# Gender, job satisfaction and relative wages.

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**ABSTRACT**                                                   JEL I3, J3, J7, J28

This paper examines gender differences in the relationship between job satisfaction and relative wages between co-workers at the establishment level using linked employee and workplace data for Britain (WERS04). In particular, the possibility that that choice of relevant comparison group is affected by gender is addressed. Also, there is an exploration of the relationship between reported job satisfaction and own wage, relative wage and average comparison group wage which allows for asymmetry in these responses across genders. The results may help explain the substantial and persistent earnings gap which exists between male and female employees.

Key words: job satisfaction, earnings, gender, segregation.

1. **Introduction.**

The literature on gender wage inequality is well established and clear in concluding that a substantial and persistent earnings gap exists between male and female employees. The surveys by Altonji and Blank (1999) and Weichselbaumer and Winter-Ebman (2005) are complemented by recent evidence for Britain for a number of data sources in Anderson et al., (2004), Connolly and Gregory (2008), and Mumford and Smith (2008). For example, linked employee-employer data for Britain from the Workplace Employee Relations Survey 2004 (WERS04) shows an average raw earnings gap between men and women of 18.7 log percentage points; on average, men earn £1.79 more an hour than do women (Table 1). Despite this sizable earnings gap, women typically report higher levels of job satisfaction than do men. In this paper we ask whether differences in the response of measured job satisfaction to individual and relative earnings might help explain the persistence in the male-female earnings gap.

**Table 1. Employee earnings by gender**

|  | Male | Female | All |
|---|---|---|---|
| Average hourly wages | £10.55 | £8.76 | £9.70 |
| Average log hourly wages | 2.243 | 2.056 | 2.154 |

Source: WERS 2004.

There has been an enormous surge in the number of studies of satisfaction and/or happiness in the recent economics' literature (recent surveys are provided by Ferrer-i-Carbonell, 2005; van Praag, 2007; Dolan et al., 2008). There are also many criticisms that can be made of these studies, not least the fundamental assumption that respondents supplying the same survey response do actually have the same utility level (van Praag, 2007: page 8). There is evidence, however, that this is a legitimate assumption and that such subjective measures, if collected and analysed in a credible manner, may have a valid role to play in the measurement of social welfare (Kahneman and Krueger, 2006: page3).

Employees appear to have a good understanding of their wage relative to their fellow employees, male or female, (Heywood, 1993). This is not to say that they care equally about the gap between their own wage and the salaries of all other employees. It has long been recognised that workers compare their wages to those other workers who

they consider to be similar to themselves by custom (Mill, 1867: page 236; Phelps Brown, 1979: page 134.). Wood (1978: page 23) argues that comparative or reference sets of employees or jobs are those where the relative pay is easily ascertainable and that this is typically the case for workers in the same establishment.

The response of an employee to their relative wage is perhaps not obvious *a priori*. Workers may care about the absolute size of the gap between their own wage and the comparison group (Phelps Brown, 1979: page 141). Or they may distinguish between an increase in their own wage and a reduction in the average wage in the comparison group (Easterlin, 1995: pages 36-37).

Employees may also react asymmetrically to their being paid relatively higher or lower than their comparison group (Duesenberry, 1949). Furthermore, the behavioural responses are not clearly established in the literature. For example, Zisso and Oswald (2001) argue that an employee may be unsatisfied if their wage is lower than other relative wages leading them to feel envious or unfairly treated. Alternatively, working in a workplace where their wage is low relative to the other wages may encourage the employee to believe that they too will receive higher wages in the future (Clark et al, 2008).

The main contribution we make to this research area is to explore the gender differences in the relationship between job satisfaction and relative wages amongst co-workers at the establishment level using linked employee and workplace data for Britain (WERS04). In particular, we address the possibility that that choice of relevant comparison group is affected by gender. We also explore the relationships between reported job satisfaction and own wage, relative wage and average comparison group wage and allow for asymmetries in these responses across genders.

## 2. Data
The matched employee-workplace data used in this study are drawn from the British Workplace Employee Relations Survey 2004 (WERS04)[1]. WERS04 is a nationally representative survey of workplaces with 5 or more employees. Face-to-face

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[1] Department of Trade and Industry, Workplace Employee Relations Survey: Cross-Section, 2004 (computer file). 5th ed. Colchester: The Data Archive (distributor). SN: 5294 (wave 2).

interviews for WERS04 were conducted with a senior manager. At those workplaces responding to the manager survey, a questionnaire was presented to randomly selected employees. The entire surveying process resulted in 2,295 completed workplace surveys, with 22,451 completed employee questionnaires from 1,733 of these workplaces. Retaining only those individuals who have complete information for the variables used in the analyses below leaves us with 19,670 employees from 1668 workplaces.

WERS04 is a stratified random sample, and larger workplaces and some industries are over-represented. The data have been weighted throughout the paper to allow for the complex (stratified and clustered) survey design (Deaton, 1998) and thus represent the sampling population.

## 3. Measuring job satisfaction.

An aggregate measure of job satisfaction is calculated from six satisfaction measures for the individual employee. These measures are satisfaction with: influence over job; pay; sense of achievement; scope for using own initiative; job security; and work. In each case a binary measure is constructed for positive responses ('satisfied' or 'very satisfied') and then these binary measures are summed to form the aggregate scaled job satisfaction index measure taking values from 0 to 5.

Selected summary statistics for the samples of primary interest to this study (full-time male and female, and part-time male and female, employees) are presented in Table 2.[2] Most employees are satisfied with their job; females are more likely to be satisfied as are part-time employees. These are a common findings in the literature.

## 4. The determinants of satisfaction

*Employee characteristics*

The employee characteristics included as determinants of job satisfaction are -

- Individual characteristics of the employee: age (and age squared), highest education qualification, and days of employer provided training in the past year.

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[2] Full definitions and summary statistics for all the variables are provided in Tables A1 and A2 of the Appendix.

- Demographic variables: the age band of the youngest child (0-4, 5-11 or 12-18 years), marital status, ethnic identification, and physical disability.
- Individual job characteristics: working part-time, being on a fixed term contract, current job tenure, current trade union member, occupation, and occupational gender segregation (the percentage of females in the occupation).

*Workplace characteristics*

A range of workplace characteristics are included in the analysis -

- Physical and market conditions at the workplace: operating age, female segregation[3], size (number of employees), multiple UK work sites, if foreign controlled, if facing increasing market demand; industrial sector and region.
- High performance workplace practices (Black and Lynch, 2004): an index of six family friendly practices[4]; an index of the extent of employer and employee interaction[5]; an index of industrial relations (IR) measures[6]; and if there is a formal written equal opportunity (EO) policy.

Males and females report similar averages for the presence of many these workplace measures, with notable exceptions for females being: less likely to work in foreign owned workplace, more likely to have a written equal opportunity policy, and substantially more likely to work with other women and to have family friendly practices available in their workplace than are males.

**Estimation and results**

The models for the scaled measure of job satisfaction are estimated using the ordered probit estimation method (Wooldridge, 2002). Estimates of the key parameters of interest are shown in Table 3.[7]

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[3] Percentage of the workforce female, calculated from the responses to the employee questionnaires

[4] Ranging from 0 to 6 depending on how many of the following practices are available: paternity leave; maternity leave; home working; job sharing; child care; and/or paid family leave (Budd and Mumford, 2006).

[5] Ranging from 0 to 5, it is the sum of five separate indicator variables if the workers: have a lot of discretion over their work; operate in quality circles; operate in formal teams; if targets are consulted with employees; and if a system of briefing employees exists.

[6] This IR index ranges from 0 to 3. It is the sum of three separate indicator variables each set equal to one if: there are union members at the workplace; there is a human resources representative at the workplace; or there is a collective grievance procedure present

[7] Full results for the estimates of the job satisfaction for each of the groups of employees are presented in Table A3 in the Appendix, selected results are presented in Table 3. The models include the explanatory variables listed and discussed above including: individual characteristics; occupations; job

To summarise the results, the variables typically associated with higher job satisfaction for both men and women are: recent training, working part-time, and working in the Education sector. Trade union members, the disabled, and those employed where there is a formal EO policy are less satisfied. There is also evidence of a 'U' shaped relationship between job satisfaction and age for both men and women.

Notable differences across genders occur for marriage (not significant for women), job tenure (not significant for men), and occupational differences (for example, males who are managers are more satisfied, women who are professionals are). Females who are members of ethnic minorities or on fixed term contracts are also less satisfied. In most industries there are not significant differences across gender except for the Health and Education sectors where women are happier and Hotels where men are.

An interesting difference occurs across the genders with respect to the relationship between education and job satisfaction; in both cases education levels above the minimal category are associated with lower job satisfaction. However, for women this negative relationship is more clearly increasing with higher education levels than it is for males.

We also find that the relationship between gender segregation and job satisfaction is indeed not significant once family friendly work practices are included in the analysis (consistent with Bender et al, 2005). Women are less satisfied with their jobs in workplaces where family friendly work practices are available.

**Relative wages**

We examine the impact of alternative measures of wage relativity on job satisfaction for different comparison groups: the workplace average wage; the workplace average male wage; and the workplace average female wage. We begin with the individuals' own wage relative to the comparison group average: the *relative wage*.[8] In each case,

characteristics; industry; workplace characteristics; regions; and measures of gender segregation at the workplace and the occupational level.

[8] Where the relative wage = $\log(w_i)$ – $\log($*workplace comparison group average*$)$

the relative wage measure is added to the full models for job satisfaction discussed above. The estimates show that employees have higher job satisfaction levels if their relative wage is above the workplace comparison group average (see panel 1 of Table 4). This is true for both males and females, although male job satisfaction is substantially more sensitive (almost twice as sensitive) to relative wages than is female satisfaction.

Next the restriction that the own and the relative wage measure have an equal and opposite effect is removed (see panel 2 of Table 4). These results suggest that employees' job satisfaction is raised by increases in their own wage level (especially males) and are not sensitive to an average comparison wage measure in their workplace.

As discussed in the introduction, it may be the case that employees respond differently to their wage being relatively higher or relatively lower than the comparison group. Following Ferrer-i-Carbonell (2005), this asymmetry in relative wages is allowed for, and the own wage measure is also included (see panel 3 of Table 4). We can now see that both male and female employees show a positive relationship between reported job satisfaction and their own wage. These results are strong and are not significantly different for the two genders. Male employees also gain satisfaction from having a wage rate higher than the average for the workplace comparison group: more so if the comparison group is the males in the workplace (but not significantly so). In contrast, the reported job satisfaction of female employees appears not related to average wages of their workplace co-workers, male or female.

**Conclusions**

The key variables associated with job satisfaction are age, recent training, education, occupation, working in the education sector and family friendly work practices. These determinants are similar but not identical across the groups of employees.

Relative earnings are also found to be important for job satisfaction for men: Men care about their own wage level and the higher their wage is above the average wage (especially of other males) in their workplace. In contrast, women do not appear to

care about the average wages of other men or women in their workplace. Their job satisfaction is sensitive only to their own wage level.

The results show, therefore, that the large persistent earnings gap between men and women identified above is unlikely to reduce the job satisfaction of women. Consequently, perhaps, it may be that little pressure is being exerted by female employees to have that gap reduced.

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## Table 2. Selected summary statistics.

| | all | | male | | female | |
|---|---|---|---|---|---|---|
| | **mean** | **s.error** | **mean** | **s.error** | **mean** | **s.error** |
| age | 40.77 | 0.166 | 41.30 | 0.200 | 40.15 | 0.215 |
| training | 2.539 | 0.045 | 2.544 | 0.060 | 2.536 | 0.053 |
| education: | | | | | | |
|   minimal | 0.231 | 0.005 | 0.257 | 0.007 | 0.203 | 0.006 |
|   ce2ae | 0.088 | 0.003 | 0.083 | 0.004 | 0.094 | 0.004 |
|   degree | 0.197 | 0.005 | 0.210 | 0.007 | 0.182 | 0.006 |
|   postgraduate | 0.066 | 0.003 | 0.071 | 0.005 | 0.060 | 0.004 |
| married | 0.671 | 0.005 | 0.686 | 0.007 | 0.655 | 0.007 |
| disabled | 0.117 | 0.003 | 0.127 | 0.004 | 0.106 | 0.004 |
| ethnic | 0.058 | 0.004 | 0.059 | 0.005 | 0.057 | 0.005 |
| fixed term contract | 0.031 | 0.002 | 0.029 | 0.003 | 0.034 | 0.003 |
| part-time | 0.222 | 0.006 | 0.087 | 0.005 | 0.372 | 0.009 |
| tenure | 5.082 | 0.059 | 5.317 | 0.076 | 4.817 | 0.066 |
| trade union member | 0.303 | 0.009 | 0.311 | 0.012 | 0.295 | 0.010 |
| female | 0.472 | 0.008 | 0.000 | 0.000 | 1.000 | 0.000 |
| log hourly pay | 2.154 | 0.010 | 2.243 | 0.012 | 2.056 | 0.010 |
| occupation: | | | | | | |
|   managerial | 0.129 | 0.004 | 0.165 | 0.006 | 0.088 | 0.004 |
|   professional | 0.113 | 0.005 | 0.122 | 0.007 | 0.103 | 0.006 |
|   operative | 0.092 | 0.005 | 0.147 | 0.008 | 0.032 | 0.005 |
|   unskilled | 0.120 | 0.006 | 0.134 | 0.008 | 0.105 | 0.006 |
| industry: | | | | | | |
|   hotels | 0.038 | 0.004 | 0.030 | 0.004 | 0.047 | 0.005 |
|   construction | 0.047 | 0.005 | 0.073 | 0.009 | 0.018 | 0.002 |
|   education | 0.092 | 0.004 | 0.049 | 0.003 | 0.141 | 0.007 |
|   health | 0.123 | 0.006 | 0.054 | 0.005 | 0.199 | 0.010 |
| family friendly index | 3.071 | 0.044 | 2.924 | 0.055 | 3.234 | 0.048 |
| relative female workplace | 49.15 | 0.800 | 33.37 | 0.787 | 66.75 | 0.609 |
| relative female occupation | 51.01 | 0.394 | 41.70 | 0.481 | 61.39 | 0.384 |
| number of observations | | 17810 | | 8606 | | 9183 |

Source: WERS 2004.

Table 3. Job satisfaction, ordered probits, selected results.

| | all | | | males | | | females | | |
|---|---|---|---|---|---|---|---|---|---|
| | coeff | s.error | | coeff | s.error | | coeff | s.error | |
| age | -0.029 | 0.007 | *** | -0.029 | 0.009 | *** | -0.028 | 0.009 | *** |
| age squared | 0.431 | 0.079 | *** | 0.429 | 0.106 | *** | 0.409 | 0.112 | *** |
| training | 0.072 | 0.004 | *** | 0.077 | 0.005 | *** | 0.066 | 0.005 | *** |
| education (education minimal omitted) | | | | | | | | | |
| ce2ae | -0.189 | 0.044 | *** | -0.231 | 0.064 | *** | -0.155 | 0.057 | *** |
| degree | -0.232 | 0.039 | *** | -0.260 | 0.052 | *** | -0.187 | 0.053 | *** |
| postgraduate | -0.234 | 0.048 | *** | -0.215 | 0.067 | *** | -0.271 | 0.065 | *** |
| married | 0.105 | 0.024 | *** | 0.159 | 0.035 | *** | 0.054 | 0.030 | |
| disabled | -0.188 | 0.029 | *** | -0.199 | 0.039 | *** | -0.192 | 0.041 | *** |
| ethnic | -0.022 | 0.043 | | 0.078 | 0.060 | | -0.126 | 0.065 | ** |
| fixed contract | -0.151 | 0.052 | *** | -0.115 | 0.074 | | -0.167 | 0.075 | ** |
| part-time | 0.138 | 0.028 | *** | 0.144 | 0.054 | *** | 0.128 | 0.033 | *** |
| tenure | 0.002 | 0.003 | | -0.004 | 0.005 | | 0.009 | 0.004 | ** |
| trade union member | -0.132 | 0.026 | *** | -0.132 | 0.036 | *** | -0.114 | 0.034 | *** |
| occupation (craft/personal services omitted) | | | | | | | | | |
| managerial | 0.319 | 0.044 | *** | 0.363 | 0.055 | *** | 0.198 | 0.086 | ** |
| professional | 0.178 | 0.044 | *** | 0.129 | 0.066 | | 0.256 | 0.070 | *** |
| technical | 0.105 | 0.039 | *** | 0.153 | 0.067 | ** | 0.045 | 0.055 | |
| unskilled | 0.004 | 0.047 | | -0.016 | 0.067 | | 0.056 | 0.075 | |
| industry (manufacturing omitted) | | | | | | | | | |
| construction | 0.245 | 0.062 | *** | 0.220 | 0.070 | *** | 0.297 | 0.136 | ** |
| whole/retail | 0.207 | 0.053 | *** | 0.235 | 0.062 | *** | 0.166 | 0.077 | ** |
| hotels | 0.171 | 0.073 | ** | 0.245 | 0.109 | ** | 0.061 | 0.092 | |
| education | 0.231 | 0.057 | *** | 0.151 | 0.081 | | 0.267 | 0.080 | *** |
| health | 0.251 | 0.057 | *** | 0.136 | 0.097 | | 0.336 | 0.076 | *** |
| family friendly index | -0.016 | 0.010 | | -0.006 | 0.013 | | -0.028 | 0.012 | ** |
| rel female workplace | 0.000 | 0.001 | | 0.001 | 0.001 | | -0.001 | 0.001 | |
| rel female occupation | 0.000 | 0.001 | | -0.001 | 0.001 | | -0.001 | 0.002 | |
| female | 0.117 | 0.024 | *** | | | | | | |
| | | | | | | | | | |
| number observations | | 17810 | | | 8606 | | | 9183 | |
| | $F_{(59,1294)}$ | 19.090 | | $F_{(58,1182)}$ | 12.830 | | $F_{(58,1209)}$ | 9.790 | |

Table 4. Job satisfaction and wage relativity.

| | all | | | males | | | females | | |
|---|---|---|---|---|---|---|---|---|---|
| | coeff | s.error | | coeff | s.error | | coeff | s.error | |
| relative to average workplace wage | 0.258 | 0.032 | *** | 0.387 | 0.047 | *** | 0.187 | 0.043 | *** |
| relative to average male workplace wage | 0.246 | 0.032 | *** | 0.359 | 0.047 | *** | 0.191 | 0.041 | *** |
| relative to average female workplace wage | 0.222 | 0.034 | *** | 0.326 | 0.051 | *** | 0.167 | 0.042 | *** |
| own wage | 0.329 | 0.033 | *** | 0.439 | 0.048 | *** | 0.280 | 0.045 | *** |
| average workplace wage | 0.031 | 0.072 | | -0.113 | 0.099 | | 0.111 | 0.086 | |
| own wage | 0.336 | 0.033 | *** | 0.431 | 0.048 | *** | 0.295 | 0.045 | *** |
| average male workplace wage | -0.012 | 0.063 | | -0.063 | 0.091 | | -0.002 | 0.071 | |
| own wage | 0.325 | 0.033 | *** | 0.424 | 0.048 | *** | 0.279 | 0.045 | *** |
| average female workplace wage | 0.062 | 0.071 | | -0.041 | 0.103 | | 0.116 | 0.078 | |
| own wage | 0.341 | 0.074 | *** | 0.315 | 0.098 | *** | 0.396 | 0.091 | *** |
| above average workplace wage | 0.190 | 0.094 | ** | 0.457 | 0.123 | *** | -0.161 | 0.139 | |
| below average workplace wage | -0.115 | 0.080 | | -0.070 | 0.114 | | -0.097 | 0.093 | |
| own wage | 0.303 | 0.067 | *** | 0.364 | 0.092 | *** | 0.290 | 0.079 | *** |
| above average male workplace wage | 0.280 | 0.093 | *** | 0.416 | 0.124 | *** | 0.033 | 0.140 | |
| below average male workplace wage | -0.066 | 0.069 | | -0.103 | 0.104 | | -0.004 | 0.076 | |
| own wage | 0.377 | 0.075 | *** | 0.389 | 0.106 | *** | 0.397 | 0.085 | *** |
| above average female workplace wage | 0.092 | 0.097 | | 0.275 | 0.133 | ** | -0.132 | 0.121 | |
| below average female workplace wage | -0.149 | 0.078 | | -0.156 | 0.121 | | -0.111 | 0.087 | |
| number observations | | 17810 | | | 8606 | | | 9183 | |

Source: WERS 2004. The models include the full set of explanatory variables discussed above: individual characteristics; occupations; job characteristics; industry; workplace characteristics; regions; and measures of gender segregation at the workplace and the occupational level. ** Significant at the 95% or *** 99% confidence level or above.

# Statistical Appendix for:-

## **Gender, job satisfaction and relative wages**

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## Table A1. Variable definitions.

| Variable name | Variable definition |
|---|---|
| job satisfaction index | Index of six job satisfaction measures for the individual employee: satisfaction with influence over job; satisfaction with pay; satisfaction with sense of achievement; satisfaction with scope for using own initiative; satisfaction with job security; satisfaction with work itself. |
| employee measures; | |
| log hourly pay | The natural log of average hourly pay |
| age | Age |
| training | Days of employer provided training in previous year |
| education measures; | |
|    other | Has other academic qualifications but doesn't have a listed recognised qualification |
|    none | Doesn't have a recognised academic qualification |
|    minimal | Education 'none' or 'other' above. |
|    cse25 | Has GCSE grades D-G; CSE grades 2-5 SCE; O grades D-; SCE Standard grades 4-7 |
|    cse1 | Has GCSE grades A-C; GCE O-level passes; CSE grade 1 SCE; O grades A-C; or SCE Standard 1-3 |
|    gceae | Has GCE A-level grades A-E; 1-2 SCE; Higher grades A-C, As levels |
|    gce2ae | Has 2 or more GCE; A-levels grades A-E; 3 or more SCE; or Higher grades A-C |
|    degree | Has a first degree, eg BSc, BA, HND, HNC Ma at first degree level |
|    postgraduate | Has a higher degree, eg MSc, MA, PGCE, PhD |
| female | Female |
| child 0-18 | Has a dependent child aged below 18 |
| child 0-4 | Youngest dependent child aged 0-4 |
| child 5-11 | Youngest dependent child aged 5-11 |
| child 12-18 | Youngest dependent child aged 12-18 |
| 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 other ethnic group. |
| fixed contract | Employed on a fixed term contract. |
| hours | Usual hours worked per week (includes over time) |
| standard hours | Usual hours worked per week minus over time |
| overtime hours | Usual overtime hours per Week |
| part time | Working part time, if usual working hours is less than 30 per week |
| tenure | Years at this workplace |
| union | Employee is a current trade union member |
| occupation categories; | |
|    managerial | Managerial |
|    professional | Professional |
|    technical | Technical |
|    clerical | Clerical |
|    craft | Craft service |
|    personal | Personal service |
|    sales | Sales and customer services |
|    operative | Operative and assembly workers |
|    unskilled | Unskilled |

| Variable name | Variable definition |
|---|---|
| industry categories; | |
|   manufacturing | manufacturing |
|   utilities | electricity, gas, and water supply |
|   construction | construction |
|   whole/retail | Wholesale and retail |
|   hotels | hotels and restaurants |
|   transport | transport and communication |
|   financial services | financial services |
|   other business | other business services |
|   public admin | public administration |
|   education | education |
|   health | health and social work |
|   other community | other community services |
| | |
| workplace measures; | |
| workplace age | Establishment age |
| workplace size | Total number of employees at the workplace |
| multi site | Firm has multiple UK work sites |
| foreign owned | Foreign-controlled |
| increasing market | Market for workplace main product or service is growing |
| family friendly index | Index of Six Family Friendly Policies: 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 |
| employee interaction index | Index of five employee-employer interaction measures at the workplace: employee has a lot of discretion over work; quality circles exists; team working exists; employees consulted over targets; employee briefing system exists |
| IR index | Index of three industrial relations measures at the workplace: union membership presence; human resources representative; collective grievance procedure present |
| equal opportunities | Workplace has a formal written equal opportunity policy |
| relative female workplace | Percentage of the workplace employees who are female |
| relative female occupation | Percentage of the occupation who are female |
| | |
| Regions; | |
|   north east of England | north east of England |
|   north west of England | north west of England |
|   Yorkshire & Humberside | Yorkshire & the Humberside |
|   east midlands of England | east midlands of England |
|   west midlands of England | west midlands of England |
|   east of England | east of England |
|   London | London |
|   south east of England | south east of England |
|   south west of England | south west of England |
|   Scotland | Scotland |
|   Wales | Wales |

Source: WERS 2004.

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**Table A2. Summary statistics.**

| | all | | male | | female | |
|---|---|---|---|---|---|---|
| | **mean** | **s.error** | **mean** | **s.error** | **mean** | **s.error** |
| age | 40.77 | 0.166 | 41.30 | 0.200 | 40.15 | 0.215 |
| training | 2.539 | 0.045 | 2.544 | 0.060 | 2.536 | 0.053 |
| education: | | | | | | |
|    minimal | 0.231 | 0.005 | 0.257 | 0.007 | 0.203 | 0.006 |
|    cse25 | 0.096 | 0.003 | 0.102 | 0.005 | 0.090 | 0.004 |
|    cse1 | 0.253 | 0.005 | 0.217 | 0.006 | 0.293 | 0.007 |
|    ceae | 0.054 | 0.002 | 0.046 | 0.003 | 0.062 | 0.003 |
|    ce2ae | 0.088 | 0.003 | 0.083 | 0.004 | 0.094 | 0.004 |
|    degree | 0.197 | 0.005 | 0.210 | 0.007 | 0.182 | 0.006 |
|    postgraduate | 0.066 | 0.003 | 0.071 | 0.005 | 0.060 | 0.004 |
| child 0-4 | 0.121 | 0.003 | 0.147 | 0.005 | 0.093 | 0.004 |
| child 5-11 | 0.135 | 0.003 | 0.138 | 0.005 | 0.132 | 0.005 |
| child 12-18 | 0.120 | 0.003 | 0.113 | 0.004 | 0.128 | 0.004 |
| married | 0.671 | 0.005 | 0.686 | 0.007 | 0.655 | 0.007 |
| disabled | 0.117 | 0.003 | 0.127 | 0.004 | 0.106 | 0.004 |
| ethnic | 0.058 | 0.004 | 0.059 | 0.005 | 0.057 | 0.005 |
| fixed term contract | 0.031 | 0.002 | 0.029 | 0.003 | 0.034 | 0.003 |
| part-time | 0.222 | 0.006 | 0.087 | 0.005 | 0.372 | 0.009 |
| job tenure | 5.082 | 0.059 | 5.317 | 0.076 | 4.817 | 0.066 |
| trade union member | 0.303 | 0.009 | 0.311 | 0.012 | 0.295 | 0.010 |
| female | 0.472 | 0.008 | 0.000 | 0.000 | 1.000 | 0.000 |
| | | | | | | |
| occupation: | | | | | | |
|   managerial | 0.129 | 0.004 | 0.165 | 0.006 | 0.088 | 0.004 |
|   professional | 0.113 | 0.005 | 0.122 | 0.007 | 0.103 | 0.006 |
|   technical | 0.148 | 0.005 | 0.135 | 0.006 | 0.163 | 0.007 |
|  clerical | 0.174 | 0.006 | 0.083 | 0.005 | 0.276 | 0.009 |
|  craft | 0.080 | 0.005 | 0.139 | 0.009 | 0.013 | 0.002 |
|   personal | 0.067 | 0.004 | 0.029 | 0.003 | 0.110 | 0.006 |
|   sales | 0.077 | 0.005 | 0.046 | 0.004 | 0.111 | 0.008 |
|   operative | 0.092 | 0.005 | 0.147 | 0.008 | 0.032 | 0.005 |
|   unskilled | 0.120 | 0.006 | 0.134 | 0.008 | 0.105 | 0.006 |
| | | | | | | |
| industry: | | | | | | |
|   manufacturing | 0.186 | 0.008 | 0.267 | 0.012 | 0.097 | 0.007 |
|   utilities | 0.005 | 0.001 | 0.006 | 0.001 | 0.003 | 0.001 |
|   construction | 0.047 | 0.005 | 0.073 | 0.009 | 0.018 | 0.002 |
|   whole/retail | 0.137 | 0.007 | 0.134 | 0.010 | 0.140 | 0.009 |
|   hotels | 0.038 | 0.004 | 0.030 | 0.004 | 0.047 | 0.005 |
|   transport | 0.065 | 0.004 | 0.088 | 0.006 | 0.038 | 0.004 |
|   financial services | 0.059 | 0.005 | 0.052 | 0.005 | 0.067 | 0.007 |
|   other business | 0.151 | 0.009 | 0.152 | 0.012 | 0.150 | 0.011 |
|   public admin | 0.051 | 0.004 | 0.048 | 0.005 | 0.054 | 0.005 |
|   education | 0.092 | 0.004 | 0.049 | 0.003 | 0.141 | 0.007 |
|   health | 0.123 | 0.006 | 0.054 | 0.005 | 0.199 | 0.010 |
|   other community | 0.046 | 0.005 | 0.047 | 0.006 | 0.045 | 0.005 |

|  | all | | male | | female | |
|---|---|---|---|---|---|---|
|  | mean | s.error | mean | s.error | mean | s.error |
| workplace age | 44.53 | 1.833 | 45.59 | 2.153 | 43.36 | 1.943 |
| workplace size | 420.1 | 21.83 | 420.8 | 27.27 | 419.8 | 28.21 |
| multi site | 0.747 | 0.014 | 0.729 | 0.017 | 0.767 | 0.014 |
| foreign owned | 0.153 | 0.012 | 0.194 | 0.016 | 0.108 | 0.011 |
| increasing market | 0.331 | 0.015 | 0.344 | 0.018 | 0.316 | 0.016 |
| family friendly index | 3.071 | 0.044 | 2.924 | 0.055 | 3.234 | 0.048 |
| IR index | 2.608 | 0.035 | 2.565 | 0.043 | 2.657 | 0.039 |
| HP practices | 1.190 | 0.027 | 1.178 | 0.032 | 1.204 | 0.030 |
| equal opportunity policy | 0.856 | 0.010 | 0.839 | 0.013 | 0.875 | 0.011 |
| relative female workplace | 49.15 | 0.800 | 33.37 | 0.787 | 66.75 | 0.609 |
| relative female occupation | 51.01 | 0.394 | 41.70 | 0.481 | 61.39 | 0.384 |
| regions: |  |  |  |  |  |  |
| north east of England | 0.042 | 0.007 | 0.045 | 0.009 | 0.038 | 0.006 |
| north west of England | 0.146 | 0.012 | 0.150 | 0.014 | 0.141 | 0.013 |
| Yorkshire & Humberside | 0.090 | 0.010 | 0.090 | 0.012 | 0.091 | 0.011 |
| east midlands of England | 0.094 | 0.009 | 0.091 | 0.011 | 0.097 | 0.011 |
| west midlands of England | 0.090 | 0.009 | 0.093 | 0.011 | 0.087 | 0.010 |
| east of England | 0.106 | 0.009 | 0.100 | 0.011 | 0.112 | 0.011 |
| London | 0.131 | 0.011 | 0.128 | 0.013 | 0.133 | 0.013 |
| south east of England | 0.079 | 0.008 | 0.074 | 0.009 | 0.086 | 0.010 |
| south west of England | 0.118 | 0.011 | 0.119 | 0.014 | 0.117 | 0.012 |
| Scotland | 0.037 | 0.005 | 0.039 | 0.006 | 0.035 | 0.006 |
| Wales | 3.453 | 0.024 | 3.318 | 0.033 | 3.606 | 0.028 |
| hourly pay | 9.702 | 0.097 | 10.548 | 0.129 | 8.760 | 0.096 |
| log hourly pay | 2.154 | 0.010 | 2.243 | 0.012 | 2.056 | 0.010 |
| number of observations |  | 17810 |  | 8606 |  | 9183 |

Source: WERS 2004.

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Table A3. Job satisfaction, ordered probits.

| | all | | | males | | | females | | |
|---|---|---|---|---|---|---|---|---|---|
| | coeff | s.error | z val | coeff | s.error | z val | coeff | s.error | z val |
| age | -0.029 | 0.007 | -4.53 | -0.029 | 0.009 | -3.29 | -0.028 | 0.009 | -3.09 |
| age squared | 0.431 | 0.079 | 5.45 | 0.429 | 0.106 | 4.06 | 0.409 | 0.112 | 3.65 |
| training | 0.072 | 0.004 | 20.03 | 0.077 | 0.005 | 15.74 | 0.066 | 0.005 | 14.07 |
| education (education minimal omitted) | | | | | | | | | |
| cse25 | -0.066 | 0.040 | -1.64 | -0.140 | 0.055 | -2.56 | 0.027 | 0.057 | 0.49 |
| cse1 | -0.168 | 0.030 | -5.56 | -0.227 | 0.043 | -5.33 | -0.103 | 0.043 | -2.40 |
| ceae | -0.229 | 0.045 | -5.04 | -0.230 | 0.070 | -3.28 | -0.216 | 0.062 | -3.49 |
| ce2ae | -0.189 | 0.044 | -4.30 | -0.231 | 0.064 | -3.58 | -0.155 | 0.057 | -2.74 |
| degree | -0.232 | 0.039 | -6.00 | -0.260 | 0.052 | -4.98 | -0.187 | 0.053 | -3.55 |
| postgraduate | -0.234 | 0.048 | -4.85 | -0.215 | 0.067 | -3.21 | -0.271 | 0.065 | -4.16 |
| child 0-4 | 0.013 | 0.034 | 0.37 | -0.009 | 0.043 | -0.21 | 0.038 | 0.053 | 0.71 |
| child 5-11 | 0.098 | 0.032 | 3.10 | 0.123 | 0.044 | 2.78 | 0.064 | 0.046 | 1.39 |
| child 12-18 | 0.052 | 0.030 | 1.75 | 0.026 | 0.046 | 0.57 | 0.072 | 0.041 | 1.76 |
| married | 0.105 | 0.024 | 4.43 | 0.159 | 0.035 | 4.50 | 0.054 | 0.030 | 1.76 |
| disabled | -0.188 | 0.029 | -6.58 | -0.199 | 0.039 | -5.07 | -0.192 | 0.041 | -4.67 |
| ethnic | -0.022 | 0.043 | -0.51 | 0.078 | 0.060 | 1.31 | -0.126 | 0.065 | -1.94 |
| fixed contract | -0.151 | 0.052 | -2.90 | -0.115 | 0.074 | -1.56 | -0.167 | 0.075 | -2.24 |
| part-time | 0.138 | 0.028 | 4.87 | 0.144 | 0.054 | 2.66 | 0.128 | 0.033 | 3.84 |
| tenure | 0.002 | 0.003 | 0.49 | -0.004 | 0.005 | -0.88 | 0.009 | 0.004 | 2.02 |
| union | -0.132 | 0.026 | -5.12 | -0.132 | 0.036 | -3.66 | -0.114 | 0.034 | -3.37 |
| occupation (craft/personal services omitted) | | | | | | | | | |
| managerial | 0.319 | 0.044 | 7.23 | 0.363 | 0.055 | 6.62 | 0.198 | 0.086 | 2.29 |
| professional | 0.178 | 0.044 | 4.04 | 0.129 | 0.066 | 1.95 | 0.256 | 0.070 | 3.66 |
| technical | 0.105 | 0.039 | 2.70 | 0.153 | 0.067 | 2.28 | 0.045 | 0.055 | 0.81 |
| clerical | 0.051 | 0.045 | 1.14 | 0.077 | 0.090 | 0.86 | 0.019 | 0.050 | 0.38 |
| sales | -0.064 | 0.061 | -1.05 | -0.033 | 0.098 | -0.34 | -0.076 | 0.072 | -1.06 |
| operative | -0.077 | 0.052 | -1.47 | -0.062 | 0.055 | -1.13 | -0.149 | 0.130 | -1.15 |
| unskilled | 0.004 | 0.047 | 0.09 | -0.016 | 0.067 | -0.23 | 0.056 | 0.075 | 0.74 |
| industry (manufacturing omitted) | | | | | | | | | |
| utilities | 0.033 | 0.111 | 0.30 | -0.004 | 0.130 | -0.03 | 0.065 | 0.230 | 0.28 |
| construction | 0.245 | 0.062 | 3.95 | 0.220 | 0.070 | 3.15 | 0.297 | 0.136 | 2.19 |
| whole/retail | 0.207 | 0.053 | 3.90 | 0.235 | 0.062 | 3.76 | 0.166 | 0.077 | 2.16 |
| hotels | 0.171 | 0.073 | 2.33 | 0.245 | 0.109 | 2.25 | 0.061 | 0.092 | 0.67 |
| transport | -0.013 | 0.065 | -0.21 | -0.059 | 0.078 | -0.76 | 0.072 | 0.088 | 0.83 |
| financial services | -0.078 | 0.067 | -1.17 | -0.112 | 0.084 | -1.33 | -0.077 | 0.082 | -0.95 |

| | all | | | males | | | females | | |
|---|---|---|---|---|---|---|---|---|---|
| | coeff | s.error | z val | coeff | s.error | z val | coeff | s.error | z val |
| other business | 0.089 | 0.052 | 1.70 | 0.088 | 0.063 | 1.40 | 0.091 | 0.074 | 1.24 |
| public admin | 0.063 | 0.066 | 0.95 | -0.005 | 0.075 | -0.07 | 0.109 | 0.095 | 1.14 |
| education | 0.231 | 0.057 | 4.05 | 0.151 | 0.081 | 1.87 | 0.267 | 0.080 | 3.33 |
| health | 0.251 | 0.057 | 4.39 | 0.136 | 0.097 | 1.41 | 0.336 | 0.076 | 4.39 |
| other community | 0.172 | 0.068 | 2.55 | 0.208 | 0.077 | 2.68 | 0.128 | 0.095 | 1.34 |
| workplace age | 0.000 | 0.000 | 0.69 | 0.000 | 0.000 | 1.33 | 0.000 | 0.000 | -0.20 |
| workplace size | 0.000 | 0.000 | -0.66 | 0.000 | 0.000 | -0.32 | 0.000 | 0.000 | -0.61 |
| multi site | -0.110 | 0.034 | -3.20 | -0.146 | 0.047 | -3.07 | -0.077 | 0.040 | -1.92 |
| foreign owned | -0.027 | 0.039 | -0.70 | -0.080 | 0.047 | -1.70 | 0.075 | 0.055 | 1.38 |
| increasing market | 0.054 | 0.028 | 1.93 | 0.049 | 0.038 | 1.29 | 0.064 | 0.034 | 1.89 |
| family friendly index | -0.016 | 0.010 | -1.60 | -0.006 | 0.013 | -0.47 | -0.028 | 0.012 | -2.30 |
| IR index | -0.011 | 0.012 | -0.89 | 0.001 | 0.015 | 0.04 | -0.021 | 0.015 | -1.40 |
| employee interaction | -0.022 | 0.015 | -1.41 | -0.019 | 0.020 | -0.91 | -0.020 | 0.020 | -1.03 |
| equal opp | -0.114 | 0.047 | -2.42 | -0.128 | 0.061 | -2.09 | -0.110 | 0.057 | -1.91 |
| rel female workplace | 0.000 | 0.001 | 0.48 | 0.001 | 0.001 | 1.51 | -0.001 | 0.001 | -1.24 |
| rel female occupation | 0.000 | 0.001 | -0.46 | -0.001 | 0.001 | -0.90 | -0.001 | 0.002 | -0.52 |
| Region (east Midlands omitted): | | | | | | | | | |
| north east of England | -0.086 | 0.089 | -0.97 | 0.053 | 0.102 | 0.52 | -0.246 | 0.113 | -2.17 |
| north west of England | -0.064 | 0.059 | -1.08 | -0.048 | 0.072 | -0.67 | -0.076 | 0.072 | -1.05 |
| Yorkshire & Humber | -0.043 | 0.066 | -0.64 | 0.045 | 0.084 | 0.54 | -0.127 | 0.077 | -1.65 |
| west Midland England | -0.072 | 0.063 | -1.13 | -0.085 | 0.084 | -1.01 | -0.069 | 0.073 | -0.94 |
| east of England | -0.096 | 0.070 | -1.37 | -0.032 | 0.097 | -0.33 | -0.162 | 0.079 | -2.06 |
| London | -0.060 | 0.067 | -0.89 | 0.035 | 0.086 | 0.40 | -0.159 | 0.080 | -1.99 |
| south east of England | -0.081 | 0.059 | -1.38 | -0.028 | 0.073 | -0.39 | -0.146 | 0.072 | -2.02 |
| south west of England | -0.033 | 0.065 | -0.51 | 0.034 | 0.086 | 0.40 | -0.106 | 0.078 | -1.37 |
| Scotland | -0.093 | 0.061 | -1.52 | -0.032 | 0.078 | -0.41 | -0.174 | 0.075 | -2.32 |
| Wales | -0.020 | 0.071 | -0.29 | 0.063 | 0.094 | 0.67 | -0.131 | 0.100 | -1.31 |
| female | 0.117 | 0.024 | 4.78 | | | | | | |
| number observations | | 17810 | | | 8606 | | | 9183 | |
| | F(59,1294) | 19.090 | | F(58,1182) | 12.830 | | F(58,1209) | 9.790 | |

Source: WERS 2004.