.0530	0.3176	0.0679	0.4497	0.0969	0.3095	0.0949	0.1620	0.0212	0.1366	0.0373	0.2185	0.0459	0.1210	0.0542
post graduate	0.5011	0.0764	0.4830	0.0975	0.5118	0.1479	0.4141	0.1460	0.2889	0.0261	0.2816	0.0461	0.3083	0.0548	0.2083	0.0627
unknown	0.1077	0.0842	0.1355	0.1309	0.1577	0.1647	0.0074	0.1203	0.0327	0.0339	0.0784	0.0711	0.0277	0.0685	0.0359	0.0748
child04	0.0412	0.0362	-0.0121	0.0440	0.1153	0.0899	0.1359	0.1554	0.0230	0.0150	0.0060	0.0219	0.0607	0.0382	0.0799	0.1263
child511	0.0211	0.0324	-0.0253	0.0538	0.0660	0.0489	-0.0296	0.1040	0.0014	0.0137	-0.0276	0.0262	0.0419	0.0244	0.0525	0.0761
child1218	0.0160	0.0351	-0.0868	0.0709	0.0474	0.0477	0.0864	0.0686	0.0067	0.0140	-0.0953	0.0452	0.0486	0.0221	0.0089	0.0355
married	0.0710	0.0279	0.0813	0.0390	0.0398	0.0537	0.0705	0.0513	0.0477	0.0109	0.0701	0.0185	-0.0110	0.0226	0.0134	0.0300
disability	-0.0415	0.0431	0.0055	0.0679	-0.0881	0.0766	-0.0573	0.0514	-0.0043	0.0154	-0.0082	0.0331	-0.0452	0.0313	-0.0426	0.0325
ethnic	-0.1140	0.0497	-0.0913	0.0638	-0.1135	0.0753	-0.1641	0.1052	-0.1072	0.0183	-0.0813	0.0288	-0.1611	0.0416	-0.1141	0.0487
permanent	0.0405	0.0897	0.0285	0.1248	0.0751	0.1255	0.0709	0.1040	0.0514	0.0270	0.1106	0.0454	0.1093	0.0671	-0.0455	0.0672
Part-time	-0.1009	0.0400	-0.0800	0.0503	-0.1216	0.0697	-0.0583	0.0651	-0.0409	0.0150	-0.0205	0.0260	-0.0574	0.0309	-0.0132	0.0432
trade union	0.0720	0.0276	0.0711	0.0368	0.0630	0.0415	0.0965	0.0442	-0.0647	0.0160	-0.0242	0.0299	-0.0987	0.0285	-0.0587	0.0367
tenure	0.0152	0.0301	0.0355	0.0343	0.0042	0.0576	-0.0795	0.0616	0.0024	0.0104	0.0370	0.0160	0.0068	0.0251	-0.1127	0.0364
tenure_squared	0.8857	2.2673	-0.7525	2.6931	1.7591	4.3069	7.7615	4.4131	1.0845	0.7962	-1.5224	1.2876	0.4934	1.8680	9.2583	2.6880
female	<b>-0.1826</b>	<b>0.0247</b>	<b>-0.1385</b>	<b>0.0336</b>	<b>-0.2062</b>	<b>0.0413</b>	<b>-0.2039</b>	<b>0.0547</b>	<b>-0.1099</b>	<b>0.0105</b>	<b>-0.0877</b>	<b>0.0175</b>	<b>-0.1357</b>	<b>0.0221</b>	<b>-0.0895</b>	<b>0.0302</b>
managers	0.4229	0.0510	0.4301	0.0727	0.3892	0.0830	0.4432	0.0976	0.4692	0.0189	0.4326	0.0348	0.4366	0.0369	0.4493	0.0524
professionals	0.3471	0.0439	0.3667	0.0575	0.2971	0.0780	0.3563	0.0773	0.3373	0.0176	0.2888	0.0305	0.3117	0.0335	0.3847	0.0497
technical_trade	0.0813	0.0296	0.1108	0.0464	0.0531	0.0526	0.0653	0.0626	0.1414	0.0148	0.1374	0.0261	0.0893	0.0298	0.1589	0.0431
market_sales	-0.1759	0.0532	-0.1259	0.0693	-0.2314	0.0954	-0.2079	0.1429	0.0623	0.0246	0.1139	0.0382	0.0343	0.0548	0.0422	0.0856
production	-0.0769	0.0578	-0.0092	0.0751	-0.1209	0.0919	-0.1491	0.0847	0.0058	0.0240	-0.0210	0.0409	-0.0077	0.0509	0.0243	0.0679
constant	1.6328	0.1574	0.9946	0.3817	4.4720	5.1934	1.1792	1.6923	2.0359	0.0669	1.6423	0.2092	4.1431	2.4856	0.2474	1.0933
R-square	0.5233		0.5563		0.4709		0.4666		0.8000		0.8670		0.8800		0.8904	
No. workers	18837		8049		6231		4557		18573		7919		6150		4504	

Source: Canadian Workplace and Employee Survey 2003.

Table A5. Regression results for Britain.

	Without Workplace Specific Effects								With Workplace Specific Effects							
	All workers		Young workers		Prime aged		Mature workers		All workers		Young workers		Prime aged		Mature workers	
	Coef.	Std Err	Coef.	Std Err	Coef.	Std Err	Coef.	Std Err	Coef.	Std Err	Coef.	Std Err	Coef.	Std Err	Coef.	Std Err
age	0.042	0.003	0.068	0.013			0.425	0.304	0.031	0.003	0.053	0.012			0.211	0.226
age squared	-0.448	0.037	-0.823	0.222			-3.654	2.596	-0.317	0.031	-0.662	0.200			-1.838	1.920
training	0.006	0.002	0.006	0.002	0.009	0.003	0.008	0.003	0.004	0.001	0.003	0.002	0.007	0.003	0.005	0.003
education (none recognised omitted)																
cse25	0.075	0.015	0.038	0.021	0.080	0.025	0.094	0.039	0.067	0.013	0.044	0.019	0.029	0.028	0.040	0.032
cse1	0.127	0.013	0.090	0.021	0.150	0.023	0.124	0.023	0.084	0.011	0.057	0.019	0.068	0.021	0.119	0.020
gceae	0.142	0.022	0.133	0.029	0.136	0.038	0.063	0.051	0.101	0.018	0.094	0.025	0.022	0.038	0.133	0.050
gce2ae	0.240	0.021	0.187	0.028	0.275	0.041	0.238	0.048	0.185	0.016	0.144	0.025	0.202	0.034	0.221	0.035
degree	0.312	0.018	0.249	0.023	0.363	0.031	0.322	0.037	0.205	0.014	0.150	0.021	0.217	0.027	0.262	0.032
postgrad	0.397	0.024	0.341	0.033	0.474	0.042	0.347	0.050	0.252	0.019	0.189	0.028	0.340	0.037	0.329	0.039
oldest dep. child 0-4	0.037	0.013	-0.013	0.016	0.041	0.027	0.127	0.078	0.016	0.011	-0.008	0.014	-0.010	0.028	-0.005	0.074
oldest dep. child 5-11	0.001	0.015	-0.073	0.020	0.025	0.022	0.004	0.069	0.013	0.012	-0.029	0.018	0.013	0.020	0.000	0.044
oldest dep. child 12-18	-0.030	0.013	-0.127	0.031	-0.003	0.019	0.015	0.027	-0.010	0.012	-0.043	0.030	-0.001	0.019	0.004	0.023
married	0.053	0.010	0.068	0.014	0.037	0.018	0.033	0.023	0.046	0.008	0.050	0.011	0.041	0.017	0.012	0.019
disabled	-0.019	0.014	-0.028	0.025	0.003	0.026	-0.033	0.019	-0.003	0.012	-0.002	0.024	0.029	0.024	0.002	0.018
visible minority	-0.055	0.021	-0.065	0.026	-0.013	0.035	-0.063	0.032	-0.075	0.017	-0.073	0.023	-0.081	0.044	-0.092	0.043
permanent	0.038	0.022	0.061	0.026	-0.018	0.050	0.009	0.044	0.030	0.020	0.040	0.025	0.009	0.042	0.094	0.041
part-time	-0.068	0.018	-0.022	0.023	-0.083	0.029	-0.088	0.035	0.057	0.016	0.101	0.024	0.057	0.029	0.059	0.027
union member	0.075	0.013	0.054	0.017	0.072	0.017	0.108	0.021	0.014	0.011	0.007	0.014	-0.006	0.021	0.032	0.022
tenure	0.015	0.005	0.035	0.007	-0.006	0.011	-0.006	0.012	0.006	0.004	0.019	0.006	-0.003	0.010	-0.005	0.011
tenure squared	0.0004	0.001	-0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.000	-0.001	0.001	0.001	0.001	0.001	0.001

Table A5. Regression results for Britain, continued.

	Without Workplace Specific Effects								With Workplace Specific Effects							
	All workers		Young workers		Prime aged		Mature workers		All workers		Young workers		Prime aged		Mature workers	
	Coef.	Std Err	Coef.	Std Err	Coef.	Std Err	Coef.	Std Err	Coef.	Std Err	Coef.	Std Err	Coef.	Std Err	Coef.	Std Err
<i>female</i>	-0.155	0.012	-0.094	0.014	-0.217	0.022	-0.218	0.026	-0.106	0.010	-0.077	0.012	-0.128	0.020	-0.151	0.024
occupations (clerk omitted)																
managerial	0.255	0.020	0.231	0.027	0.265	0.030	0.247	0.035	0.326	0.015	0.312	0.022	0.323	0.029	0.348	0.031
professional	0.278	0.023	0.289	0.029	0.238	0.037	0.255	0.045	0.262	0.020	0.246	0.024	0.228	0.034	0.255	0.042
technical	0.143	0.017	0.133	0.021	0.174	0.032	0.123	0.035	0.148	0.014	0.121	0.019	0.192	0.032	0.175	0.030
craft	-0.076	0.021	-0.073	0.027	-0.065	0.035	-0.109	0.040	0.039	0.019	0.043	0.026	0.009	0.035	0.034	0.042
personal	-0.277	0.024	-0.274	0.029	-0.274	0.039	-0.296	0.037	-0.094	0.024	-0.089	0.037	-0.130	0.052	-0.085	0.052
sales	-0.269	0.021	-0.231	0.026	-0.279	0.036	-0.343	0.035	-0.071	0.019	-0.071	0.024	-0.063	0.042	-0.053	0.041
operative	-0.210	0.021	-0.133	0.027	-0.244	0.032	-0.307	0.033	-0.100	0.016	-0.046	0.023	-0.154	0.033	-0.140	0.034
unskilled	-0.364	0.020	-0.332	0.026	-0.345	0.037	-0.429	0.033	-0.176	0.017	-0.124	0.024	-0.198	0.041	-0.234	0.034
constant	1.022	0.059	0.576	0.179	2.076	0.058	-10.217	8.878	1.189	0.053	0.859	0.165	2.006	0.054	-4.173	6.624
R-squared	0.478		0.473		0.496		0.479		0.670		0.703		0.770		0.767	
No. workers	14272		7234		3515		3523		14272		7234		3515		3523	

Sources: British Workplace Employee Relations Survey 2004.