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**Does Pay-for-Performance Pay?: Incentive Pay, Employee  
Participation and Earnings**

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## ABSTRACT

Using matched employer-employee data from a nationally representative sample of British establishments, the paper examines the impact of different types of performance related pay on earnings and whether these are affected by the use of employee involvement and financial participation schemes. It answers both in the affirmative and thereby supports previous work that has suggested that there are strong and complex interactions between employee involvement schemes and compensation mechanisms. The results indicate that employee's earnings are highest where there is a combination of individual PRP and employee involvement schemes based on quality circles.

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# DOES PAY-FOR-PERFORMANCE PAY?: INCENTIVE PAY, EMPLOYEE PARTICIPATION AND EARNINGS

Robert McNabb <sup>a</sup> and Keith Whitfield <sup>b</sup>

## 1. INTRODUCTION.

In recent years, Performance Related Pay (PRP) has been much more widely used as part of the human resource policies of a wide spectrum of organisations. PRP has typically been introduced alongside other HR practices as part of a package of measures and the aim has predominantly been to increase the input (both quantitative and qualitative) of workers to the production process. Considerable attention has been paid to the impact of PRP on organisational performance. However, much less attention has been paid to the impact upon the workers themselves.

The paper examines the impact of different types of PRP on earnings and whether these impacts are affected by the use of employee involvement and financial participation schemes. It extends previous analysis in two significant respects. First, it provides evidence about the effects of incentive compensation schemes that link earnings to performance and whether these are conditional on the use of other forms of work practices and/or financial participation schemes. Second, it addresses the question of whether the incentive effects of PRP schemes are sensitive to the particular measure of PRP used. Existing studies have involved a broad-brush approach and do not distinguish between the various measures of performance that can be used (see, for example, Booth and Frank, 1997).

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## 2. PRP, EMPLOYEE PARTICIPATION AND EARNINGS.

### 2.1 PRP, Participation and Performance:

The increased interest in performance related pay in recent years has been a major outcome of the development of a range of strategies focused on improving organisational performance. In some cases, PRP has been introduced as a stand-alone practice aimed at increasing work effort and/or breadth, but in others it has been introduced as part of packages attempting to transform the nature of the production process. These have variously been labelled as high performance, high commitment and high involvement work systems.

The development of PRP schemes has generally been viewed as a response by employers to the principal-agent problem inherent in the employment relationship. Many workers have a wide range of discretion in how they undertake their work. They can vary their effort, their co-operation with colleagues and management, and their contribution to improving the effectiveness of both their and related inputs. In such a situation, mechanisms are needed to ensure that workers (the agents) undertake their work in a manner that is congruent with the interests of their employers (the principals).

The principal-agent problem can be most directly addressed by the close monitoring of workers' performance and the disciplining of workers deemed to be shirking. However, this can prove costly, not only because of the need to pay supervisors, but also because the demonstration by employers of a lack of trust in their workers can encourage behaviour based on narrow opportunistic motives (Drago and Perlman 1989).

An alternative is to design incentive schemes to reward individual or group output. Such schemes have the advantage to the firm in that they not only induce greater effort from workers, but they may also encourage the commitment of workers and reinforce existing cultures and values where these foster high levels of performance, innovation and team-work. Linking pay to performance also potentially introduces equity and consistency in the pay structure and enables the firm to attract more able workers (Lazear 2000; Holmstrom 1982).

Furthermore, PRP is only one type of payment system aimed at increasing the contribution of employees to the production process. Also important are schemes for sharing profits and employee share-ownership. These could be seen as forms of group PRP, though their link to performance is much less direct than those group schemes that are typically given this title. Moreover, it is possible that group PRP schemes and financial participation schemes are mutually reinforcing and thereby interact to promote better organisational performance.

The increased development of work systems offering workers a greater role in decision-making and in increasing functional flexibility in recent years has focused enhanced attention on the need to develop innovative pay systems. Innovations such as quality circles, briefing groups, total quality management and team-working have resulted in a marked change in the way in which work is done. They involve workers taking more responsibility for key aspects of the production process and, in particular, being more responsive to product market pressures. Such changes not only empower workers in key areas, but also intensify the potential for principal-agent divergences. There is evidence that workplace changes aimed at increasing employee participation in decision-making are typically only successful in raising organisational performance where they are associated with compatible gain-sharing mechanisms (Levine and Tyson 1990; McNabb and Whitfield, 1998).

## 2.2 PRP, Participation and Earnings

The possible impacts of PRP on employee earnings are not clear-cut. To the extent that PRP yields higher work effort and commitment, it might be expected that workers in PRP workplaces would earn more than those not operating PRP. Alternatively, it may be that PRP operates predominantly as a distributive mechanism, rewarding the high-achieving more and the low-achieving less than in non-PRP workplaces. However, assuming that workers prefer less work effort to more, the former can be expected to predominate. This yields *hypothesis 1 – Earnings are higher, all other things equal, in workplaces operating PRP schemes than elsewhere.*

The relative contribution of individual, group and organisational PRP schemes to earnings are also unclear *a priori*. To some extent, it depends on the importance attached to each by managers in the workplaces concerned. The more that they are wedded to an approach based on individual incentives, the greater the contribution to earnings of individual PRP schemes can be expected to be. Conversely, the more the emphasis on team-working in raising performance, the more important will be the

contribution of group schemes. A great deal depends on the degree to which individual worker's output can be objectively measured and the potential magnitude of the free rider problem. Given the increased emphasis given to team-working by many employers in recent years, it is possible that *group PRP schemes have made a greater contribution to earnings than individual schemes*, thus yielding *hypothesis 2*.

The tying of PRP schemes to attempts to increase employee participation in decision-making raises the further issue of whether such efforts have been accompanied by greater increases in earnings for the workers concerned as opposed to where they have been introduced in a more stand-alone way. Additionally, there is the issue whether this varies for different types of scheme. One might expect that the increase in earnings in such integrated situations would be greater given that the intent to transform the organisation is much stronger. Also one would expect some degree of congruence between the nature of the participation scheme and the type of PRP scheme yielding the greatest increase in earnings. More individualistic participation schemes, such as quality circles, can be expected to be more strongly linked to individual PRP schemes and broader forms of participation, such as briefing groups, to group PRP schemes. Thus *hypothesis 3* is that *the increase in earnings due to PRP will be greater where there are attempts to increase the participation in decision-making*. Following on from this, *hypothesis 4* is that *the magnitude of such an increase will be greater the more the congruence between the participation scheme and the PRP scheme*.

The presence or absence of financial participation schemes is also likely to affect the increase in earnings due to a PRP scheme. Most likely, this will reduce the increase in earnings, due to the two types of scheme being substitutes. This is especially true for organisational/workplace based schemes. Hence *hypothesis 5* states that *the increase in earnings related to PRP schemes will be greater where there are no financial participation schemes and that this impact will be greatest for organisational/workplace schemes*.

### 3. DATA.

The analysis uses the 1998 Workplace Employee Relations Survey (WERS98). It differs from its predecessors in collecting matched employer-employee information. It has comprehensive information on a nationally-representative sample of 2,191 establishments employing 10 or more employees and on 28,323 employees who

work in these establishments. (Cully et al., 1998). The data on employees include weekly pay, occupational group, qualifications, marital status, age, gender, union membership, hours worked and tenure. Data on the establishments include information on their structural characteristics, management employment practices, product markets, labour force composition and the nature of their collective employment relations.

### 3.1 Defining Employee Participation

In this paper, we define five groups of employee participation:

*Quality Circles* – groups at the workplace that solve specific problems or discuss aspects of performance or quality and which involve more than 60 per cent of non-managerial employees;

*Briefing Groups* – a system of briefings for any section or sections of the workforce, the meetings of which give over 25 per cent or more of their time to questions from employees or for employees to offer their views;

*Representative Participation* – committees of managers and employees primarily concerned with consultation rather than negotiation;

*Profit-Related Pay* – employees receive payments or dividends from either profit-related pay or deferred profit sharing scheme;

*Employee Share Ownership* – employees receive payments from employee share ownership scheme.

*Performance Related Pay.* Performance-related pay schemes are measured in two ways.

The first is based on whether employees at the establishment receive payments from individual or group performance related schemes. Three measures of performance are used: those based on individual output or performance; those based on group or team performance; and those that tie performance related payments to the performance of the establishment or organisation. Since many establishments use a combination of measures, a number of interactions between the schemes are also considered. Specifically, the combination of schemes that reward individual

performance with schemes based on the other two measures of performance are examined.

#### 4. ESTIMATION.

To measure the single and joint impacts of employee involvement and performance-related pay schemes on individual earnings, the following model is estimated. This takes the form,

$$\log w_{ij} = \alpha_0 + X_{ij} \beta + \alpha_1 EP_j + \alpha_2 PRP_j + \alpha_3 Z_j + \varepsilon_{ij}$$

$EP_j$  measures whether different employee participation schemes and work practices are used at the establishment and  $PRP_j$  measures whether the establishment has adopted individual, group or an establishment level performance related pay scheme.  $Z_j$  is a vector of establishment characteristics. Here  $w_{ij}$  is worker  $i$ 's hourly wage at the  $j$ th establishment. This is derived by dividing data on each person's weekly wage by the number of hours worked per week. Whilst the data on hours worked contained in WERS98 is the actual number of hours usually worked per week, the information for weekly earnings is grouped into 12 bands. To construct an hourly wage, the lower and upper bounds of the pay band in which an individual is located are divided by that person's hours of work. Following Stewart (1983, 1987), the method of interval regression is then used to derive consistent parameter estimates for equation 1.  $EP_j$  measures whether different employee participation schemes and work practices are used at the establishment and  $PRP_j$  measures whether the establishment has adopted individual, group or an establishment level performance related pay scheme.  $Z_j$  is a vector of establishment characteristics.

Because the data used in the analysis is multi-level the error term can be written as,

$$\varepsilon_{ij} = \varphi_{ij} + \theta_j$$

where  $\varphi_{ij}$  represents that part of the error term that varies independently across individuals both within and between establishments and  $\theta_j$  measures that part that varies across establishments but which is constant for workers within establishments. This error structure describes a random effects model and the efficient estimator is feasible generalised least squares.

Five equations are estimated. The first includes a variable indicating whether a workplace has a PRP scheme in place; the second sub-divides this variable into individual, group and establishment/organisation PRP and the third focuses on the relative importance of having single types of PRP scheme in place or combinations thereof; the fourth and fifth equations examine interactions of the PRP variables with employee participation variables and are based on the definitions of PRP in equations 1 and 2 respectively.

## 5. RESULTS.

The results which are summarised in Table 1 provide some corroboration for the findings of earlier studies that have reported a positive effect of PRP on earnings and thereby support hypothesis 1. They also indicate that workers in establishments that use group or team based PRP and those that link earnings to individual performance provide an incentive for greater effort and earnings, other things equal. Moreover, this relationship is very similar for the two types of scheme, thereby questioning hypothesis 2, which suggested that the increase in earnings would be greater for group-based schemes.

Linking pay to broad measures of performance at the establishment or organisation level does not have direct impact on employee pay, see column 2. Earnings are highest in those establishments where there is a combination of individual and workgroup based PRP schemes and that the combined effect of these is greater than their single effects, see column 3. The largest premia associated with incentive pay schemes are for employees in establishments that adopt just group or team-based schemes and in those that combine these with incentive schemes that reward individual performance. Interestingly, when all the combinations of the different schemes are distinguished, earnings premia are also found in establishments that operate establishment/organisation level PRP schemes.

The results summarised in Table 1 also indicate that workers who are able to participate in employee share ownership or profit related pay schemes and those in establishments where there are joint consultative schemes have higher earnings, other things equal. However, there is no evidence that employee participation *per se* leads to compensation gains for workers, which is broadly in line with results reported by Osterman (2000) for the US. In fact, there is some evidence that employees in

establishments that have adopted quality circles actually face lower earnings, on average.

The results summarised in Table 2 also provide a number of important insights into the complex way compensation systems and employment practices and financial participation interact. Employee participation appears to confer little advantage for workers even when tied to PRP. However, the use of briefing groups does lead to higher earnings where they are associated with work-group based compensation systems. In contrast, there is little gain in the form of higher earnings for employees in establishments that have introduced briefing groups in conjunction with individual PRP, whereas briefing groups used in conjunction with a reward system that is based on establishment or organisational performance has a clear negative impact on employee earnings.

Earnings are found to be lower in establishments that have introduced quality circles. However, where these are used alongside an appropriate incentive mechanism, employees share in the mutual gains associated with productivity and quality improvement. Interestingly, the important link is between quality circles and pay linked to individual, rather than group, performance. Employees do not benefit from working in quality circles where their pay is more loosely tied to broader measures of output. This may suggest that the use of quality circles only gives rise to organisational improvements in which workers can benefit where there is a very clear link between the compensation gains they face and the use of quality circles.

In short, there is only mixed support for both hypotheses three and four. The increase in earnings due to PRP does not seem to be significantly higher where there is employee participation in place, but it does seem that the increase in earnings is greater where there is congruence between PRP and the participation scheme.

The results summarised in Table 2 also highlight a complicated pattern of interactions between PRP and financial participation. Profit-related schemes are associated with higher employee earnings when introduced either in isolation or in conjunction with a pay scheme tied to establishment or organisational performance. Employees gain when the establishment/organisation is more profitable and this is especially marked where there is a clear link between earnings and organisational performance.

There is also evidence that employee share ownership schemes provide an incentive effect that leads to higher employee compensation. This is reinforced if workers are

paid according to an individual PRP scheme. However, employees do not share in any gains that arise from employee share ownership if their earnings are also linked to group performance incentive pay. The support for hypothesis 5 is therefore also mixed. The increase in earnings is greater where individual PRP is in place, but not where group PRP is in place.

## 6. CONCLUSIONS

The analysis has supported previous research which has suggested that there are strong interactions between compensation systems and employee involvement schemes in producing organisational outcomes. In contrast to much previous work in this area, the focus has been on the employee and his/her earnings and can thereby be regarded as extending this finding to another level. There is clearly a major difference between, on the one hand, individual PRP schemes and, on the other, those focused on establishment or organizational measures of performance. There also seems to be a difference between joint consultation schemes and those employee participation systems based on briefing groups and quality circles. The main implication is that great care must be taken in modelling the interactions between employee involvement and compensation systems so as to avoid possible mis-specification and thereby the drawing of invalid inferences about the links between them.

## REFERENCES

- Applebaum, E. and R. Batt, (1994) *The New American Workplace*, Cornell, ILR Press.
- Bhargava, S. (1994) 'Profit sharing and the financial performance of companies: Evidence from panel UK data', *Economic Journal*, Vol 104, pp 1044-1056
- Blanchflower, D. and A. Oswald (1988) 'Profit related pay: prose discovered?', *Economic Journal*, Vol 98, pp 720-730.
- Booth, A.L. and J.Frank (1997) 'Earnings, productivity and performance related pay.' *Journal of Labor Economics*, 17(3), pp. 447-464.
- Cable, J. and N. Wilson (1989) 'Profit sharing and productivity: some further evidence.', *Economic Journal*, Vol 100, pp 550-555.
- Cully, M. et al. (1998) *The 1998 Workplace Employee Relations Survey: First Findings*. HMSO.
- Drago, R. and R. Perlman (1989). 'Supervision and high wages as competing incentives: a basis for labour segmentation theory', in R. Drago and R. Perlman (eds), *Microeconomic Issues in Labour Economics: New Approaches*, Harvester, Wheatsheaf, New York.
- Eaton, A. and P. Voos (1992). 'Unions and Contemporary Innovations in Work Organization, Compensation and Employee Participation, in L. Mishel and P. Voos (Eds.), *Unions and Economic Competitiveness*. Armonk, NY: Sharpe.
- Estrin, S., Perotin, V. and Wilson, N. (1995). 'Profit-sharing Revisited: Miracle Cure or Mirage?' Labour Market and Social Policy Occasional Paper: Organisation for Economic Cooperation and Development.
- Ewing, B.T. (1996). "Wages and performance-based pay: Evidence from the NLSY," *Economics Letters*, 51, 241-6.
- Fitzroy, F.R. and K. Kraft, (1987) 'Co-operation, productivity and profit sharing', *Quarterly Journal of Economics*, Vol 102, pp 23-35.
- Holmstrom, B. (1982) 'Moral Hazard in Teams', *Bell Journal of Economics*, Vol 13, pp324-40.
- Lazear, E.P. (1989) 'Pay equality and industrial politics', *Journal of Political Economy*, Vol 97, pp 561-80.
- Lazear, E.P. (1997) 'Performance pay and productivity,' National Bureau of Economic Research, Working Paper Series No. 5672.
- Levine, D. and L. Tyson (1990) 'Participation, productivity and the firm's environment' in Blinder, A.(ed) *Paying for Productivity*, Washington D.C., Brookings Institute.

- MacDuffie, J.P (1995) 'Human resource bundles and manufacturing performance: organisational logic and flexible production systems in the world industry', *Industrial and Labor Relations Review*, Vol 48, pp 197-220.
- Machin, S. and M. Stewart (1990) 'Unions and the financial performance of British private sector establishments', *Journal of Applied Econometrics*, Vol 5, pp 327-350.
- McNabb, R. and K. Whitfield (1998) 'The impact of financial participation and employee involvement on financial performance,' *Scottish Journal of Political Economy*, Vol 45, pp171-188.
- Osterman, P. (2000) 'Work reorganization in an era of restructuring: Trends in diffusion and effects on employee welfare,' *Industrial and Labor Relations Review*, 53(2), pp. 179-96.

**Table 1 Impact of Performance Related Pay, Employee and Financial Participation on Individual Earnings**

	(1)	(2)	(3)
Constant	1.674 (74.93)	1.676 (75.86)	1.681 (74.57)
Gender	0.153 (20.63)	0.147 (20.33)	0.156 (20.71)
Age			
25-29	0.173 (13.84)	0.167 (13.86)	0.176 (13.85)
30-39	0.273 (21.86)	0.268 (22.28)	0.276 (21.76)
40-49	0.299 (21.58)	0.296 (22.17)	0.300 (21.30)
50-59	0.296 (20.00)	0.294 (20.68)	0.295 (19.66)
60 or over	0.23 (10.11)	0.230 (10.53)	0.229 (9.92)
Degree	0.304 (25.67)	0.298 (26.05)	0.307 (25.53)
A-level or equivalent	0.178 (15.05)	0.174 (15.33)	0.179 (14.90)
O-level or equivalent	0.116 (11.45)	0.114 (11.70)	0.117 (11.39)
CSE or equivalent	0.038 (3.22)	0.040 (3.52)	0.038 (3.16)
Vocational qualification	-0.026 (-4.00)	-0.024 (-3.73)	-0.027 (-4.09)
Ethnic Group			
Black	-0.086 (-2.95)	-0.093 (-3.30)	-0.083 (-2.81)
Asian	-0.094 (-3.59)	-0.098 (-3.88)	-0.088 (-3.28)
Other	-0.008 (-0.24)	-0.015 (-0.48)	-0.007 (-0.21)
Long standing health problem or disability	-0.037 (-2.76)	-0.036 (-2.81)	-0.039 (-2.83)
Marital status			
Single	-0.08 (-8.96)	-0.076 (-8.87)	-0.082 (-9.02)
Divorced	-0.043 (-3.57)	-0.039 (-3.36)	-0.045 (-3.66)
Widowed	-0.099 (-2.89)	-0.092 (-2.80)	-0.098 (-2.82)
Children			
Aged 0-4	0.038 (3.85)	0.039 (4.12)	0.037 (3.75)
Aged 5-11	0.006 (0.69)	0.007 (0.79)	0.006 (0.63)
Aged 12-18	0.001 (0.13)	0.002 (0.26)	0.001 (0.05)
Current Job Tenure			
Less than one year	-0.117 (-10.50)	-0.117 (-10.87)	-0.116 (-10.28)
1 year to less than 2 years	-0.119 (-10.07)	-0.117 (-10.27)	-0.119 (-9.93)
2 years to less than 5 years	-0.064 (-6.83)	-0.062 (-6.93)	-0.063 (-6.62)
5 year to less than 10 years	-0.039 (-4.40)	-0.037 (-4.33)	-0.041 (-4.51)
Occupation			
Technical	-0.139 (-12.26)	-0.141 (-12.87)	-0.137 (-11.85)
Clerical/secretarial	-0.278 (-25.93)	-0.284 (-27.36)	-0.274 (-25.22)
Craft/related	-0.334 (-27.55)	-0.332 (-28.26)	-0.334 (-27.24)
Protective/personal service	-0.325 (-18.43)	-0.333 (-18.95)	-0.325 (-18.31)
Sales	-0.355 (-22.74)	-0.353 (-23.24)	-0.356 (-22.49)
Plant/machine operatives	-0.504 (-42.00)	-0.497 (-42.46)	-0.506 (-41.65)
Routine unskilled	-0.543 (-35.63)	-0.537 (-36.39)	-0.541 (-34.96)
Union member	0.06 (7.27)	0.057 (7.10)	0.062 (7.44)
Temporary			
Temporary	-0.107 (-4.42)	-0.103 (-4.41)	-0.107 (-4.37)
Fixed term	-0.123 (-5.59)	-0.120 (-5.64)	-0.128 (-5.75)
51-200	0.028 (2.61)	0.028 (2.52)	0.022 (2.07)
201 – 10,000 employees	0.062 (7.51)	0.063 (7.40)	0.062 (7.56)
Establishment is more than 20 years old	-0.027 (-3.97)	-0.026 (-3.75)	-0.026 (-3.82)
Market grew in last year	0.019 (2.94)	0.019 (2.84)	0.017 (2.67)
Union presence	0.046 (5.30)	0.048 (5.49)	0.041 (4.81)
Percentage of workforce who are routine unskilled workers	-0.205 (-11.44)	-0.209 (-11.43)	-0.213 (-11.81)

Market share greater than 25%	0.019 (2.84)	0.022 (3.16)	0.016 (2.31)
Briefing groups	-0.002 (-0.29)	-0.002 (-0.27)	-0.001 (-0.17)
Joint consultation committees	0.02 (3.03)	0.021 (2.98)	0.018 (2.73)
Quality circles	-0.014 (-1.61)	-0.012 (-1.28)	-0.012 (-1.38)
Employee share ownership scheme	0.03 (3.62)	0.030 (3.48)	0.031 (3.78)
Profit related payments	0.016 (2.25)	0.019 (2.52)	0.022 (3.15)
Performance related payments (PRP)	0.073 (9.98)		
Individual PRP		0.041 (3.58)	
Workgroup PRP		0.047 (3.59)	
Establishment/organization PRP		0.011 (0.98)	
Individual PRP only			0.032 (2.25)
Workgroup PRP only			0.078 (2.76)
Establishment/organization PRP only			0.033 (2.18)
Individual and workgroup PRP only			0.119 (7.84)
Workgroup and establishment/ organization PRP only			0.071 (4.00)
Individual, workgroup and establishment/organization PRP only			0.118 (2.72)
<hr/>			
N	9970	9970	9970
Log likelihood function	--18210.845	-18003.464	-18288.816

**Table 2 Interaction Effects**

	(1)	(2)
Constant	1.677 (74.48)	1.676 (73.77)
Gender	0.153 (20.57)	0.154 (20.52)
Age		
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Qualifications		
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Marital status		
Single	-0.08 (-9.02)	-0.082 (-9.05)
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Children		
Aged 0-4	0.038 (3.87)	0.039 (3.91)
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Aged 12-18	0.001 (0.14)	0.001 (0.16)
Less than one year	-0.118 (-10.60)	-0.122 (-10.84)
Current Job Tenure		
1 year to less than 2 years	-0.12 (-10.18)	-0.125 (-10.47)
2 years to less than 5 years	-0.065 (-6.96)	-0.068 (-7.18)
5 year to less than 10 years	-0.04 (-4.46)	-0.042 (-4.64)
Occupation		
Technical	-0.14 (-12.31)	-0.137 (-11.91)
Clerical/secretarial	-0.279 (-26.05)	-0.277 (-25.47)
Craft/related	-0.334 (-27.58)	-0.335 (-27.31)
Protective/personal service	-0.325 (-18.38)	-0.322 (-18.22)
Sales	-0.356 (-22.80)	-0.356 (-22.56)
Plant/machine operatives	-0.504 (-41.92)	-0.504 (-41.56)
Routine unskilled	-0.541 (-35.51)	-0.546 (-35.34)
Union member	0.061 (7.38)	0.061 (7.32)
Job type		
Temporary	-0.107 (-4.42)	-0.109 (-4.47)
Fixed term	-0.125 (-5.66)	-0.124 (-5.57)
51-200	0.027 (2.48)	0.032 (2.97)
201 – 10,000 employees	0.061 (7.49)	0.068 (8.25)
Establishment is more than 20 years old	-0.028 (-4.05)	-0.025 (-3.76)
Market grew in last year	0.017 (2.56)	0.017 (2.62)
Union presence	0.046 (5.29)	0.044 (5.13)
Percentage of workforce Who are routine unskilled workers	-0.206 (-11.43)	-0.211 (-11.72)
Market share greater than 25%	0.02 (2.92)	0.023 (3.32)
Briefing groups	-0.004 (-0.52)	-0.005 (-0.66)
Joint consultation committees	0.029 (3.69)	0.030 (4.01)

Quality circles	-0.031 (-2.94)	-0.024 (-2.37)
Employee share ownership scheme	0.013 (1.29)	0.019 (1.94)
Profit related payments	0.025 (2.96)	0.021 (2.66)
Performance related pay (PRP) scheme	0.078 (5.23)	
PRP and briefing groups	0.01 (0.66)	
PRP and joint consultation committees	-0.021 (-1.46)	
PRP and quality circles	0.058 (2.99)	
PRP and employee share ownership schemes	0.047 (2.82)	
PRP and profit-related pay	-0.038 (-2.31)	
Individual PRP		0.017 (0.75)
Workgroup PRP		0.051 (1.98)
Establishment/organisation PRP		0.038 (1.70)
Individual PRP and briefing groups		0.038 (1.61)
Individual PRP and joint consultation committees		-0.024 (-1.06)
Individual PRP and quality circles		0.133 (4.25)
Individual PRP and employee share ownership schemes		0.087 (3.22)
Individual PRP and profit-related pay		-0.059 (-2.09)
Workgroup PRP and briefing groups		0.077 (2.82)
Workgroup PRP and joint consultation committees		0.011 (0.41)
Workgroup PRP and quality circles		-0.047 (-1.25)
Workgroup PRP and employee share ownership schemes		-0.088 (-2.80)
Workgroup PRP and profit-related pay		0.002 (0.07)
Establishment/organization PRP and briefing groups		-0.111 (-5.04)
Establishment/organization PRP and joint consultation		-0.022 (-1.03)
Establishment/organization PRP and quality circles		-0.078 (-2.88)
Establishment/organization PRP and employee share ownership		0.025 (1.08)
Establishment/organization PRP and profit-related pay		0.046 (1.85)
<hr/>		
N	9970	9970
Log likelihood function	-18201.794	-18248.118
<hr/>		

## Appendix Table of Means

	Mean
Hourly rate lower	1.79
Hourly rate upper	2.19
Gender	0.64
Age	
25-29	0.16
30-39	0.29
40-49	0.24
50-59	0.17
60 or over	0.03
Qualifications	
Degree	0.23
A-level or equivalent	0.16
O-level or equivalent	0.27
CSE or equivalent	0.12
Vocational qualification	0.41
Ethnic Group	
Black	0.01
Asian	0.01
Other	0.01
Long standing health problem or disability	0.06
Marital status	
Single	0.24
Divorced	0.07
Widowed	0.01
Children	
Aged 0-4	0.14
Aged 5-11	0.17
Aged 12-18	0.18
Current Job Tenure	
Less than one year	0.15
1 year to less than 2 years	0.11
2 years to less than 5 years	0.22
5 year to less than 10 years	0.22
Occupation	
Technical	0.11
Clerical/secretarial	0.19
Craft/related	0.12
Protective/personal service	0.04
Sales	0.05
Plant/machine operatives	0.15
Routine unskilled	0.07
Union member	0.39
Job type	
Temporary	0.02
Fixed term	0.02
51-200	0.27
201 – 10,000 employees	0.47
Establishment is more than 20 years old	0.48
Market grew in last year	0.44
Union presence	0.55
Percentage of workforce	
Who are routine unskilled workers	0.1
Market share greater than 25%	0.34
Briefing groups	0.37

Joint consultation committees	0.46
Quality circles	0.16
Employee share ownership scheme	0.28
Profit related payments	0.51
Performance related pay (PRP) scheme	0.27
Individual PRP only	0.05
Workgroup PRP only	0.01
Establishment/organization PRP only	0.04
Individual and workgroup PRP only	0.05
Workgroup and establishment/ organization PRP only	0.03
Individual, workgroup and establishment/organization PRP only	0.01
PRP and briefing groups	0.1
PRP and joint consultation committees	0.13
PRP and quality circles	0.05
PRP and employee share ownership schemes	0.1
PRP and profit-related pay	0.18
Individual PRP	0.2
Workgroup PRP	0.14
Establishment/organisation PRP	0.16
Individual PRP and briefing groups	0.08
Individual PRP and joint consultation committees	0.09
Individual PRP and quality circles	0.04
Individual PRP and employee share ownership schemes	0.08
Individual PRP and profit-related pay	0.14
Workgroup PRP and briefing groups	0.05
Workgroup PRP and joint consultation committees	0.07
Workgroup PRP and quality circles	0.02
Workgroup PRP and employee share ownership schemes	0.05
Workgroup PRP and profit-related pay	0.09
Establishment/organization PRP and briefing groups	0.06
Establishment/organization PRP and joint consultation	0.07
Establishment/organization PRP and quality circles	0.03
Establishment/organization PRP and employee share ownership	0.05
Establishment/organization PRP and profit-related pay	0.11

## Appendix : Definitions Of Variables

<u>Variable</u>	<u>Description</u>
Gender	'1' if the individual is male, '0' if the individual is female

### **Current Job Tenure**

Less than one year.	'1' if the employee had been employed in their current job for less than one year, '0' otherwise.
1 year to less than 2 years	'1' if the employee had been employed in their current job for more than one year but less than 2 years, '0' otherwise.
2 years to less than 5 years.	'1' if the employee had been employed in their current job for more than two years but less than five years, '0' otherwise.
5 years to less than 10 years.	'1' if the employee had been employed in their current job for more than five years but less than ten years, '0' otherwise.
If all the variables above take the value '0' the employee has been employed for more than ten years.	

### **Type Of Job**

Temporary	'1' if the employee's job was temporary, '0' otherwise
Fixed-Term	'1' if the employee was employed for a fixed-term, '0' otherwise
If both these variables above take the value '0' the individual was employed on a permanent basis.	

### **Age**

20-24	'1' if the employee was aged between 20 and 24, '0' otherwise.
25-29	'1' if the employee was aged between 25 and 29, '0' otherwise.
30-39	'1' if the employee was aged between 30 and 39, '0' otherwise.
40-49	'1' if the employee was aged between 40 and 49, '0' otherwise.
50-59	'1' if the employee was aged between 50 and 59, '0' otherwise.
60 or over	'1' if the employee was aged over 60, '0' otherwise.
If all the age variable take the value '0' then the employee was below the age of 20.	

### **Marital Status.**

Single.	'1' if the employee was single, '0' otherwise.
Divorced.	'1' if the employee was divorced, '0' otherwise.
Widowed.	'1' if the employee was widowed, '0' otherwise.
If all the marital status variable take the value '0' then the employee was living with spouse or partner.	

### **Children**

Aged 0-4.	'1' if the employee had dependent children aged between 0 and 4, '0' otherwise.
Aged 5-11.	'1' if the employee had dependent children aged between 5 and 11, '0' otherwise.
Aged 12-18	'1' if the employee had dependent children aged between 12 and 18, '0' otherwise.

## **Qualifications**

Degree	'1' if the highest educational level attained by the employee was a degree or equivalent, '0' otherwise.
A-level or equivalent	'1' if the highest educational level attained by the employee was 'A' level or equivalent, '0' otherwise.
O-Level or equivalent	'1' if the highest educational level attained by the employee was 'O' level or equivalent/GCSE (grades A-C), '0' otherwise.
CSE or equivalent	'1' if the highest educational level attained by the employee was CSE level or equivalent/GCSE (grades D-G), '0' otherwise.
If all the qualification variables take the value '0', the employee has not attained any educational level.	

**Vocational Qualification** '1' if the employee has attained a vocational qualification, '0' otherwise.

**Long-standing health problem or disability** '1' if the employee has a long standing health problem or disability, '0' otherwise.

**Union Member** '1' if the employee was member of a trade union, '0' otherwise.

## **Ethnic Group**

Black	'1' if the employee considers that they belong to the black ethnic groups, '0' otherwise.
Asian	'1' if the employee considers that they belong to the Asian ethnic group, '0' otherwise.

**Log of Employment size** The logarithm of the total number of employees on the payroll of the establishment.

<b>Organisation employs</b>	The number of people employed by the establishment.
Less than 50 employees otherwise.	'1' if the establishment employs less than fifty people, '0' otherwise.
51-200.	'1' if the establishment employs between fifty-one and two hundred people, '0' otherwise.
201-500.	'1' if the establishment employs between two hundred and one and five hundred people, '0' otherwise.
10001 or more.	'1' if the establishment employs more than ten thousand people, '0' otherwise.

<b>Percentage of workforce:</b>	The percentage of the people on the payroll described as being in each of the respective occupational groups. Managers and administrators. Professional. Technical. Clerical and secretarial. Craft and skilled services. Protective and personal services. Sales. Operative and assembly. Routine Unskilled.
<b>Union presence at establishment</b>	The number of unions at the establishment.
<b>Recognized union</b>	The number of recognized unions at the establishment
<b>Foreign.</b>	'1' if the establishment was predominantly or completely foreign owned' 51% or more, '0' otherwise.
<b>No/Few competitors.</b>	'1' if the establishment had few or no competitors in the market for its main product or service, '0' otherwise.
<b>High degree of competition</b>	'1' if the establishment assesses the degree of competition in the product market market for its main product or service, '0' otherwise.
<b>National/International Product Market</b>	'1' if the market for the establishment's main product was national market or international, '0' otherwise.
<b>Share of UK product market</b>	'1' if the establishment's share of the UK market for its main product is greater than 26%, '0' otherwise.
<b>Market growing.</b>	'1' if the market for the main product or service of the establishment is growing, '0' otherwise.
<b>Sales grew</b>	'1' if the value of sales for the main product or service of the establishment grew in the last year, '0' otherwise.
<b>Establishment is more than 20 years old</b>	'1' if the establishment is more than 20 years old, '0' otherwise.
<b>Quality Circles</b>	'1' if the establishment has groups that solve specific problems or discuss aspects of performance or quality and more than 60% of non-managerial employees are involved, '0' otherwise.

<b>Briefing Groups</b>	‘1’ if the establishment has a system of briefings for any section or sections of the workforce and more than 25% of the time at meetings is given over to questions from employees, or for employees to offer their views.
<b>Consultation Committees</b>	‘1’ if the establishment has any committees of managers and employees primarily concerned with consultation rather than negotiation, ‘0’ otherwise.
<b>Employee Share Ownership Schemes</b>	‘1’ if the establishment has an employee share ownership scheme, ‘0’ otherwise.
<b>Profit Related Payments</b>	‘1’ if the establishment has a profit-related payment scheme, ‘0’ otherwise.
<b>Performance Related Pay</b>	‘1’ if the establishment has a performance-related payment, ‘0’ otherwise.
<b>Individual PRP</b>	‘1’ if the establishment has individual performance measures only, ‘0’ otherwise.
<b>Workgroup PRP</b>	‘1’ if the establishment has workgroup performance measures, ‘0’ otherwise.
<b>Establishment/ Organisation PRP</b>	‘1’ if the establishment has organization and/or establishment performance measures, ‘0’ otherwise.
<b>Individual and workgroup PRP</b>	‘1’ if the establishment has individual and workplace performance measures but not establishment/organization; ‘0’ otherwise.
<b>Individual and establishment/ organization PRP</b>	‘1’ if the establishment has individual and establishment/organization performance measures but not workgroup, ‘0’ otherwise.
<b>Workgroup and establishment/ organization PRP</b>	‘1’ if the establishment has workgroup and establishment/organization performance measures but not individual, ‘0’ otherwise.
<b>Individual, workgroup and establishment/ organization PRP</b>	‘1’ if the establishment has individual, workgroup and establishment/organization performance measures, ‘0’ otherwise.

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