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# Dundee Discussion Papers in Economics

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The Public-Private Sector Wage Differential:  
Gender, Workplaces and Family Friendliness

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# The Public-Private Sector Wage Differential: Gender, Workplaces and Family Friendliness.

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## ABSTRACT

JEL J3, J7

This study examines the role of individual characteristics, occupation, and workplace features accounting for differences in hourly earnings between male and female full-time employees in the public and private sectors. Using new linked employee-employer data for Britain in 2004, we find that the nature of the public private pay gap differs between genders and that of the gender pay gap differs between sectors. The analysis shows that essentially none of the gender earnings gap in both the public and private sector can be explained by differences in observable characteristics. Decomposition analysis further reveals that the contribution of differences in workplace characteristics to the public private earnings gap is sizeable and significant. Whilst the presence of performance related pay and company pension schemes is associated with higher relative earnings for those in the private sector, the key workplace characteristic for the public private pay gap is the presence of family-friendly employment practices. Increased provision is associated with higher relative earnings in the public sector for both men and women.

Key words: public sector earnings, gender, gap, family friendly, decomposition.

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The public sector wage bill is a matter of great concern to policy makers, contributing as it does to nearly 50% of government spending and employing a fifth of the total U.K. workforce. A significant part of the Chancellor's Comprehensive Spending Review is focused on public sector pay and implications for the public sector workforce in the long run.<sup>1</sup> Concerns have also been expressed about recent increases in the public-private wage differential<sup>2</sup> and the persistence of the gender earnings gap<sup>3</sup>.

From a macroeconomic perspective the level and growth of public sector pay is of obvious importance. High public sector wages increasing at a relatively fast rate carry the risk of stimulating private sector wage demands and inflationary expectations. If indeed public sector wages are at a level which is appropriate given the characteristics of the employees and their workplaces (with respect to the private sector) then there is no strong imperative to increase public sector wages further, especially given the inflationary risk.

There has been considerable research into analysing both the size of the public-private pay differential and its movements over time, and possible explanations for these phenomena. Most studies have based their analysis upon cross-sectional or longitudinal data which is rich in the description of worker attributes but meagre in respect of workplace characteristics<sup>4</sup>. If employers set wages in an environment where both employers and workers have a degree of bargaining power, then workplace characteristics that affect the value of the marginal product of labour may have an impact on the wage. These could include characteristics such as workplace size,

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<sup>1</sup> "I can assure you that through the vigilance of the Bank and our determination to ensure future public sector pay settlements are founded on our 2% inflation target, we will maintain our anti-inflation discipline," (Gordon Brown, then Chancellor, cited in *The Guardian*, June 21, 2006).

<sup>2</sup> "The ASHE figures [showing that median earnings for full time workers in the public sector rose 4.1% to £475 a week in 2005 compared with 2.5% to £ 413 in the private sector] indicate that the Chancellor can now make a strong case for taking a tougher stance on public sector pay". (John Philpott, Chief Economist at the Chartered Institute of Personnel and Development, cited in *The Guardian*, November 11, 2005).

<sup>3</sup> The gender earnings gap in Britain has recently been placed firmly at the forefront of policy concern with the previous Prime Minister establishing a Women and Work Commission in 2004 to seek ways to tackle the gap.

<sup>4</sup> For example Trinder, 1997; Disney and Gosling, 1998 and 2003; Blackaby et al, 1999; Bender and Elliot, 1999; Yu et al, 2005; Luciflora and Meurs, 2006; Makepeace and Marcenaro-Gutierrez, 2006; Postel-Vinay and Turon, 2005.

foreign ownership, industrial relations policies, and human resource management practices<sup>5</sup>.

This distinction between worker and workplace characteristics is important from an empirical perspective too, because, as Burgess and Metcalfe (1999) using the 1990 Workplace Industrial Relations Survey (WIRS90) show, incentive schemes which have a direct bearing on pay determination do vary across public and private sector workplaces. Similarly, Burgess and Ratto (2003) survey international evidence to further explore the impact of explicit incentives (and especially Performance Review Pay, PRP) in the public sector. They conclude that these practices are typically under utilised in the public sector. A strength of these studies is the recognition that workplace characteristics are not uniform across the sectors. The association between payment schemes such as these and the resultant public sector pay gap for individual employees can only be examined adequately with linked employee and workplace data. Similarly, we know that human resource management choices at the workplace (such as management structure, firm structure, employee involvement in decision making) in the workplace can have an impact on firm performance (Lazear, 2000) in both the private and public sectors (Dixit 1997; Simpson, 2006).

A less well documented human resource management policy associated with firm performance is the presence of family friendly work practices. Pressures for the introduction of family-friendly practices in Britain are coming from many directions. Changes in the labour supply of women and the greater sharing of household non-labour market work across parents (Gershuny, 2007, page 131) have led to an increased demand from workers (male and female) for family-friendly work life balance practices. From political quarters, there has been increased action at the European Union level pressing Member States to introduce legislation and foster policies, which aim to reconcile work and family life. These efforts are intended to promote not only gender equality in the workplace (Equal Opportunity Commission, 2006) but also greater quality care for children and dependents (Caracciolo, 2001).

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<sup>5</sup> Bhaskar and To (1999) and Bhaskar et al, (2002) analyse the complexities of wage setting in monopsony situations with free entry where productivity enhancing workplace characteristics do affect wages.

The British government has adopted a multi-pronged approach to encouraging development of family-friendly work environments<sup>6</sup>. The major plank in the Government's programme is the Work-Life Balance campaign. This campaign includes a large scale public awareness component: producing and distributing information to individuals and firms concerning their legal entitlements and/or obligations<sup>7</sup>, ways family-friendly practices can be implemented, and the potential gains from doing so. Perhaps aided by these governmental programmes, firms are increasingly aware of advantages to implementing family-friendly policies, including reducing absenteeism and raising productivity (surveys are provided in Dex and Smith 2002; Equal Opportunity Commission, 2006; and Gray, 2002).

The literature on gender wage inequality is also well established (see surveys by Altonji and Blank, 1999; Weichselbaumer and Winter-Ebman, 2005)<sup>8</sup>. There is dispersion in the findings of these studies, nevertheless, it is generally concluded that whilst the gender gap has declined in the last two decades, a substantial and persistent earnings gap still exists between male and female employees in Britain. There is also a young, but growing, body of work on the gender pay gap that exploits linked evidence on both individual worker characteristics and those of their workplaces as an additional feature to help explain the earnings gap<sup>9</sup>. Typically, these studies show that the earnings gap differs across workplaces and that it differs with identifiable workplace characteristics. This suggests that including workplace information in the modelling of individual earnings allows for a more precise calculation of the explained part of the earnings gap

Given the theoretical literature and empirical evidence summarised above, there is good reason to suppose that including relevant workplace characteristics in

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<sup>6</sup> These include the National Childcare Strategy, extended maternity and paternity entitlements, the minimum wage, the New Deal for Lone Parents, and the new Working Families Tax Credit.

<sup>7</sup> "Women can claim that a refusal to allow flexibility [family friendly work practices] indirectly discriminates against them. This is on the basis that a requirement to work full-time, for example, is likely to impact on women as the primary carer of dependents. Men can claim unlawful discrimination if their request to work flexibly is treated less favourably than a similar request by a female colleague." (Equal Opportunity Commission, 2006 <http://www.eoc.org.uk/default.aspx?page=15407> as cited on July 4, 2007).

<sup>8</sup> Recent results for Britain include Joshi and Paci (1998), Mumford and Smith (2007), Manning and Robinson (2004) and Manning and Petrongolo (2006).

<sup>9</sup> Groshen, 1991; Holzer and Neumark, 2000; Abowd et al, 2001; Drolet, 2002; Bayard et al, 2004; Anderson et al, 2001; Manning and Petrongolo, 2004; Mumford and Smith, 2007; Reilly et al, 2006; Hellerstein et al, 2007.

addition to the standard variables capturing human capital is likely to produce richer insight into the public private and gender pay differentials. In this paper, we use data from the British Workplace Employee Relations Survey 2004 (WERS04) to carry out such an analysis. WERS04 is a nationally representative survey of both workplaces and their employees to explore the impact of workplace characteristics on pay determination and the public-private wage gap for men and women. The linked nature (and extensive questionnaires) of the WERS04 data allows us to control far more extensively for both individual employee characteristics and workplace characteristics than has been possible in previous earnings studies. A further attractive feature of the WERS04 data, of particular relevance to our study, is the extensive information it provides on both public and private sector workplaces (Kersley et al, 2006, page 5).

Most studies that concentrate on the public-private wage differential issue rely on the human capital model as the theoretical basis for the study of earnings (Becker 1975). This approach is also used as the starting point in this paper. At the employee level, it is assumed that wages increase with (marginal) productivity which in turn increases with measures of accumulated skills such as education, work experience, and training. The Human Capital approach is necessarily partial. By using linked workplace-worker data, we are able to explore the additional role workplace characteristics have in the wage determination process and on the public-private wage differential in Britain to a greater extent than has been done previously in the existing literature.

## **1. Data**

The data used in this study are drawn from the British Workplace Employee Relations Survey 2004 (WERS04)<sup>10</sup>. WERS04 is a nationally representative survey of workplaces and their employees, where a workplace comprises the activities of a single employer at a single set of premises. Face-to-face interviews for WERS04 were conducted with a senior manager (with day-to-day responsibility for employee relations). At those workplaces responding to the manager survey, a questionnaire was presented to 25 randomly selected employees (in workplaces with more than 5

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<sup>10</sup>Department of Trade and Industry (2006). Workplace Employee Relations Survey: Cross-Section, 2004 (computer file). 5<sup>th</sup> ed. Colchester: The Data Archive (distributor). SN: 5294.

employees) or to all the employees (in workplaces with fewer than 26 employees).<sup>11</sup> The entire surveying process resulted in 2,295 completed workplace surveys, with 22,451 completed employee questionnaires from 1,733 of these workplaces.

WERS04 is a stratified random sample, and larger workplaces and some industries are over-represented. In this paper the data have been weighted throughout the analyses to allow for the complex survey design and are thus representative of the sampling population<sup>12</sup>. All of the empirical results that follow use workplace and employee sampling weights simultaneously.

WERS04 and its predecessors have been used to analyze diverse research questions (Millward et al. 2004), but we are not aware of any research using these data to explicitly examine the earnings gap between public sector and private sector male and female full-time employees in Britain. Retaining only those individuals who have complete information for the variables used in the analyses below leaves us 10,600 full-time employees; 2,903 in the public sector and 7,697 in the private sector.

## **2. Measuring the earnings gaps**

Full definitions of the variables to be used in the study are presented in Table 1. Summary statistics for these variables are in Tables 2 for the full data sample, male and female employees, and public and private sector employees in aggregate, respectively. Summary statistics for the sub-samples of primary interest to this study (public sector male, private sector male, public sector female, and private sector female full-time employees) are presented in Table 3.

A full-time employee is defined to be working 37 or more hours per week, which is a standard full-time working week in the public sector and a reasonable assumption for the more variable definition of full-time in the private sector (Manning

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<sup>11</sup> The industries excluded from the survey were agriculture, hunting and forestry; fishing; mining and quarrying; private households with employed persons; and extra-territorial organisations and bodies.

<sup>12</sup> The advantages from using weighted complex survey design data is discussed at length in Deaton (1998) and by the suppliers of the WERS data series (see footnote above). When weighted accordingly, the data are representative of all workplaces with 5 or more employees, located in Great Britain, and engaged in activities within sectors D (Manufacturing) to O (Other Community, Social and Personal Services) of the Standard Industrial Classification (SIC) 2003. The data, suitably weighted, are therefore also representative of all employees within these workplaces.



and Petrongolo, 2004). The public sector (as defined by the suppliers of the data set<sup>13</sup>) employs 27.4 per cent of full-time employees in Britain (Table 1): 22.2 per cent of the males and 35.8 per cent of the females.

The measure of earnings used is average hourly earnings for each employee. This is calculated by dividing the employee's gross (before tax and other deductions) weekly wages by the hours they usually work each week (including any overtime and extra hours). Whilst usual hours worked is a continuous measure, the survey responses for gross weekly wages are banded in the data set. There are 14 bands and the midpoints of these bands are used. On this measure, public sector employees earn, on average, 14 log per cent (or log wage points) more than private sector employees (see Table 2). Full-time male earnings are, on average, also 14 log per cent (or log wage points) above full-time female average earnings (see Table 2). These similarly sized aggregate earnings gap may, however, camouflage quite different earnings gaps between sectors and genders.

This paper is specifically concerned with comparing male and female public sector and private sector full-time employees, implying that there are a range of earnings gaps to consider (see Figure 1 and Table 3). For example, within genders but across sectors, the public sector to private sector gap for men is 11.7 log per cent in terms of mean log hourly wages; this is only half as big as the public sector to private sector gap for women (which is 24.3 log per cent). Within sectors but across genders the differences are even larger: the male public sector to female public sector gap is 7 log per cent, whilst the male private sector to female private sector gap is almost three times bigger (at 19.6 log per cent).

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<sup>13</sup> A public sector workplace is one where the best description of the formal status of the establishment (or the organisation of which it is a part) is that it is a: government owned limited company; nationalised industry; public service agency; other non-trading public corporation; quasi autonomous national government organisation (QUANGO); or local/central government (including the National Health Service and Local Education Authorities).

A private sector workplace is one where the best description of the formal status of the establishment (or the organisation of which it is a part) is that it is a: public limited company (PLC); private limited company; company limited by guarantee; partnership (including limited liability partnership/ self-proprietorship.); trust/charity; body established by Royal Charter; or co-operative/mutual/friendly society.

### **3. The determinants of earnings**

#### *3.1 Individual characteristics*

Most authors have adopted the human capital model as the theoretical basis for the earnings function (an extensive recent survey was provided Chiswick, 2003). This approach will also be used here. At the individual employee level, it is assumed that wages increase with measures of accumulated skills such as education, work experience, and training.

WERS04 provides information as to the highest level of education the individual has received across a range of educational categories. Just over a quarter of full-time employees have a degree or postgraduate qualification whilst nearly 60 per cent have no post-age 16 qualifications (Table 2). The public sector employs more highly educated workers than does the private sector, and women are substantially less likely than men to have the lowest education levels.

Measures of work experience are usually assumed to be positively related to wages via the ability to acquire skills over the time period the employee has spent working. Typically, cross-sectional studies do not have data on the history of actual lifetime work experience across firms for individuals. Instead proxies are provided, the most common of which is potential experience: the age of the individual minus years spent in education. This may lead to an underestimate of the relationship between work experience and earnings if the individual was not actually employed during substantial parts of their life (such as the long-term unemployed or mothers who have taken time out of the labour force to care for their children). WERS04 also does not have information on actual experience over working life; potential experience (age minus education and infant years) is used instead and the results need to be interpreted with this caveat in mind.

The length of the time the employee spent in employer-provided training in the previous year is also included in the dataset; this measure of training is expected to be positively related to wages (Hashimoto, 1981; Almeida-Santos and Mumford, 2005). Training periods are some 50 per cent higher in the public sector, they are also a little (around 10 per cent) higher for women.

The earnings function is augmented with the inclusion of further categories of explanatory variables capturing individual employee characteristics such as demographic variables (which may constrain an individual's choice of jobs including the presence of dependent children, marital status, ethnic identification, and physical disability); individual job characteristics (being on a fixed term contract, and union membership); and occupation.

Considering the demographic variables in more detail, just over a third of British full-time employees have at least one dependent child (Table 2), more so for males (42 per cent) than females (25 per cent). Close to two thirds of employees are partnered or married (again more so for males, 71 per cent, than females, 61 per cent). There are more private sector employees who consider themselves to be of a non-white ethnic background (6 per cent) than public sector employees (4 per cent); with little difference across the genders. Finally, a substantial proportion of the workforce has an ongoing physical disability (12 per cent of the men and 11 per cent of the females).

Amongst the individual job characteristics, some 3 per cent of employees are hired on fixed term contracts, reflecting a more insecure employment future. These employment contracts are more common in the public sector (4 per cent) than in the private sector (2 per cent) but not significantly different across the genders. Current job tenure (uncompleted spells) is on average 5.2 years (5.5 for men and 4.6 for women). Tenure is also higher in the public sector (5.9 per cent) than in the private sector (5 per cent). Current job tenure is expected to be positively related to wages primarily because it reflects a successful match between employee and employer (Mumford and Smith, 2004). Returns to current job length have often been found to be very small and the major action with this variable in the literature appears to be capturing the wage gains associated with changing jobs (Manning and Robinson, 2004).

Union membership has declined dramatically in Britain since the 1970s. Nevertheless, in 2004 it was still substantial at 32 per cent of full-time employees representing a potentially major source of bargaining power (in 1998 it was 39 per cent). Union membership rates are very similar across the genders but are very much

higher in the public sector (69 per cent) than in the private sector (21 per cent). The union may provide a voice mechanism for the individual thereby leading to less quits, longer tenure and higher wages (Freeman and Medoff, 1984, Booth and Chatterji 1998, Chatterji 2007). Unions may also, however, provide a range of other services to their members, which could increase relative job satisfaction and reduce the wage. On balance, a positive relationship between union membership and the wage is expected.

Occupational choice, at an individual level, is often treated in much the same way as educational outcome since they both reflect a range of variables, especially individual ability and opportunity (Filer, 1986). Occupational choice may also be constrained. In general, those occupations typically associated with higher skills (professional, technical, clerical) are more likely to occur in the public sector. (With the exception of the highly skilled managers, who are also more likely to be employed in the private sector.) Analogously, the lower skilled occupations (crafts, personal services, sales, operative and assembly workers and the unskilled) are more likely to be employed in the private sector. In aggregate, women are less likely to be managers, professionals, craftsmen, operative and assembly workers, or unskilled. They are much more likely to be employed in the technical, clerical, personal services, or sales occupations.

### *3.2 Workplace characteristics*

A range of workplace characteristics are included in the analyses, which may be considered in groups: structural conditions; employment conditions; and industrial relations measures.

Structural conditions are captured by: workplace size, if the workplace is foreign controlled, regions and, of course, by public or private sector (discussed above). British workplaces are dominated by small workforces, however, large workplaces employ a disproportionately large number of total employees (Kersley et al, 2006; page 13). This is reflected in the large average sizes reported in Table 2. On average, private sector workplaces have 355 employees, whilst public sector establishments are some three times larger. Females, on aggregate, tend to work in larger workplaces.

The measures of employment conditions include: if employees receive performance based pay; if the workplace has pension provision; the extent of team working, if any of the workforce operate in quality circles; if employees have a lot of discretion over their work; if employee briefing systems are in place; and the availability of family-friendly work practices.

Performance related pay is not surprisingly much more common in the private sector than the public sector (Burgess and Ratto, 2003) and is slightly more common amongst males than females. A positive relationship between earnings and performance related pay is expected as employees typically respond positively to the incentive effects associated with such a pay system (Lemieux et al, 2007). The relationship between productivity and pension provision is complex (see Disney et al, 2004), nevertheless, there is a strong positive correlation between high paying jobs and access to occupational pension plans in Britain (see Disney et al, 2004; page 244).

Team working may be particularly important for efficient outcomes in the public sector where monitoring worker effort may be more difficult than it is in the private sector (Burgess and Ratto, 2003; page 289). It may also be that the interaction between team members allows for greater skill transmission and increased productivity in both sectors (Hamilton et al, 2003).

Operating in quality circles, having a lot of discretion over how work tasks are carried out and an effective employee briefing system are all characteristics of a management structure that facilitates employee-employer interactions and employee responsibility for outcomes. A positive relationship is predicted between such policies and average earnings (Simpson, 2006; Burgess and Ratto, 2003).

An index of family friendly work practices is used in this study ranging from zero to six depending on how many of the following practices are available: paternity leave with full normal weekly pay; maternity leave with full normal weekly pay; home working; job sharing; child care; and/or paid family leave.

As discussed in Budd and Mumford (2004) an important influence on the design of work policies and benefits has traditionally been the norm of the “ideal”

worker who works full-time and leaves unpaid household work to someone else (Williams 2000). Family-friendly corporate policies can be divided into two categories based on what weight, if any, they assign to that traditional norm (Bailyn 1993; Bailyn et al, 2001). One category provides services to help employees fulfil the standards of the ideal worker (such as subsidized or on-site child care). The other category is comprised of benefits that allow employees flexibility to deviate from the model of the ideal worker to better balance work and family concerns.

One major subcategory within this second group of family-friendly benefits is leave policies. In Britain, there is an explicit distinction between maternity leave (a woman taking leave to give birth and care for a newborn child), paternity leave (a father taking leave around the birth of a new child), and parental leave (leave for the purpose of taking care of a child). Employers are able to offer more generous benefits than those mandated<sup>14</sup>, in both compensation and time allowed off, and these additional leave policies are an important category of employer-sponsored family-friendly policies. Comprising a second subcategory of family-friendly policies that allow deviations from the ideal worker norm are policies that change the regular work schedule. One major example is job sharing initiatives in which (typically) two employees work part-time to share the responsibilities and total hours of one full-time position. Finally, in a third class of "norm-defying" family-friendly policies are those providing work site flexibility. Most prominent among these are policies that allow workers to telecommute and work at home. The use of an index to capture family friendly work practices is commonly used to capture the multi-faceted aspects of these policies. Budd and Mumford (2003), using WERS98, find positive payoffs in terms of workplace performance indicators and lower levels of employee absenteeism for workplaces with higher values of this index. A positive relationship is also expected between family friendly work practices and earnings.

The summary statistics in Table 2 reveal quite different levels of the measures of employment conditions. With the exception of performance related pay, females

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<sup>14</sup> Starting in April 2003, and covering the time period when the WERS04 data were collected, all pregnant employees were entitled to 26 weeks of maternity leave paid at the lower of : the statutory rate; or 90% of their normal gross weekly wage. Similar provisions applied to adoptive leave. Two weeks of paternity leave, paid at a statutory rate, was also mandated. Moreover, male and female employees were entitled to 13 weeks of unpaid parental leave to be used over the first five years of the child's life.

are more likely to say they are available to them (although often this difference is not substantial and is indeed equally as likely for quality circles). The public sector is also more likely to offer these employment conditions than the private sector, again with the exception of performance related pay.

Finally, amongst the workplace characteristics are measures of the industrial relations practices at the workplace: if there is collective bargaining; if there are equal opportunities provisions; and if there are formal grievance procedures. Whilst males and females report similar averages for the presence of these measures, they are much more likely to occur in the public sector than in the private.

### *3.3 Within sector differences in characteristics across the groups of employees*

Considering sector differences within gender in more detail (Table 3), the findings discussed above are still typically true. For example, public sector employees have more potential experience *ceteris paribus*, as do males. They are more likely to have a dependent child and so on.

Amongst those mean characteristics that reveal differences within gender and sector is the ethnic mix, 4 per cent of all public sector employees regardless of gender consider themselves to be from an ethnic background. In the private sector these figures are higher at 6 per cent for men and 8 per cent for women. Union membership can now also be seen to be consistently lower for private sector and female employees, with only 16 per cent of women employed in the private sector having current membership. Similarly amongst occupations, females in the public sector are clearly the least likely to be managers of the four categories of employees; in the private sector there is little difference between the proportion of males and females who are managers. In contrast, female public sector employees are much more likely to be professionals (with females in the private sector being least likely).

There is very little difference across genders in the measures of employment conditions discussed above; Table 3 reveals that these differences are essentially related to the sector the workplace occurs in. This is also typically the case for the industrial relations measures, with the exception of collective bargaining where,

within sectors, females are less likely to be employed in workplaces with these characteristics.

#### 4. Estimation of the earnings functions

Using semi-logarithmic wage equations, the earnings equation is estimated as:

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

where  $W_i$  is the natural log of the wage for individual  $i$ ;  $\alpha$  is the intercept term;  $X_i$  is a vector of regressors measuring a range of individual characteristics; workplace  $k$  characteristics are measured in the vector of regressors  $Z_k$ ; and  $\varepsilon_i$  is a residual term.

We estimate models separately for each of the groups of employees, public sector males and females and private sector males and females. Pooling of models for males and females is a common approach (see Bayard et al, 2003, for example). We take the view, however, that models for male and female public sector and private sector employees may be more likely to produce different parameters than those for all employees. This is borne out in the results shown below.

Robustness of the estimation results is of clear concern. The nature of the earnings data in WERS04 presents an issue for the construction of the earnings series employed in this paper. As noted above, the earnings data in WERS04 is banded. 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. In unreported results (available from the authors) we provide a full set of estimates employing the appropriate (and suitably weighted) interval regression method. Comparison of the estimates confirms that interval estimates are very similar to the ordinary least squares estimates. We therefore concentrate our analysis on the ordinary least squares estimates<sup>15</sup>.

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<sup>15</sup> A further issue concerns unobservable heterogeneity in true worker quality. Nickel and Quintini (2002), using evidence from age 10 and 11 test scores from the National Child Development Survey (NCDS) and the New Earnings Survey (NES), argue that a decline in public sector relative to private sector pay adversely affects the quality of males in the public sector, but not females. Their paper emphasises the need to control fully for the individual characteristics of public sector employees, but also raises the question of why the different genders may respond differently to the characteristics of public sector workplaces.



## 5. Estimation Results

The estimates of the earnings function for each of the four groups of employees are presented in Table 4. These are the estimates public sector male, public sector female, private sector male and private sector female full-time employees, respectively. In each case we estimate the models with ordinary least squares, fully allowing for the complex survey design of the data set and the need to weight accordingly. The standard errors reported are robust to heteroskedasticity of an unknown form in the residuals. All estimates employ complex survey weights (as discussed above). Overall, the parameter estimates are generally well defined and have the expected sign.

Reading across the columns in table 4, the return to potential experience is higher in the private sector and they are higher for women within the sectors. We expect the returns from experience for women to be biased downwards as the measure of experience used is likely to overestimate the time they actually spent in employment. Current job tenure is rewarded similarly for men and women across sectors. The returns from education are higher for men than women across sectors, and higher in the public sector than in the private sector within gender. Postgraduate females in the private sector have a rate of return which is some 50 per cent lower than postgraduate males in the public sector. There is no significant evidence of men receiving higher earnings associated with recent training, unlike women in both sectors where a relative small impact is found. Vocational qualifications are similarly only significantly related to earnings for women.

Of the remaining individual characteristics, being married and having a dependent child are only associated with higher earnings for men. In contrast, having a dependent child is linked to lower wages for females in the private sector. Being on a fixed-term contract or a union member is not related to earnings for any of the four types of employees.

The returns to occupation (relative to the omitted craft category) are substantially higher for females than males, and there is not a clear pattern in these returns across the sectors. In the public sector, highly skilled occupations are relatively poorly rewarded for men but well rewarded for women (with female

managers receiving almost twice the return than the male managers in this sector, and almost three times as much for professionals). Amongst the lower skilled occupations there is little difference across the sectors in returns, but males are seen to be more heavily penalised than females.

Considering the workplace characteristics, there are few characteristics shown to be significantly related to wages in the public sector. This may be due to a lack of variability in these characteristics across these workplaces. An exception is the availability of family friendly work practices which has a similar sized significant positive relationship for all the groups except for men in the public sector. Performance related pay and pensions provision are strongly related to higher earnings in the private sector, as is team working to a lesser extent. Collective bargaining is only associated with higher pay for male private sector employees.

Regional measures are included in the models essentially as additional structural controls, unsurprisingly, employees in the London area receive substantially higher wages and this impact is similar across sectors and genders. For men there is also some gain from living in the south-east (and also the east of England in the private sector).

## 6. Decomposing the earnings gaps

The estimates we have for the four groups of employees allow us to examine a number of earnings gaps. The approach we adopt to apportion the gap in the mean earnings of any two groups is that discussed in Oaxaca and Ransom (1994). In general, the decomposition of the mean earnings gap between groups of employees  $a$  and  $b$  is calculated as:

$$\bar{W}_a - \bar{W}_b = \{(\bar{X}_a - \bar{X}_b)\hat{\beta}_a + (\bar{Z}_a - \bar{Z}_b)\hat{\gamma}_a\} + \{\bar{X}_b(\hat{\beta}_a - \hat{\beta}_b) + \bar{Z}_b(\hat{\gamma}_a - \hat{\gamma}_b)\} \quad (2)$$

In this calculation  $(\bar{X}_a - \bar{X}_b)\hat{\beta}_a$  captures the impact of the difference in the individual characteristics weighted by the parameters from the model for group  $a$ ,  $(\bar{Z}_a - \bar{Z}_b)\hat{\gamma}_a$  captures the impact of the difference in the characteristics of the workplaces where groups  $a, b$  work, again weighted by the parameters from the model for group  $a$  and  $\{\bar{X}_b(\hat{\beta}_a - \hat{\beta}_b) + \bar{Z}_b(\hat{\gamma}_a - \hat{\gamma}_b)\}$  is the remaining unexplained gap. The decompositions are presented in Figure 1.

Figure 1 lays out the four sub-samples of concern (public sector male, private sector male, public sector female and private sector female). Each total bilateral earnings gap is presented next to an arrow indicating the direction of the comparison. Thus, the earnings gap between male public sector and male private sector full-time employees in Britain is 11.8 log per cent (or log wage points). This earnings gap can be decomposed into the component explained by differences in the mean values of their individual characteristics which make up the major component of 8.64 log percentage points (or 73% of the raw gap); differences in the mean values of their occupational characteristics which make up 2.58 log percentage points (22%); differences in the mean values of their workplace characteristics which make up a further 2.49 log percentage points (21%); and an unexplained component of  $-1.96$  log percentage points (17%). The four components summing to the earnings gap of 11.8 log per cent. The contribution of the differences in the characteristics (individual, occupational and workplace) is evaluated using the parameters from the model for the higher earnings group ( $a$  in equation 2). The unexplained component results from differences in the parameters for the two groups evaluated at the mean values of the individual characteristics for the lower wage group ( $b$  in equation 2).

The earnings gap between public sector and private sector male employees is therefore due to the former having more productive characteristics (or at least characteristics that are more likely to be associated with higher pay) especially individual characteristics. Indeed, the size and sign of the negative unexplained component suggests that not only do males working in the private sector have less productive characteristics on average than do males in the public sector; they are also being relatively over-rewarded for their characteristics.

Similar analyses can be carried out for the three other bilateral earnings gaps<sup>16</sup> presented in Figure 1. In aggregate, across-sector but within-gender comparisons reveal that public sector employees are more likely to have individual characteristics

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<sup>16</sup> The fifth bilateral gap, not included in Figure 1, is that between male public sector and female private sector employees. Unsurprisingly, given the information in Figure 1, the earnings gap between these employees is 31.3 log percent, differences in the mean values of their: individual characteristics make up 13.31 log percentage points (or 43%); occupational characteristics make up 1.01 log percentage points (3%); workplace characteristics a further 2.0 log percentage points (6%); and the unexplained component is 15.01 log percentage points (48%).

associated with high pay<sup>17</sup>. They are also more likely to work in high paid occupations and in workplaces with high paying characteristics. Finally, the unexplained components in the earnings gaps are different in size but similar in relative scale (16.6 per cent of the raw gap for males and 19.3 per cent for females), however, male private sector employees are over rewarded for their characteristics whilst female private sector employees are under rewarded<sup>18</sup>.

Across-gender but within-sector analysis shows that males are more likely to have individual characteristics associated with higher pay (although the extent of this distribution is not as strong as across public and private sectors); females are more likely to work in occupations and workplaces with higher paying characteristics; and there are substantial unexplained components in the gender pay gaps (more than 100% in the public sector and 81% in the private sector).

An important policy response in these cases could be more effective application of equal pay legislation. Strictly speaking, equal pay policies might only be applied to jobs that obviously have the same characteristics; however, the Equal Pay Act that was passed in Britain in 1970 included a broad concept of equity allowing for some comparisons between jobs typically performed by women and jobs typically performed by men. We find substantial within-sector, within-occupation earnings gap which should have been amenable to such an equal pay policy response. The new Gender Equality Duty (GED) is a statutory duty which came into force in April 2007<sup>19</sup> may be shown to be more effective in the future. According to the GED, all public authorities in Britain must demonstrate that they are promoting equality for women and men and that they are eliminating sexual discrimination and harassment<sup>20</sup>.

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<sup>17</sup> 8.86 log percentage points of the 11.8 log per cent gap for males, or 73%, and 8.78 log percentage points of the 24.3 log percent gap for females, or 36%.

<sup>18</sup> By 4.68 log percentage points or 19% of the 24.3 log per cent gap.

<sup>19</sup> “The gender equality duty comes into force in April 2007 and is the biggest change in sex equality legislation in thirty years, since the introduction of the Sex Discrimination Act itself. It has been introduced in recognition of the need for a radical new approach to equality – one which places more responsibility with service providers to think strategically about gender equality, rather than leaving it to individuals to challenge poor practice.” Jenny Watson. (Chair, Equal Opportunities Commission. November 2006 cited in Equal Opportunities Commission 2006b, page 2).

<sup>20</sup> The Equality Act 2006 amends the Sex Discrimination Act to place a statutory duty on all public authorities, when carrying out their functions, to have due regard to the need: to eliminate unlawful discrimination and harassment; and to promote equality of opportunity between men and women. This is known as the 'general duty' and will come into effect on 6 April 2007. The duty applies to all public authorities in respect of all of their functions. (Equal Opportunities Commission 2006b, pages 4 to 7).

The decomposition results (Figure 1) show that the nature of the public private pay gap differs between genders and that of the gender pay gap differs between sectors. Whilst the public private pay gap for men is substantial, we show that it can be explained by weighted differences in the means of the variables that determine earnings. This is in contrast with the public private earnings gap for women where more than one fifth of the gap remains unexplained.

When examining within sector gender gaps, the situation is very different. The raw gender earnings gap in the private sector is almost 20 log per cent, nearly three times that in the public sector. In both cases this raw gender gap is essentially unexplained in the results presented here. Whilst these gender gaps remain unexplained, we can say that a large proportion of the difference between the gender pay gaps within the public and private sectors is due to women in the public sector being paid substantially more than those in the private sector. As discussed above, most of this within sector gap can be explained but a substantial part remains unexplained.

The contribution of differences in workplace characteristics to the public private earnings gap is substantial and significant. Of these, structural factors appear unimportant, contributing less than 0.5 log percentage points of the gap for males or females. Industrial relations measures contribute 2.2 log percentage points for men and 1.3 log percentage points for women; the presence of collective bargaining being the most important. Finally, employment conditions contribute a substantial 3.8 log percentage points for women and 0.9 log percentage points for men.

The presence of performance pay and a pension scheme are associated with higher earnings in the private sector for men and women. In both cases this is because

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The specific duties include to: prepare and publish a gender equality scheme; in formulating its overall objectives, to consider the need to include objectives to address the causes of any gender pay gap; to gather and use information on how the public authority's policies and practices affect gender equality in the workforce and in the delivery of services; to consult stakeholders (i.e. employees, service users and others, including trade unions) and take account of relevant information in order to determine its gender equality objectives; to assess the impact of its current and proposed policies and practices on gender equality; to implement the actions set out in its scheme within three years; and to report against the scheme every year and review the scheme at least every three years.

there is higher incidence in the private sector, confirming Burgess and Melcalfe (1999), which reduces the earnings gap by 0.4 and 0.3 log percentage points for men and women, respectively. In addition, we find that the returns to these characteristics are higher in the private sector, further attenuating the public private earnings gap.

The key workplace characteristic for the earnings gap, however, is the presence of family-friendly work practices. The higher incidence of these practices in the public sector contributes 4.8 log percentage points to the female and 1.3 log percentage points to the male public private earnings gaps. In the case of men, this effect is more than offset by a difference in the returns to the presence of family friendly work policies. The earnings of men in the private sector are more positively associated with their presence providing a further attenuation of the public private earnings gap.

## **7. Conclusions**

The raw public private earnings gap for full-time employees in Great Britain is, on average, some 14 log per cent. This figure hides important compositional detail. The gap for male employees is less than half that for females. Another way of presenting this fact is that the gender earnings gap is three times larger in the private sector than it is in the public sector. The results in this paper show that whilst much of the public private earnings gap for males can be explained by individual characteristics, occupation and workplace features, a substantial proportion of the gap for females remains unexplained. This is consistent with the finding that essentially the entire raw average gender earnings gap in either the public or private sectors remains unexplained after the analysis.

The possibility of including workplace information in the modelling of individual earnings allows for a more precise calculation of the explained part of the earnings gap. This paper shows that workplace features play an additional important role in the determination of individual earnings. Features expected to raise productivity in the workplace are shown to also increase individual earnings. Earnings are also positively influenced by the presence of performance related pay schemes and, importantly, the presence of family friendly work policies. The increased use of performance related pay in the private sector raises earnings there relative to the

public sector, although not to a large extent. The increased presence of family friendly work policies in the public sector is significantly associated with higher earnings in the public sector, the more so for females. This largely contributes to the explained part of the public private earnings gap.

The explained part of the gender earnings gap in the private sector is due mostly to differences in the values of individual characteristics. However, more than four fifths of the gap remains unexplained. In the public sector the impact of a higher number of females in higher paid occupations offsets the impact of differences in individual characteristics leaving all of the raw gender earnings gap unexplained. The fact that the raw gap is much smaller than in the private sector suggests that the employment policy environment in the public sector is more conducive to higher relative female earnings.

The major component of the earnings gap between full-time men and women in Britain is associated with the gender effect. This finding suggests that the Equal Pay legislation in Britain has not been fully effective in either the public or the private sector. The recently introduced Gender Equality Duty adopts a new approach by placing the responsibility for devising, monitoring and providing a discrimination free work environment on public authorities. If the Gender Equality Duty proves to be effective, we should see the unexplained components of the gender gap fall in the public sector in the near future. As yet, there is no additional legislation covering the private sector.

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**Table 1. Variable definitions.**

| <b>Variable name</b>             | <b>Variable definition</b>   |
|----------------------------------|--|
| hourly pay                       | Average hourly pay [midpoints of 14 bands]]  |
| log hourly pay                   | The natural log of average hourly pay  |
| Individual characteristics:      |  |
| potential experience (years)     | Age minus (approximate years of schooling plus 5), measured in years.  |
| training (days in previous year) | Days of training in the previous twelve months [midpoints of 6 bars, top coded at 10 days]   |
| education measures;              |  |
| none                             | Has none of the academic qualifications listed   |
| other                            | Has other academic qualifications than those listed  |
| cse25                            | Highest level of education is GCSE grades D-G; CSE grades 2-5 SCE; O grades D-; SCE Standard grades 4-7.   |
| cse1                             | Highest level of education is GCSE grades A-C; GCE O-level passes; CSE grade 1 SCE; O grades A-C; or SCE Standard 1-3  |
| gceae                            | Highest level of education is GCE A-level grades A-E; 1-2 SCE; Higher grades A-C, As levels  |
| gce2ae                           | Highest level of education is 2 or more GCE; A-levels grades A-E; 3 or more SCE; or Higher grades A-C  |
| degree                           | Highest level of education is a first degree, eg BSc, BA, HND, HNC Ma at first degree level  |
| postgrad                         | Highest level of education is a higher degree, eg MSc, MA, PGCE, PhD   |
| child                            | Has a dependent child aged below 18  |
| married                          | Married or living with a partner   |
| disabled                         | Has a long term (>1 year) illness/disability   |
| ethnic                           | 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. |
| fixed contract                   | Employed on a fixed term contract  |
| hours                            | Usual hours worked per week (includes over time)   |
| full time                        | Working full time, if standard working hours is greater than 36  |
| tenure                           | Years at this workplace [midpoints of 5 bars, top coded at 10 years]   |
| union                            | Employee is a union member   |

| Variable name   | Variable definition   |
|---|---|
| occupation categories;<br>managerial<br>professional<br>technical<br>clerical<br>craft<br>personal<br>sales<br>operative<br>unskilled | Managerial<br>Professional<br>Technical<br>Clerical<br>Craft service<br>Personal service<br>Sales and customer services<br>Operative and assembly workers<br>Unskilled  |
| Workplace characteristics:<br>public sector   | The formal status of this establishment (or the organisation) is described as: government-owned limited company / nationalised industry/T); public service agency; other non-trading public corporation; quasi autonomous national government organisation (QUANGO); local/central government (inc. NHS and Local Education Authorities). |
| private sector  | The formal status of this establishment (or the organisation) is described as: public limited company (plc); private limited company; company limited by guarantee; partnership (inc. limited liability partnership/self-prop); trust / charity; body established by royal charter; co-operative / mutual / friendly society.             |
| workplace size  | Total number of employees in the workplace  |
| foreign owned   | Foreign controlled workplace  |
| performance pay   | Whether any employees in the workplace are paid by results or receive merit pay.  |
| pension provision   | If employer provided pension is available to the largest occupation group in the workplace.   |
| equal opportunity   | Workplace has a formal written equal opportunity policy   |
| family friendly index   | Index of Six Family Friendly Policies available at the workplace: paternity leave; maternity leave; home working; job sharing; child care; paid leave.  |
| paternity leave   | If employees on paternity leave receives the normal, full rate of pay   |
| maternity leave   | If employees on maternity leave receives the normal, full rate of pay   |
| home working  | If employees can work at home   |
| job sharing   | If a job sharing scheme exists in the workplace   |
| child care  | If a workplace nursery or child care subsidy is available at the workplace  |

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| Variable name              | Variable definition                                     |
|----------------------------|---|
| paid leave                 | If paid family leave is available                       |
| quality circles            | Fraction of the workforce in quality circles            |
| team working               | Fraction of workforce operating in formal work teams    |
| briefing system            | Recognised system of briefing employees exists          |
| discretion over work       | Has a lot of discretion over how they work              |
| collective bargaining      | If pay is set via collective bargaining                 |
| grievance procedure        | Collective grievance procedure present at the workplace |
| regions:                   |   |
| north east                 | north east of England                                   |
| north west                 | north west of England                                   |
| yorkshire & the humberside | Yorkshire & the Humberside                              |
| east midlands              | east midlands of England                                |
| west midlands              | west midlands of England                                |
| east of england            | east of England   |
| london                     | London  |
| south east                 | south east of England                                   |
| south west                 | south west of England                                   |
| scotland                   | Scotland  |
| wales                      | Wales   |

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Source: WERS 2004.

**Table 2. Sample means for the aggregate samples.**

|                          | full sample |       | public |        | private |        | males |        | females |        |
|--------------------------|-------------|-------|--------|--------|---------|--------|-------|--------|---------|--------|
|                          | mean        | s.e.  | mean   | s.e.   | mean    | s.e.   | mean  | s.e.   | mean    | s.e.   |
| hourly pay               | 9.72        | 0.108 | 10.53  | 0.154  | 9.48    | 0.131  | 10.23 | 0.132  | 8.78    | 0.114  |
| log hourly pay           | 2.17        | 0.011 | 2.28   | 0.014  | 2.14    | 0.013  | 2.22  | 0.013  | 2.08    | 0.013  |
| potential experience     | 23.06       | 0.208 | 24.66  | 0.292  | 22.60   | 0.251  | 24.32 | 0.235  | 20.74   | 0.301  |
| potential exp squared    | 685.2       | 9.842 | 740.9  | 14.138 | 669.2   | 11.901 | 740.9 | 11.805 | 583.2   | 13.441 |
| dependent child          | 0.36        | 0.006 | 0.37   | 0.011  | 0.35    | 0.007  | 0.42  | 0.007  | 0.25    | 0.009  |
| married                  | 0.67        | 0.006 | 0.70   | 0.012  | 0.66    | 0.007  | 0.71  | 0.007  | 0.61    | 0.010  |
| disabled                 | 0.12        | 0.004 | 0.13   | 0.008  | 0.11    | 0.004  | 0.12  | 0.005  | 0.11    | 0.006  |
| ethnic                   | 0.06        | 0.005 | 0.04   | 0.005  | 0.06    | 0.006  | 0.06  | 0.005  | 0.07    | 0.009  |
| education measures:      |             |       |        |        |         |        |       |        |         |        |
| educ none                | 0.17        | 0.006 | 0.10   | 0.009  | 0.19    | 0.008  | 0.21  | 0.008  | 0.11    | 0.008  |
| educ other               | 0.06        | 0.003 | 0.05   | 0.005  | 0.07    | 0.004  | 0.07  | 0.004  | 0.06    | 0.005  |
| cse25                    | 0.11        | 0.004 | 0.07   | 0.006  | 0.12    | 0.005  | 0.11  | 0.005  | 0.09    | 0.006  |
| cse1                     | 0.24        | 0.006 | 0.24   | 0.013  | 0.24    | 0.007  | 0.22  | 0.007  | 0.29    | 0.010  |
| ceae                     | 0.05        | 0.003 | 0.05   | 0.005  | 0.04    | 0.003  | 0.04  | 0.003  | 0.05    | 0.005  |
| ce2ae                    | 0.08        | 0.003 | 0.09   | 0.008  | 0.07    | 0.004  | 0.07  | 0.004  | 0.09    | 0.006  |
| degree                   | 0.21        | 0.007 | 0.26   | 0.015  | 0.19    | 0.008  | 0.20  | 0.008  | 0.22    | 0.009  |
| postgraduate             | 0.07        | 0.004 | 0.11   | 0.009  | 0.06    | 0.005  | 0.07  | 0.005  | 0.07    | 0.005  |
| vocational qualification | 0.61        | 0.008 | 0.69   | 0.014  | 0.58    | 0.009  | 0.60  | 0.010  | 0.62    | 0.011  |
| fixed contract           | 0.03        | 0.002 | 0.04   | 0.005  | 0.02    | 0.003  | 0.02  | 0.003  | 0.03    | 0.003  |
| training                 | 2.70        | 0.056 | 3.79   | 0.111  | 2.39    | 0.063  | 2.55  | 0.066  | 2.97    | 0.075  |
| tenure                   | 5.19        | 0.073 | 5.85   | 0.139  | 5.00    | 0.083  | 5.51  | 0.081  | 4.60    | 0.096  |
| union member             | 0.32        | 0.011 | 0.69   | 0.015  | 0.21    | 0.011  | 0.32  | 0.013  | 0.31    | 0.012  |
| occupations:             |             |       |        |        |         |        |       |        |         |        |
| managerial               | 0.15        | 0.005 | 0.09   | 0.009  | 0.16    | 0.006  | 0.16  | 0.007  | 0.13    | 0.008  |
| professional             | 0.11        | 0.006 | 0.20   | 0.014  | 0.09    | 0.007  | 0.12  | 0.007  | 0.11    | 0.007  |
| technical                | 0.15        | 0.006 | 0.25   | 0.014  | 0.13    | 0.007  | 0.13  | 0.007  | 0.19    | 0.009  |
| clerical                 | 0.15        | 0.006 | 0.22   | 0.016  | 0.13    | 0.006  | 0.07  | 0.005  | 0.28    | 0.011  |
| craft                    | 0.11        | 0.007 | 0.05   | 0.014  | 0.12    | 0.008  | 0.16  | 0.010  | 0.01    | 0.004  |
| personal                 | 0.04        | 0.003 | 0.07   | 0.007  | 0.03    | 0.004  | 0.02  | 0.003  | 0.07    | 0.007  |
| sales                    | 0.06        | 0.005 | 0.01   | 0.003  | 0.07    | 0.007  | 0.04  | 0.004  | 0.09    | 0.009  |
| operative                | 0.12        | 0.007 | 0.03   | 0.007  | 0.15    | 0.009  | 0.17  | 0.009  | 0.05    | 0.008  |

|                            | full sample |       | public  |       | private |       | males |       | females |       |
|----------------------------|-------------|-------|---------|-------|---------|-------|-------|-------|---------|-------|
|                            | mean        | s.e.  | mean    | s.e.  | mean    | s.e.  | mean  | s.e.  | mean    | s.e.  |
| unskilled                  | 0.11        | 0.007 | 0.09    | 0.013 | 0.11    | 0.008 | 0.13  | 0.009 | 0.05    | 0.006 |
| workplace size             | 513.90      | 57.7  | 1068.95 | 232.4 | 354.99  | 25.0  | 46942 | 45.9  | 595.02  | 88.7  |
| foreign owned              | 0.17        | 0.013 |         |       | 0.22    | 0.017 | 0.19  | 0.016 | 0.13    | 0.012 |
| performance pay            | 0.51        | 0.017 | 0.37    | 0.032 | 0.54    | 0.020 | 0.52  | 0.020 | 0.49    | 0.020 |
| pension provision          | 0.79        | 0.015 | 0.96    | 0.018 | 0.74    | 0.018 | 0.78  | 0.018 | 0.80    | 0.015 |
| equal opportunity          | 0.85        | 0.012 | 0.99    | 0.008 | 0.81    | 0.015 | 0.83  | 0.014 | 0.88    | 0.012 |
| family friendly index      | 2.96        | 0.050 | 4.39    | 0.063 | 2.55    | 0.055 | 2.83  | 0.059 | 3.19    | 0.052 |
| discretion over work       | 0.22        | 0.014 | 0.22    | 0.027 | 0.22    | 0.017 | 0.21  | 0.016 | 0.24    | 0.017 |
| quality circles            | 0.14        | 0.008 | 0.14    | 0.013 | 0.14    | 0.010 | 0.14  | 0.010 | 0.14    | 0.009 |
| team working               | 0.69        | 0.013 | 0.81    | 0.024 | 0.65    | 0.015 | 0.66  | 0.015 | 0.74    | 0.013 |
| briefing system            | 0.82        | 0.013 | 0.94    | 0.012 | 0.78    | 0.017 | 0.80  | 0.017 | 0.85    | 0.014 |
| collective bargaining      | 0.35        | 0.015 | 0.72    | 0.028 | 0.24    | 0.016 | 0.35  | 0.017 | 0.34    | 0.018 |
| grievance proc.            | 0.57        | 0.016 | 0.85    | 0.020 | 0.49    | 0.020 | 0.56  | 0.019 | 0.59    | 0.019 |
| regions:                   |             |       |         |       |         |       |       |       |         |       |
| north east                 | 0.04        | 0.007 | 0.07    | 0.021 | 0.03    | 0.007 | 0.04  | 0.009 | 0.04    | 0.007 |
| north west                 | 0.15        | 0.013 | 0.15    | 0.025 | 0.15    | 0.015 | 0.15  | 0.014 | 0.15    | 0.016 |
| yorkshire & the humberside | 0.10        | 0.012 | 0.11    | 0.018 | 0.10    | 0.014 | 0.10  | 0.013 | 0.10    | 0.014 |
| east midlands              | 0.08        | 0.009 | 0.07    | 0.015 | 0.08    | 0.011 | 0.08  | 0.010 | 0.07    | 0.011 |
| west midlands              | 0.10        | 0.011 | 0.09    | 0.027 | 0.10    | 0.012 | 0.10  | 0.013 | 0.09    | 0.013 |
| east of england            | 0.10        | 0.010 | 0.10    | 0.021 | 0.09    | 0.012 | 0.09  | 0.012 | 0.10    | 0.011 |
| london                     | 0.10        | 0.010 | 0.08    | 0.014 | 0.10    | 0.012 | 0.09  | 0.011 | 0.11    | 0.012 |
| south east                 | 0.13        | 0.012 | 0.12    | 0.021 | 0.13    | 0.014 | 0.12  | 0.014 | 0.13    | 0.013 |
| south west                 | 0.08        | 0.009 | 0.06    | 0.014 | 0.09    | 0.011 | 0.08  | 0.010 | 0.09    | 0.010 |
| scotland                   | 0.10        | 0.011 | 0.11    | 0.023 | 0.09    | 0.012 | 0.11  | 0.014 | 0.08    | 0.009 |
| wales                      | 0.04        | 0.006 | 0.06    | 0.013 | 0.03    | 0.006 | 0.04  | 0.006 | 0.04    | 0.007 |
| female                     | 0.35        | 0.009 | 0.48    | 0.018 | 0.32    | 0.010 |       |       |         |       |
| public sector              | 0.22        | 0.011 |         |       |         |       |       |       |         |       |
| No. observations           |             | 10600 |         | 2903  |         | 7697  |       | 6695  |         | 3905  |

Source: WERS 2004.

**Table 3. Sample means by gender and sector.**

|                           | male   |        |         |        | female |        |         |        |
|---------------------------|--------|--------|---------|--------|--------|--------|---------|--------|
|                           | public |        | private |        | public |        | private |        |
|                           | mean   | s.e.   | mean    | s.e.   | mean   | s.e.   | mean    | s.e.   |
| hourly pay                | 10.97  | 0.222  | 10.07   | 0.155  | 10.06  | 0.150  | 8.22    | 0.145  |
| log hourly pay            | 2.315  | 0.021  | 2.198   | 0.015  | 2.245  | 0.014  | 2.002   | 0.016  |
| potential experience      | 26.22  | 0.406  | 23.91   | 0.270  | 22.96  | 0.409  | 19.78   | 0.385  |
| potential exp squared     | 810.9  | 20.890 | 725.7   | 13.573 | 665.2  | 19.368 | 547.7   | 17.058 |
| dependent child           | 0.45   | 0.017  | 0.41    | 0.008  | 0.27   | 0.015  | 0.23    | 0.011  |
| married                   | 0.75   | 0.014  | 0.69    | 0.008  | 0.65   | 0.017  | 0.59    | 0.013  |
| disabled                  | 0.14   | 0.012  | 0.12    | 0.005  | 0.13   | 0.011  | 0.10    | 0.007  |
| ethnic                    | 0.04   | 0.007  | 0.06    | 0.006  | 0.04   | 0.008  | 0.08    | 0.012  |
| education measures:       |        |        |         |        |        |        |         |        |
| educ none                 | 0.14   | 0.015  | 0.22    | 0.009  | 0.06   | 0.008  | 0.14    | 0.011  |
| educ other                | 0.06   | 0.007  | 0.07    | 0.005  | 0.05   | 0.007  | 0.06    | 0.006  |
| cse25                     | 0.09   | 0.010  | 0.12    | 0.006  | 0.05   | 0.006  | 0.11    | 0.008  |
| cse1                      | 0.21   | 0.014  | 0.22    | 0.007  | 0.27   | 0.018  | 0.29    | 0.012  |
| ceae                      | 0.05   | 0.006  | 0.04    | 0.003  | 0.07   | 0.008  | 0.05    | 0.005  |
| ce2ae                     | 0.08   | 0.009  | 0.07    | 0.004  | 0.11   | 0.011  | 0.09    | 0.007  |
| degree                    | 0.24   | 0.019  | 0.19    | 0.009  | 0.28   | 0.018  | 0.20    | 0.011  |
| postgraduate              | 0.11   | 0.013  | 0.06    | 0.006  | 0.12   | 0.012  | 0.05    | 0.006  |
| vocational qualification. | 0.67   | 0.019  | 0.58    | 0.011  | 0.71   | 0.016  | 0.58    | 0.014  |
| fixed contract            | 0.03   | 0.006  | 0.02    | 0.003  | 0.05   | 0.007  | 0.02    | 0.004  |
| training                  | 3.56   | 0.162  | 2.33    | 0.072  | 4.04   | 0.111  | 2.50    | 0.092  |
| tenure                    | 6.34   | 0.162  | 5.33    | 0.090  | 5.32   | 0.165  | 4.29    | 0.111  |
| union member              | 0.74   | 0.018  | 0.23    | 0.013  | 0.65   | 0.018  | 0.16    | 0.014  |
| occupations:              |        |        |         |        |        |        |         |        |
| managerial                | 0.12   | 0.012  | 0.17    | 0.008  | 0.07   | 0.010  | 0.15    | 0.010  |
| professional              | 0.16   | 0.017  | 0.11    | 0.008  | 0.24   | 0.017  | 0.06    | 0.007  |
| technical                 | 0.24   | 0.022  | 0.11    | 0.007  | 0.25   | 0.016  | 0.17    | 0.012  |
| clerical                  | 0.12   | 0.016  | 0.06    | 0.005  | 0.32   | 0.021  | 0.27    | 0.013  |
| craft                     | 0.10   | 0.024  | 0.17    | 0.011  | 0.00   | 0.001  | 0.02    | 0.005  |
| personal                  | 0.06   | 0.011  | 0.01    | 0.002  | 0.07   | 0.009  | 0.07    | 0.009  |
| sales                     | 0.01   | 0.003  | 0.04    | 0.005  | 0.01   | 0.004  | 0.12    | 0.013  |



|                            | male   |       |         |       | female |       |         |       |
|----------------------------|--------|-------|---------|-------|--------|-------|---------|-------|
|                            | public |       | private |       | public |       | private |       |
|                            | mean   | s.e.  | mean    | s.e.  | mean   | s.e.  | mean    | s.e.  |
| operative                  | 0.05   | 0.012 | 0.19    | 0.011 | 0.00   | 0.002 | 0.07    | 0.012 |
| unskilled                  | 0.14   | 0.021 | 0.13    | 0.010 | 0.03   | 0.006 | 0.07    | 0.008 |
| workplace size             | 904.2  | 213.6 | 374.7   | 28.9  | 1247.6 | 270.4 | 312.17  | 23.4  |
| foreign owned              | 0.00   | 0.000 | 0.24    | 0.019 | 0.00   | 0.000 | 0.19    | 0.017 |
| performance pay            | 0.38   | 0.039 | 0.54    | 0.022 | 0.35   | 0.034 | 0.55    | 0.024 |
| pension provision          | 0.96   | 0.027 | 0.74    | 0.021 | 0.96   | 0.011 | 0.74    | 0.021 |
| equal opportunity          | 0.99   | 0.007 | 0.79    | 0.017 | 0.98   | 0.012 | 0.84    | 0.017 |
| family friendly index      | 4.31   | 0.078 | 2.51    | 0.063 | 4.48   | 0.068 | 2.63    | 0.058 |
| discretion over work       | 0.20   | 0.030 | 0.21    | 0.019 | 0.23   | 0.030 | 0.24    | 0.020 |
| quality circles            | 0.12   | 0.014 | 0.14    | 0.012 | 0.15   | 0.015 | 0.14    | 0.012 |
| team working               | 0.76   | 0.035 | 0.63    | 0.017 | 0.85   | 0.015 | 0.69    | 0.017 |
| briefing system            | 0.94   | 0.016 | 0.77    | 0.020 | 0.94   | 0.015 | 0.81    | 0.019 |
| collective bargaining      | 0.77   | 0.034 | 0.26    | 0.018 | 0.68   | 0.031 | 0.19    | 0.019 |
| grievance proc.            | 0.86   | 0.024 | 0.50    | 0.022 | 0.84   | 0.022 | 0.48    | 0.024 |
| regions:                   |        |       |         |       |        |       |         |       |
| north east                 | 0.07   | 0.030 | 0.04    | 0.009 | 0.06   | 0.016 | 0.03    | 0.007 |
| north west                 | 0.14   | 0.027 | 0.15    | 0.016 | 0.15   | 0.029 | 0.16    | 0.019 |
| yorkshire & the humberside | 0.10   | 0.021 | 0.09    | 0.015 | 0.11   | 0.021 | 0.10    | 0.019 |
| east midlands              | 0.07   | 0.017 | 0.08    | 0.012 | 0.07   | 0.016 | 0.07    | 0.015 |
| west midlands              | 0.09   | 0.027 | 0.11    | 0.014 | 0.10   | 0.029 | 0.09    | 0.013 |
| east of england            | 0.07   | 0.021 | 0.10    | 0.014 | 0.12   | 0.025 | 0.09    | 0.012 |
| london                     | 0.06   | 0.013 | 0.10    | 0.013 | 0.10   | 0.020 | 0.11    | 0.014 |
| south east                 | 0.13   | 0.028 | 0.12    | 0.015 | 0.10   | 0.018 | 0.15    | 0.017 |
| south west                 | 0.05   | 0.014 | 0.08    | 0.012 | 0.07   | 0.017 | 0.09    | 0.013 |
| scotland                   | 0.15   | 0.037 | 0.10    | 0.015 | 0.08   | 0.016 | 0.08    | 0.011 |
| wales                      | 0.06   | 0.018 | 0.03    | 0.006 | 0.05   | 0.012 | 0.04    | 0.009 |
| No. observations           |        | 1489  |         | 5206  |        | 1414  |         | 2491  |

Source: WERS 2004.

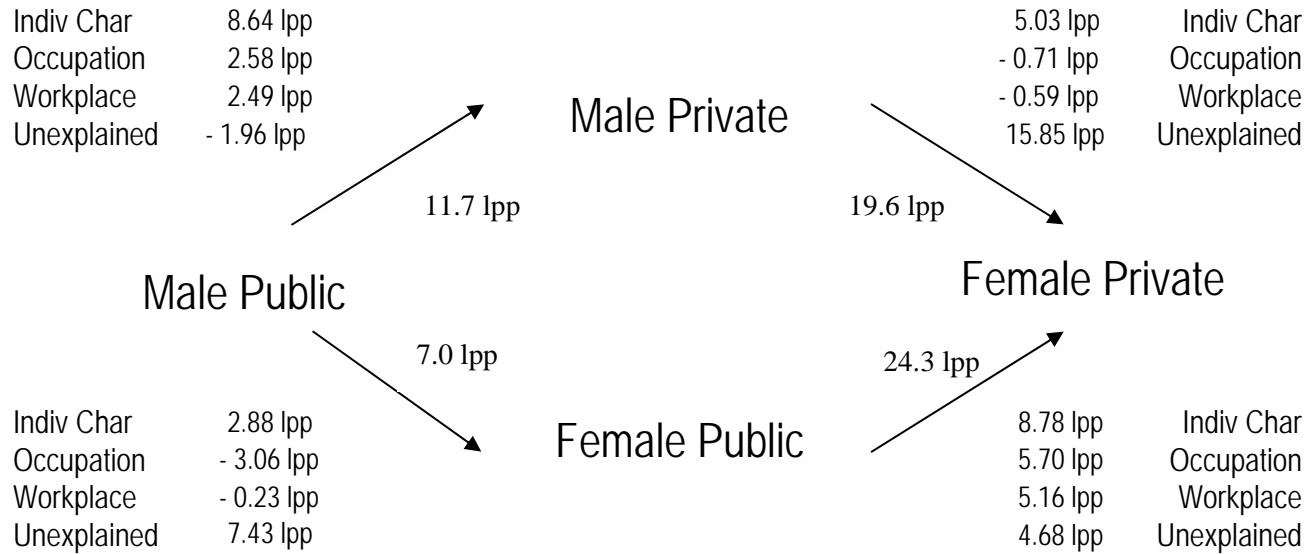
**Table 4. Within sector earnings functions.**

| log hourly pay                                 | male   |         |         |         | female |         |         |         |
|--|--------|---------|---------|---------|--------|---------|---------|---------|
|  | public |         | private |         | public |         | private |         |
|  | coeff. | t-value | coeff.  | t-value | coeff. | t-value | coeff.  | t-value |
| potential experience                           | 0.017  | 4.72*   | 0.026   | 12.44*  | 0.016  | 4.19*   | 0.030   | 9.72*   |
| potential exp squared (x1000)                  | -0.220 | -3.08*  | -0.395  | -9.71*  | -0.250 | -3.01*  | -0.574  | -8.56*  |
| dependent child                                | 0.054  | 2.72*   | 0.030   | 2.50*   | 0.028  | 1.42    | -0.049  | -2.36*  |
| married  | 0.062  | 2.97*   | 0.081   | 5.98*   | 0.014  | 0.88    | 0.016   | 0.94    |
| disabled                                       | -0.025 | -1.26   | -0.022  | -1.35   | -0.016 | -0.68   | -0.015  | -0.62   |
| ethnic   | 0.037  | 0.82    | -0.108  | -3.81*  | -0.041 | -0.64   | -0.119  | -3.58*  |
| education (omitted category is none or other): |        |         |         |         |        |         |         |         |
| cse25  | 0.092  | 2.90*   | 0.060   | 3.23*   | -0.007 | -0.12   | 0.064   | 2.05*   |
| cse1   | 0.138  | 5.72*   | 0.092   | 5.13*   | 0.111  | 2.52*   | 0.096   | 4.05*   |
| ceae   | 0.079  | 1.02    | 0.099   | 3.31*   | 0.169  | 2.47*   | 0.122   | 2.43*   |
| ce2ae  | 0.215  | 6.67*   | 0.218   | 8.89*   | 0.182  | 3.17*   | 0.179   | 5.15*   |
| degree   | 0.266  | 10.18*  | 0.315   | 13.69*  | 0.255  | 5.05*   | 0.341   | 10.37*  |
| postgraduate                                   | 0.455  | 9.09*   | 0.415   | 12.11*  | 0.296  | 5.29*   | 0.377   | 9.39*   |
| vocational qualification                       | 0.032  | 1.81    | 0.043   | 3.45*   | 0.011  | 0.49    | 0.056   | 3.46*   |
| fixed contract                                 | 0.035  | 0.74    | -0.099  | -1.69   | -0.080 | -1.21   | -0.050  | -0.88   |
| training                                       | 0.002  | 0.85    | 0.002   | 1.09    | 0.006  | 2.26*   | 0.006   | 2.28*   |
| tenure   | 0.013  | 4.79*   | 0.010   | 5.18*   | 0.013  | 4.39*   | 0.010   | 3.61*   |
| union member                                   | 0.004  | 0.18    | 0.003   | 0.17    | -0.004 | -0.23   | 0.015   | 0.64    |
| occupations (omitted category is crafts):      |        |         |         |         |        |         |         |         |
| managerial                                     | 0.222  | 5.97*   | 0.259   | 12.23*  | 0.379  | 2.23*   | 0.299   | 4.98*   |
| professional                                   | 0.136  | 2.78*   | 0.219   | 8.31*   | 0.334  | 1.93    | 0.367   | 5.35*   |
| technical                                      | 0.145  | 3.75*   | 0.114   | 4.69*   | 0.207  | 1.22    | 0.235   | 4.17*   |
| clerical                                       | -0.062 | -1.26   | 0.041   | 1.41    | 0.025  | 0.15    | 0.118   | 2.22*   |
| personal                                       | -0.148 | -3.60*  | -0.209  | -4.99*  | -0.053 | -0.30   | -0.166  | -2.79*  |
| sales  | -0.012 | -0.12   | -0.217  | -6.62*  | -0.005 | -0.03   | -0.056  | -0.97   |
| operative                                      | -0.183 | -2.23*  | -0.147  | -6.80*  | -0.045 | -0.19   | -0.052  | -0.90   |

|  | male   |         |         |         | Female |         |         |         |
|--|--------|---------|---------|---------|--------|---------|---------|---------|
|  | public |         | private |         | public |         | private |         |
|  | coeff. | t-value | coeff.  | t-value | coeff. | t-value | coeff.  | t-value |
| unskilled                                    | -0.275 | -6.40*  | -0.290  | -11.48* | -0.135 | -0.77   | -0.132  | -2.21*  |
| workplace size (/1000)                       | 0.003  | 0.81    | 0.013   | 1.05    | 0.006  | 1.75    | 0.022   | 1.87    |
| foreign owned                                |        |         | 0.029   | 1.53    |        |         | 0.040   | 1.65    |
| performance pay                              | 0.025  | 0.99    | 0.056   | 3.11*   | 0.016  | 0.86    | 0.043   | 2.10*   |
| pension provision                            | -0.069 | -1.19   | 0.057   | 2.53*   | 0.026  | 0.56    | 0.073   | 3.04*   |
| equal opportunity                            | 0.011  | 0.13    | -0.011  | -0.47   | -0.035 | -0.97   | -0.035  | -1.25   |
| family friendly index                        | 0.007  | 0.58    | 0.025   | 3.77*   | 0.026  | 3.42*   | 0.023   | 3.14*   |
| discretion over work                         | -0.003 | -0.12   | 0.022   | 1.04    | 0.032  | 1.46    | 0.035   | 1.52    |
| quality circles                              | 0.044  | 0.72    | -0.008  | -0.25   | 0.018  | 0.53    | -0.001  | -0.02   |
| team working                                 | -0.013 | -0.42   | 0.048   | 1.99*   | -0.044 | -1.32   | 0.087   | 3.14*   |
| briefing system                              | 0.092  | 1.83    | 0.016   | 0.68    | -0.004 | -0.14   | 0.011   | 0.40    |
| collective bargaining                        | 0.025  | 0.96    | 0.066   | 2.99*   | 0.024  | 1.21    | 0.038   | 1.37    |
| grievance proc.                              | 0.027  | 0.74    | -0.036  | -1.85   | -0.001 | -0.02   | -0.040  | -2.01*  |
| regions (omitted category is east midlands): |        |         |         |         |        |         |         |         |
| north east                                   | -0.023 | -0.47   | -0.008  | -0.15   | -0.024 | -0.48   | -0.069  | -1.13   |
| north west                                   | -0.058 | -0.86   | -0.013  | -0.33   | 0.015  | 0.36    | -0.052  | -1.06   |
| yorkshire & the humberside                   | -0.061 | -1.60   | 0.046   | 1.20    | 0.023  | 0.53    | -0.004  | -0.07   |
| west midlands                                | 0.066  | 1.56    | 0.021   | 0.53    | -0.007 | -0.17   | -0.036  | -0.71   |
| east of england                              | 0.050  | 1.11    | 0.095   | 2.29*   | 0.083  | 1.90    | -0.001  | -0.01   |
| london                                       | 0.207  | 3.99*   | 0.237   | 6.13*   | 0.239  | 5.05*   | 0.256   | 5.00*   |
| south east                                   | 0.121  | 2.18*   | 0.144   | 3.87*   | 0.071  | 1.46    | 0.080   | 1.48    |
| south west                                   | -0.014 | -0.29   | 0.030   | 0.79    | -0.017 | -0.36   | 0.017   | 0.33    |
| scotland                                     | 0.029  | 0.63    | 0.012   | 0.26    | 0.057  | 1.33    | -0.019  | -0.34   |
| wales  | 0.009  | 0.16    | 0.057   | 1.12    | 0.007  | 0.14    | -0.096  | -1.43   |
| constant                                     | 1.523  | 15.18*  | 1.349   | 25.63*  | 1.467  | 7.92*   | 1.177   | 14.04*  |
| No. observations                             |        | 1489    |         | 5206    |        | 1414    |         | 2491    |
| R squared                                    |        | 0.5539  |         | 0.5680  |        | 0.4820  |         | 0.5396  |

Source: WERS 2004. \* Significant at a confidence level of 95% or above.

**Figure 1: Decomposition of the Earnings Gaps - Comparing Public and Private Sectors.**



Notes:

Source: WERS 2004. Each total bilateral earnings gap is presented next to an arrow indicating the direction of the comparison. In each case the contribution of each group of variables is evaluated using the parameters from the model for the lower earnings group. All figures are expressed in log-percentage points.