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The Effects of Employees' Empowerment on Job Satisfaction: Empirical Analysis of the Demand-Control Model

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Abstract

The paper investigates the effects of employees' empowerment on different forms of job satisfaction in British workplaces while controlling for the presence of job demands. Using the 2011 Workplace Employment Relations Survey (WERS) and conducting logit estimations, we explore the demand-control model, a widely used model in organizational psychology. The model proposes that imbalances between the demands placed on employees and the control they have in their job negatively affect employee well being and health. Re-evaluating individual forms of employee involvement practices in the context of the demand-control model, we examine the individual effects of job demands and job control on nine forms of job satisfaction, as well as the effects of the types of jobs identified by the model based on the degree of imbalance between demands and control. In addition, we test whether these effects are moderated or amplified by the presence of equality policies in the firm, which may affect employees' sense of control.

The results suggest that employees are more likely to be satisfied in low strain jobs (jobs with low demands and high control) than in high strain jobs (jobs with high demands and low control). Employees in passive jobs (jobs with low demand and low control) on the other hand are less likely to be satisfied with achievement and influence than employees in low strain jobs. Importantly, we find that equality plans moderate the negative effects of job demands and strengthen the effects of job control.

JEL Codes: D63, J28, M54

Keywords: Job Satisfaction, Demands, Control, Incentives, Worker Empowerment, Tasks and Authority, Equality.

1.1 Introduction

Employees being the most valuable assets of a workplace, their satisfaction with the job will significantly influence their exertion of effort and commitment to their job and workplace. As such, firms need to maximise employees' actual and potential skills in order to be more successful or minimize productivity costs of stressed out employees (Oswald et al., 2009). Such attitudes of firms have been associated with organisational changes such as the introduction of empowerment practices (Askenazy and Caroli, 2010; Askenazy, 2001; Kling, 1995; Bauer, 2004; Kato and Morishima, 2002). These practices have been suggested to be employee-centred and associated with management providing: opportunities for employees' involvement and participation that can include information sharing and reduced status distinctions; training and development; and incentives to encourage employees to participate (Wood and de Menezes, 2011; Appelbaum et al., 2000; Zatzick and Iverson, 2011; Mohr and Zoghi, 2008; Hammer and Stern, 1980; Seibert et al., 2004).

Since these practices are aimed at ensuring a committed and motivated workforce, it is important to consider the benefits and costs of these practices in the analysis of employees' satisfaction with various aspects of the job. Bender et al. (2010) observed the positive effects of piece rates on productivity; however, they indicated that greater work intensity is associated with piece rates and this may in turn offset positive productivity effects. In Work Psychology, the benefits and costs of these practices on employees' wellbeing have been theoretically and empirically analysed using Karasek's model, otherwise known as the demand-control model (Noblet et al., 2006; Noblet and Rodwell, 2009; Mikkelsen et al., 1999). This model suggests that an employee's well being in the workplace depends on the balance between the demands associated with the job and the employee's degree of control in the job.

Psychologists suggested that employees' wellbeing range from employees' health to emotional states of happiness. This study particularly considers 'emotional states of happiness' dimension of employees' wellbeing. Our definition of this dimension of employees' wellbeing is the positive feeling induced by being on the job and this forms an important part of overall wellbeing. Studies have suggested that these empowerment practices affect job satisfaction through job control factors inherent in these practices; however, the direction of effect may be due to the level of job

demands associated with the presence of the practices (Wood, 2008; De Witte et al., 2007; Noblet et al., 2006; Noblet and Rodwell, 2009; Mikkelsen et al., 1999; Morrison et al., 2003; Akerboom and Maes, 2006). Thus, this study re-evaluates employees' empowerment practices based on opportunities to influence various aspects of the job (job control) by empirically analysing the demand-control model. We test that the balance between demands and control (joint effects) has additional effects apart from the separate effects of demands and control. That is, it is not just an issue of whether one compensates for the other but they have joint effects associated with the balance.

In this study, we test Karasek's (demand-control) model in the context of employees' satisfaction with different facets of the job by examining the individual effects as well as the joint effects of job control and job demands. As we are also interested in the empowerment of employees, we test the joint effects of equality plans, job control, and job demands.

Following this introductory section, we review the theory in the next section. Section three outlines the research hypotheses, while section four provides an overview of measures of the dependent and explanatory variables. The data source is described in fifth section and we specify the model in the sixth section. Some descriptive statistics are presented in the seventh section, the empirical strategy is described in the eighth section and the results are presented in the ninth section. The penultimate section provides the discussion of results and the last section concludes.

1.2 Theory (Demand-Control Model)

The demand-control model, developed by Karasek (1979), emphasises the degree of decision authority and skills discretion (jointly referred to as job control) as well as job demands placed on employees. The model has two propositions: (1) it suggests that the presence of high job demands and low job control causes psychological stress – strain hypothesis (Panatik et al., 2011; McClenahan et al., 2007), (2) it suggests that the presence of high levels of job control and high levels of job demands is associated with learning, growth and employees' motivation (learning hypothesis).

This model is one of the major theoretical models used in studies on mental health and psychosocial work conditions. The model proposes psychological strains and subsequent physiological illness as the consequences of the joint effects of job

demands and job control, depending on the availability of these job characteristics to the employee. It is really important to distinguish between job stress and job dissatisfaction. Job dissatisfaction relates to the rate of employees' discontentment with the job or different facets of the job while job stress is mostly conceptualised as psychological strain that is caused by job demands. That is, job stress is conceptualised as employees' psychological ill-health at work (Brough and Pears, 2004). In this study, we will not be testing stress per se but at conditions that may create stress as well as dissatisfaction.

The demand-control model focuses on two job characteristics: job demands and job control. Job demands refer to the quantity and pace of work associated with the job. In other words, job demands includes both psychological and physical demands. The physical demand may take the form of the demand on employees to acquire new workplace skills so as to be able to deal and cope with rapid technological changes and competition that beset most work environments. Some studies that have considered physical and psychological demands at work as 'workplace stressors' (that is, stress-causing factors) considered such factors as being perceived by the employee to be problematic and these include: role ambiguity, role conflict, role overload, tight schedules, responsibility for others, and concern for quality (Beehr et al., 1990; Winnbust et al., 1982; Marcelissen et al., 1988).

Karasek's (1979) definition of job control constitutes two elements: decision-making latitude and skill discretion. That is, the rate employees decide for themselves what tasks to do, how and when to do them. It is the individual's ability to meet the job demands and it consists of how employees make decisions about work and working conditions and their ability to utilise their skills. In this study, we explore only one construct of the 'job control' concept of the demand-control model and this is 'the decision making latitude of employees'. While most studies have confounded the concept of job control by broadly defining or measuring it as the decision latitude that employees have in their job, studies such as the one conducted by Weststar (2009) distinguished between two aspects of job control: social and technical control. Social control refers to control over individuals and management activities and includes ownership and decision authority. Kato and Ben-Ner and Jones (1995) referred to this type of control as participation in decision-making at the management level, while Sainfort (1991) in his study identified such type of control as conceptual control.

Technical control on the other hand refers to the control of tasks performed and autonomy in the work domain. Kato and Morishima (2002) referred to this type of control as employees' participation at employee level, while Sainfort (1991) referred to this type of control as instrumental control. Kato and Morishima (2002) and Weststar (2009) suggested that the distinction between the two forms of job control is essential as an employee may have control over his/her own technical task but not have any form of authority in management decisions and vice versa.

Karasek (1979) and De Witte et al. (2007) suggested that job demands may not necessarily have negative effects if adequate job control opportunities are made available to employees. This means that the effect of job demands on employees' wellbeing varies with the amount of control an employee has over tasks (McClenahan et al., 2007). As such, the demand-control model's emphasis is on the combination of job characteristics and the interaction effects are as important as the individual effects. In understanding how workplace stress is induced and how it can be avoided, the demand-control model outlines four types of jobs. These types of jobs explain and outline the two major hypotheses of the demand-control model. These jobs are:

1. **Stressful Jobs:** where workers have high levels of demands on the job and have low degree of control over responsibilities. They are similar to producers' tasks where employees have limited time to deliver and are faced with conflicting demand. These types of jobs highlight the strain hypothesis emphasised by the demand-control model.
2. **Less stressful jobs:** are associated with higher degree of job control and low demand on the job. Karasek and Theorell (1990) described this situation by considering a car repairer who has control over the rate a car is repaired and it is only when the car repairer is less busy that another demand can come in.
3. **Active Jobs:** jobs that are characterised by high levels of job control and high levels of on-the-job demands. These are mostly challenging jobs ('challenging enough to be interesting but not so demanding that capacities are overwhelmed' – Karasek and Theorell, 1990:171); they require high level of performance. For example, a surgeon performing a difficult operation feels a high level of control over such procedure even when it is intensely demanding. On this type of job, learning and growth are enhanced

(Karasek and Theorell, 1990). Active jobs explain the active learning hypothesis.

4. **Passive Jobs:** jobs where workers follow standard procedures and acquired skills are lost in the process. Tasks in such situations are repetitive in nature and workers are stereotypes. This is broadly defined as jobs with low level of control and low job demands.

Thus, from the outline of the job types, the two major hypotheses (strain and active learning hypotheses) of the model are:

i. Employees are less likely to be satisfied with the job when they have high levels of job demands and low levels of job control (strain hypothesis).
ii. Employees are more likely to be satisfied with the job when they have high levels of job demands and low levels of job control (active learning hypothesis).

1.3 Research Hypotheses

As mentioned earlier, the demand-control model has been mainly tested on the mental health of employees with few studies concentrating on job satisfaction (e.g. Wood, 2008; De Witte et al., 2007; McClenahan et al., 2007; Noblet et al., 2006; Noblet and Rodwell, 2009; Wall et al., 1996). The main effects of job demands and job control on job satisfaction have been confirmed but results on joint effects have been mixed, inconclusive and sometimes confusing. This may be as a result of variable misspecification or the construction of measures. For example, Beehr et al. (2001) used the original constructs as stated in Karasek's model but examined a manufacturing firm in the US. In the first instance, the non-significant result obtained by Beehr et al. (2001) may have been due to the sample used, or as a result of the construction of the job demands variable. A composite measure was used and its components (such as work intensity) may have impacted on the result. Job demands may be quantitative (work overload, work intensity) or emotional, particularly where there is a high degree of being in contact with individuals on day-to day basis and it is associated with emotional exertions. Thus, the non-distinction of these forms of job demands as in Söderfeldt et al.'s (2000) study may lead to non-significant results.

Thus, with this model highlighting the importance of job characterization, controlling for the appropriate workplace practices that will promote employees' job

satisfaction is important. Based on the propositions of demand-control model that high levels of job demands is negatively associated with employees' wellbeing, the first hypothesis is summarized as:

Hypothesis 1: employees are less likely to be satisfied with different facets of the job in the presence of high levels of job demands.

Conversely, job control according to the model is expected to increase job satisfaction independently. Job control has been suggested and emphasised in the literature (e.g. Wood, 2008; De Witte et al., 2007; Wood and de Menezes, 2011) as an important predictor of job satisfaction. Karasek (1979) suggested that employees' empowerment is expected to positively influence job satisfaction. Thus, the next hypothesis is summarized as:

Hypothesis 2: Employees are more likely to be satisfied with various aspects of the job when they have control over different aspects of their work.

In addition to the separate effects of job demands and control, we examine the effect of the joint presence (interaction effect) of job control and job demands. Based on Karasek's model, we expect that employees will be dissatisfied with different aspects of the job when they are faced with high levels of job demands and less opportunities to exercise control over their work. This implies that job control is a psychosocial resource that has a positive impact on job satisfaction. As such, we test the strain hypothesis of the demand-control model:

Hypothesis 3: The joint presence of a high level of job demands and less control opportunities is negatively related to various forms of job satisfaction when compared to the joint presence of a low level of job demands and a high level of job control.

Based on Karasek's model, we argue that a high level of job demands do not necessarily have negative effects if combined with a high level of job control. That is, job control has a moderating effect on the level of job demands faced by employees and as such, the presence of control opportunities weakens the negative consequences of job demands on job satisfaction. This is explained based on employees being able to solve problems in demanding situations because they have the opportunity to exert control over such situations. Karasek's model suggested that employees in such jobs tend to be productive and acquire new skills. In this study,

we examine this type of jobs in the context of job satisfaction. Based on all these arguments, our next hypothesis is summarised as follows:

Hypothesis 4: A high level of job control moderates the negative consequences of a high level of job demands; as such employees in jobs characterised by high levels of job demands and high levels of job control are more likely to be satisfied with different aspects of the job. The direction of effects (positive or negative) depends on the type of job being used as the reference category.

Johnson and Hall (1988) argued that job control is not the only resource available for coping with job demands and they suggested that social support from colleagues and managers might also be a moderator of the job demands and strain relationship. In this study we suggest that the presence of EO policies may be a more effective moderating resource of the job demands and job satisfaction relationship as well as strengthen job control. That is, the presence of EO policies may be more important than support from managers because social support may only be effective and made available to all groups of employees when the work environment is less discriminatory.

The presence of EO policies may ensure that all groups of employees are delegated authority over their tasks and jobs. That is, such policy expands the coverage of control opportunities, thereby strengthening the presence of job control. For example, Perotin and Robinson (2000) suggested that participation in decision-making is strengthened if discriminated groups get the opportunities to participate in control and have their contributions taken into account. On the other hand, EO policies may be strengthened by job control. Discrimination and harassment seem to be more evident in authoritarian workplaces where there are large power imbalances. As such, the delegation of control to employees may thus reinforce policies against unfair treatment and discrimination. Therefore, job control and EO policies may be complementary in that the effect of job control is strengthened by the presence EO policies.

Further, an EO policy may serve as a buffering mechanism for the negative consequences of job demands through the means of ensuring that all groups of employees are allocated appropriate workload. That is, it could serve as a medium of ensuring that discriminated groups are allocated the same workload just as non-discriminated groups so as to be able to fulfil commitments outside of work. Also,

the presence of EO policies may moderate the impact of job demands by creating an active coping atmosphere for employees. Such policy may also provide a non-discriminatory atmosphere for employee's voice against inappropriate job demands. However, if equality plans are adopted to tick boxes rather than promote equality, then they may not be effective. Based on these arguments, our next sets of hypotheses are summarized as follows:

Hypothesis 5(a): job control and EO policies are complementary, such that, the joint effect on different forms of job satisfaction is greater than the sum of individual effects when implemented separately in the workplace.

Hypothesis 5(b): EO policies moderates the negative effects of job demands on job satisfaction.

An employee's satisfaction with a particular aspect of the job is specified as:

$$S_{ij=}\boldsymbol{J}_i'\boldsymbol{\beta}_1 + \boldsymbol{D}_i'\boldsymbol{\beta}_2 + \boldsymbol{X}_i^{S\prime}\boldsymbol{\beta}_3 + \varepsilon_{ij} \qquad \text{(Eq.1)}$$

$i = 1, \ldots., n$ and $j = 1, \ldots, q$

Where $\boldsymbol{J}_i$ and $\boldsymbol{D}_i$, are the measures of job demands and job control; $\boldsymbol{X}_i^S$ are other control variables affecting job satisfaction outcome and ε_{ij} is the error term. Accordingly, i and j corresponds to an employee and a workplace.

1.4 Data

The hypotheses outlined in the preceding section are tested using the sixth wave of WERS on British workplaces. The 2011WERS provides detailed information on employee's relationship with management, job satisfaction, motivation issues, consultation procedures and mechanisms, incentive schemes, fair treatment at work, workplace characteristics and employee characteristics. This data is a combination of the workplace and employee surveys with a total of 21,981 observations at employee level. However, with the deletion of missing cases in the dependent variables, we have a sample size of 20,596. Also, as a result of PCA carried out in this study, we used the imputation method to account for missing values in the continuous variables (explanatory variables) derived from PCA. This method affected our feasible sample size in a way and this is clearly highlighted in the following sections.

1.5 Measures of Dependent and Explanatory Variables

We examine measures that directly test the individual effects of job control and job demands as well as the types of jobs proposed by the demand-control model. Moreover, we examine the joint effects of some workplace practices (this relates to hypotheses 5a and 5b).

1.5.1 Forms of Job Satisfaction

Satisfaction with different facets of the job is measured based on respondents' satisfaction with various aspects of the job including: sense of achievement, initiative, influence, training, opportunity to develop skills, pay, job security, the work itself and overall decision-making. We are examining satisfaction with various facets of the job instead of overall job satisfaction because job control and job demands may have varying effects on these types of job satisfaction or may be non-significant.

1.5.2 Measures of Job Control

By utilising the demand-control model in examining the effects of job control (or decision latitude) and job demands on employees' job satisfaction, we explore only one construct of the 'job control' concept of the demand-control model and this is 'the decision making latitude of employees'. Job control is measured using employees' influence over various aspects of work (employee-level variable). The survey questions relate to the magnitude of influence employees have over: the tasks they do in their jobs, the pace of work, the way they do their jobs, the order tasks are carried out and the time they finish or start their working day. Responses to these questions serve as measures of employees' actual level of control.

1.5.3 Measures of Job demands

The measurements of job demands (psychological stressors) have been similar across studies. The measures used in the literature range from work intensity, conflicting demand, work overload to timing issues. In this study, we measure job demands using three individual-level measures, which explore the effects of different types of job demands on job satisfaction. These measures include the rate of employees agreement or disagreement with the following statements: 'My job requires I work very hard' (work intensity), 'I never seem to have enough time to get

my work done' (work overload) and 'I often find it difficult to fulfil commitments outside of work because of the amount of time I spend on my job' (timing demand). This has a Cronbach's alpha of 0.59. Although this scale reliability is lower than that of job control, it is consistent with previous studies that used the previous wave of our dataset (Wood, 2008; Wood and de Menezes, 2011). We expect a negative relation with various forms of job satisfaction. However, this may not be the case depending on the influence of job control in the model. As a result of this, we test the joint presence of job demands and job control (this will be explained in much detail later in the paper).

1.5.4 Control Variables

We control for engagement practices such as participatory practices (individual and collective forms), different types of management (informative, supportive and consultative) and types of payment schemes (individual and collective forms) because these practices are theoretically related to employees' empowerment. Further, we explored fairness at the workplace through the presence of EO policies and right to appeal a decision made under the grievance procedure available in the workplace. We also accounted for employees' characteristics (such as intrinsic motivation, socio-demographic factors, union membership, supervisor, job tenure) as well as workplace characteristics (workplace size, industries, private and public sectors, grievance procedure and occupational categories). The literature has suggested that all these control variables are important determinants of various forms of job satisfaction and non- inclusion of these variables in a job satisfaction model will result in omitted variable bias. Moreover, the significance of the inclusion of these control variables is tested and the result of the likelihood ratio test shows that adding these variables significantly improves the fit of the model. Further, the inclusion of union membership poses the question about endogeneity, which has been highlighted in the literature and this is tested later in the paper. Lastly, we also controlled for missing cases in the explanatory variables by including binary variables for missing values (dummy variable adjustment strategy). This strategy is such that the missing value in the original variable is replaced with a value of zero and a dummy variable that takes the value of 1 if data in the original variable is missing and zero otherwise is included in the regression.

1.6 Principal Component Analysis (PCA)

In order to test hypotheses 3-5, we conduct PCA based on the measures of job demands and job control so as to obtain composite indices. The purpose of this technique is to obtain a small number of linear combinations of the original variables that account for most of the total variance (Anderson, 1963). Each principal component is estimated as a weighted sum of the q variables and each of the q variables can be expressed as a linear combination of the set of principal components. The first principal component accounts for the largest overall variance (variance represented by the eigenvalue). The second principal component accounts for the second maximal variance formed from the remaining variance after the variance associated with the first component has been removed and the last principal component accounts for the smallest variance. In summary, this technique reallocates the variance from q correlated variables into q uncorrelated components. Apart from being a statistical technique for data reduction, the eigenvectors from a PCA reveal the underlying structure of the data (Milan and Whittaker, 1995).

The principal components have some useful geometric features and both principal components and principal scores are orthogonal among each other. Another point to note is that PCA can be interpreted as a fixed effect factor analysis that can be represented as:

$$y_{ij} = \boldsymbol{a}_i' \boldsymbol{b}_j + \varepsilon_{ij} \qquad \text{(Eq.2)}$$

$where\ i = 1, \dots, n\ and\ j = 1, \dots, q;\ y_{ij}$ are the components of matrix Y (Y is matrix of rank f and f is substantially less than n and q), $\boldsymbol{a}_i$ are scores, $\boldsymbol{b}_j$ are loadings, are q-vectors of parameters and ε_{ij} are independent homoscedastic residuals. Accordingly, i and j correspond to an employee and a workplace.

Deciding which components to retain, the rule of thumb is to retain components that have eigenvalues of one or greater than one (the mean eigenvalue is one because we are analysing a correlation matrix). Another way is to conduct a Scree plot that provides a visual aid of the point where the inclusion of additional components will not increase the amount of variance.

1.6.1 PCA of Job demands and Job Control

The PCA of the measures of job control and job demands are presented in tables 1 and 2. Table 1 shows the results of the PCA for job control in two panels; the first highlights the eigenvalues of the correlation matrix (from the largest to the smallest) while the second panel lists the corresponding eigenvectors. These eigenvectors are the principal components and have unit length; while the eigenvalues are the variances of the principal components and add up to the total variance of the variables. Since we are analysing a correlation matrix, the variables are standardized to have unit variance and as such, the total variance is 5.

Table 1: PCA of Job Control

Principal
Component/correlation

Component	Eigenvalue	Difference	Proportion	Cummulative
Comp1	3.09206	2.34769	0.6184	0.6184
Comp2	0.744375	0.287539	0.1489	0.7673
Comp3	0.456835	0.0496945	0.0914	0.8587
Comp4	0.407141	0.107556	0.0814	0.9401
Comp5	0.299585	0	0.0599	1.0000

Principal Component
(Eigenvectors)

Variable (Influence over:)	Comp1	Comp2	Comp3	Comp4	Comp5	Unexplained
Tasks done	0.4657	-0.1647	0.2681	0.8148	0.1419	0
Pace of work	0.4592	-0.1659	0.6548	-0.5446	0.1903	0
How work is done	0.4898	-0.2103	-0.2476	-0.1012	-0.8027	0
The order of tasks	0.4721	-0.1181	-0.6614	-0.1709	0.5446	0
Time of start or finish	0.3309	0.9419	0.0240	0.0025	-0.0526	0
Number of Observations	20193	Trace =	5			
Number of components	5	Rho =	1.0000			

Source: author's computation based on WERS2011

Table 1 shows that the first component has a variance of 3.09, capturing 62% (3.09/5) of the total variance. All the 5 components explain all the variance of the variables and as such, there is no unexplained variance. A careful consideration of

the eigenvectors panel shows that the first principal component has positive loadings of similar size on all the variables and this can be interpreted as employees' overall influence over their jobs. The second principal component on the other hand has positive loadings on influence over start or finish time and negative loadings on other measures of job control. Thus, the second principal component differentiates employees' control over their work in general from control over the time they start or finish work (may enhance flexible working or working too much). The third principal component similarly differentiates control over sequence of work (this includes how work is done and the order of tasks) from all other aspects of job control. The fourth principal component differentiates control over sequence of work and pace of work from control over the tasks employees actually do in their jobs and influence over the start or finish time of working day. Lastly, the fifth principal component has positive loadings on control over the tasks they do in their jobs, the pace of work and the order tasks are carried out and negative loadings on control over how they do their work and time they start or finish their work. This last principal component differentiates control over tasks of the work from control over the work itself. Since the rule of thumb is to retain the component with eigenvalue that is greater than or equal to one, we retain only one component that will serve as the measure for job control and it explains 62% of the total variance.

Table 2: PCA for Job demands

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	1.67272	0.893173	0.5576	0.5576
Comp2	0.779551	0.231825	0.2599	0.8174
Comp3	0.547725	0	0.1826	1.0000

Principal Component (Eigenvectors)				
Variable	Comp1	Comp2	Comp3	Unexplained
Work overload	0.5633	-0.6413	0.5210	0
Work Intensity	0.6333	-0.0700	-0.7708	0
Timing Demand	0.5308	0.7641	0.3667	0
Number of observations	20190	Trace =	3	
Number of components	3	Rho =	1.0000	

Source: author's computation based on WERS2011

Table 2 shows that the first principal component has positive loadings of similar size on all the variables and this can be interpreted as the overall level of job demands faced by employees. The second component has a positive loading on timing demand and negative loadings on work intensity and work overload. This second principal component differentiates not being able to fulfil commitments outside of work as a result of the time spent on the job from the requirements of the job (other forms of job demands). The third principal component has negative loadings on work intensity and negative loadings on work overload and timing issues. Thus, the third principal component differentiates the intensity of work (working hard) from being overloaded with tasks as well as not being able to fulfil outside commitments. Here again, because it is only one principal component that has eigenvalue greater than or equal to one, we use one single component (first principal component) as the measure of job demands. This explains 55% of the total variance.

1.6.2 Imputation Strategy for Missing Cases

After undertaking the PCA, missing cases are detected in the components. In dealing with the missing values in the demand and control components, we utilised the imputation method for dealing with missing values. According to Durrant (2005), imputation is a method where a complete data set is obtained by filling in missing data with plausible values. This technique that makes use of an imputation model uses auxiliary variables that are statistically related to the variable with missing values. Imputation is conducted in order to reduce the non-response bias that plagues most survey data (Meng, 1994). The author emphasised that the imputation method should not just be viewed as being computational but rather as a means of making inference that follows a sequential method of inputting information. This method ensures that the sample size is maintained and this results in high efficiency compared to when missing values are dropped from the data set. By discarding observations with missing values, all information contained in the non-missing values of these observations are also discarded, thus, resulting in less efficient results (larger standard errors). Also, if the remaining complete cases are not representative of the population, we will have biased estimates. Thus, it is very important missing cases are treated using methods other than deletion.

Since the principal components are continuous variables, we use the linear regression method to fill in the missing values (Rubin, 1987). This method relies on the normality of the model and as such, the variable to be imputed needs to meet the normality assumption.

By considering a variable $X = (x_1, \dots, x_n)$ in a linear regression model, we have:

$$x_i|\boldsymbol{z}_i \sim N(\boldsymbol{z}_i'\boldsymbol{\beta}, \sigma^{\boldsymbol{2}}) \qquad \text{(Eq.3)}$$

Where $\boldsymbol{z}_i = (\boldsymbol{z}_{i1}, \boldsymbol{z}_{i2}, \dots, \boldsymbol{z}_{iq})'$ captures the predictors of X for observation i, β is the $q \times 1$ vector of unknown regression coefficients, and $\sigma^{\boldsymbol{2}}$ is the unknown scalar variance. In this case X contains missing values that are to be filled in. Let us consider the partition of $X = (X_o', X_m')$ into $n_0 \times 1$ and $n_1 \times 1$ vectors that contain complete and incomplete observations. A similar partitioning can be done for $\boldsymbol{Z} = (\boldsymbol{Z}_o, \boldsymbol{Z}_m)$ into $n_0 \times q$ and $n_1 \times q$ matrices.

Thus, the linear regression imputation method follows the following steps to fill in X_m:

First Step: Fit a regression model (Eq.3) to the observed data $(X_o, \boldsymbol{Z}_m)$ to obtain the estimates of $\widehat{\beta}$ and $\hat{\sigma}^{\boldsymbol{2}}$

Second Step: Simulate new parameters β_* and ${\sigma_*}^{\boldsymbol{2}}$ from their joint subsequent distribution of the missing data $(\beta, \sigma^{\boldsymbol{2}}) \propto {1}/{\sigma^{\boldsymbol{2}}}$. This simulation is done in two ways:

$${\sigma_*}^{\boldsymbol{2}} \sim \hat{\sigma}^{\boldsymbol{2}} \, (n_0 - q \,) \Big/ X^{\boldsymbol{2}}_{n_0 - q}$$

$$\beta_* | {\sigma_*}^{\boldsymbol{2}} \sim N\big[\widehat{\beta}, {\sigma_*}^{\boldsymbol{2}} (\boldsymbol{Z}'_o \, \boldsymbol{Z}_o)^{\boldsymbol{-1}}\big]$$

Third step: One set of imputed values, X_m^1, is obtained by simulating from $N[\boldsymbol{Z}_m \beta_*, {\sigma_*}^{\boldsymbol{2}} I_{n1 \times n1}]$

Fourth step: Here, the second and third steps are repeated to obtain M sets of imputed values $X_m^1, X_m^2, \dots\dots, X_m^M$.

Imputations are successfully done for job demands and job control indexes. For the job demands index, 406 observations that had missing cases were imputed. However, in the case of job control index, 47 observations (out of 403 observations) with missing cases could not be imputed. An explanation for the non-imputation in the case of these 47 observations may be that respondents did not provide answers to the questions used in generating the job control component (that is, respondents who

did not co-operate). As such, these 47 observations with missing cases are dropped and our feasible sample consists of 20, 549 observations.

1.6.3 Measures of Job Types based on PCA

Using composite measures of job demands and job control obtained from the PCA analysis, we construct four binary variables that examine four distinct types of jobs. We use the median value as the discriminative cut-off points for these characteristics and the binary variables are constructed as follows:

High demand and high control dummy: this variable takes the value of 1 when job demands is greater than -0.07 and job control is greater than 0.26; zero otherwise

High Demand and low control dummy: takes the value of 1 when job demands is greater than -0.07 and job control is less than or equal to 0.26; and takes the value of 0 otherwise

Low demand and High control dummy: takes the value of 1 when job demands is less than or equal to -0.07 and job control is greater than 0.26; and takes the value of 0 otherwise

Low demand and low control dummy: takes the value of 1 when job demands is less than or equal to -0.07 and job control is less than or equal to 0.26; and zero otherwise

We use low demand-high control dummy as the reference category because it has the largest mean when compared with the other binary variables and because we are interested in the effects of high demands-low job control.

1.7 Descriptive Analysis

Table 3 shows that the proportions of employees in the examined job types are quite similar. A higher percentage (27%) of employees report being in low demand and high control jobs (less stressful jobs) while 24% are in active and stressful jobs. 26% of British employees reported being in passive jobs, which are characterised by repetitive tasks. That is, 26% of British employees report that they do not have the opportunity to make decisions regarding their work or work environment and they are faced with low levels of job demands. As such, there will be less opportunity to solve problems or learn new skills.

Table 3: Job Types Based on the Demand-Control Model

	Mean	Standard Deviation	Minimum	Maximum
Types of Jobs				
High Demand& High control	0.24	0.43	0	1
High Demand& Low control	0.24	0.43	0	1
Low Demand& High control	0.27	0.44	0	1
Low Demand& Low control	0.26	0.44	0	1

Source: author's computation based on WERS2011

Table 4 shows that more than 90% of female and male employees in our dataset have permanent contracts while less than 5% have temporary or fixed contracts. Male and female employees appear to be similar outside their occupations Further, 47% of male employees in our dataset are in lower occupational categories while 29% are in managerial categories. In contrast, more female employees are in managerial occupations (35%) than in lower occupational categories. A possible explanation for the higher proportion of male employees in lower categories may be due to the influence of some industries dominated by men. For example, male employees dominate the construction industry and most of the employees who do the manual job in this industry are men. This sort of manual job has the form of a labour contract – employees get paid for the amount of work done – and it is the description of occupations at lower category. About 68% of female employees and 72% of male employees are married or living with partner while 2% of female employees and 1% of male employees are widowed. The proportions of female and male employees who have been on the job for 10 years and less are similar. Lastly, 36% of female employees in our dataset are union members while 38% of male employees are union members.

Table 4: Employee and Workplace Characteristics across Gender

	Workplaces with 5 or more employees	
	Females %	Males %
Contract		
Permanent	0.923	0.934
Temporary	0.035	0.031
fixed period	0.041	0.033
Occupation		
Higher & Lower managerial and professional occupations	0.349	0.294
Intermediate occupations	0.323 .	0.234
Lower occupational category	0.324	0.469

	Workplaces with 5 or more employees	
	Females	Males
	%	%
Union Member		
No, have never been	0.477	0.428
No, but have been	0.156	0.185
Yes	0.362	0.384
Tenure		
less than 1 year	0.115	0.109
less than 2 year	0.100	0.092
less than 5 year	0.249	0.231
less than 10 years	0.242	0.243
10 years or more	0.292	0.321
Marital Status		
Single	0.199	0.218 .
married or living with partner	0.675	0.719
divorced/ separated	0.095	0.053
Widowed	0.020	0.007
Supervisor	0.304	0.365

Source: author's computation based on WERS2011

Note: Percentages are based on the total proportion of females (11,553) and males (8,996) in the dataset.

1.8 Empirical Strategy

Analysis is conducted individually for all the forms of job satisfaction (nine job satisfaction equations). For direct effects of job control and job demands, we considered all the measures of job demands and job control as some may be more predictive of one form of job satisfaction than others. Also, we examine the effects of being in a particular type of job as identified in the demand-control model as well as the joint effects of equality plans, job demands and jobs control (hypotheses 3-5).

Our econometric strategy relies on the use of logit estimations. As a result of employees being nested in workplaces, observations within workplaces may not necessarily be independent and this may result in biased standard error estimates. Thus, we report clustered standard errors along with the estimated coefficients. In addition, we report some marginal effects for key variables.

1.8.1 Endogeneity Analysis

The negative association of union membership with job satisfaction shown by some studies (Bryson et al., 2004; Borjas, 1979) may be due to unobserved factors co-determining union membership and job satisfaction, so that union membership,

which is also an employee-level variable may be endogenous. As such, we test for the endogenous nature of union membership. In order to test and overcome the potential endogeneity problems associated with union membership – a binary measure – we estimate a recursive simultaneous bivariate probit model (Greene, 2012). That is, we estimated the effect of union membership on job satisfaction while simultaneously estimating union membership equation with the use of instrumental variables. This can be represented as:

$$U^* = X_1'\beta_1 + \varepsilon_1 \qquad U = 1\ if\ U^* > 0, and\ 0\ otherwise$$

$$y^* = X_2'\beta_2 + \gamma U + \varepsilon_2 \qquad y = 1\ if\ y^* > 0, and\ 0\ otherwise,$$

$$\binom{\varepsilon_1}{\varepsilon_2}\Big| X_1\ X_2 \sim N\left[\binom{0}{0}, \binom{1\ \rho}{\rho\ 1}\right].$$

Where X_1 is the instrumental variable and it is correlated with union membership. X_2 represents explanatory variables of the job satisfaction equation. This model shows some of the characteristics of the bivariate model but it is qualitatively different from it. It is different in the sense that the binary endogenous variable U, appears on the right hand side of the second equation. U that is union membership, is a binary variable and it is instrumented by dispute over pay and working conditions. The intuition behind the use of this instrument is that employees are likely to join unions possibly as a result of dispute over pay and working conditions. The test of the validity of this instrument is done using the tetrachoric correlation technique. Tetrachoric correlation is the inferred Pearson correlation from two binary variables. This technique computes pairwise estimates of tetrachoric correlations of the binary variables (instrumental and endogenous explanatory variables) using a maximum likelihood estimator. The significant correlation result confirmed the validity of the instrument. The next section presents the endogeneity test results.

1.9 Results

1.9.1 The Effect of Union Membership

The estimation results show that union membership is negatively related to satisfaction with skills and involvement in decisions and positively related to satisfaction with pay and work itself. The negative association of union membership may be as a result of reverse causality that can be explained in the case of employees

in workplaces covered or uncovered by union bargaining (Bryson et al., 2004). In the case of uncovered workplaces, employees may join unions to voice their dissatisfaction with the job because of increased awareness about unsatisfactory aspects of the job and the absence of union representatives to voice their dissatisfaction. For covered workplaces in Britain, non-members tend to benefit from union bargaining without being members. The positive associations of union membership may be as result of unions' bargaining power and ensuring good working environments for employees. This supports explanations on wage, collective voice and bargaining effects of unions. The finding on this 'voice' measure is however in contrast to Wood and de Menezes's (2011) argument that: having a voice with bargaining rights is not necessarily an important predictor of job satisfaction. As earlier mentioned, we test the possibility of reverse causality between union membership and the forms of job satisfaction.

Table 5: Test of Exogeneity

	Satisfaction With:								
	Achievement	**Initiative**	**Influence**	**Training**	**Skills**	**Pay**	**Job security**	**Work itself**	**Involvement in decisions**
	Union	**Union**	**Union**	**Union**	**Union**	**Union**	**Union**	**Union**	**Union**
Instrumental variable									
Dispute over pay and Working conditions	0.684***	0.684***	0.684***	0.684***	0.684***	0.684***	0.684***	0.684***	0.684***
	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
Constant	-0.456***	-0.456***	-0.456***	-0.456***	-0.456***	-0.456***	-0.456***	-0.456***	-0.456***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Test of exogeneity (ρ)	**0.092**	**0.198*** **	**-0.012**	**0.039**	**0.018**	**-0.118*** **	**0.057**	**0.063**	**-0.025**
	(0.070)	**(0.075)**	**(0.070)**	**(0.071)**	**(0.072)**	**(0.061)**	**(0.086)**	**(0.070)**	**(0.086)**

Notes: The full results are presented in the appendix. Standard errors are in parentheses. Coefficients are statistically significant at * p<0.10, ** p<0.05, *** p<0.01.

Table 6: Comparison of Models: Base and Selection Effects Models (Key Variables – 1)

	Satisfaction with:											
	Achievement1	**Achievement2**	**Initiative1**	**Initiative2**	**Influence1**	**Influence2**	**Training1**	**Training2**	**Skills1**	**Skill2**	**Pay1**	**Pay2**
Main Predictors												
Job Control												
Over tasks	0.318***	0.186***	0.454***	0.257***	0.685***	0.397***	0.028	0.016	0.117***	0.063***	0.049**	0.030**
	(0.028)	(0.016)	(0.028)	(0.016)	(0.028)	(0.016)	(0.030)	(0.017)	(0.031)	(0.017)	(0.024)	(0.015)
Over pace	0.050*	0.028*	0.021	0.013	0.107***	0.063***	0.016	0.011	0.008	0.007	0.058**	0.035***
	(0.027)	(0.015)	(0.027)	(0.015)	(0.025)	(0.015)	(0.028)	(0.016)	(0.029)	(0.016)	(0.023)	(0.014)
On How to do task	0.173***	0.097***	0.376***	0.210***	0.330***	0.189***	0.060*	0.032	0.144***	0.079***	-0.011	-0.006
	(0.034)	(0.020)	(0.035)	(0.020)	(0.034)	(0.020)	(0.036)	(0.021)	(0.037)	(0.021)	(0.030)	(0.018)
Over Order of task	0.055*	0.036**	0.250***	0.144***	0.227***	0.133***	0.054	0.032*	0.012	0.006	-0.026	-0.016
	(0.031)	(0.018)	(0.031)	(0.018)	(0.031)	(0.018)	(0.033)	(0.019)	(0.034)	(0.019)	(0.027)	(0.016)
Over Working Time	0.047**	0.025**	0.059***	0.031***	0.171***	0.100***	0.075***	0.045***	0.086***	0.051***	0.089***	0.052***
	(0.019)	(0.011)	(0.020)	(0.011)	(0.018)	(0.010)	(0.020)	(0.011)	(0.021)	(0.012)	(0.016)	(0.009)
Job demands												
Work overload	-0.160***	-0.093***	-0.070***	-0.038***	-0.116***	-0.066***	-0.167***	-0.091***	-0.073***	-0.037***	-0.059***	-0.036***
	(0.023)	(0.013)	(0.024)	(0.013)	(0.022)	(0.012)	(0.024)	(0.013)	(0.025)	(0.014)	(0.018)	(0.011)
Work Intensity	0.420***	0.235***	0.204***	0.114***	0.122***	0.067***	0.017	0.002	0.083***	0.043**	-0.218***	-0.128***
	(0.029)	(0.016)	(0.030)	(0.017)	(0.028)	(0.016)	(0.031)	(0.017)	(0.032)	(0.018)	(0.024)	(0.014)
Timing Demand	-0.131***	-0.073***	-0.105***	-0.059***	-0.136***	-0.081***	-0.057***	-0.031***	-0.078***	-0.045***	-0.082***	-0.048***
	(0.020)	(0.011)	(0.021)	(0.012)	(0.019)	(0.011)	(0.021)	(0.012)	(0.021)	(0.012)	(0.016)	(0.010)
Joint Consultative Committees	0.029	0.012	-0.013	-0.011	-0.061	-0.042*	-0.048	-0.031	-0.033	-0.021	0.009	0.005
	(0.044)	(0.025)	(0.045)	(0.025)	(0.041)	(0.024)	(0.045)	(0.026)	(0.047)	(0.026)	(0.036)	(0.021)

Notes: The complete table of results are presented in the appendix. Model 1 is the base model while Model 2 is the selection effects model. Robust standard errors are in parentheses. Coefficients are statistically significant at * p<0.10, ** p<0.05, *** p<0.01.

Table 7: Comparison of Models: Base and Selection Effects Models (Key Variables – 2)

	Satisfaction With:					
	Job security1	**Job security 2**	**Work itself1**	**Work itself 2**	**Involvement in decision1**	**Involvement in decision 2**
Main Predictors						
Job Control						
Over tasks	0.051	0.025	0.227***	0.132***	0.145***	0.085***
	(0.039)	(0.021)	(0.028)	(0.016)	(0.034)	(0.019)
Over pace	0.060	0.044**	0.042	0.024	0.054*	0.028
	(0.037)	(0.020)	(0.027)	(0.015)	(0.032)	(0.018)
On How to do task	0.051	0.019	0.199***	0.117***	0.062	0.030
	(0.048)	(0.026)	(0.034)	(0.020)	(0.041)	(0.023)
Over Order of task	0.005	0.006	-0.007	-0.006	0.130***	0.074***
	(0.045)	(0.024)	(0.031)	(0.018)	(0.037)	(0.021)
Over Working Time	-0.001	-0.007	-0.014	-0.010	-0.024	-0.011
	(0.027)	(0.015)	(0.019)	(0.011)	(0.023)	(0.013)
Job demands						
Work overload	-0.025	-0.010	-0.189***	-0.107***	-0.084***	-0.048***
	(0.032)	(0.017)	(0.023)	(0.013)	(0.027)	(0.015)
Work Intensity	-0.191***	-0.106***	0.268***	0.146***	-0.042	-0.023
	(0.041)	(0.022)	(0.029)	(0.016)	(0.035)	(0.019)
Timing Demand	-0.065**	-0.042***	-0.182***	-0.104***	-0.089***	-0.050***
	(0.028)	(0.015)	(0.020)	(0.011)	(0.023)	(0.013)
Joint Consultative Committees	-0.091	-0.057*	-0.008	-0.009	-0.036	-0.027
	(0.060)	(0.032)	(0.043)	(0.024)	(0.052)	(0.029)

Notes: The complete table of results are presented in the appendix. Model 1 is the base model while Model 2 is the selection effects model. Clustered standard errors are in parentheses. Coefficients are statistically significant at * p<0.10, ** p<0.05, *** p<0.01.

In Table 5, the likelihood ratio statistics for the test of the hypothesis that ρ (correlation coefficient) equals zero shows that we cannot reject the hypothesis that ρ is equal to zero for seven dimensions of job satisfaction. That is, union membership is not endogenous in nature for seven dimensions of job satisfaction. A possible explanation for this result is that British workplaces may be covered by union bargaining[1] and non-union members do not need to join unions because of dissatisfaction so as to benefit from union bargaining. However, the endogeneity test showed that satisfaction with initiative and pay influence union membership. Having accounted for selection effects in comparison to models without attention to selection effects (base models), we find that: (1) union membership is positively associated with pay satisfaction and (2) union membership is negatively associated with initiative satisfaction. The selection effects model supports the explanation of the reverse causality between union membership and pay satisfaction. That is, employees tend to join unions so as to improve their working conditions and increase their bargaining power possibly because returns to voice are higher in the presence of collective bargaining.

However, in the case of initiative satisfaction where the workplace is not covered by union bargaining for example, employees join unions so as to voice their dissatisfaction about the lack of autonomy and use of initiative. By comparing more results, tables 6 and 7 shows that there are no significant changes in the coefficients of job demands and control when the base and selection effects models are compared. However, there are significant changes in the joint consultative committees' coefficients. We find significant negative relationships between joint consultative committees and satisfaction with influence and job security when we account for selection effects. This is in contrast to the non-significant result obtained when selection effects are not accounted for. This result suggests that most consultative committees may be more of informative committees. Issues may have been decided upon most times and the committee meetings are used for passing the information. Such activities could be perceived as time-wasting; thus, resulting in lower levels of job satisfaction.

[1] Covered or uncovered workplaces were not tested in this study.

Since union membership is not endogenous for most of the forms of job satisfaction and there are no significant changes in the results, we know that base models results are reliable and worth discussing.

1.9.2 Overview of Results

Table 8 shows the results from the weighted logit estimations of only the four Karasek job types as explanatory variables. We find that employees in active jobs (jobs with high levels of job demand and job control), stressful jobs (high job demand and low job control jobs) and passive jobs (characterised by low demand and low control) are less likely to be satisfied with different aspects of the job when compared to employees in low strain jobs. With the addition of other explanatory and control variables to the model, table 9 shows that job demands and job control have separate and significant effects on various forms of job satisfaction.

Work overload and not being able to fulfil outside commitments because of amount of time spent on the job (length of time issues) are shown to be significantly and negatively related to all forms of job satisfaction at 1% and 5% levels. Interestingly, we find that work intensity is positively related to four forms of job satisfaction and negatively associated with pay satisfaction and job security satisfaction. The results on the measures of job control are robust and positive across most forms of job satisfaction. These results on the independent effects of job control and job demands support the findings of previous studies and hypotheses of the demand-control model.

With the addition of other explanatory and control variables, Table 9 shows that active jobs (jobs with high levels of job demands and job control) are not significantly related to any form of job satisfaction when compared to low strain jobs (low job demands and high job control jobs). This non-significant result may be as a result of the effects being captured by engagement practices that are included as control variables as they may affect job control and job demands. On the other hand, employees in the passive jobs (characterised by low demand and low control) reveal being less satisfied with achievement and influence than employees in low strain jobs. A possible explanation may be that in such passive jobs, there is an absence of control and problem solving opportunities and this in turn results in the likelihood of less satisfaction with achievement and influence.

Employees in high strain jobs are less likely to be satisfied with achievement, influence, pay, work itself and involvement in decision-making and more likely to be satisfied with training than employees in low strain jobs. The positive association with training satisfaction may be as a result of the availability of more training opportunities so as to deal with high level of job demands. However, as proposed in the demand-control model, high levels of job demands result in strain and this may be a possible explanation for the negative associations obtained.

Extending the hypotheses of the demand-control model, table 9 shows that the joint presence of job control and EO policies is positively related to satisfaction with achievement, initiative, influence and work itself. This reveals that the presence of an EO policy strengthens employees' control in the workplace possibly through making such control opportunities available to discriminated groups. Apart from strengthening the presence of job control, EO policies is shown to moderate job demands at high levels and as such weakens the resulting negative effects on satisfaction with skills and pay. However, in the case of satisfaction with achievement and work itself, EO policies only moderates job demands at medium and low levels. In sum, our analyses provide support and extension of findings on demand-control model. Also, we found that the presence of EO policies is as important as the availability of control opportunities.

Table 8: Empirical Analysis of Karasek's Job Types

	Satisfaction with:								
	Achievement	**Initiative**	**Influence**	**Training**	**Skills**	**Pay**	**Job security**	**Work itself**	**Involvement in decisions**
Types of Jobs (ref: Low Demand and High Control)									
High Demand and High Control	-0.059	-0.000	-0.227***	-0.424***	-0.307***	-0.349***	-0.381***	-0.273***	-0.521***
	(0.057)	(0.066)	(0.051)	(0.055)	(0.057)	(0.044)	(0.055)	(0.055)	(0.059)
High Demand and Low Control	-1.313***	-1.815***	-2.121***	-1.139***	-1.222***	-1.036***	-1.036***	-1.352***	-1.630***
	(0.049)	(0.054)	(0.047)	(0.051)	(0.052)	(0.042)	(0.051)	(0.049)	(0.053)
Low Demand and Low Control	-1.278***	-1.721***	-1.882***	-0.665***	-0.862***	-0.496***	-0.655***	-1.041***	-0.994***
	(0.049)	(0.054)	(0.046)	(0.053)	(0.052)	(0.042)	(0.052)	(0.050)	(0.055)
Constant	1.856***	2.217***	1.585***	1.963***	1.969***	1.098***	1.799***	1.865***	2.116***
	(0.042)	(0.048)	(0.039)	(0.044)	(0.045)	(0.034)	(0.045)	(0.043)	(0.048)
Pseudo R-Squared	0.062	0.110	0.142	0.027	0.035	0.024	0.024	0.047	0.056
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N	20549	20549	20549	20549	20549	20549	20549	20549	20549

Table 9: Weighted Logit Estimation of Demand-Control Model

	Satisfaction with:								
	Achievement	**Initiative**	**Influence**	**Training**	**Skills**	**Pay**	**Job security**	**Work itself**	**Involvement in decisions**
Main Predictors									
Job Control									
Over tasks	0.243***	0.391***	0.582***	0.043	0.142***	0.072**	0.096*	0.163***	0.113**
	(0.037)	(0.038)	(0.039)	(0.041)	(0.041)	(0.033)	(0.055)	(0.036)	(0.046)
Over pace	-0.021	-0.038	0.009	0.031	0.032	0.078***	0.109**	-0.020	0.024
	(0.035)	(0.036)	(0.036)	(0.037)	(0.037)	(0.030)	(0.052)	(0.034)	(0.043)
On how to do task	0.080*	0.298***	0.197***	0.080*	0.175***	0.015	0.110*	0.120***	0.023
	(0.044)	(0.046)	(0.047)	(0.048)	(0.048)	(0.039)	(0.067)	(0.043)	(0.056)

	Satisfaction with:								
	Achievement	**Initiative**	**Influence**	**Training**	**Skills**	**Pay**	**Job security**	**Work itself**	**Involvement in decisions**
Over order of task	-0.023	0.184***	0.112***	0.067	0.036	-0.001	0.055	-0.075*	0.099**
	(0.042)	(0.042)	(0.042)	(0.045)	(0.045)	(0.036)	(0.061)	(0.040)	(0.050)
Over working time	0.003	0.022	0.113***	0.085***	0.101***	0.101***	0.029	-0.050**	-0.042
	(0.023)	(0.025)	(0.025)	(0.026)	(0.025)	(0.020)	(0.035)	(0.023)	(0.028)
Job demands									
Work overload	-0.094**	-0.020	-0.120***	-0.225***	-0.186***	-0.081**	-0.089	-0.106**	-0.041
	(0.044)	(0.045)	(0.041)	(0.045)	(0.045)	(0.036)	(0.069)	(0.043)	(0.057)
Work intensity	0.501***	0.268***	0.115**	-0.055	-0.059	-0.239***	-0.274***	0.369***	0.013
	(0.054)	(0.056)	(0.051)	(0.056)	(0.057)	(0.049)	(0.091)	(0.053)	(0.071)
Timing demand	-0.074**	-0.063	-0.139***	-0.106***	-0.174***	-0.097***	-0.122**	-0.112***	-0.049
	(0.038)	(0.039)	(0.034)	(0.037)	(0.038)	(0.031)	(0.059)	(0.036)	(0.048)
Types of Jobs (ref: LD_HC)									
High Demand and High Control	-0.061	0.101	-0.030	0.054	0.014	-0.105	0.009	-0.091	-0.098
	(0.082)	(0.091)	(0.075)	(0.082)	(0.090)	(0.066)	(0.107)	(0.080)	(0.099)
High Demand and Low Control	-0.243***	-0.099	-0.203**	0.168*	0.138	-0.165**	0.179	-0.209**	-0.234**
	(0.091)	(0.101)	(0.089)	(0.098)	(0.105)	(0.080)	(0.127)	(0.094)	(0.112)
Low Demand and Low Control	-0.268***	-0.109	-0.174**	0.084	0.086	0.053	0.015	-0.113	-0.088
	(0.073)	(0.078)	(0.073)	(0.081)	(0.085)	(0.064)	(0.102)	(0.074)	(0.092)
Demand x EO Policy	-0.117*	-0.104	0.019	0.081	0.195***	0.091*	0.085	-0.120*	-0.038
	(0.066)	(0.067)	(0.060)	(0.064)	(0.067)	(0.055)	(0.109)	(0.063)	(0.085)
Control x EO Policy	0.109**	0.099**	0.176***	-0.010	-0.029	-0.047	-0.080	0.111**	0.041
	(0.046)	(0.048)	(0.054)	(0.051)	(0.048)	(0.042)	(0.077)	(0.043)	(0.060)
CONTROLS									
Engagement Practices	YES	YES	YES	YES	YES	YES	YES	YES	YES
Individual-level control variables	YES	YES	YES	YES	YES	YES	YES	YES	YES
Workplace-level control variables	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: We account for missing values and the complete table of results with control variables are available from the authors. Clustered standard errors in parenthesis and the estimated coefficients are statistically significant at * p<0.10, ** p<0.05, *** p<0.01.

1.10 Discussion

This study has shown, in line with our theory, that job demands is negatively related to various forms of job satisfaction. Surprisingly, in the case of work intensity, we find significant and positive associations with four forms of job satisfaction (satisfaction with achievement, initiative, influence and work itself[2]) and negative associations with two forms of job satisfaction (pay satisfaction and job security satisfaction). The finding on work intensity is in contrast to the 'win-lose' argument by Ramsey et al. (2000). These authors suggested that the workplace gains with the presence of employees' empowerment practices while employees lose because of work intensity associated with such practices.

In our analysis, we find that employees are more likely to be satisfied with various forms of job satisfaction when the are required to work very hard (work intensity). An overall view of the work intensity result suggests that job demands may not necessarily have negative effects on some forms of job satisfaction. Thus, this finding emphasises the importance of examining different forms of job satisfaction. Further, the results obtained on job demands confirm the proposition of Karasek's model as well as hypothesis 1 as job demands is negatively associated with employees' wellbeing. Also, this study corroborates the findings of numerous studies[3] on stress and employees' wellbeing as well as studies that have examined the impact of job characteristics on job satisfaction.

All the measures of job control on the other hand are positively related to different forms of job satisfaction. This shows that job control is a key predictor of job satisfaction and the findings are consistent with the longstanding job design tradition. The results also support the importance of job control as highlighted in the theories of happiness (Wood and de Menezes, 2011; Wood, 2008; Westerlund et al., 2010). In particular, the positive relationship between measures of job control and satisfaction with involvement in decision-making corroborates the ideas of Driscoll (1978), who suggested that participation in decision-making positively influences

[2] These forms of job satisfaction may be classified as intrinsic forms of job satisfaction.
[3] Wood, 2008; Wood and de Menezes, 2011; De Witte et al., 2007; McClenahan et al., 2007; Noblet and Rodwell, 2009;, Beehr et al., 2001; Mikkelsen et al., 1999; Mikkelsen et al., 2005; Akerboom and Maes, 2006; Morrison et al., 2003 al., 2005.

satisfaction with participation in decision-making. Our measures of job control can be explained as mechanisms through which employees are involved in decision-making regarding their tasks. This has been referred to as 'participation in decisions at employee level' in some studies (Kato and Morishima, 2011).

Employees in stressful jobs (characterised by high job demands and low job control) are less likely to be satisfied with achievement, influence, pay, work itself and involvement in decision-making when compared to those in less stressful jobs (low demand – high control jobs). This confirms the strain hypothesis and provides a more concrete support for previous studies (Wood, 2008; De Witte et al., 2007; Wall et al., 1996). Additionally, employees in stressful jobs are more likely to be satisfied with training than those in less stressful jobs. A reason for this may be that a high level of job demands attracts various training opportunities. As such, employees are more likely to be satisfied with the training they receive than when they are required to work less hard (evident in low demand and high control jobs). As expected, we find that employees in passive jobs are less likely to be satisfied with achievement and influence when compared to employees in less stressful jobs. Passive jobs are devoid of learning and control opportunities as well as novelty. As such, we expect that employees will prefer jobs where they can exert influence. However, the active job hypothesis is not significant for any form of job satisfaction. A possible explanation may be that effects have been captured by the main predictors or control variables included in the model.

Further, we found that the presence of EO policies and job control are complementary in that the presence of one reinforces or strengthens the presence of the other. This result is evident for satisfaction with achievement, the use of initiative, amount of influence and the work itself. EO policies on the other hand is found to moderate the negative consequences of jobs demand at low and medium levels for satisfaction with achievement and the work itself and weakens the impact of job demands at high levels on skills and pay satisfaction. This suggests that the presence of such equality policy in the workplace weakens the negative consequences of job demands and as such makes the work environment less discriminatory for pay received and the opportunity to develop skills on the job.

The significant results obtained for the joint effects and the types of jobs proposed in the demand-control model reduce the inconclusiveness in the literature regarding the

effect of the joint presence of job demands and control. Studies like De Jonge et al. (1999), De Witte et al. (2007), Wood (2008) and Wall et al. (1996) that have been able to provide support for the interaction effects of job demands and job control considered just an interaction measure that examined the buffering effect of job control on the negative consequences of job demands. The interaction measure was constructed by multiplying the job demands and job control indexes. In contrast, we show through four different job types that the imbalance between job demands and control specifically affects job satisfaction. Furthermore, our results revealed the buffering effect as well as the complementary nature of equality plan in the workplace.

Until recently, studies on job satisfaction have not controlled for many workplace-level and employee- level factors other than demographic differences (results in appendix). Our study shows that being able to participate in decision-making individually via suggestion schemes is more important in predicting job satisfaction than participating through joint consultative committees. We did not find any significant association between joint consultative committee and any form of job satisfaction. These committees offer diluted and collective form of influence as they are composed of employees' representatives who may not represent the interest of each employee. Also, such committees may be more informative than consultative. The positive association between the use of suggestions schemes and training satisfaction is expected. Wood and de Menezes (2011) suggested that such schemes are opportunities for employees to have better understanding of workplace plans and initiatives and contribute towards the achievement of the plans and initiatives. Also, the presence of such suggestion schemes may offer employees the opportunity to suggest training where needed, thus, facilitating satisfaction with the training that they receive.

Employees who receive merit pay are less likely to be satisfied with training and more likely to be satisfied with involvement in decision-making. A possible explanation for the negative association with training satisfaction may be that such subjective pay does not objectively assess employees' ability and recommend adequate training where possible. The positive association with involvement in decisions satisfaction may be that this sort of motivational element adequately rewards employees' effort as such involvement in decisions is likely to be individual

in nature and not based on team's input. On another thought, it may be that merit pay is used in conjunction with higher individual participation. Moreover, pay based on individual performance and organisational performance (profit sharing) are found to be significant predictors of various forms of job satisfaction. Contributions to pension scheme that is similar to the concept of ESOPs in the US is found to be significantly and positively related to satisfaction with pay. This in a way corroborates the findings on the positive effects associated with such deferred benefit plans (Buchko, 1993). Another interesting finding is that of perception of a secure job that is positively and significantly related to all forms of job satisfaction. This finding corroborates the suggestions of Karasek and Theorell (1990) and Caroli and Godard (2014) for job security being an important predictor of job satisfaction.

Further, management styles are shown to be important in job satisfaction equations. By examining different forms of informative, consultative and supportive management rather than using a composite index, we are able to observe management styles that are important for a particular type of job satisfaction. For example, employees are more likely to be satisfied with pay when they are informed by managers about financial matters such as profits and budget, when they are treated fairly by managers – possibly by adequately rewarding their effort, when managers can be relied upon to keep their promises – possibly when promises of good reward for good performance are fulfilled, when they are allowed by managers to influence final decisions and when managers encourage them to develop skills.

The results indicate that some factors that are not necessarily important for skills satisfaction are important for pay satisfaction. For job security satisfaction, the results are similar to pay satisfaction outlined above. However, some factors stand out for job security satisfaction. Employees are keen on being informed about staffing so as to know if their job is stable or not. In addition, employees are more likely to be satisfied with job security when managers deal with them honestly. However, the supportive nature of managers by being sincere in trying to understand employees' views is found to be negatively associated with training, skills and pay satisfaction. This may mean that such sincerity may give employees' more knowledge about workplace activities or make some problems more obvious and could reduce the likelihood of satisfaction with these aspects of the job. In sum, our findings show that informative, supportive and consultative types of managers one

way or the other are important factors that influence various forms of job satisfaction.

Intrinsic motivation is also shown to be an important determinant of job satisfaction. However, we find opposite effects for different dimensions of this type of motivation. While being loyal and proud of the workplace are positively associated with pay satisfaction, the use of initiative to carry out tasks that are not required as part of the job is found to be negatively associated with pay satisfaction. The positive association may be due to some reverse causality in the sense that good pay, which makes an employee happy, may also make the employee feel loyal. For gender and educational qualification, our study extends Gazioglu and Tansel's (2006) analysis of WERS98, Wood and de Menezes's (2011) as well as Wood's (2008) analysis of WERS2004. These authors found that men as well as educated employees are less likely to be satisfied with their jobs.

However, our study, which estimated an advanced specification suggest that male employees are more likely to be satisfied with initiative, influence, training and skills. Also, in contrast to these studies, we find that having a higher degree (like MSc) is associated with increases in satisfaction with training and pay. The findings on higher degree is also consistent with Vila and García-Mora's (2005) study as they found that university education is positively associated with various forms of job satisfaction. Also, being responsible for overseeing the work of other employees is associated with increases in satisfaction with initiative, influence, skills, pay and involvement in decision-making.

Unlike previous studies and primary expectations, the present findings reveal that employees in the public sector exhibit less satisfaction with job security. This is surprising as public sector is argued to be regulated and associated with less uncertainty (Vila and García-Mora, 2005). The results also show that employees in intermediate and lower occupational categories are less likely to be satisfied with training satisfaction and pay satisfaction when compared to those in managerial occupations. The negative association with pay satisfaction is expected as the intermediate and lower occupational categories are associated with lower levels of pay when compared to managerial occupations.

1.11 Conclusion

This study gains strength from the fact that it is based on a large representative sample of workplaces and it merges both workplace-level and employee-level data. This combination of data that rely on responses from HR personnel and employees within workplaces reduces the likelihood of common method variation. Also, this study differs from previous published studies on the demand-control model in several ways. First, we consider the main effects of different measures of job control and job demands on various forms of job satisfaction. We consider different measures of job demands and job control because each measure will elicit different levels of satisfaction with various aspects of the job. Second, we conduct Principal Component Analysis (PCA) on the measures of job demands and job control to obtain composite measures of job demands and job control. These composite measures are then used to construct four binary variables that measure four types of jobs proposed by the demand-control model. Third, we use the imputation strategy to deal with missing cases in the measures of job control and demand derived from PCA. This is a strategy where the distribution of the observed data is used to estimate plausible values for the missing cases (White et al., 2011). Fourth, we account for the potential nature of reverse causality between the forms of job satisfaction and union membership. Thus, this study provides a comprehensive analysis of Karasek's model. Additionally, we were able to confirm that employees are more likely to be satisfied with different aspects of the job when they are in less stressful jobs than stressful jobs.

One limitation of this study is that it is a cross sectional study and the workplace-level variables are based on the response of a single HR personnel. Concerns relating to the use of single-respondent measures have been raised (Gerhart et al., 2000) as such measures are suggested to be prone to significant random errors. Additionally, the HR personnel may have a restricted view about the HR practices in place. This study is the first of its kind to empirically test types of jobs proposed by the demand-control model as well as conduct such analyses for different forms of job satisfaction.

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Appendix: Supplementary Tables

Table A.1: **Marginal Effects for Types of Jobs under Demand-Control Model**

Satisfaction with achievement			**Satisfaction with Initiative**	
	dy/dx	Standard Error	dy/dx	Standard Error
Types of Jobs (ref: Low Demand and High Control				
High Demand and High Control	-0.009	0.012	0.013	0.012
High Demand and Low Control	-0.037***	0.014	-0.013	0.013
Low Demand and Low Control	-0.040***	0.011	-0.015	0.011
Satisfaction with Influence			**Satisfaction with Training**	
	dy/dx	Standard Error	dy/dx	Standard Error
Types of Jobs (ref: Low Demand and High Control				
High Demand and High Control	-0.007	0.017	0.006	0.009
High Demand and Low Control	-0.047**	0.020	0.018*	0.010
Low Demand and Low Control	-0.040**	0.016	0.009	0.009
Satisfaction with Skills			**Satisfaction with Pay**	
	dy/dx	Standard Error	dy/dx	Standard Error
Types of Jobs (ref: Low Demand and High Control				
High Demand and High Control	0.002	0.009	-0.023	0.014
High Demand and Low Control	0.014	0.010	-0.037**	0.017
Low Demand and Low Control	0.009	0.008	0.012	0.013

Satisfaction with Job security			Satisfaction with Work itself	
	dy/dx	Standard Error	dy/dx	Standard Error
Types of Jobs (ref: Low Demand and High Control				
High Demand and High Control	0.000	0.005	-0.013	0.012
High Demand and Low Control	0.008	0.005	-0.031**	0.014
Low Demand and Low Control	0.001	0.004	-0.017	0.011
Satisfaction with Involvement in decision-making				
	dy/dx	Standard Error		
Types of Jobs (ref: Low Demand and High Control				
High Demand and High Control	-0.008	0.008		
High Demand and Low Control	-0.020**	0.010		
Low Demand and Low Control	-0.007	0.008		

Notes: dy/dx is for discrete change of dummy variable from 0 to 1. Marginal effects are statistically significant at * p<0.10, ** p<0.05, *** p<0.01.

Table A.2: Definitions of Variables

Job satisfaction	**How satisfied are you with the following aspects of your job?**
	The sense of achievement you get from your work
	The scope for using your own initiative
	The amount of influence you have over your job
	The training you receive
	The opportunity to develop your skills in your job
	The amount of pay you receive
	Your job security
	The work itself
	Amount of involvement you have in decision-making at this workplace?
Job demands	**Do you agree or disagree with the following statements about your job?**
Work intensity	My job requires that I work very hard
Work Overload	I never seem to have enough time to get my work done
Timing Demand	I often find it difficult to fulfil my commitments outside of work because of the amount of time I spend on my job
Secured job	**I feel my job is secure in this workplace**
Control and Autonomy	**How much influence do you have over the following?**
Over task	The tasks you do in your job
Over pace	The pace at which you work
On how to do task	How you do your work
Over order of task	The order in which you carry out tasks
Over working time	The time you start or finish your working day

Informative management	**How good would you say managers at this workplace are at keeping employees informed about the following?**
Operations	Changes to the way the organisation is being run
Staffing	Changes in staffing
Sequence	Changes in the way you do your job
Finance	Financial matters, including budgets or profits
Consultative Management	**How good would you say managers at this workplace are at?**
Views of employees	Seeking the views of employees or employees' representatives
Response to suggestions	Responding to suggestions from employees or employees' representatives
Influence of employees	Allowing employees or employees' representatives to influence final decisions
Intrinsic Motivation	**To what extent do you agree or disagree with the following statements about working here?**
Using initiative	Using my own initiative I carry out tasks that are not required as part of my job
Value sharing	I share many of the values of my organisation
Loyal	I feel loyal to my organisation
Proud	I am proud to tell people who I work for
Supportive Management	**Now thinking about the managers at this workplace, to what extent do you agree or disagree with the following?**
Keep promises	Can be relied upon to keep to their promises
Sincere	Are sincere in attempting to understand employees' views
Honest	Deal with employees honestly
Understanding	Understand about employees having to meet responsibilities outside work
Encouraging	Encourage people to develop their skills
Treat fairly	Treat employees fairly
Voice Mechanisms	
Grievance procedure	Is there a formal procedure for dealing with individual grievances raised by any employee at this workplace?
Union Member (ref: not a member)	Are you a member of a trade union or staff association?
Have been in the past	No, but have been in the past
A member	Yes
Supervisor	Do you supervise any other employees?
Consultation Schemes (ref: none)	Besides the schemes we have discussed are there any other ways in which management communicates or consults with employees at this workplace?
Suggestion	
Notice Boards	
Cascade (Systematic use of management chain/cascading of information)	
Newsletters	
Email	
Intranet	
Other ways of communicating	
Joint Consultative Committees	Are there any committees of managers and employees at this workplace, primarily concerned with consultation, rather than negotiation?
Individual Incentive pay	
Merit Pay	Do any of the employees in this workplace get paid by results or receive merit pay?
Types of Pay (ref: basic pay)	Which of the following do you receive in your job here?
Individual pay	Payments based on your individual performance or output
Group pay	Payments based on the overall performance of a group or a team

Workplace pay	Payments based on the overall performance of your workplace or organisation (e.g. profit-sharing scheme)
Extra pay	Extra payments for additional hours of work or overtime
Pension	Contributions to a pension scheme
Measures of fairness	
Appeal right	Do employees have a right to appeal against a decision made under the procedure?'/ In disciplining or dismissing an employee, are they able to appeal against the decision?
EO policies	Does this workplace have a formal written policy on equal opportunities or managing diversity?
Gender	Are you male or female?
Ethnicity (ref: British)	Which of these groups do you consider you belong?
Irish	
Any other white background	
White and black Caribbean	
White and black African	
White and Asian	
Any other mixed background	
Indian	
Pakistan	
Bangladeshi	
Chinese	
Any other Asian background	
Caribbean	
African	
Any other black background	
Arab	
Any other ethnic group	
Religion	What is your religion?
No religion	
Christian (including Church of England, Church of Scotland, Catholic, Protestant, and all other Christian denominations)	
Buddhist	
Hindu	
Jewish	
Muslim	
Sikh	
Another religion	
Marital status	Which of the following describes your current status?
Single	
Married or living with a partner	
Divorced/separated	
Widowed	
Age	How old are you?
16-17	
18-19	
20-21	

22-29	
30-39	
40-49	
50-59	
60-64	
65 and above	
Sexual orientation	Which of the following options best describes how you think of yourself?
Heterosexual or straight	
Gay or lesbian	
Bisexual	
Other	
Prefer not to say	
Organisational size	How many employees in total are there within each organisation in the UK
5-9	
10-24	
25-49	
50-99	
100-149	
150-249	
250-499	
500-999	
1,000-1,999	
2,000-4,999	
5,000-9,999	
10,000-49,999	
50,000-99,999	
100,000 or more	
Industrial classifications and academic, professional or vocational qualifications	Which, if any, of the following academic, vocational or professional qualifications have you obtained?
GCSE grades D-G/CSE grades 2-5, SCE O grades D-E/SCE Standard grades 4-7	
GCSE grades A-C, GCE 'O'-level passes, CSE grade 1, SCE O grades A-C, SCE Standard grades 1-3	
1 GCE 'A'-level grades A-E,1-2 SCE Higher grades A-C, AS levels	
2 or more GCE 'A'-levels grades A-E, 3 or more SCE Higher grades A-C	
First degree, eg BSc, BA, BEd, HND, HNC, MA at first degree level	
Higher degree, eg MSc, MA, MBA, PGCE, PhD	
Other academic qualifications No academic qualifications	
Level 1 NVQ or SVQ, Foundation GNVQ or GSVQ	
Level 2 NVQ or SVQ, Intermediate GNVQ or GSVQ, City and Guilds Craft, BTEC First/General Diploma, RSA Diploma	

Level 3 NVQ or SVQ, Advanced GNVQ or GSVQ, City and Guilds Advanced Craft, BTEC National, RSA Advanced Diploma	
Level 4 NVQ or SVQ, RSA Higher Diploma, BTEC Higher level	
Level 5 NVQ or SVQ	
Completion of trade apprenticeship	
Other vocational or pre-vocational qualifications, e.g. OCR	
Other professional qualifications, e.g. qualified teacher, accountant, nurse	
No vocational or professional qualifications	
Tenure (ref: <1year)	How many years in total have you been working at this workplace?
1-2 years	
2-5 years	
5-10 years	
>10 years	
Contract (ref: permanent)	Which of the phrases below best describes your job here?
Temporary	
Fixed	
Public Sector	How would you describe the formal status of this workplace (or the organisation of which it is a part)? 1-7 are private and 8-12 are public
Public Limited Company (PLC)	
Private limited company	
Company limited by guarantee	
Partnership (inc. Limited Liability Partnership) / Self-proprietorship	
Trust / Charity	
Body established by Royal Charter	
Co-operative / Mutual / Friendly society,	
Government-owned limited company / Nationalised industry	
Public service agency	
Other non-trading public corporation	
Quasi Autonomous National Government Organisation (QUANGO)	
Local/Central Government (inc. NHS and Local Education Authorities)	
Occupational Categories	
Higher Managerial Occupations	
Lower Managerial Occupations	
Professional Occupations	
Intermediate Occupations	
Lower supervisory and technical occupations	
Semi-routine occupations	
Routine occupations	

For more information on the data, see: http://discover.ukdataservice.ac.uk/catalogue/?sn=7226&type=Data%20catalogue..

Table A.3: Weighted Logit Estimation of Demand-Control Model (Coefficients)

	Satisfaction with:								
	Achievement	**Initiative**	**Influence**	**Training**	**Skills**	**Pay**	**Job security**	**Work itself**	**Involvement in decisions**
Main Predictors									
Job Control									
Over tasks	0.243***	0.391***	0.582***	0.043	0.142***	0.072**	0.096*	0.163***	0.113**
	(0.037)	(0.038)	(0.039)	(0.041)	(0.041)	(0.033)	(0.055)	(0.036)	(0.046)
Over pace	-0.021	-0.038	0.009	0.031	0.032	0.078***	0.109**	-0.020	0.024
	(0.035)	(0.036)	(0.036)	(0.037)	(0.037)	(0.030)	(0.052)	(0.034)	(0.043)
On How to do task	0.080*	0.298***	0.197***	0.080*	0.175***	0.015	0.110*	0.120***	0.023
	(0.044)	(0.046)	(0.047)	(0.048)	(0.048)	(0.039)	(0.067)	(0.043)	(0.056)
Over Order of task	-0.023	0.184***	0.112***	0.067	0.036	-0.001	0.055	-0.075*	0.099**
	(0.042)	(0.042)	(0.042)	(0.045)	(0.045)	(0.036)	(0.061)	(0.040)	(0.050)
Over Working Time	0.003	0.022	0.113***	0.085***	0.101***	0.101***	0.029	-0.050**	-0.042
	(0.023)	(0.025)	(0.025)	(0.026)	(0.025)	(0.020)	(0.035)	(0.023)	(0.028)
Job Demand									
Work overload	-0.094**	-0.020	-0.120***	-0.225***	-0.186***	-0.081**	-0.089	-0.106**	-0.041
	(0.044)	(0.045)	(0.041)	(0.045)	(0.045)	(0.036)	(0.069)	(0.043)	(0.057)
Work Intensity	0.501***	0.268***	0.115**	-0.055	-0.059	-0.239***	-0.274***	0.369***	0.013
	(0.054)	(0.056)	(0.051)	(0.056)	(0.057)	(0.049)	(0.091)	(0.053)	(0.071)
Timing Demand	-0.074**	-0.063	-0.139***	-0.106***	-0.174***	-0.097***	-0.122**	-0.112***	-0.049
	(0.038)	(0.039)	(0.034)	(0.037)	(0.038)	(0.031)	(0.059)	(0.036)	(0.048)
Types of Jobs (ref: LD_HC)									
HD_HC	-0.061	0.101	-0.030	0.054	0.014	-0.105	0.009	-0.091	-0.098
	(0.082)	(0.091)	(0.075)	(0.082)	(0.090)	(0.066)	(0.107)	(0.080)	(0.099)
HD_LC	-0.243***	-0.099	-0.203**	0.168*	0.138	-0.165**	0.179	-0.209**	-0.234**
	(0.091)	(0.101)	(0.089)	(0.098)	(0.105)	(0.080)	(0.127)	(0.094)	(0.112)
LD_LC	-0.268***	-0.109	-0.174**	0.084	0.086	0.053	0.015	-0.113	-0.088
	(0.073)	(0.078)	(0.073)	(0.081)	(0.085)	(0.064)	(0.102)	(0.074)	(0.092)
Demand x EO Policies	-0.117*	-0.104	0.019	0.081	0.195***	0.091*	0.085	-0.120*	-0.038
	(0.066)	(0.067)	(0.060)	(0.064)	(0.067)	(0.055)	(0.109)	(0.063)	(0.085)
Control x EO Policies	0.109**	0.099**	0.176***	-0.010	-0.029	-0.047	-0.080	0.111**	0.041
	(0.046)	(0.048)	(0.054)	(0.051)	(0.048)	(0.042)	(0.077)	(0.043)	(0.060)
Control Variables									
Consultation Schemes (ref: none)									
Suggestion	0.013	0.013	0.070	0.149***	0.068	0.013	0.092	-0.007	0.013
	(0.047)	(0.047)	(0.043)	(0.051)	(0.053)	(0.048)	(0.061)	(0.047)	(0.055)
Notice Boards	0.006	-0.037	-0.008	0.139**	-0.032	-0.166***	-0.106	-0.012	-0.104
	(0.056)	(0.063)	(0.052)	(0.062)	(0.061)	(0.057)	(0.074)	(0.058)	(0.070)

	Satisfaction with:								
	Achievement	**Initiative**	**Influence**	**Training**	**Skills**	**Pay**	**Job security**	**Work itself**	**Involvement in decisions**
Cascade	0.014	0.057	0.022	-0.002	-0.158***	0.011	-0.023	0.054	-0.037
	(0.052)	(0.055)	(0.047)	(0.059)	(0.057)	(0.051)	(0.071)	(0.053)	(0.066)
Newsletters	-0.026	0.016	0.016	-0.047	-0.015	-0.035	0.085	-0.038	0.018
	(0.049)	(0.052)	(0.045)	(0.055)	(0.055)	(0.051)	(0.064)	(0.050)	(0.060)
Email	0.001	-0.017	-0.077	-0.079	-0.008	0.081	-0.105	-0.034	0.036
	(0.057)	(0.060)	(0.053)	(0.068)	(0.066)	(0.059)	(0.088)	(0.059)	(0.073)
Intranet	-0.059	-0.023	-0.015	0.120**	0.056	0.037	-0.057	-0.049	-0.056
	(0.052)	(0.054)	(0.049)	(0.059)	(0.058)	(0.054)	(0.077)	(0.056)	(0.065)
Other	-0.010	-0.005	0.002	-0.005	-0.028	-0.019	-0.022	0.059	-0.037
	(0.045)	(0.048)	(0.043)	(0.051)	(0.052)	(0.045)	(0.061)	(0.047)	(0.055)
Joint Consultative Committees	0.026	-0.013	-0.064	-0.046	-0.031	0.011	-0.095	-0.011	-0.039
	(0.045)	(0.048)	(0.043)	(0.050)	(0.051)	(0.048)	(0.061)	(0.046)	(0.054)
Secure job	0.142***	0.130***	0.199***	0.198***	0.230***	0.136***	2.355***	0.191***	0.109***
	(0.020)	(0.021)	(0.020)	(0.022)	(0.023)	(0.018)	(0.048)	(0.020)	(0.024)
Individual Incentive pay									
Merit Pay	-0.015	0.013	-0.054	-0.100*	0.003	0.030	-0.070	-0.037	0.131**
	(0.046)	(0.050)	(0.045)	(0.054)	(0.054)	(0.051)	(0.065)	(0.048)	(0.058)
Types of Pay (ref: basic pay)									
Individual pay	0.153**	-0.067	-0.056	0.067	0.028	0.088	0.153	0.006	-0.149*
	(0.072)	(0.077)	(0.070)	(0.076)	(0.078)	(0.066)	(0.100)	(0.071)	(0.081)
Group pay	0.011	0.149	0.127	-0.186*	0.054	0.031	0.087	0.028	-0.098
	(0.091)	(0.103)	(0.094)	(0.104)	(0.116)	(0.086)	(0.135)	(0.090)	(0.122)
Workplace pay	0.182**	0.000	-0.056	-0.119	0.026	0.285***	-0.018	0.080	0.108
	(0.091)	(0.092)	(0.089)	(0.091)	(0.102)	(0.083)	(0.123)	(0.086)	(0.100)
Extra pay	0.132***	0.041	0.024	0.071	0.049	-0.025	0.102	0.199***	-0.035
	(0.045)	(0.048)	(0.044)	(0.051)	(0.053)	(0.040)	(0.065)	(0.046)	(0.056)
Pension (deferred payment schemes like ESOP)	-0.024	0.052	0.005	-0.055	-0.117**	0.211***	-0.039	0.023	-0.029
	(0.046)	(0.047)	(0.043)	(0.049)	(0.050)	(0.039)	(0.059)	(0.047)	(0.056)
Measures of fairness									
Appeal right	0.102	-0.087	0.067	-0.110	0.163	0.010	-0.378	0.102	0.158
	(0.168)	(0.183)	(0.223)	(0.197)	(0.242)	(0.125)	(0.284)	(0.171)	(0.289)
EO policies	-0.181*	0.033	-0.124	0.151	0.055	-0.100	-0.023	-0.023	-0.034
	(0.096)	(0.108)	(0.091)	(0.101)	(0.103)	(0.095)	(0.145)	(0.101)	(0.118)
Informative Management									
Operations	-0.025	-0.041	-0.097***	0.035	-0.073**	-0.053*	0.065	-0.039	0.036
	(0.034)	(0.035)	(0.033)	(0.035)	(0.036)	(0.029)	(0.045)	(0.033)	(0.038)
Staffing	-0.009	-0.036	0.000	-0.033	-0.021	-0.032	0.077*	-0.036	0.038

	Satisfaction with:								
	Achievement	**Initiative**	**Influence**	**Training**	**Skills**	**Pay**	**Job security**	**Work itself**	**Involvement in decisions**
	(0.032)	(0.033)	(0.030)	(0.034)	(0.034)	(0.028)	(0.044)	(0.032)	(0.037)
Sequence	0.182***	0.191***	0.221***	0.365***	0.316***	0.013	0.038	0.244***	0.227***
	(0.033)	(0.034)	(0.032)	(0.035)	(0.033)	(0.027)	(0.045)	(0.033)	(0.038)
Finance	-0.050*	0.053*	0.062**	0.066**	0.045	0.145***	-0.017	-0.044*	0.148***
	(0.027)	(0.028)	(0.025)	(0.029)	(0.029)	(0.022)	(0.038)	(0.026)	(0.031)
Consultative Management									
Views of employees	0.070**	0.004	0.028	0.089**	0.121***	0.041	-0.044	-0.002	0.167***
	(0.033)	(0.033)	(0.031)	(0.036)	(0.036)	(0.028)	(0.042)	(0.032)	(0.036)
Response to suggestions	0.050	0.107***	0.041	0.062	0.133***	0.050	-0.070	0.090**	0.379***
	(0.038)	(0.038)	(0.035)	(0.040)	(0.043)	(0.031)	(0.049)	(0.036)	(0.045)
Influence of employees	0.045	0.179***	0.258***	0.089**	0.096**	0.167***	0.201***	0.025	0.785***
	(0.035)	(0.036)	(0.032)	(0.037)	(0.039)	(0.028)	(0.049)	(0.035)	(0.044)
Supportive Management									
Keep promises	0.036	-0.006	0.056	0.169***	0.057	0.117***	0.079	-0.016	0.053
	(0.037)	(0.037)	(0.035)	(0.038)	(0.040)	(0.031)	(0.051)	(0.036)	(0.042)
Sincere	0.043	0.111***	0.052	-0.190***	-0.109**	-0.129***	-0.022	0.036	0.130***
	(0.040)	(0.041)	(0.039)	(0.043)	(0.046)	(0.035)	(0.057)	(0.040)	(0.046)
Honest	-0.136***	-0.073*	-0.031	-0.052	-0.078*	-0.044	-0.129**	-0.055	-0.012
	(0.039)	(0.040)	(0.039)	(0.043)	(0.045)	(0.034)	(0.058)	(0.039)	(0.048)
Understanding	-0.009	0.034	0.030	-0.045	-0.030	0.035	0.042	0.051*	0.005
	(0.027)	(0.029)	(0.027)	(0.029)	(0.029)	(0.024)	(0.037)	(0.028)	(0.033)
Encouraging	0.231***	0.254***	0.140***	0.814***	1.062***	0.119***	0.088**	0.167***	0.182***
	(0.030)	(0.031)	(0.030)	(0.033)	(0.034)	(0.026)	(0.041)	(0.029)	(0.035)
Treat fairly	0.081**	-0.000	0.040	-0.016	-0.012	0.169***	0.119**	0.082***	0.136***
	(0.033)	(0.035)	(0.032)	(0.035)	(0.037)	(0.028)	(0.048)	(0.031)	(0.039)
Supervisor	-0.026	0.186***	0.202***	0.009	0.094*	0.156***	0.074	0.007	0.193***
	(0.048)	(0.052)	(0.045)	(0.051)	(0.052)	(0.041)	(0.065)	(0.047)	(0.054)
Intrinsic Motivation									
Using initiative	0.141***	0.257***	0.150***	-0.071***	-0.041	-0.097***	-0.075**	0.125***	-0.033
	(0.024)	(0.025)	(0.024)	(0.027)	(0.028)	(0.021)	(0.034)	(0.024)	(0.031)
Value sharing	0.154***	0.080**	0.152***	0.020	-0.021	0.030	-0.003	0.124***	0.057
	(0.032)	(0.033)	(0.032)	(0.034)	(0.036)	(0.027)	(0.045)	(0.033)	(0.038)
Loyal	0.214***	0.138***	0.108***	0.012	0.038	0.072**	0.098**	0.238***	0.105**
	(0.033)	(0.035)	(0.035)	(0.035)	(0.036)	(0.030)	(0.045)	(0.033)	(0.041)
Proud	0.500***	0.264***	0.201***	0.153***	0.191***	0.227***	0.079*	0.471***	0.115***
	(0.031)	(0.031)	(0.031)	(0.032)	(0.033)	(0.027)	(0.042)	(0.030)	(0.036)
Voice mechanisms									
Grievance procedure	0.035	-0.208	-0.124	-0.274	-0.591**	-0.231	-0.361	0.063	-0.224

	Satisfaction with:								
	Achievement	**Initiative**	**Influence**	**Training**	**Skills**	**Pay**	**Job security**	**Work itself**	**Involvement in decisions**
	(0.151)	(0.189)	(0.170)	(0.309)	(0.264)	(0.223)	(0.370)	(0.198)	(0.220)
Union Member (ref: not a member)									
A member	0.082	-0.007	-0.046	-0.036	-0.114*	0.089*	-0.111	0.103*	-0.169***
	(0.053)	(0.055)	(0.049)	(0.058)	(0.060)	(0.048)	(0.068)	(0.053)	(0.063)
Have been in the past	0.107*	0.044	-0.034	-0.091	-0.048	-0.093*	-0.020	0.124**	0.015
	(0.059)	(0.063)	(0.059)	(0.064)	(0.067)	(0.050)	(0.081)	(0.058)	(0.075)
Gender (ref: female)	-0.033	0.171***	0.237***	0.103**	0.156***	0.003	-0.067	-0.064	0.030
	(0.047)	(0.048)	(0.046)	(0.051)	(0.052)	(0.041)	(0.063)	(0.046)	(0.055)
White ethnic background (ref: others)	0.176**	-0.083	0.068	0.011	0.125	0.201***	0.088	0.392***	0.251**
	(0.080)	(0.077)	(0.073)	(0.080)	(0.088)	(0.068)	(0.108)	(0.073)	(0.099)
Tenure (ref: <1year)									
1-2 years	-0.042	0.002	0.017	-0.103	-0.331***	-0.226***	0.072	-0.076	-0.278**
	(0.086)	(0.093)	(0.083)	(0.094)	(0.099)	(0.074)	(0.132)	(0.085)	(0.114)
2-5 years	0.007	-0.015	0.055	-0.015	-0.334***	-0.246***	-0.158	0.022	-0.324***
	(0.073)	(0.075)	(0.069)	(0.077)	(0.083)	(0.063)	(0.106)	(0.073)	(0.098)
5-10 years	-0.101	0.019	0.055	0.039	-0.300***	-0.162**	-0.152	0.057	-0.281***
	(0.074)	(0.078)	(0.069)	(0.081)	(0.086)	(0.066)	(0.108)	(0.077)	(0.097)
>10 years	-0.018	0.069	0.134*	0.142*	-0.135	-0.112*	-0.089	0.068	-0.116
	(0.078)	(0.080)	(0.073)	(0.083)	(0.091)	(0.067)	(0.109)	(0.080)	(0.102)
contract (ref: permanent)									
Temporary	-0.027	-0.162	0.036	-0.270**	0.063	0.233**	-0.701***	0.251**	0.091
	(0.108)	(0.118)	(0.112)	(0.127)	(0.130)	(0.100)	(0.166)	(0.118)	(0.156)
Fixed	0.162	0.025	0.141	0.106	0.027	0.215**	-0.761***	0.192*	-0.198
	(0.116)	(0.116)	(0.108)	(0.118)	(0.123)	(0.095)	(0.129)	(0.107)	(0.128)
Marital Status (Ref: Single)									
Married	0.089*	0.038	0.077	-0.019	0.023	0.029	0.059	0.177***	0.099
	(0.051)	(0.054)	(0.050)	(0.057)	(0.056)	(0.046)	(0.077)	(0.051)	(0.065)
Divorced	0.040	0.106	0.061	-0.066	-0.049	-0.138*	-0.003	0.240***	0.092
	(0.090)	(0.094)	(0.084)	(0.089)	(0.091)	(0.072)	(0.118)	(0.088)	(0.106)
Widowed	-0.067	0.086	0.073	0.156	0.305	0.235	0.176	0.197	0.066
	(0.185)	(0.181)	(0.159)	(0.196)	(0.204)	(0.147)	(0.271)	(0.176)	(0.214)
Age (ref: 16-29)									
30-49	0.326***	0.105*	0.013	-0.078	0.106	0.030	-0.058	0.137**	0.009
	(0.059)	(0.061)	(0.058)	(0.068)	(0.067)	(0.054)	(0.085)	(0.059)	(0.073)
50 and above	0.515***	0.119	0.007	0.089	0.287***	-0.012	-0.107	0.211***	-0.091
	(0.074)	(0.075)	(0.069)	(0.078)	(0.080)	(0.063)	(0.102)	(0.075)	(0.086)
Qualifications (Ref: GCSE grades D-G)									
GCSE A-C	0.036	0.004	-0.010	0.003	0.057	0.069*	-0.013	0.008	0.098*

	Satisfaction with:								
	Achievement	**Initiative**	**Influence**	**Training**	**Skills**	**Pay**	**Job security**	**Work itself**	**Involvement in decisions**
	(0.047)	(0.050)	(0.044)	(0.048)	(0.049)	(0.038)	(0.063)	(0.046)	(0.055)
ONE GCE	-0.011	0.025	-0.057	-0.007	-0.045	-0.097*	-0.151*	-0.054	-0.157**
	(0.066)	(0.071)	(0.063)	(0.071)	(0.068)	(0.057)	(0.085)	(0.067)	(0.076)
TWO or more GCE	0.063	-0.008	0.050	-0.098*	-0.094*	0.071	0.002	0.004	-0.173***
	(0.054)	(0.057)	(0.052)	(0.053)	(0.057)	(0.044)	(0.071)	(0.053)	(0.061)
First degree	0.036	-0.105*	-0.050	-0.235***	-0.254***	0.051	0.004	0.024	-0.060
	(0.054)	(0.058)	(0.050)	(0.056)	(0.059)	(0.046)	(0.070)	(0.056)	(0.062)
Higher degree	0.107	-0.014	0.058	0.134*	0.130	0.190***	-0.003	0.087	-0.104
	(0.079)	(0.082)	(0.070)	(0.074)	(0.081)	(0.066)	(0.100)	(0.079)	(0.084)
Other academic qualification	0.125**	-0.052	-0.065	0.002	0.011	-0.042	-0.077	0.001	-0.155**
	(0.052)	(0.053)	(0.049)	(0.054)	(0.057)	(0.044)	(0.070)	(0.053)	(0.061)
No academic qualification	0.086	0.226**	0.161	0.480***	0.124	-0.001	0.227	0.033	0.172
	(0.111)	(0.114)	(0.112)	(0.131)	(0.126)	(0.091)	(0.182)	(0.108)	(0.142)
Level 1 NVQ	0.004	0.133*	0.102	0.065	-0.039	0.081	-0.035	-0.019	-0.019
	(0.069)	(0.075)	(0.066)	(0.075)	(0.076)	(0.058)	(0.093)	(0.073)	(0.085)
Level 2 NVQ	0.016	0.047	-0.037	0.064	-0.081	-0.084*	-0.135**	-0.010	-0.018
	(0.052)	(0.056)	(0.051)	(0.057)	(0.057)	(0.044)	(0.068)	(0.052)	(0.063)
Level 3 NVQ	-0.049	0.023	0.077	-0.091	-0.178***	-0.027	-0.052	-0.046	-0.049
	(0.055)	(0.056)	(0.053)	(0.058)	(0.058)	(0.045)	(0.071)	(0.056)	(0.066)
Level 4 NVQ	0.056	-0.060	-0.061	0.091	-0.019	0.015	-0.074	-0.110	-0.089
	(0.093)	(0.091)	(0.080)	(0.093)	(0.095)	(0.073)	(0.112)	(0.088)	(0.104)
Level 5 NVQ	-0.320	-0.071	0.051	-0.491**	-0.520**	-0.242	-0.183	-0.294	-0.002
	(0.249)	(0.261)	(0.237)	(0.243)	(0.237)	(0.185)	(0.295)	(0.242)	(0.299)
Completion of apprenticeship	0.033	0.001	-0.012	-0.192**	0.071	0.040	0.122	0.217**	0.159
	(0.086)	(0.082)	(0.082)	(0.081)	(0.089)	(0.071)	(0.103)	(0.085)	(0.107)
Other vocational qualification	0.011	-0.084	-0.043	-0.030	-0.059	-0.044	-0.076	-0.071	-0.057
	(0.069)	(0.075)	(0.062)	(0.071)	(0.075)	(0.057)	(0.086)	(0.067)	(0.082)
Other professional qualification	0.091	0.069	0.077	0.132**	0.143**	0.280***	0.115	0.157***	-0.063
	(0.059)	(0.061)	(0.053)	(0.061)	(0.061)	(0.051)	(0.076)	(0.057)	(0.067)
No vocational qualification	0.197**	0.314***	0.298***	0.283**	0.388***	0.153**	0.010	0.132	0.106
	(0.093)	(0.101)	(0.097)	(0.113)	(0.116)	(0.076)	(0.139)	(0.092)	(0.116)
No religion (ref: having a religion)	-0.089**	-0.005	-0.004	-0.066	-0.023	0.030	0.023	-0.022	-0.010
	(0.044)	(0.047)	(0.042)	(0.047)	(0.048)	(0.037)	(0.059)	(0.044)	(0.054)
Heterosexual (ref: other orientations)	-0.039	0.002	-0.077	0.185**	0.045	-0.033	-0.034	-0.072	-0.022
	(0.075)	(0.080)	(0.074)	(0.078)	(0.086)	(0.066)	(0.106)	(0.076)	(0.095)
Organizational size (ref: 5-999)									
1000-9,999	0.018	-0.029	-0.069	0.033	0.119*	0.016	-0.019	-0.029	-0.054
	(0.055)	(0.058)	(0.050)	(0.062)	(0.063)	(0.058)	(0.074)	(0.054)	(0.067)

	Satisfaction with:								
	Achievement	**Initiative**	**Influence**	**Training**	**Skills**	**Pay**	**Job security**	**Work itself**	**Involvement in decisions**
10,000 and above	0.009	-0.110*	-0.053	0.043	0.061	-0.072	0.015	-0.051	-0.025
	(0.060)	(0.060)	(0.056)	(0.064)	(0.068)	(0.059)	(0.077)	(0.062)	(0.072)
Industries (ref: manufacturing)									
Electricity	0.281*	0.090	-0.033	0.337**	0.306*	0.593***	0.643***	0.291**	0.213
	(0.164)	(0.152)	(0.153)	(0.152)	(0.167)	(0.175)	(0.212)	(0.144)	(0.193)
Water supply	-0.079	0.304	-0.168	0.469**	0.447**	0.048	0.512**	0.024	0.039
	(0.193)	(0.199)	(0.200)	(0.223)	(0.216)	(0.182)	(0.239)	(0.158)	(0.218)
Construction	0.591***	0.421***	0.093	0.503***	0.222	0.053	0.044	0.291**	0.103
	(0.124)	(0.135)	(0.121)	(0.162)	(0.140)	(0.127)	(0.174)	(0.121)	(0.177)
Wholesale/Retail	0.062	-0.072	-0.252**	0.061	0.164	-0.167	0.075	0.127	-0.142
	(0.094)	(0.103)	(0.101)	(0.113)	(0.120)	(0.102)	(0.179)	(0.101)	(0.126)
Transportation	0.174*	0.037	-0.164	0.370***	0.366***	0.578***	-0.200	0.229**	-0.069
	(0.101)	(0.113)	(0.113)	(0.127)	(0.133)	(0.127)	(0.157)	(0.117)	(0.140)
Accommodation services	-0.126	-0.259**	-0.189	0.385**	0.042	-0.173	0.169	0.060	-0.060
	(0.132)	(0.124)	(0.129)	(0.186)	(0.172)	(0.129)	(0.211)	(0.130)	(0.197)
Information and communication	0.495***	0.163	0.007	-0.207	-0.051	-0.409**	-0.302	0.336*	-0.451**
	(0.180)	(0.189)	(0.194)	(0.166)	(0.164)	(0.168)	(0.198)	(0.177)	(0.192)
Financial services	0.306*	-0.067	0.012	0.264	0.105	-0.274	0.406	0.041	-0.428**
	(0.177)	(0.239)	(0.201)	(0.191)	(0.261)	(0.195)	(0.252)	(0.186)	(0.201)
Real estate	0.325**	0.023	-0.042	0.509***	0.304**	-0.035	0.025	0.199	0.030
	(0.133)	(0.156)	(0.121)	(0.167)	(0.140)	(0.151)	(0.185)	(0.153)	(0.227)
Professional services	0.443***	0.328**	-0.071	0.330**	0.255*	-0.297**	-0.088	0.252**	-0.045
	(0.125)	(0.146)	(0.124)	(0.139)	(0.144)	(0.133)	(0.154)	(0.126)	(0.151)
Administrative and support	0.580***	0.169	-0.003	0.451***	-0.083	-0.126	0.078	0.331**	-0.087
	(0.149)	(0.134)	(0.140)	(0.165)	(0.143)	(0.143)	(0.234)	(0.146)	(0.203)
Public admin	0.465***	0.099	0.005	0.351***	0.304**	-0.326***	0.075	0.331***	-0.186
	(0.117)	(0.119)	(0.112)	(0.126)	(0.129)	(0.117)	(0.154)	(0.118)	(0.140)
Education	0.883***	0.519***	0.151	0.434***	0.446***	-0.222**	0.341**	0.552***	-0.119
	(0.110)	(0.110)	(0.101)	(0.117)	(0.117)	(0.110)	(0.145)	(0.115)	(0.131)
Human health	0.595***	0.384***	-0.055	0.719***	0.299***	-0.240**	0.182	0.413***	-0.198
	(0.101)	(0.105)	(0.092)	(0.117)	(0.113)	(0.099)	(0.141)	(0.098)	(0.123)
Arts, entertainment	0.479***	0.307**	0.010	0.452***	0.291**	-0.271**	0.060	0.600***	-0.295*
	(0.125)	(0.126)	(0.123)	(0.154)	(0.137)	(0.126)	(0.175)	(0.133)	(0.153)
Other services	0.593***	0.262	-0.145	0.193	0.086	0.209	-0.236	0.627***	-0.126
	(0.139)	(0.173)	(0.140)	(0.147)	(0.158)	(0.161)	(0.188)	(0.161)	(0.181)
Public sector	0.054	0.057	-0.024	-0.056	-0.054	0.076	-0.318***	0.094	0.033
	(0.068)	(0.065)	(0.058)	(0.073)	(0.073)	(0.068)	(0.085)	(0.067)	(0.078)
Occupational Categories (ref:Managerial)									

	Satisfaction with:								
	Achievement	**Initiative**	**Influence**	**Training**	**Skills**	**Pay**	**Job security**	**Work itself**	**Involvement in decisions**
Intermediate	-0.049	-0.030	0.006	0.142**	0.081	-0.102*	0.028	-0.166***	0.023
	(0.060)	(0.063)	(0.054)	(0.060)	(0.062)	(0.060)	(0.071)	(0.060)	(0.068)
Lower	0.242***	0.043	0.094	0.366***	0.226***	-0.233***	-0.115	0.027	0.006
	(0.070)	(0.071)	(0.062)	(0.079)	(0.075)	(0.069)	(0.094)	(0.071)	(0.082)
Intercept	-7.932***	-7.935***	-7.751***	-4.091***	-4.699***	-1.510***	-5.312***	-6.905***	-6.269***
	(0.632)	(0.633)	(0.586)	(0.623)	(0.667)	(0.535)	(0.901)	(0.593)	(0.786)
Pseudo R-Squared	0.281	0.315	0.337	0.262	0.312	0.135	0.558	0.256	0.444
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N	20549	20549	20549	20549	20549	20549	20549	20549	20549

Clustered standard errors in parenthesis and the coefficients are statistically significant at * p<0.10, ** p<0.05, *** p<0.01.

Table A.4: Union Membership and Job Satisfaction (Endogeneity Analysis)

	Union	**Union**	**Union**	**Union**	**Union**	**Union**	**Union**	**Union**	**Union**
Instrumental variable									
Dispute over pay and Working conditions	0.684***	0.684***	0.684***	0.684***	0.684***	0.684***	0.684***	0.684***	0.684***
	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
Constant	-0.456***	-0.456***	-0.456***	-0.456***	-0.456***	-0.456***	-0.456***	-0.456***	-0.456***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
	Satisfaction With:								
	Achievement	**Initiative**	**Influence**	**Training**	**Skills**	**Pay**	**Job security**	**Work itself**	**Involvement in decisions**
Job Control									
Over tasks	0.186***	0.257***	0.397***	0.016	0.063***	0.030**	0.025	0.132***	0.085***
	(0.016)	(0.016)	(0.016)	(0.017)	(0.017)	(0.015)	(0.021)	(0.016)	(0.019)
Over pace	0.028*	0.013	0.063***	0.011	0.007	0.035***	0.044**	0.024	0.028
	(0.015)	(0.015)	(0.015)	(0.016)	(0.016)	(0.014)	(0.020)	(0.015)	(0.018)
On How to do task	0.097***	0.210***	0.189***	0.032	0.079***	-0.006	0.019	0.117***	0.030
	(0.020)	(0.020)	(0.020)	(0.021)	(0.021)	(0.018)	(0.026)	(0.020)	(0.023)
Over Order of task	0.036**	0.144***	0.133***	0.032*	0.006	-0.016	0.006	-0.006	0.074***
	(0.018)	(0.018)	(0.018)	(0.019)	(0.019)	(0.016)	(0.024)	(0.018)	(0.021)
Over Working Time	0.025**	0.031***	0.100***	0.045***	0.051***	0.052***	-0.007	-0.010	-0.011
	(0.011)	(0.011)	(0.010)	(0.011)	(0.012)	(0.009)	(0.015)	(0.011)	(0.013)
Consultation Schemes (ref: none)									
Suggestion	0.006	0.009	0.040*	0.088***	0.041	0.010	0.039	-0.007	0.009
	(0.025)	(0.026)	(0.024)	(0.026)	(0.027)	(0.022)	(0.033)	(0.025)	(0.029)
Notice Boards	-0.004	-0.014	-0.004	0.080**	-0.017	-0.101***	-0.063	-0.009	-0.056

	(0.031)	(0.032)	(0.030)	(0.032)	(0.033)	(0.027)	(0.042)	(0.031)	(0.037)
Cascade	0.014	0.026	0.012	0.001	-0.093***	0.009	-0.014	0.034	-0.016
	(0.028)	(0.029)	(0.027)	(0.030)	(0.031)	(0.024)	(0.038)	(0.028)	(0.034)
Newsletters	-0.014	0.010	0.009	-0.028	-0.012	-0.026	0.057	-0.019	-0.000
	(0.027)	(0.027)	(0.026)	(0.028)	(0.029)	(0.023)	(0.036)	(0.027)	(0.032)
Email	0.001	-0.007	-0.043	-0.053	0.000	0.048*	-0.068	-0.015	0.021
	(0.032)	(0.032)	(0.030)	(0.034)	(0.034)	(0.027)	(0.043)	(0.032)	(0.038)
Intranet	-0.026	-0.000	-0.010	0.070**	0.029	0.018	-0.015	-0.025	-0.039
	(0.029)	(0.030)	(0.028)	(0.030)	(0.031)	(0.025)	(0.039)	(0.029)	(0.035)
Other	-0.004	-0.002	0.001	-0.004	-0.020	-0.009	-0.015	0.034	-0.020
	(0.025)	(0.025)	(0.024)	(0.026)	(0.026)	(0.021)	(0.033)	(0.025)	(0.029)
Joint Consultative Committees	0.012	-0.011	-0.042*	-0.031	-0.021	0.005	-0.057*	-0.009	-0.027
	(0.025)	(0.025)	(0.024)	(0.026)	(0.026)	(0.021)	(0.032)	(0.024)	(0.029)
Secure job	0.082***	0.073***	0.117***	0.115***	0.133***	0.082***	1.223***	0.110***	0.060***
	(0.011)	(0.012)	(0.011)	(0.011)	(0.012)	(0.010)	(0.019)	(0.011)	(0.013)
Individual Incentive pay									
Merit Pay	-0.003	0.010	-0.033	-0.057**	0.004	0.015	-0.035	-0.016	0.070**
	(0.026)	(0.027)	(0.026)	(0.027)	(0.028)	(0.023)	(0.035)	(0.026)	(0.031)
Types of Pay (ref: basic pay)									
Individual pay	0.090**	-0.033	-0.029	0.042	0.015	0.049	0.085	0.008	-0.089*
	(0.041)	(0.042)	(0.039)	(0.042)	(0.043)	(0.036)	(0.054)	(0.039)	(0.048)
Group pay	0.008	0.086	0.067	-0.108**	0.028	0.018	0.044	0.016	-0.057
	(0.055)	(0.058)	(0.053)	(0.055)	(0.059)	(0.049)	(0.077)	(0.054)	(0.066)
Workplace pay	0.109**	0.005	-0.032	-0.059	0.019	0.168***	0.008	0.050	0.063
	(0.049)	(0.051)	(0.047)	(0.049)	(0.052)	(0.045)	(0.070)	(0.048)	(0.060)
Extra pay	0.070***	0.015	0.010	0.041	0.031	-0.013	0.061*	0.106***	-0.019
	(0.026)	(0.026)	(0.025)	(0.027)	(0.028)	(0.022)	(0.035)	(0.026)	(0.030)
Pension (deferred payment schemes like ESOP)	-0.008	0.033	0.003	-0.033	-0.064**	0.124***	-0.033	0.016	-0.004
	(0.026)	(0.026)	(0.025)	(0.026)	(0.027)	(0.022)	(0.034)	(0.026)	(0.030)
Measures of fairness									
Appeal right	0.071	-0.035	0.055	-0.065	0.103	0.004	-0.187	0.073	0.099
	(0.091)	(0.096)	(0.095)	(0.098)	(0.098)	(0.081)	(0.136)	(0.091)	(0.106)
EO policies	-0.090	0.008	-0.077	0.082	0.029	-0.071	-0.004	0.001	-0.026
	(0.055)	(0.056)	(0.053)	(0.056)	(0.059)	(0.048)	(0.079)	(0.055)	(0.068)
Informative Management									
Operations	-0.015	-0.022	-0.050***	0.022	-0.037*	-0.030*	0.035	-0.021	0.020
	(0.018)	(0.019)	(0.018)	(0.019)	(0.019)	(0.016)	(0.024)	(0.018)	(0.020)
Staffing	-0.005	-0.022	-0.003	-0.020	-0.013	-0.021	0.040*	-0.016	0.021
	(0.018)	(0.018)	(0.017)	(0.018)	(0.019)	(0.016)	(0.024)	(0.018)	(0.020)
Sequence	0.106***	0.105***	0.125***	0.208***	0.176***	0.009	0.021	0.138***	0.124***
	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.016)	(0.023)	(0.018)	(0.020)

Finance	-0.030**	0.027*	0.035**	0.039***	0.023	0.087***	-0.010	-0.026*	0.082***
	(0.015)	(0.015)	(0.014)	(0.015)	(0.015)	(0.013)	(0.019)	(0.015)	(0.016)
Consultative Management									
Views of employees	0.044**	0.008	0.017	0.047***	0.067***	0.027*	-0.032	-0.002	0.097***
	(0.018)	(0.018)	(0.018)	(0.018)	(0.019)	(0.016)	(0.024)	(0.018)	(0.020)
Response to suggestions	0.026	0.060***	0.021	0.041*	0.074***	0.028	-0.039	0.055***	0.208***
	(0.021)	(0.021)	(0.020)	(0.021)	(0.022)	(0.018)	(0.028)	(0.021)	(0.023)
Influence of employees	0.029	0.099***	0.150***	0.047**	0.057***	0.099***	0.120***	0.015	0.432***
	(0.019)	(0.020)	(0.019)	(0.020)	(0.020)	(0.017)	(0.025)	(0.019)	(0.022)
Supportive Management									
Keep promises	0.019	-0.013	0.031	0.090***	0.025	0.072***	0.040	-0.008	0.028
	(0.020)	(0.021)	(0.020)	(0.021)	(0.021)	(0.018)	(0.026)	(0.020)	(0.022)
Sincere	0.022	0.066***	0.028	-0.103***	-0.052**	-0.078***	-0.005	0.016	0.064***
	(0.022)	(0.023)	(0.022)	(0.023)	(0.023)	(0.020)	(0.029)	(0.022)	(0.024)
Honest	-0.074***	-0.038	-0.020	-0.026	-0.046**	-0.027	-0.075**	-0.029	-0.009
	(0.022)	(0.023)	(0.022)	(0.023)	(0.024)	(0.020)	(0.029)	(0.022)	(0.025)
Understanding	-0.006	0.017	0.016	-0.025	-0.017	0.022*	0.028	0.030**	0.002
	(0.015)	(0.015)	(0.015)	(0.015)	(0.016)	(0.013)	(0.020)	(0.015)	(0.017)
Encouraging	0.132***	0.142***	0.080***	0.456***	0.590***	0.070***	0.052**	0.094***	0.100***
	(0.016)	(0.017)	(0.016)	(0.017)	(0.018)	(0.015)	(0.022)	(0.016)	(0.018)
Treat fairly	0.044**	-0.002	0.025	-0.011	-0.009	0.100***	0.066***	0.048***	0.081***
	(0.018)	(0.019)	(0.018)	(0.019)	(0.019)	(0.016)	(0.024)	(0.018)	(0.020)
Job Demand									
Work overload	-0.093***	-0.038***	-0.066***	-0.091***	-0.037***	-0.036***	-0.010	-0.107***	-0.048***
	(0.013)	(0.013)	(0.012)	(0.013)	(0.014)	(0.011)	(0.017)	(0.013)	(0.015)
Work Intensity	0.235***	0.114***	0.067***	0.002	0.043**	-0.128***	-0.106***	0.146***	-0.023
	(0.016)	(0.017)	(0.016)	(0.017)	(0.018)	(0.014)	(0.022)	(0.016)	(0.019)
Timing Demand	-0.073***	-0.059***	-0.081***	-0.031***	-0.045***	-0.048***	-0.042***	-0.104***	-0.050***
	(0.011)	(0.012)	(0.011)	(0.012)	(0.012)	(0.010)	(0.015)	(0.011)	(0.013)
Supervisor	-0.015	0.106***	0.124***	0.001	0.051*	0.094***	0.043	0.008	0.108***
	(0.027)	(0.028)	(0.025)	(0.027)	(0.028)	(0.023)	(0.035)	(0.026)	(0.031)
Intrinsic Motivation									
Using initiative	0.078***	0.143***	0.085***	-0.041***	-0.023	-0.059***	-0.041**	0.070***	-0.023
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.012)	(0.018)	(0.014)	(0.016)
Value sharing	0.084***	0.042**	0.084***	0.006	-0.015	0.017	-0.009	0.064***	0.031
	(0.018)	(0.018)	(0.018)	(0.018)	(0.019)	(0.016)	(0.023)	(0.018)	(0.020)
Loyal	0.123***	0.077***	0.063***	0.008	0.023	0.042**	0.048**	0.137***	0.064***
	(0.018)	(0.019)	(0.019)	(0.019)	(0.019)	(0.017)	(0.024)	(0.018)	(0.021)
Proud	0.280***	0.151***	0.121***	0.085***	0.105***	0.135***	0.060***	0.267***	0.062***
	(0.017)	(0.017)	(0.017)	(0.017)	(0.018)	(0.015)	(0.022)	(0.017)	(0.019)
Voice mechanisms									
Grievance procedure	0.028	-0.119	-0.083	-0.155	-0.321**	-0.127	-0.201	0.044	-0.124

	(0.103)	(0.110)	(0.105)	(0.115)	(0.125)	(0.092)	(0.153)	(0.104)	(0.140)
Union Member (ref: not a member)									
A member	-0.110	-0.323***	-0.010	-0.089	-0.096	0.243**	-0.152	-0.050	-0.050
	(0.116)	(0.121)	(0.117)	(0.118)	(0.121)	(0.100)	(0.144)	(0.117)	(0.143)
Have been in the past	0.059*	0.020	-0.018	-0.052	-0.025	-0.057**	-0.005	0.074**	0.010
	(0.034)	(0.035)	(0.032)	(0.035)	(0.036)	(0.029)	(0.044)	(0.033)	(0.040)
Gender (ref: female)	-0.023	0.097***	0.138***	0.056**	0.083***	-0.000	-0.029	-0.038	0.007
	(0.026)	(0.027)	(0.025)	(0.027)	(0.028)	(0.023)	(0.034)	(0.026)	(0.031)
White ethnic background (ref: others)	0.113***	-0.035	0.041	0.009	0.079*	0.122***	0.047	0.235***	0.134***
	(0.042)	(0.044)	(0.041)	(0.045)	(0.045)	(0.036)	(0.056)	(0.041)	(0.049)
Tenure (ref: <1year)									
1-2 years	-0.018	-0.006	0.004	-0.059	-0.191***	-0.129***	0.038	-0.053	-0.139**
	(0.049)	(0.050)	(0.047)	(0.052)	(0.055)	(0.043)	(0.068)	(0.048)	(0.062)
2-5 years	0.007	-0.017	0.029	-0.010	-0.192***	-0.144***	-0.080	0.012	-0.164***
	(0.042)	(0.042)	(0.039)	(0.044)	(0.047)	(0.036)	(0.057)	(0.041)	(0.053)
5-10 years	-0.058	0.004	0.026	0.018	-0.173***	-0.093**	-0.066	0.029	-0.135**
	(0.043)	(0.044)	(0.041)	(0.046)	(0.048)	(0.037)	(0.059)	(0.042)	(0.054)
>10 years	-0.005	0.034	0.079*	0.079*	-0.072	-0.063	-0.035	0.036	-0.047
	(0.044)	(0.045)	(0.042)	(0.047)	(0.050)	(0.038)	(0.060)	(0.044)	(0.055)
contract (ref: permanent)									
Temporary	-0.002	-0.094	0.023	-0.151**	0.033	0.139**	-0.375***	0.146**	0.051
	(0.065)	(0.063)	(0.061)	(0.068)	(0.073)	(0.057)	(0.074)	(0.066)	(0.083)
Fixed	0.100	0.019	0.081	0.056	0.015	0.123**	-0.444***	0.118*	-0.099
	(0.063)	(0.063)	(0.058)	(0.065)	(0.067)	(0.054)	(0.072)	(0.063)	(0.075)
Marital Status (Ref: Single)									
Married	0.053*	0.020	0.045	-0.006	0.019	0.014	0.037	0.099***	0.055
	(0.030)	(0.031)	(0.029)	(0.032)	(0.032)	(0.026)	(0.040)	(0.030)	(0.036)
Divorced	0.026	0.052	0.038	-0.032	-0.016	-0.088**	0.015	0.136***	0.040
	(0.049)	(0.051)	(0.048)	(0.052)	(0.053)	(0.042)	(0.064)	(0.049)	(0.058)
Widowed	-0.016	0.058	0.062	0.117	0.198*	0.130	0.078	0.129	0.035
	(0.099)	(0.105)	(0.097)	(0.116)	(0.120)	(0.086)	(0.134)	(0.102)	(0.121)
Age (ref: 16-29)									
30-49	0.182***	0.056	0.005	-0.047	0.050	0.018	-0.050	0.078**	0.010
	(0.034)	(0.035)	(0.034)	(0.036)	(0.037)	(0.030)	(0.048)	(0.034)	(0.042)
50 and above	0.282***	0.065	-0.001	0.050	0.155***	-0.004	-0.076	0.113***	-0.042
	(0.041)	(0.042)	(0.040)	(0.043)	(0.044)	(0.036)	(0.056)	(0.041)	(0.049)
Qualifications (Ref: GCSE grades D-G)									
GCSE A-C	0.019	0.002	-0.006	0.000	0.034	0.040*	-0.000	-0.003	0.063**
	(0.026)	(0.027)	(0.026)	(0.028)	(0.028)	(0.023)	(0.035)	(0.026)	(0.031)
ONE GCE	0.001	0.019	-0.029	0.000	-0.025	-0.058*	-0.085*	-0.028	-0.089**
	(0.038)	(0.039)	(0.036)	(0.038)	(0.040)	(0.033)	(0.049)	(0.037)	(0.044)
TWO or more GCE	0.035	-0.005	0.031	-0.059*	-0.053*	0.040	0.006	0.001	-0.090**

	(0.030)	(0.031)	(0.029)	(0.031)	(0.032)	(0.026)	(0.040)	(0.030)	(0.035)
First degree	0.019	-0.058*	-0.029	-0.129***	-0.132***	0.030	-0.002	0.014	-0.028
	(0.030)	(0.031)	(0.029)	(0.031)	(0.032)	(0.026)	(0.040)	(0.030)	(0.035)
Higher degree	0.063	-0.009	0.035	0.081*	0.066	0.106***	-0.025	0.044	-0.063
	(0.042)	(0.043)	(0.039)	(0.042)	(0.044)	(0.036)	(0.053)	(0.041)	(0.048)
Other academic qualification	0.072**	-0.025	-0.039	0.002	0.001	-0.027	-0.043	0.001	-0.086**
	(0.030)	(0.030)	(0.028)	(0.030)	(0.031)	(0.025)	(0.038)	(0.029)	(0.034)
No academic qualification	0.058	0.133**	0.091	0.280***	0.068	-0.010	0.133	0.020	0.098
	(0.061)	(0.064)	(0.060)	(0.074)	(0.071)	(0.052)	(0.086)	(0.062)	(0.074)
Level 1 NVQ	-0.002	0.065	0.061	0.038	-0.021	0.048	-0.006	-0.013	0.002
	(0.039)	(0.041)	(0.039)	(0.042)	(0.042)	(0.034)	(0.053)	(0.039)	(0.047)
Level 2 NVQ	0.010	0.032	-0.021	0.034	-0.046	-0.052**	-0.067*	-0.009	-0.015
	(0.030)	(0.031)	(0.029)	(0.031)	(0.032)	(0.026)	(0.039)	(0.030)	(0.035)
Level 3 NVQ	-0.028	0.008	0.042	-0.045	-0.094***	-0.018	-0.026	-0.025	-0.031
	(0.030)	(0.031)	(0.029)	(0.032)	(0.032)	(0.026)	(0.039)	(0.030)	(0.036)
Level 4 NVQ	0.016	-0.022	-0.032	0.045	-0.002	0.011	-0.037	-0.063	-0.046
	(0.050)	(0.052)	(0.048)	(0.051)	(0.053)	(0.043)	(0.063)	(0.049)	(0.058)
Level 5 NVQ	-0.199	-0.073	0.013	-0.261**	-0.299**	-0.143	-0.097	-0.188	-0.020
	(0.128)	(0.138)	(0.128)	(0.126)	(0.130)	(0.111)	(0.155)	(0.124)	(0.156)
Completion of apprenticeship	0.019	0.004	-0.002	-0.102**	0.033	0.027	0.069	0.123***	0.080
	(0.046)	(0.048)	(0.045)	(0.047)	(0.049)	(0.040)	(0.060)	(0.046)	(0.054)
Other vocational qualification	0.005	-0.044	-0.025	-0.023	-0.036	-0.029	-0.043	-0.036	-0.041
	(0.039)	(0.039)	(0.037)	(0.039)	(0.040)	(0.033)	(0.049)	(0.038)	(0.045)
Other professional qualification	0.056*	0.039	0.047	0.075**	0.079**	0.163***	0.064	0.091***	-0.037
	(0.033)	(0.033)	(0.031)	(0.033)	(0.034)	(0.028)	(0.042)	(0.032)	(0.037)
No vocational qualification	0.112**	0.173***	0.176***	0.145**	0.202***	0.089**	-0.003	0.080	0.056
	(0.052)	(0.054)	(0.051)	(0.058)	(0.059)	(0.045)	(0.072)	(0.052)	(0.061)
No religion (ref: having a religion)	-0.051**	-0.002	-0.002	-0.035	-0.012	0.019	0.009	-0.016	-0.006
	(0.025)	(0.026)	(0.024)	(0.026)	(0.027)	(0.022)	(0.033)	(0.025)	(0.029)
Heterosexual (ref: other orientations)	-0.030	-0.012	-0.045	0.106**	0.034	-0.019	-0.013	-0.042	-0.002
	(0.043)	(0.044)	(0.043)	(0.045)	(0.046)	(0.037)	(0.056)	(0.043)	(0.051)
Organizational size (ref: 5-999)									
1000-9,999	0.012	-0.010	-0.039	0.023	0.068**	0.008	-0.010	-0.019	-0.032
	(0.030)	(0.030)	(0.028)	(0.031)	(0.032)	(0.026)	(0.039)	(0.029)	(0.035)
10,000 and above	0.001	-0.056*	-0.031	0.026	0.036	-0.045	0.003	-0.031	-0.019
	(0.032)	(0.033)	(0.031)	(0.033)	(0.034)	(0.028)	(0.042)	(0.032)	(0.038)
Industries (ref: manufacturing)									
Electricity	0.148*	0.049	-0.023	0.181**	0.146	0.342***	0.356***	0.166**	0.139
	(0.084)	(0.087)	(0.083)	(0.087)	(0.092)	(0.083)	(0.126)	(0.084)	(0.103)
Water supply	-0.040	0.189*	-0.108	0.248**	0.233**	0.036	0.319**	0.015	0.020
	(0.095)	(0.104)	(0.097)	(0.107)	(0.111)	(0.089)	(0.137)	(0.096)	(0.117)
Construction	0.331***	0.235***	0.052	0.294***	0.138*	0.027	0.042	0.170**	0.076

	(0.072)	(0.076)	(0.070)	(0.077)	(0.079)	(0.064)	(0.097)	(0.071)	(0.089)
Wholesale/Retail	0.032	-0.048	-0.148***	0.022	0.081	-0.097*	0.026	0.072	-0.088
	(0.055)	(0.058)	(0.056)	(0.059)	(0.062)	(0.050)	(0.082)	(0.056)	(0.069)
Transportation	0.109*	0.026	-0.084	0.191***	0.189***	0.332***	-0.115	0.136**	-0.043
	(0.059)	(0.061)	(0.061)	(0.062)	(0.064)	(0.054)	(0.079)	(0.059)	(0.070)
Accommodation services	-0.089	-0.150**	-0.114	0.207**	0.020	-0.100	0.068	0.021	-0.064
	(0.073)	(0.076)	(0.074)	(0.084)	(0.084)	(0.065)	(0.110)	(0.073)	(0.094)
Information and communication	0.271***	0.076	0.017	-0.137*	-0.031	-0.238***	-0.151	0.198**	-0.246**
	(0.085)	(0.089)	(0.084)	(0.083)	(0.089)	(0.075)	(0.119)	(0.085)	(0.104)
Financial services	0.165*	-0.041	0.008	0.121	0.028	-0.164*	0.220	0.022	-0.246**
	(0.100)	(0.101)	(0.097)	(0.101)	(0.105)	(0.092)	(0.151)	(0.096)	(0.116)
Real estate	0.190**	0.025	-0.025	0.274***	0.176**	-0.025	0.029	0.108	0.012
	(0.078)	(0.080)	(0.076)	(0.083)	(0.086)	(0.068)	(0.106)	(0.077)	(0.096)
Professional services	0.238***	0.174**	-0.046	0.178**	0.123*	-0.179***	-0.053	0.136**	-0.030
	(0.068)	(0.071)	(0.066)	(0.069)	(0.073)	(0.060)	(0.094)	(0.067)	(0.084)
Administrative and support	0.331***	0.098	0.007	0.243***	-0.059	-0.073	0.049	0.192**	-0.036
	(0.079)	(0.082)	(0.079)	(0.086)	(0.085)	(0.069)	(0.113)	(0.078)	(0.099)
Public admin	0.268***	0.069	0.002	0.178***	0.147**	-0.205***	-0.002	0.190***	-0.117
	(0.063)	(0.065)	(0.062)	(0.066)	(0.067)	(0.055)	(0.083)	(0.062)	(0.074)
Education	0.498***	0.308***	0.086	0.237***	0.239***	-0.140***	0.191**	0.316***	-0.068
	(0.059)	(0.061)	(0.057)	(0.061)	(0.063)	(0.051)	(0.080)	(0.059)	(0.071)
Human health	0.331***	0.224***	-0.029	0.394***	0.162***	-0.149***	0.090	0.237***	-0.117*
	(0.053)	(0.055)	(0.052)	(0.057)	(0.058)	(0.046)	(0.073)	(0.053)	(0.064)
Arts, entertainment	0.265***	0.175**	0.000	0.231***	0.158**	-0.163***	0.024	0.333***	-0.163**
	(0.069)	(0.072)	(0.068)	(0.073)	(0.075)	(0.060)	(0.092)	(0.071)	(0.082)
Other services	0.338***	0.138	-0.089	0.102	0.045	0.126*	-0.107	0.356***	-0.084
	(0.084)	(0.085)	(0.079)	(0.084)	(0.087)	(0.073)	(0.110)	(0.084)	(0.096)
Public sector	0.036	0.040	-0.015	-0.020	-0.023	0.037	-0.169***	0.062*	0.025
	(0.035)	(0.036)	(0.034)	(0.037)	(0.038)	(0.030)	(0.045)	(0.035)	(0.041)
Occupational Categories (ref:Managerial)									
Intermediate	-0.037	-0.020	0.000	0.080**	0.043	-0.055**	0.020	-0.099***	0.023
	(0.032)	(0.033)	(0.030)	(0.032)	(0.034)	(0.027)	(0.041)	(0.031)	(0.038)
Lower	0.131***	0.015	0.052	0.189***	0.115***	-0.135***	-0.077	0.012	0.005
	(0.037)	(0.038)	(0.036)	(0.039)	(0.040)	(0.032)	(0.049)	(0.037)	(0.044)
Intercept	-4.780***	-4.570***	-5.470***	-2.419***	-3.047***	-0.911***	-2.702***	-3.995***	-3.537***
	(0.196)	(0.211)	(0.193)	(0.202)	(0.212)	(0.164)	(0.266)	(0.192)	(0.234)
Test of exogeneity (Athrho)	0.092	0.198***	-0.012	0.039	0.018	-0.118*	0.057	0.063	-0.025
	(0.070)	(0.075)	(0.070)	(0.071)	(0.072)	(0.061)	(0.086)	(0.070)	(0.086)
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N	20549	20549	20549	20549	20549	20549	20549	20549	20549

Clustered standard errors in parenthesis and the coefficients are statistically significant at * p<0.10, ** p<0.05, *** p<0.01.