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Human resource management practices and workers' job satisfaction

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Abstract

Purpose – The purpose of this paper is to investigate the relationship between human resource management (HRM) practices and workers' overall job satisfaction and their satisfaction with pay.

Design/methodology/approach – The paper uses British data from two different cross-sectional datasets. It estimates probit models with overall job satisfaction and satisfaction with pay as subjective dependent variables.

Findings – After controlling for personal, job and firm characteristics, it is found that several HRM practices raise workers' overall job satisfaction and their satisfaction with pay. However, these effects are only significant for non-union members. Satisfaction with pay is higher where performance-related pay and seniority-based reward systems are in place. A pay structure that is perceived to be unequal is associated with a substantial reduction in both non-union members' overall job satisfaction and their satisfaction with pay. Although HRM practices can raise workers' job satisfaction, if workplace pay inequality widens as a consequence then non-union members may experience reduced job satisfaction.

Research limitations/implications – The data sets used in the analysis are cross-sectional, presenting a snapshot of impacts of HRM practices on job satisfaction at a particular point in time. Dynamic effects are therefore not captured.

Originality/value – The paper adds to the empirical literature on effects of HRM practices, focussing on impacts on both overall job satisfaction and satisfaction with pay. A novel feature of the paper is the use of two separate data sets to develop complementary empirical results.

Keywords Job satisfaction, Human resource management, Human resource strategies, Trade unions, Pay policies

Paper type Research paper

1. Introduction

The past two decades have witnessed a burgeoning literature on the economics of job satisfaction[1]. There is also a large human resource management (HRM) literature that emphasises the influence of so-called "high-performance workplace practices" on job satisfaction and hence employee performance. The HRM literature can be sub-divided into empirical studies, which in the case of the UK are primarily based on the Workplace Industrial Relations Survey (WIRS) series, and a considerably larger number of studies that typically rely on case study analyses[2]. Relatively few attempts have been made to combine the job satisfaction and HRM literatures. A primary objective of this paper is to present new empirical evidence on the impact of HRM practices on workers' overall job satisfaction and their satisfaction with their pay.

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It is possible that HRM practices are a substitute for unionisation. If HRM policies raise overall job satisfaction, and (especially) satisfaction with pay, then the motivation to join unions could be reduced. A second objective of this paper is thus to investigate whether HRM practices have a different impact on the job satisfaction of union members as opposed to non-union members.

There is a longstanding interest by economists in the role played by pay and reward structures in determining worker effort, performance and job satisfaction. However, the focus of this literature has tended to be on the impact of workers' own pay or their comparison wage. Little is known beyond particular cases about the impact of the distribution of pay within a firm on worker performance. This is intriguing because there is a growing literature, which advocates the implementation of contingent, and implicitly variable, pay structures that encourage wage dispersion[3]. As such, a third objective of this paper is to analyse the impact of perceived pay inequality on workers' job satisfaction.

To investigate these issues we analyse two British datasets, the "Changing Employment Relationships, Employment Contracts and the Future of Work Survey" (CERS), conducted in 2000, and the 1998 Workplace Employment Relations Survey (WERS). The CERS and WERS datasets differ and complement each other in that the former has a larger proportion of workers from small firms (i.e. those with less than ten employees), whereas WERS excludes establishments with fewer than ten employees. This means that WERS excludes 73 per cent of the 1.3 million establishments in the UK (Cully *et al.*, 1999). However, WERS covers 82 per cent of employees, making it representative at the employee level, whereas CERS is representative of establishments. These differences in coverage mean that our two datasets can thus be seen as complements in the analysis.

To allow a comparison of the findings from the two datasets we construct a set of covariates that are as consistent as possible. In terms of HRM practices, we identify the following sets of variables: work organisation, supervision, employee involvement/voice, recruitment and selection, training and learning, and pay practices. In addition, we include variables for the workers' perception of pay inequality in the workplace and whether it is unionised. Note that our comparison of the two datasets can only be performed with respect to the workers' satisfaction with their pay, since the WERS dataset does not include a variable for overall job satisfaction. We construct dependent variables in a simple binary form to ease interpretation of results.

The remainder of the paper is broken down as follows. In section 2 we briefly review the theoretical and empirical literature on job satisfaction and then discuss the literature on the impact of HRM practices on worker performance. The issue of pay inequality is also introduced. Section 3 describes the two datasets used in the analysis together with our econometric methodology. In section 4 we discuss the findings of our analysis of the impact of HRM practices on workers' overall satisfaction with the job and satisfaction with pay. This section also examines the differences in outcome between union and non-union members, followed by a discussion of the impact of pay inequality. Our conclusions follow in section 5.

2. Job satisfaction and HRM practices: theory and literature

Various theories of job satisfaction have been developed by psychologists and management scholars. They tend to assign different degrees of importance to sources

of satisfaction[4], which can be classified as either intrinsic or extrinsic. Intrinsic sources depend on the individual characteristics of the person, such as attitudes. Extrinsic sources are situational, and depend on the environment, such as workplace climate. Theories which rely on extrinsic sources are more typically adopted by economists, albeit by reference to a different terminology, whereas intrinsic sources are more commonly associated with other social sciences (Luchak, 2003).

Traditionally, economists have embraced job satisfaction with "professional suspicion" (Freeman, 1978 p. 135) because it is a subjective variable. In 2000, it was still possible to state that the study of job satisfaction by economists is "still in its infancy" (Blanchflower and Oswald, 2000, p. 8)[5]. However, the empirical analysis of job satisfaction either implicitly or explicitly draws on the theoretical models discussed above, and in so doing job satisfaction is specified as a function of several individual and job characteristics, and ultimately interpreted as a utility function (Clark and Oswald, 1996; Easterlin, 2001).

Some studies show that certain HRM practices, such as working in teams, greater discretion and autonomy in the workplace and various employee involvement and pay schemes, do motivate workers and hence generate higher labour productivity (Cully *et al.*, 1999; Boselie and Van der Wiele, 2002). However, overall job satisfaction need not increase if effort is a "bad" and the aim of workers is to maximise the returns from the exerted effort.

In terms of the relationship between pay and job satisfaction, Clark and Oswald (1996) show that a workers' reported level of well-being is weakly correlated with their income, whereas Belfield and Harris (2002) find no evidence of such a relationship for those working in higher education. There is mounting research into the weakness of the link between income and life satisfaction, as in the happiness studies of Layard (2003, 2006) and Clark (2005) showing that despite rising wages there are stagnant levels in job satisfaction. Other studies show that it is relative income, rather than own income, that matters for job satisfaction (Clark and Oswald, 1996). Still, some studies contest the importance of relative income at lower pay levels (e.g. McBride, 2001), or highlight the importance of real income (Greene and Nelson, 2007).

A wider literature exists on the effects of introducing new pay practices in companies (see, e.g. Black and Lynch, 2004; Booth and Frank, 1999; Cappelli and Neumark, 1999; McCausland *et al.*, 2005; Lazear, 2000). Yet, empirical evidence is lacking on the relationship between such practices and job satisfaction. There are also very few studies that seek to examine the relationship between the pay distribution within a firm, including the perception of that distribution by a worker, and individual worker performance or their job satisfaction[6]. An exception is Bloom and Michel (2002), who discuss the advantages and disadvantages of dispersed and compressed "actual" pay structures. Dispersed pay structures may induce higher levels of performance as employees have to work harder to move up the pay ladder. This is consistent with the notion of promoting the "star" workers in a competitive environment and the provision of compensating differentials for high-risk jobs. However, consistent with the prediction of tournament theory (Bloom and Michel, 2002), dispersed pay systems may also be linked to workforce instability and higher turnover. On the other hand, compressed pay promotes team effort and cooperation by creating a more egalitarian workplace, which tends to reduce turnover (Beaumont and Harris, 2003). However, it may discourage effort above a certain minimal necessary

level, and may be perceived as unfair, not least because of free-rider problems. Hence, it is usually difficult to accurately identify the effect of the pay distribution within a firm on workers' job satisfaction.

3. Data and methodology

We use two British datasets for our empirical analysis. The CERS was commissioned by the Policy Studies Institute as part of the Future of Work research programme. The data were collected between July 2000 and January 2001, and the main aim of the Survey was to identify and describe the key changes in British employee relations. Two data collection methods were used: interviews and self-completion questionnaires. The one-hour interviews were personal, paper-based, conducted in the home, and totalled 2,466 responses. Self-completion questionnaires were returned by 2,349 respondents, representing a 95-per cent response rate. Once we omit respondents with missing values on key variables and the self-employed (334), the sample size reduces to 1,518. The WERS contains a much larger sample of workers (19,890 after allowing for missing data), and has the advantage that responses are obtained from both employees and their managers.

The CERS data set contain a question on overall job satisfaction. This asked workers to report levels of overall job satisfaction on a seven point scale from "completely satisfied" to "completely dissatisfied". The majority of the respondents to the survey are satisfied with their job or better, the modal group being "satisfied". The distribution of job satisfaction that we observe is consistent with other British studies showing that reported levels of satisfaction are very high (Millward *et al.*, 1999; Oswald and Gardner, 2001; Blanchflower and Oswald, 2004). These results may reflect a self-selection effect insofar as workers sort themselves into the jobs that they like and quit those they dislike. However, this explanation is likely to overestimate workers' ability to find a suitable job match. For ease of interpretation we collapse the job satisfaction responses into a binary variable form, where a value of one denotes satisfied or better, taking up 84.0 per cent of the sample. Whilst we report results for overall job satisfaction in the collapsed binary form, we also report – if relevant – the effects of practices on this variable in its original scale form.

A similar question is asked in the CERS about workers' satisfaction with pay. Again, we model the determinants of workers' satisfaction with their pay, with a collapsed binary dependent variable with the value one denoting satisfied or better (58.6 per cent of the sample). Again, some of our reported results also use the variable in its original scale form.

Unlike CERS, a drawback of WERS is that it does not contain an equivalent question on overall job satisfaction. WERS does ask workers about their satisfaction with pay. Here, the set of categories varies from "very satisfied" to "very dissatisfied" on a five point scale. The modal group in WERS is again 'satisfied' with pay. In WERS we recode the original five-point variable into a binary variable, where one denotes satisfied or better (35.3 per cent), and we also report some significant results for the variable in its scale form. In terms of HRM practices, employees in CERS are less likely to work in teams, get involved in improvement groups or be in firms that offer profit-related pay. Conversely, employees in WERS are less likely to be supervised, or work in firms that encourage both training and skill development. We conjecture that

the complementarity of CERS and WERS makes an analysis of both datasets potentially very revealing.

Following the theory and previous literature discussed above, job satisfaction, S, can be expressed as:

$$S = \beta_1' X + \beta_2' \text{HRM} + \beta_3' \text{INEQUALITY} + u \quad (1)$$

where X refers to a vector of worker, job and firm characteristics, including whether the worker is a union member[7]. Worker characteristics include age, gender, marital status, number of children, highest educational qualification and union membership, whereas the job and firm characteristics include workers' occupation/skill level and firm size. Unlike the previous literature, a vector of variables reflecting human resource management practices, HRM, is included in the model and classified under the following headings:

- work organisation;
- supervision;
- employee involvement;
- recruitment and selection;
- training and learning; and
- pay practices, including seniority-based pay and performance-related pay.

INEQUALITY refers to workers' perception of the pay distribution in the firm and in particular whether is regarded as unequal or not. Hamermesh (2004) has warned about the inclusion of subjective covariates when the dependent variable is itself subjective. We defend the inclusion of this particular variable on the grounds that perception of pay is probably what is most important within a firm. If the distribution of pay is regarded as unequal and this reduces workers' job satisfaction then either management needs to change that distribution by altering its pay practices, or if it is based on a misperception of the pay distribution then management needs to improve information flows in the firm.

4. Results

4.1 The effect of HRM practices

The results in Table I show that after controlling for a wide range of personal, job and firm characteristics, several HRM practices have a statistically significant effect on job satisfaction[8].

Creating workplaces which embed "on-going learning" has a highly significant effect on job satisfaction, insofar as it increases the probability of a worker being either completely or very satisfied by 16 percentage points, and the probability of being satisfied (as opposed to dissatisfied) by over 9 percentage points. This result is consistent with the HRM literature where on-the-job learning figures prominently among practices that enhance employee motivation and commitment (Doeringer *et al.* (1998). In turn, employees reciprocate by increased effort and productivity. Interestingly, the provision of employer provided education and training is only marginally significant and of small impact, suggesting that workers prefer continuous on-the-job instruction to off-the-job training. This finding supports the results reported

Table I.
Effect of HRM practices and perceived pay inequality on overall job satisfaction and satisfaction with pay

Variables	CERS overall job satisfaction		CERS satisfaction with pay		WERS satisfaction with pay	
	Marginal effect	*p*-values	Marginal effect	*p*-values	Marginal effect	*p*-values
Work organisation						
Teamwork	0.023	0.106	−0.002	0.949	0.005	0.761
Supervision						
Performance differentiated by others	0.054	0.111				
Employee seen all the time by supervisor or manager	−0.054***	0.004	−0.035	0.240		
Work progress can be visually assessed	0.028**	0.038	0.048	0.121	0.004***	0.003
Employee involvement/voice						
Information dissemination	0.016	0.537				
Notice boards			−0.023	0.473	−0.037*	0.020
Newsletter or internal magazine			−0.045*	0.085	0.049***	0.000
E-mail or web site			0.002	0.953	0.004	0.672
Employee is part of improvement group	0.023	0.251	0.000	0.993	0.009	0.327
Formal suggestion scheme	−0.006	0.752	0.005	0.884	0.015	0.158
Management holds meetings with employees	0.140***	0.001	0.093***	0.008	0.052***	0.000
Recruitment and selection						
Initial pay is negotiable	0.040*	0.051	0.066**	0.014	0.035**	−0.027
Management ask employees about pay					0.029***	0.000
Training and learning						
Employer provided education or training	0.033*	0.082				
Job requires ongoing learning	0.093***	0.000				
Both training and skill development encouraged			0.006	0.900	0.028***	0.000
Either training or skill development encouraged			−0.034	0.478	0.013***	0.000
Seniority-based pay						
Pay based on tenure	0.051***	0.005	0.102***	0.000	0.000	0.825

(*continued*)

Table I.

Variables	CERS overall job satisfaction Marginal effect	*p*-values	CERS satisfaction with pay Marginal effect	*p*-values	WERS satisfaction with pay Marginal effect	*p*-values
Performance-related pay						
Own performance	0.032	0.162	0.111***	0.003		
Team performance	−0.021	0.475	0.030	0.500		
Company performance	−0.004	0.862	0.001	0.976		
Any performance					0.013	0.246
Profit share/share option	0.028	0.256	0.111***	0.008	0.020*	0.090
Perception of relative income						
Workplace pay gap much too big			−0.351***	0.000		
Workplace pay gap too big			−0.275***	0.000		
Workplace pay gap too small					0.005	0.915
Own pay is relatively low	−0.103***	0.000				
Job autonomy: influence over						
Job tasks			−0.040	0.234	0.046***	0.000
Pace of work			0.056	0.113	0.057***	0.000
How job is done			−0.011	0.736	0.033***	0.006
Log likelihood	−552		−882		−12,071	
Sample size	1,518		1,496		18,910	

Notes: * = Significant at 10 per cent level; ** = significant at 5 per cent level; *** = significant at 1 per cent level; the dependent variable is binary denoting whether or not the worker is "satisfied". "Satisfied" comprises the categories "Completely satisfied", "Very satisfied" and "Satisfied". The model also includes controls for age, age squared, gender, marital status, number of children, educational qualifications, occupation, skill level, contract type, firm size, union membership and sector. Estimation is by probit in Stata 9.0. Estimates of control variables available on request

recently by Schmidt (2007) in his analysis of the relationship between job training satisfaction and overall job satisfaction.

In the models for satisfaction with pay we construct training variables that are comparable for CERS and WERS. Firms are classified into those that offer either training or continuous skill development, and those that offer both training and skill development, which are compared to the base firms that offer neither. For CERS there is no statistically significant relationship between the training variables and satisfaction with pay. For WERS, workers who receive training and encouragement to develop skills are more satisfied with their pay.

Furthermore, in WERS those workers who work in firms that offer both training and encouragement to develop skills are more likely to report that they are "satisfied", or better, with their pay. One explanation for the difference in our results between CERS, where training and learning variables are not significant, and WERS may be the fact that CERS contains a higher proportion of micro firms, which typically offer very little training or opportunity for continuous skill development, whereas the WERS includes more medium-large firms, who tend to offer more training.

Constant direct supervision, meaning that the employee can be seen all the time by a supervisor or a manager, has a significant negative impact on job satisfaction. In contrast, the fact that "work progress can be visually assessed" by a supervisor has a small but positive effect on job satisfaction. Thus, whereas close supervision of work is disliked, perhaps because it is associated with a feeling of being controlled, workers do like some feedback on their performance. This suggests that some monitoring is actually desirable, not only for the employer – as predicted by agency theory (see Eisenhardt, 1989) – but also for the employees. These findings are consistent with the view that HRM practices enhance employee participation, voice and creativity, thereby increasing job satisfaction, motivation and workplace performance. However, there is no evidence from CERS that these variables affect satisfaction with pay, whereas in WERS "supervision of work progress" does have a statistically significant and positive effect on satisfaction with pay, albeit small in magnitude.

Table I further shows that teamwork has an effect on job satisfaction that is only significant at the 10 per cent level and the marginal effect is quite small. The finding that teamwork has little effect on job satisfaction is interesting because it is often advocated as one of the most important HRM practices (Osterman, 1994a; MacDuffie, 1995; Pfeffer, 2005), and has been shown elsewhere to have a significant impact on employee productivity, commitment, and job satisfaction (Griffin, 1988; Banker *et al.*, 1996; Batt and Appelbaum, 1995). Our results are perhaps in keeping with the behaviour in organisation literature, which warns of the negative effects of increased pressure from peers in the team. Barker (1993) speaks of "concertive control", whereby the management's supervision is multiplied by peer surveillance. It is also interesting to note that there is no statistically significant relationship between teamwork and workers satisfaction with their pay, as one might expect, given the findings that workers are more satisfied when their own progress and performance are monitored.

Job autonomy is captured in the model for overall job satisfaction in the CERS dataset by the organisation of work in such a way that individual performance can be differentiated from that of one's peers. This variable has borderline significance.

In the models of satisfaction with pay, job autonomy is reflected in the worker's influence over job tasks, the pace of work and how the job is done. In CERS, only

influence over the pace of work has a borderline significant effect on satisfaction with pay, whereas in WERS all three measures of work organisation are highly significant. In general, workers with greater job autonomy are more satisfied with their pay, and influence over the pace of work is amongst the larger effects.

A set of five variables relates to employee involvement or channels through which workers can voice their grievances or view. These employee involvement variables can be placed on a scale from the most passive form of involvement (information dissemination) to the most engaging form (management holds meetings with employees). The idea of an employee involvement "continuum" was initially proposed by Freeman and Lazear (1995), and has been tested by Addison *et al.* (2000). However, many of these variables have an insignificant effect on job satisfaction in our model, the exception being "management holds meetings with employees". The variable has a very strong effect in raising job satisfaction. This finding may reflect a preference amongst workers for a simple and direct channel of face to face communication with management.

In the models of satisfaction with pay in Table I, the information dissemination variable is disaggregated, increasing in sophistication from "notice boards" to "e-mail or web site", whereas the same variables are used to reflect employee involvement. There is some evidence that workers are more satisfied with their pay the more technologically sophisticated the method of information dissemination used in the firm. To see this, we only need to compare the negative effect on the notice board variable with the positive (though not significant) effect on the e-mail and web site variables. With respect to employee involvement, workers are more satisfied with their pay when they are able to meet and express their views to managers, and the magnitude of this effect is very similar in CERS and WERS.

The effect of involvement in negotiation regarding initial pay raises workers' overall job satisfaction and, perhaps unsurprisingly their satisfaction with pay. What is interesting, however, is the finding that the effect of initial pay negotiation on overall satisfaction is comparable or even larger than it is for satisfaction with pay. This finding suggests that allowing workers to negotiate over initial pay has spill over effects insofar as workers are more satisfied with the job as a whole.

4.2. The effect of pay practices

Table I also shows that seniority-based pay mechanisms, such as pay based on tenure, have a significant positive effect on job satisfaction. This is the traditional type of payment practice, designed to maximise effort from the firm's perspective while minimising risk for the worker. The probability of being "completely" or "very" satisfied is increased by 7 percentage points for workers in these firms. Interestingly, there is also a positive and statistically significant relationship between "pay based on tenure" and satisfaction with pay in CERS, but not in WERS. The results for CERS may come as a surprise to the advocates of "new" performance-related pay practices, given the dramatic decline of seniority-based pay mechanisms (Ornatowski, 1998).

However, there is contrary evidence from our analysis that workers are more satisfied with "new" pay practices, especially when pay is related to individual performance. This type of compensation system links rewards to individual performance by comparing their achievement to goals set previously. Thus, although individual, team and company performance-related pay practices have no

statistically significant effect on overall job satisfaction, individual performance-related pay does increase a workers' satisfaction with their pay by as much as 11 percentage points in the CERS estimates. This effect is larger and more significant in CERS than in WERS, but is positive in both cases. Similarly, where the firm operates a profit sharing or option scheme, worker satisfaction with pay is enhanced.

The observed link between individual performance-related pay and satisfaction with pay is consistent with our earlier findings that workers prefer systems when work can be visually assessed and differentiated by co-workers. Why, then, is there no statistically significant relationship between performance-related pay and overall job satisfaction? The answer may simply be that workers agree with the principle of relating effort to rewards but suffer disutility from effort. Furthermore, creating a performance-pay link that is perceived as fair can be problematic, especially in the case of subjective performance appraisals where the appraisers may be suspected of giving biased judgements (Prendergast, 1999).

In keeping with the existing literature on the determinants of workers' job satisfaction, our model for overall job satisfaction includes a variable reflecting comparison income, albeit one based on workers' own perception of their relative pay. Table I shows that where workers perceive their own pay to be relatively low this reduces their overall job satisfaction. This is consistent with existing evidence (Clark and Oswald, 1996). We find that although workers are more satisfied with their pay when it is related to tenure and/or a system of performance-related pay, the "level" of pay or the additional reward reduces overall job satisfaction.

4.3. Union versus non-union differences in the impact of HRM practices

It is possible that the role of unions within the workplace has been replaced by the introduction of HRM practices, which have the potential to increase workers' job satisfaction and performance and hence offer competing services to those provided by unions. Although there is some debate about whether this substitution has in fact occurred (Machin and Wood, 2004), it is still possible that workers are more satisfied if they can voice their concerns, for instance, via one or more of the HRM practices rather than indirectly via a union. Some groups of workers, such as the young, may not see a role for unions in resolving workplace disputes regarding pay and practices and consequently may not join a union. Therefore, it is appropriate to assess union-non-union member differences in the effect of HRM practices on their job satisfaction. The estimates reported in Table I already control for union membership; the marginal effect on union membership is insignificantly different from zero across all three models. Nevertheless, we investigate union-non-union differences in impacts of HRM practices on worker satisfaction by interacting union membership with the statistically significant HRM practices identified in the previous sections. The estimated models are otherwise identical, except for the inclusion of these interaction effects. We are essentially asking whether there is an additional effect of HRM practices on union members, over and above impacts across the whole samples. The overall and union interaction effects are shown in Table II.

A general finding is that, for virtually all of the HRM practices, the main effects on job satisfaction are positive and statistically significant, whereas the interaction effects between union membership and the HRM practice are either negative or insignificant.

Table II.
Union differences in the effect of HRM practices and perceived pay inequality on overall job satisfaction and satisfaction with pay

	CERS overall job satisfaction		CERS satisfaction with pay		WERS satisfaction with pay	
Variables	All	Union	All	Union	All	Union
Supervision						
Performance differentiated by others	0.068**	−0.033				
Employee seen all the time by supervisor or manager	−0.044*	−0.020				
Work progress can be visually assessed	0.030	−0.012			0.043***	−0.009
Employee involvement/voice						
Notice boards			−0.024	−0.003	−0.034*	−0.009
Newsletter or internal magazine			−0.040	−0.004		
E-mail or web site					0.039***	0.026
Formal suggestion scheme					0.014	0.000
Management holds meetings with employees	0.064**	0.006	0.098**	−0.013	0.058***	−0.025
Recruitment and selection						
Initial pay is negotiable	0.042*	−0.003	0.097**	0.002	0.150***	−0.050***
Training and learning						
Job requires ongoing learning	0.093***	−0.002				
Both training and skill development encouraged					0.156***	0.034
Either training or skill development encouraged					0.090***	−0.018
Seniority-based pay						
Pay based on tenure	0.037*	0.036	0.089**	0.039		
Performance-related pay						
Own performance			0.102**	0.014		
Profit share/share option			0.132**	0.010		
Perception of relative income						
Workplace pay gap much too big	−0.192***	0.054	−0.379***	0.074		
Workplace pay gap too big	−0.145***	0.066	−0.308***	0.091		
Own pay is relatively low	−0.100***	−0.006				
Job autonomy: influence over						
Job tasks					0.059***	−0.034**
Pace of work			0.085*	−0.074	0.036***	0.050***
How job is done					0.043***	−0.019

Notes: * = Significant at 10 per cent level; ** = significant at 5 per cent level; *** = significant at 1 per cent level

Both, workers' overall job satisfaction and their satisfaction with pay are higher where they can voice their views via meetings with employers, independent of unionisation.

In terms of skill development, it can be seen that where the job requires on-going learning or where both, skill development and training are encouraged by the firm, workers' overall job satisfaction and their satisfaction with pay is significantly higher. In contrast, the equivalent interaction effect for union workers is not significantly different from zero.

One interpretation of these findings is that HRM practices perform similar functions for non-union members as unions do for their members through bargaining over pay and working conditions. Just as unions are able to successfully negotiate over issues regarding pay and conditions of employment on behalf of workers so HRM practices play an important role in raising satisfaction with pay for non-union members. It follows that unions do not offer any extra role in raising satisfaction over job or pay relative to non-union establishments.

4.4 The effect of workplace pay inequality on job satisfaction

There is very little evidence on the impact of the distribution of pay in the workplace on job satisfaction in the extant literature. Workers may be concerned about inequality in the workplace simply on the basis of fairness or natural justice. Alternatively, a highly compressed pay distribution implies that there is little opportunity for advancement in the firm. There may also be a difference in attitude regarding workplace pay inequality between union members and non-members, the former being expected to be more egalitarian.

Returning to Table I, we see that after controlling for an individual worker's perception of being low paid, we find that a pay structure that is perceived to be over-dispersed is associated with lower levels of job satisfaction. These effects are substantial, especially in those firms where the "pay gap is much too big". The marginal effect on satisfaction with pay of perceived workplace pay inequality being "too high" or worse is over 27 percentage points. However, in WERS the only variable we could include is "Pay gap is small". The estimate for this variable is statistically insignificant.

A highly dispersed wage structure may alienate those workers at the lower end of the job-wage hierarchy because they feel under-valued. Our findings from CERS point in this direction. It is perhaps for this reason that Pfeffer and Langton (1993) have suggested that the best system of pay is one that is based on a mixture of seniority, productivity and credentials.

Table II reports the interaction effects of perceived workplace pay inequality and union status for CERS and WERS. We find that unions do not add or reduce the impact of perceived workplace inequality on the probability of being satisfied or better with overall job or pay.

The findings with respect to perceived pay inequality are interesting insofar as they suggest that although many HRM practices raise workers' job satisfaction there may be a downside. If HRM practices, especially those related to pay, create a more unequal distribution of pay within the firm then workers' job satisfaction can be substantially reduced.

5. Conclusions

In this paper we investigated the effect of HRM practices on workers' overall job satisfaction and their satisfaction with pay. After controlling for a large number of personal, job and firm-related characteristics, we find that HRM practices have a statistically significant, and in some cases substantial, effect on workers' overall job satisfaction and on their satisfaction with pay. Specifically, we find that workers enjoy on-going learning and job autonomy. Close supervision of work is disliked, but workers enjoy some visual assessment of their performance, suggesting that some monitoring is desirable. Furthermore, giving workers a "voice" through employee involvement schemes has a positive effect on job satisfaction. Managers who hold regular meetings with employees to enable them to express their views about work have the most substantial effect in raising job satisfaction. Satisfaction with pay is higher where seniority and individual performance-related schemes are in place. When we investigate differences in the effect of HRM practices on the job satisfaction of union members and non-members, we find little evidence that unionisation affects our general findings across our sample.

Finally, a pay structure that is seen as overly dispersed is associated with low levels of job satisfaction. Although HRM practices have a direct positive effect in raising workers' job satisfaction, it can be conjectured that there may be an offsetting negative effect on satisfaction and performance if these policies also raise pay inequality in the workplace. This clearly raises implications for the design and implementation of HRM practices, particularly with respect to pay and incentive systems. However, it should be noted that we measure the effect of perceived workplace pay inequality, rather than actual pay inequality, and it may be that the distribution of pay is misperceived. The implication would then be that information flows about pay structure should be improved if managers are concerned with their workers' job satisfaction.

Notes

1. See for example Clark (1996), Oswald (1997), Robie *et al.* (1998), Clark (2001), Bryson *et al.* (2004) and Gazioglu and Tansel (2006).
2. Leigh and Gill (1999), Appelbaum *et al.* (2000), and Delaney and Godard (2001) are recent examples for the USA. Recent British research includes Addison *et al.* (2000), Addison and Belfield (2001) and Delbridge and Whitfield (2001).
3. However, evidence on the incidence of these practices has been continuously accumulating in the UK, US and other countries. See, for instance, Osterman (1994a, b, 2000), Gibbons (1998), Wood (1999), Addison and Belfield (2001), Bailey *et al.* (2001), and Pfeffer (2005). A few exceptions are papers that attempt to analyse wage dispersion, but not in the context of HRM practices, such as Baker *et al.* (1994), Winter-Ebmer and Zweimüller (1999), Heyman (2002) and Frick *et al.* (2003).
4. For instance, Argyle (1989) considers that job satisfaction is amongst the three main determinants of life satisfaction.
5. Some of the pioneering economics research on job satisfaction includes Hamermesh (1977), Freeman (1978) and Borjas (1979).
6. The benefits of including subjective (such as perception-based) variables in research have been highlighted ever since Freeman (1978, p. 135) who remarks: "while there are good reasons to treat subjective variables gingerly, the answers to questions about how people

feel toward their job are not meaningless but rather convey useful information about economic life that should not be ignored".

7. Note that an identical specification is adopted for satisfaction with pay.
8. Since many of the findings for the personal, job and firm characteristics are in keeping with the existing literature, we do not dwell on them here.

References

Addison, J.T. and Belfield, C.R. (2001), "Updating the determinants of firm performance: estimation using the 1998 UK workplace employee relations survey", *British Journal of Industrial Relations*, Vol. 39 No. 3, pp. 341-66.

Addison, J.T., Siebert, S.W., Wagner, J. and Wei, X. (2000), "Worker participation and firm performance: evidence from Germany and Britain", *British Journal of Industrial Relations*, Vol. 38 No. 1, pp. 7-48.

Appelbaum, E., Bailey, T., Berg, P. and Kalleberg, A.L. (2000), *Manufacturing Advantage: Why High Performance Work Systems Pay off*, Cornell University Press, Ithaca, NY.

Argyle, M. (1989), *The Social Psychology of Work*, 2nd ed., Penguin, Harmondsworth.

Bailey, T., Berg, P. and Sandy, C. (2001), "The effect of high-performance work practices on employee earnings in the steel, apparel and medical electronics and imaging industries", *Industrial and Labour Relations Review*, Vol. 54 No. 2, pp. 525-44.

Baker, G., Gibbons, R. and Murphy, K.J. (1994), "Subjective performance and measures in optimal incentive contracts", *Quarterly Journal of Economics*, Vol. 109 No. 4, pp. 1125-56.

Banker, R.D., Lee, S.Y., Potter, G. and Srinivasan, D. (1996), "Contextual analysis of performance impacts of outcome-based incentive compensation", *Academy of Management Journal*, Vol. 39 No. 4, pp. 920-48.

Barker, J. (1993), "Tightening the iron cage: concertive control in self-managing teams", *Administrative Science Quarterly*, Vol. 38 No. 3, pp. 408-37.

Batt, R. and Appelbaum, E. (1995), "Worker participation in diverse settings: does the form affect the outcome and if so, who benefits?", *British Journal of Industrial Relations*, Vol. 33 No. 3, pp. 353-78.

Beaumont, P.B. and Harris, R.I.D. (2003), "Internal wage structures and organizational performance", *British Journal of Industrial Relations*, Vol. 41 No. 1, pp. 53-70.

Belfield, C. and Harris, R. (2002), "How well do theories of job matching explain variation in job satisfaction across educational level? Evidence for UK graduates", *Applied Economics*, Vol. 34 No. 5, pp. 535-48.

Black, S.E. and Lynch, L. (2004), "What's driving the new economy: the benefits of workplace innovation", *Economic Journal*, Vol. 114 No. 2, pp. 97-116.

Blanchflower, D.G. and Oswald, A.J. (2000), "Is the UK moving up the international wellbeing rankings?", paper presented at the NBER Conference, 4 May.

Blanchflower, D.G. and Oswald, A.J. (2004), "Well-being over time in Britain and the USA", *Journal of Public Economics*, Vol. 88 Nos 7-8, pp. 1359-86.

Bloom, M. and Michel, J.G. (2002), "The relationships among organizational context, pay dispersion and managerial turnover", *Academy of Management Journal*, Vol. 45 No. 1, pp. 33-42.

Booth, A. and Frank, J. (1999), "Earnings, productivity, and performance-related pay", *Journal of Labor Economics*, Vol. 17 No. 3, pp. 447-63.

Borjas, G. (1979), "Job satisfaction, wages and unions", *Journal of Human Resources*, Vol. 14 No. 1, pp. 21-40.

Boselie, P. and Van der Wiele, T. (2002), "Employee perceptions of HRM and TQM, and the effects on satisfaction and intention to leave", *Managing Service Quality*, Vol. 12 No. 3, pp. 165-72.

Bryson, A., Cappellari, L. and Lucifora, C. (2004), "Does union membership really increase job dissatisfaction?", *British Journal of Industrial Relations*, Vol. 42 No. 3, pp. 439-59.

Cappelli, P. and Neumark, D. (1999), "Do high-performance work practices improve establishment-level outcomes?", *Industrial and Labour Relations Review*, Vol. 54 No. 4, pp. 737-76.

Clark, A.E. (1996), "Job satisfaction in Britain", *British Journal of Industrial Relations*, Vol. 34 No. 2, pp. 189-217.

Clark, A.E. (2001), "What really matters in a job? Hedonic measurement using quit data", *Labour Economics*, Vol. 8 No. 2, pp. 223-42.

Clark, A.E. (2005), "Your money or your life: changing job quality in OECD countries", Working Paper 1610, Institute for the Study of Labor (IZA), Bonn.

Clark, A.E. and Oswald, A.J. (1996), "Satisfaction and comparison income", *Journal of Public Economics*, Vol. 61 No. 3, pp. 359-81.

Cully, M., Woodland, S., O'Reilly, A. and Dix, G. (1999), *Britain at Work: As Depicted by the 1998 Workplace Employee Relations Survey*, Routledge, London.

Delaney, J.T. and Godard, J. (2001), "An industrial relations perspective on the high-performance paradigm", *Human Resource Management Review*, Vol. 11 No. 4, pp. 395-429.

Delbridge, R. and Whitfield, K. (2001), "Employee perceptions of job influence and organizational participation", *Industrial Relations*, Vol. 40 No. 3, pp. 472-89.

Doeringer, P.B., Evans-Klock, C. and Terkla, D.G. (1998), "Hybrids or hodgepodges? Workplace practices of Japanese and domestic startups in the United States", *Industrial and Labor Relations Review*, Vol. 51 No. 2, pp. 171-86.

Easterlin, R.A. (2001), "Income and happiness: towards a unified theory", *Economic Journal*, Vol. 111 No. 473, pp. 465-84.

Eisenhardt, K.M. (1989), "Agency theory: an assessment and review", *Academy of Management Review*, Vol. 14 No. 1, pp. 57-74.

Freeman, R.B. (1978), "Job satisfaction as an economic variable", *American Economic Review*, Vol. 68 No. 2, pp. 135-41.

Freeman, R.B. and Lazear, E.P. (1995), "An economic analysis of works councils", in Rogers, J. and Streeck, W. (Eds), *Works Councils: Consultation, Representation and Cooperation in Industrial Relations*, University of Chicago Press, Chicago, IL.

Frick, B., Prinz, J. and Winkelmann, K. (2003), "Pay inequalities and team performance: empirical evidence from the North American major leagues", *International Journal of Manpower*, Vol. 24 No. 4, pp. 472-88.

Gazioglu, S. and Tansel, A. (2006), "Job satisfaction in Britain: individual and job related factors", *Applied Economics*, Vol. 38 No. 10, pp. 1163-71.

Gibbons, R. (1998), "Incentives in organizations", *Journal of Economic Perspectives*, Vol. 12 No. 4, pp. 115-32.

Greene, K.V. and Nelson, P.J. (2007), "Is relative income of overriding importance for individuals?", *International Journal of Social Economics*, Vol. 34 No. 11, pp. 883-98.

Griffin, R.W. (1988), "Consequences of quality circles in an industrial setting: a longitudinal assessment", *Academy of Management Journal*, Vol. 31 No. 2, pp. 338-58.

Hamermesh, D. (1977), "Economic aspects of job satisfaction", in Ashenfelter, O. and Oates, W. (Eds), *Essays in Labor Market Analysis*, John Wiley & Son, Toronto.

Hamermesh, D.S. (2004), "Subjective outcomes in economics", *Southern Economic Journal*, Vol. 7 No. 1, pp. 2-11.

Heyman, F. (2002), "Pay inequality and firm performance: evidence from matched employer-employee data", Working Paper Series from Trade Union Institute for Economic Research, No. 186, available at: www.fief.se/library/WP/WP186.pdf

Layard, R. (2003), *Happiness – Has Social Science a Clue?*, Lionel Robbins Memorial Lectures 2002/3, Centre of Economics Performance (CEP), London School of Economics, London.

Layard, R. (2006), "Happiness and public policy: a challenge to the profession", *Economic Journal*, Vol. 116 No. 510, pp. C24-C33.

Lazear, E. (2000), "Performance pay and productivity", *American Economic Review*, Vol. 90 No. 5, pp. 1346-61.

Leigh, D.E. and Gill, A.M. (1999), "The effect of high-performance workplace practices on individual workers' productivity", paper presented at The Annual Conference "What Skills Matter in the Economy?", University of British Columbia, February 26-27.

Luchak, A.A. (2003), "What kind of voice do loyal employees use?", *British Journal of Industrial Relations*, Vol. 41 No. 1, pp. 115-34.

McBride, M. (2001), "Relative-income effects on subjective well-being in the cross-section", *Journal of Economic Behavior and Organization*, Vol. 45 No. 3, pp. 251-78.

McCausland, W.D., Pouliakas, K. and Theodossiou, I. (2005), "Some are punished and some are rewarded: a study of the impact of performance pay on job satisfaction", *International Journal of Manpower*, Vol. 26 Nos 7/8, pp. 636-59.

MacDuffie, J. (1995), "Human resource bundles and manufacturing performance: organizational logic and flexible production systems in the world auto industry", *Industrial and Labor Relations Review*, Vol. 48 No. 2, pp. 197-221.

Machin, S. and Wood, S. (2004), "Looking for HRM/union substitution: evidence from British workplaces", Discussion Paper 0605, Centre for Economic Performance, London School of Economics, London, January.

Millward, N., Forth, J. and Bryson, A. (1999), *All Change at Work?*, Routledge, London.

Ornatowski, G.K. (1998), "The end of Japanese-style human resource management?", *Sloan Management Review*, Vol. 39 No. 3, pp. 73-84.

Osterman, P. (1994a), "Supervision, discretion and work organization", *American Economic Review, Papers and Proceedings*, Vol. 84 No. 2, pp. 380-4.

Osterman, P. (1994b), "How common is workplace transformation and who adopts it?", *Industrial and Labour Relations Review*, Vol. 47 No. 2, pp. 173-87.

Osterman, P. (2000), "Work reorganization in an era of restructuring: trends in diffusion and effects on employee welfare", *Industrial and Labor Relations Review*, Vol. 53 No. 2, pp. 179-96.

Oswald, A. (1997), "Happiness and economic performance", *The Economic Journal*, Vol. 107 No. 445, pp. 1815-31.

Oswald, A. and Gardner, J. (2001), "What has been happening to the quality of worker's lives in Britain?", working paper, Department of Economics, University of Warwick, Coventry.

Pfeffer, J. (2005), "Producing sustainable competitive advantage through the effective management of people", *The Academy of Management Executive*, Vol. 19 No. 4, pp. 95-106, (reprinted from 1995, Vol. 9 No. 1, pp. 55-72).

Pfeffer, J. and Langton, N. (1993), "The effect of wage dispersion on satisfaction, productivity, and working collaboratively", *Administrative Science Quarterly*, Vol. 38 No. 3, pp. 382-408.

Prendergast, C. (1999), "The provision of incentives in firms", *Journal of Economic Literature*, Vol. 36 No. 1, pp. 7-63.

Robie, C., Ryan, A.M., Schmieder, R.A., Parra, L.F. and Smith, P.C. (1998), "The relation between job level and job satisfaction", *Group and Organization Management*, Vol. 23 No. 4, pp. 470-96.

Schmidt, S.W. (2007), "The relationship between satisfaction with workplace training and overall job satisfaction", *Human Resource Development Quarterly*, Vol. 18 No. 4, pp. 481-98.

Winter-Ebmer, R. and Zweimüller, J. (1999), "Intra-firm wage dispersion and firm performance", *Kyklos*, Vol. 52 No. 4, pp. 555-72.

Wood, S. (1999), "Human resource management and performance", *International Journal of Management Reviews*, Vol. 1 No. 4, pp. 367-414.

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