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## ABSTRACT

### Ownership and Pay in Britain\*

Drawing on principal-agent perspectives on corporate governance, this paper examines whether employees' hourly pay is linked to ownership dispersion. Using linked workplace-worker data from the British Workplace Employment Relations Survey (WERS) 2011, we find average hourly pay is higher in dispersed ownership workplaces. The raw gap of 30 log points falls to 8 log points when we control for differences in worker and workplace characteristics. The premium is constant across most of the wage distribution, but falls a little at the 90th percentile to become statistically non-significant. This contrasts with earlier papers which indicate that higher level employees are the primary beneficiaries of higher pay from dispersed ownership.

JEL Classification: G3, G32, G31

Keywords: ownership structure, corporate governance, principal agent, pay

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## 1. Introduction

A recent strand of the Corporate Governance (CG) literature highlights the potential for ownership and governance to influence a wide range of employment characteristics, such as job tenure, skill formation, and pay structures (Black *et al.* 2007; Gospel and Pendleton, 2005; Konzelmann *et al.* 2008; Kim and Kim 2014; Liu *et al.* 2014). This paper considers whether employee pay differs between workplaces where ownership is dispersed and those where it is more concentrated. The starting point is that managers have greater discretion (*vis-à-vis* owners) in wage-setting when ownership is widely-held, because dispersed owners have higher costs and weaker incentives to monitor managers. For various reasons managers may exploit this discretion to pay themselves and their workforces more than in those workplaces with concentrated ownership. They might also be tempted to pay a higher premium to themselves than their subordinates.

Data from the Workplace Employment Relations Survey (WERS), conducted in Great Britain in 2011, are used to examine this issue. Establishment and employee surveys are linked to match workplaces to employee characteristics and hourly wages. The main result is clear and consistent: dispersed ownership is associated with higher hourly pay, even after the inclusion of an extensive range of demographic, job, and workplace controls. Log hourly average pay differs by about 30 log points, reducing to around 6-7 points once these controls are included. Workers in dispersed ownership workplaces are better qualified and have longer job tenure, whilst the composition of these workplaces favours occupations which are typically higher-paying. Thus, dispersed ownership workplaces tend to be larger and are more productive. But even after taking these factors into account, there is an ‘unexplained’ pay gap. This ownership premium is similar in size to that found in one of the few similar studies in this area (Cronqvist *et al.* 2009).

A striking and original feature of our results is that a pay differential is found across the wage distribution. The ‘raw’ gap in average hourly pay rises across most of the distribution but falls somewhat at the top end. Once worker and workplace characteristics are factored in, the ownership premium settles at around 7 log points across most of the pay distribution except at the 95<sup>th</sup> percentile where the premium is smaller and non-significant. This finding contrasts with the rest of the literature (to be cited below), where top managers are found to be the primary beneficiaries of dispersed ownership.

These results contribute to a growing literature in Labour Economics, Industrial Relations (IR), and Human Resource Management (HRM) which relates variations in employee remuneration to ownership and governance differences (Bertrand and Mullainathan 2003; Cronqvist *et al.* 2009; Gorton and Schmidt 1999; Kim and Kim 2014; Konzelmann *et al.* 2008; Kreuger 1991; Liu *et al.* 2014; Werner *et al.* 2005). The results are also consistent with a longer tradition highlighting the role of the firm in explaining pay differences amongst otherwise similar employees (reviewed below), though our focus on ownership dispersion is a novel one. This study is also notable for using employee rather than enterprise-level pay data: this gives us two specific advantages over nearly all other studies of ownership and pay. First, we are able to quantify the role of worker and workplace characteristics to a much greater extent. Second, we can examine pay differences across the pay distribution and thus evaluate the extent to which any pay premium extends beyond managers.

A limitation of the study, in common with others in the area, is that we cannot be sure why managers in dispersed ownership workplaces pay higher wages, given the absence of data on managerial objectives. The findings that dispersed ownership workplaces employ better qualified employees, for longer, and in better paying occupations are consistent with the efficiency wages

perspectives found in some of the literature (Harrell-Cook and Ferris 1997; Gorton and Schmidt 1999; Liu *et al.* 2014). We account for worker quality in our regression analysis, but there may be components of worker quality we do not observe. Alternatively, the unexplained component in the pay gap might be attributed to a desire for a ‘quiet life’ on the part of managers, given weak monitoring by principals where ownership is dispersed. This has certainly been the dominant perspective in the literature to date (e.g. Aghion *et al.* 2013; Cronqvist *et al.* 2009). Overall, we incline towards an efficiency wage explanation, but add that this may not be the only factor at work.

The paper begins by discussing perspectives on the impact of ownership dispersion on employees’ pay. A review of the limited empirical literature indicates that managerial discretion, emanating from ownership structure, tends to be associated with higher pay, especially for top managers. The paper then provides information on the WERS survey data and our analytical approach. Results are presented for a series of models where ownership dispersion is the key independent variable, followed by a set of quantile models. Our key finding is that the dispersed ownership premium persists after controlling for an extensive set of variables and that this premium is fairly constant across most of the pay distribution. The conclusion considers the implications of these findings, discusses potential limitations, and recommends topics for further research.

## **2. Background**

There is increasing interest in the relationship between company ownership, governance, and employment outcomes in both the IR and HRM literatures (Black *et al.* 2007; Gospel *et al.* 2014; Gospel and Pendleton 2005; Jackson 2005; Jacoby 2005; Kim and Kim 2014; Liu *et al.* 2014). Much of the evidence has centred on the relationship between ownership or governance and job tenure and skill formation, typically adopting a comparative perspective (Hall and Gingerich 2004;

Black *et al.* 2007). The relationship between ownership and workers' pay has attracted less attention, though there is a rich stream of research on ownership, governance, and executive compensation, especially stock options, in the CG literature (Murphy 1999; Tosi *et al.* 1999; Bebchuk and Fried 2004).

Standard economic theory suggests that corporate ownership and control should have no influence on pay. In competitive theory, workers' pay is a function of labour supply and demand and will therefore be determined exogenously. According to the 'law of one price', workers are paid according to their marginal product, homogeneous workers are paid the same wage, and firms cannot pay more than the market rate. However, over many years, research has shown how managerial policies can influence pay levels and that some firms pay higher wages than others for the same class of labour (Abowd *et al.* 1999; Barth 1994; Groshen 1991; Krueger and Summers 1988; Lazear 1999; Lester 1952). For example, efficiency wage theories suggest that some firms pay wages above market-clearing levels to boost productivity by providing incentives and raising shirking costs (Akerlof 1982; Krueger 1991; Lazear 1999). There is also evidence that wage levels are related to employers' ability to pay and that rent-sharing may explain variation in wages between firms for otherwise similar work (Blanchflower *et al.* 1996).

However, one possible influence on managerial readiness to pay higher wages could be ownership structure (Krueger 1991). A key difference may be posited between 'strong' and 'weak' owners, as proxied by ownership dispersion, with the former able to monitor managers more closely than the latter. All things being equal, concentrated owners will have (a) the incentive and (b) the ability to control managerial policies. By contrast, dispersed owners have weak incentives and limited resources to monitor managerial behaviour, leaving managers with more discretion (Shleifer and Vishny 1997). The costs incurred by any dispersed owner seeking to monitor and discipline

managers may well exceed their fraction of any gains. Since wage costs are often a substantial proportion of firm costs, strong owners have a clear interest in expending effort to control wages and to ensure that owner interests are protected in the distribution of returns (Harrell-Cook and Ferris 1997).

In a principal-agent setting, shareholders may be concerned about self-serving managers who, given the opportunity, will pursue private benefits such as high pay for themselves (Bebchuk and Fried 2004; Tosi *et al.* 1999). But why should managers pay high wages to other workers? There are several possibilities. One, unrestrained managers may pursue ‘empire-building’ policies (Baumol 1959; Marris 1964; Williamson 1964) which may benefit workers’ pay given that organizational size typically correlates with employees’ wages (Brown and Medoff 1989). Two, high pay for workers may legitimize high managerial salaries (Wade *et al.* 1997). Three, ‘lazy’ managers (Aghion *et al.* 2013) may pay other workers high wages to secure a ‘quiet life’ (Hicks 1969: 57-9). Well-paid workers are likely to be more cooperative and less likely to quit, thereby minimizing transaction costs (Bertrand and Mullainathan 2003; Cronqvist *et al.* 2009). Four, highly-paid workers may form alliances with managers, acting as ‘white squires’ in support of incumbent managers in the event of unwelcome takeovers (Pagano and Volpin 2005). High pay and benefits can also function as ‘shark repellents’ by making it costly for potential acquirers to buy-out high wage contracts. Whilst these explanations highlight rent-sharing, a further possibility is that ownership dispersion allows managers greater discretion to pay efficiency wages.

Over the years, a small number of studies have generated relevant evidence finding that managers are the primary, but not the only, pay beneficiaries of dispersed ownership. Krueger (1991) compared pay levels between franchisee (i.e. concentrated ownership) and company-owned fast-food outlets. As predicted, the former paid lower wages due to stronger owner involvement in

wage-setting and more powerful incentives. More recently, Cronqvist *et al.* (2009), using matched Swedish employer-employee data, find that CEOs who own more voting rights than all other blockholders combined pay their workers higher wages. The pay premium ranges from about 5 to 8 per cent depending on the model specification.<sup>1</sup> The authors find that employees who are close to the CEO in the organisational hierarchy benefit more than other workers. They attribute the premium to a managerial desire for a quiet life, finding that the premium is larger in industries organised by what they term ‘aggressive’ trade unions. They argue that the premium is higher in these circumstances because this is when it is most costly for the CEO to exert effort to secure a lower wage bill. However, cash flow rights from executive stock ownership provide a counter-incentive and attenuate the positive effects on workers’ pay.

Werner *et al.* (2005), using Compustat data, compare changes in average pay in owner-controlled, owner-managed, and management-controlled (i.e. dispersed ownership) firms, where managerial control is defined as the absence of any external blockholders with 5 per cent or more of outstanding stock.<sup>2</sup> Managerial control is associated with a de-coupling of pay increases from firm performance and a closer linkage between pay increases and firm growth, findings which the authors argue are consistent with empire building.<sup>3</sup> Although their study differentiates between changes in executive pay and average worker pay, it is not clear that managers benefit from higher pay increases more than workers as a whole in managerially-controlled firms, though they do in the sample as a whole. In an earlier study using different data, Werner and Tosi (1995) found that managers in management-controlled firms had higher base and total salaries than those in owner-controlled or owner-managed firms and that differences were most pronounced for higher-level managers. These data also showed that non-managerial employees were not beneficiaries of higher salaries in management-controlled firms (Tosi *et al.*, 1999).

In an alternative approach using a measure of management discretion not directly linked to ownership, Bertrand and Mullainathan (1999, 2003) show that protection from takeovers is associated with higher levels of employee pay. They argue that protection from takeovers provides managers with greater discretion, which they use to raise wages. They investigate this by comparing wages in US states with strong and weak anti-takeover legislation. After the passage of legislation raising the barriers to takeovers (thereby entrenching managers), production workers' wages rise by about 1 per cent and white collar wages by about 4 per cent compared with companies in states without this legislation. They argue that managers use their greater discretion arising from this legislation to pursue a quiet life rather than empire-building because there is no evidence that managers exploit their discretion to open new plants.

Drawing from a different body of literature on 'strategic' HRM perspectives, with an emphasis on resources and stewardship, Liu *et al.* (2013) explore the impact of various dimensions of ownership, including concentration, on a range of HRM policies. They use a measure of 'typical' pay in the workplace rather than employee-level data, incorporating salary (gross annual earnings including bonuses) and benefits into a scale to measure investment in 'long-term commitment'. Greater shareholder concentration is found to be negatively associated with commitment. Similarly Gorton and Schmidt (1999) examine ownership dispersion in Austrian banks, finding that ownership dispersion is associated with higher average pay. They attribute this to efficiency wages strategies.

There are several limitations in the research to date. With the exception of Cronqvist *et al.* (2009), most studies use a company or workplace-based measure of average pay rather than employee-level data. This has two important limitations. First, worker characteristics cannot be fully controlled for, making it difficult to determine whether workers receive higher pay because of an ownership premium, because they are better qualified, or because they are concentrated in better-

paying occupations. Second, the distribution of higher pay cannot be ascertained – making it impossible to determine whether any pay premium is distributed equally or concentrated in parts of the pay distribution. Even where individual-level data is used, there are limitations. Whilst Cronqvist *et al.* (2009) are able to incorporate data on education and tenure into their analysis (finding that together they reduce the CEO discretion effect by 1-2 percentage points), they do not utilise data on occupations to explore compositional effects.<sup>4</sup>

Ideally, examination of ownership effects on pay will make use of rich employee-level and workplace or company-level data to enable evaluation of compositional factors and distributional issues. We are fortunate that the WERS survey has a rich range of information on worker characteristics in the employee questionnaire, including pay, whilst the workplace questionnaire has extensive information on workplace and organisational characteristics. This enables us to evaluate the role of worker and workplace characteristics in the relationship between ownership dispersion and pay differences.

In the remainder of the paper, we report the findings of our analysis of the relationship between ownership concentration / dispersion and employee wages. To guide the empirical component, we pose three main questions.

1. Is there a difference in hourly pay between employees in concentrated and dispersed ownership workplaces and, if so, how large is the premium?
2. How far do pay differences between these two sets of workplaces persist once worker characteristics, workforce composition, and workplace characteristics are taken into account?
3. Are managers the main beneficiaries of any pay premium and what is the distribution of any pay premium across the pay spectrum?

### 3. Data and Methods

We use data from the WERS 2011, a nationally representative survey of British workplaces with 5 or more employees in both private and public sectors and all areas of industry (except agriculture and primary industries) (van Wanrooy *et al.*, 2013). This population accounts for one-third of British workplaces and around 90 per cent of employees in 2011. The response rate for the workplace survey (the Management Questionnaire) was 46 per cent, with data obtained from 2,680 workplaces. The survey has detailed information on workplace employment institutions and practices, along with some information on corporate-level characteristics such as organisational size, stock market listing, and ownership structure. This questionnaire is supplemented by a questionnaire administered randomly to up to 25 employees in each participating workplace (the Employee Questionnaire), with a total number of 21,981 respondents. The latter contains information on weekly pay, hours of work, occupation, and personal information on gender, age, education, and tenure.

The two surveys are linked to examine how corporate and workplace-level phenomena affect individual worker pay. Ownership dispersion is not a relevant consideration in the public sector so we drop these workplaces. The final useable sample of workplaces and employee respondents is then achieved in several steps. The number of employees in the non-public sector component of the Employee Survey is 13,657, reduced to 12,612 after 1,045 cases with missing values are removed. From the private sector sample we retain those workplaces which are either private or public limited companies or limited by guarantee: 3,037 employees in workplaces belonging to partnerships, charities, and cooperatives are removed. With the removal of employees belonging to those workplaces with missing values, the final useable sample is 8,727 employees and 915 workplaces.

The data are weighted to correct for sample selection and non-response biases using weights supplied with the WERS data.

### *Dependent variables*

The dependent variable is a measure of gross hourly employee pay derived from the Employee Survey. Employees are asked ‘How much do you get paid for your job here before tax and other deductions? If your pay before tax changes from week to week because of overtime, or because you work different hours each week, think about what you earn on average’. Respondents tick one of 14 boxes containing banded annual pay and its weekly equivalent. We divide the mid-point of each category by the usual hours of work to generate hourly pay. In accordance with usual practice, the figure is then converted into log form.

There are two possible limitations of this approach - the use of mid-points is somewhat arbitrary and the top category has no upper bound (Bryson *et al.* 2014). The first limitation may not be a major problem. Recent work by Bryson *et al.* (2014) finds that the correlation between the WERS salary mid-points and means derived from actual wage records in the Annual Survey of Hours and Earnings (ASHE) is very high (0.99). Nevertheless, following Stewart (1983), we also take account of both lower and upper bounds in an interval regression variant of our core model. To deal with the second problem, we create a ‘mid-point’ that is 1.5 times the lower bound of the top category.<sup>5</sup>

### *Independent variable*

The independent variable of primary interest is ownership dispersion. In the Management Questionnaire, respondents are asked whether a single individual, family, or investment institution

owns at least 25 per cent of the company to which the workplace belongs. If the answer to this is no, the variable is coded as 1 = dispersed; if yes, 0 = concentrated ownership. Table 1 provides details on the proportion of employees in each category and average pay for each of them. In sum, 44 per cent of employees are employed in workplaces with dispersed ownership, with the remainder in concentrated ownership workplaces. The raw differential is 0.3 log points.

- Table 1 about here -

Our choice of ownership measure is driven by the design of the questionnaire. Nevertheless, the 25 per cent division has a sound basis in several features of corporate law and observed patterns of ownership. Although the disclosure threshold for ownership of stock market-listed firms is 3 per cent in the UK, and is therefore sometimes taken to signify block-holding, 25 per cent is an important control threshold in corporate law (bearing in mind also that our interest is not relatively large shareholdings as such but the capacity to exercise effective control). Certain control rights come into play at 25 per cent, such as the power to block special resolutions and changes to the constitution of a company. Other legislation (e.g. that relating to executive and employee share ownership schemes) defines 25 per cent ownership as a ‘material interest’ which gives *de facto* powers of control. Arguably, effective control might be secured at lower levels of ownership, as argued in Cubbin and Leach (1983), but in practice 25 per cent appears to be an approximation to the point at which effective control is often realised. Faccio and Lang’s survey of ownership patterns in European companies identifies 20 per cent as giving effective control (2002: 369). However, for the UK they note that the average ownership of the largest ultimate controlling shareholder is 25.1 per cent. In our sample most stock market listed firms are to be found in the

dispersed ownership category (Faccio and Lang find that 61 per cent of listed firms have no individual block-holders with above 20 per cent ownership), though there is a sizeable minority with a 25 per cent plus holding (as also found in La Porta *et al.* 1999). To take account of these compositional factors we control for stock market listing in our regressions.

### *Control variables*

Controls are included for demographic, job, and workplace characteristics. The demographic controls include dummies for gender, age, ethnicity, marital status, dependent children, disability, levels of educational attainment, and trade union membership. Whether individual employees receive individual performance-pay, group performance pay, and/or profit sharing is also recorded. Alongside these, dummies are included for occupation (based on the 2000 Standard Occupational Classification), various lengths of tenure, and the permanence of the employment contract. Workplace controls include a set of dummies for organizational size, a continuous measure for workplace employee numbers, dummies for industry sector (based on the 2007 Standard Industrial Classification), and dummies for geographic region. Controls are also included for stock market listing and foreign ownership. Finally, the regressions incorporate a dummy for whether workplace productivity is better than that in similar workplaces. Alternate regressions include a dummy for workplace relative financial performance and a categorical measure of the number of competitors.

- Table 2 about here -

### *Analytical strategy*

Workplace and individual data are linked, with analysis conducted using the complex surveys procedures in Stata, using weights supplied with the WERS data. We conduct a series of regression analyses using Ordinary Least Squares (OLS) with hourly pay as the dependent variable. Robust standard errors adjusted for clustering at workplace level are used to control for cross-correlation between workers in the same workplace. First, we generate a raw correlation coefficient for the relationship between ownership dispersion and pay without any other variables in the model (Table 3, Model 1). Then we present a Mincerian-type wage equation conditioning on a set of human capital characteristics, such as education, age, and experience (Model 2). Next, a range of workplace and company characteristics are added (Model 3). Separate models are subsequently run for men and women (Models 4 and 5). Finally, since the dependent variable is derived from a series of bounded categories, Model 6 utilises an interval regression model based on Stewart (1983) as a check on the OLS results. Finally, the regressions are re-run in a quantile specification to examine the dispersed ownership wage premium across the pay distribution.

## **4. Results**

### *Ownership and average hourly pay*

In Table 3, the regressions report the results where hourly pay is regressed against our independent variable, with the addition consecutively of demographic, job, and workplace characteristics. It can be seen that there are strong positive relationships between ownership dispersal and employee remuneration, even after the insertion of a range of controls.

- Table 3 about here -

In Model 1 only the measure for dispersed ownership is included. The coefficient is positive, sizeable (0.30) and statistically significant (at  $p < 0.01$  per cent). Table 1 has already shown that the log mean of hourly pay in dispersed ownership workplaces is 2.54 compared with 2.24 in concentrated ownership workplaces. The difference in log means equates to a 35 percent difference in average hourly pay.

Model 2 adds demographic and job characteristics. The dispersed ownership coefficient drops but remains sizeable and significant, indicating that dispersed ownership still increases hourly wages 12 log points once controls are added. Worker and job characteristics account for about 60 per cent of the overall difference in average hourly pay between the two sets of workplaces. Model fit (adjusted  $R^2$ ) improves considerably from 0.06, when the dispersed ownership dummy is entered alone, to 0.46. The other variables behave as expected. Age has a strong negative effect for younger workers compared with the reference category (30-39 years). The coefficients for tenure indicate that it has a broadly linear effect on hourly pay. The various dummies for qualifications also have significant positive effects. For occupational type (managers is the reference category), all but one of the coefficients on the occupational dummies are negative and significant. Receipt of various forms of performance pay boosts hourly earnings, as found in Bryson *et al.* (2014).

Model 3 adds workplace and organisational controls, including industry and location dummies. Although the size of the dispersed coefficient reduces, it nevertheless continues to exert a positive and significant effect on hourly wages (just under 8 per cent at  $p < 0.01$ ). Model fit continues to improve with the adjusted  $R^2$  rising to 0.50. Most of these variables have the expected signs. Establishment size is associated with higher pay, as is typically found in the literature (Brown and Medoff 1989). However, company size has no significant independent effect on wages.<sup>6</sup>

Foreign ownership has a significant positive effect, consistent with prior literature (Conyon *et al.* 2002). The dummy for relative workplace productivity has a positive relationship with hourly pay, possibly indicating the use of efficiency wages.

Models 4 and 5 restrict the sample to men and women respectively, whilst controlling for all of the demographic, job, and workplace characteristics in Model 3. There is relatively little difference between the sexes, with the dispersed coefficient being nearly 7 per cent in the case of men and 7.5 per cent in the case of women. Whilst women on average are paid less than men, as shown by the significant negative coefficients in Models 2 and 3, it seems that dispersed ownership has similar effects on the hourly pay of both sexes. Finally, Model 6 replaces the OLS models with an interval regression model using the upper and lower bounds of the pay categories. The dispersed ownership coefficient is almost identical to its OLS equivalent in Model 3.

To summarise, there is a sizeable difference in average hourly pay between dispersed and concentrated workplaces. Much of this is explained by differences in workforce composition, worker quality (qualifications, tenure), receipt of performance pay, and workplace characteristics (such as establishment size, productivity). Nevertheless, there is an unexplained element (just under one-quarter) of the pay difference between dispersed and concentrated workplaces, and we view this as a dispersed ownership premium. Payment of this premium may explain variations in worker quality: higher pay attracts better quality workers who then stay in the job longer. Equally, it is possible that weaker control by owners makes for a more 'relaxed' workplace which in turn makes the workplace attractive to better quality workers and encourages longer tenure.

Prevailing explanations in the literature for this premium emphasise management exploitation of weak owner control to pursue their own interests. Cronqvist *et al.* (2009) use an association between the presence of unions judged to be strong and aggressive and the dispersed

ownership premium to argue that managers use their discretion to lead a quiet life by ‘buying off’ these unions with higher pay. In our results, the coefficient for union membership is uniformly insignificant. We pursue this further by re-running Model 3 with a further dummy for union recognition for pay determination (not shown, but available on request). This, however, has an almost nil effect on the pay premium. Further exploration using an interaction of union recognition and dispersed ownership also generates a tiny and insignificant coefficient.

*Who benefits from dispersed ownership?*

We turn next to the important issue of whether the pay premium is found across the pay distribution. Who are the beneficiaries of higher pay in dispersed ownership workplaces? Is it those at the top or are the benefits spread to other groups of employees, given that previous research has shown that higher level employees, especially those at the apex of company hierarchies, benefit more from managerial discretion than other employees (Cronqvist *et al.* 2009; Tosi *et al.* 1999).

To examine this, Table 4 presents results for a quantile regression, using the same model specification as in column 3 of Table 3, with results reported for the 25<sup>th</sup>, 50<sup>th</sup>, and 75<sup>th</sup> quantiles, supplemented with those for the 5<sup>th</sup> and 95<sup>th</sup> percentile.

- Table 4 about here -

The results are striking. When we enter only the dispersed ownership dummy with no controls, it shows an increasing effect across most of the pay distribution but the effect halves between the 75<sup>th</sup> and 95<sup>th</sup> percentiles. However, once we condition on the full range of controls the coefficients on dispersed ownership are roughly constant across most of the pay distribution,

ranging from 0.076 log points at the 5<sup>th</sup> percentile to 0.071 at the 75<sup>th</sup>. The coefficient is significant at  $p < 0.001$  in each case. At the 95<sup>th</sup> percentile, however, the coefficient is smaller (0.053) and is not significant. It is interesting to note that the model fit at the 95th percentile drops, and some other variables that are significant lower down the distribution are also non-significant at the 95th percentile, including worker qualifications, job tenure, and establishment size. It is therefore clear that it is harder to identify influences on pay at the highest point in the wage distribution for reasons that we do not observe in the data. Nevertheless, those at the top, whether in dispersed or concentrated workplaces, benefit from substantially higher hourly pay: there are disproportionate increases in the constant between the 75<sup>th</sup> and 95<sup>th</sup> percentile compared with others.

Thus, contrary to the previous literature, the returns to dispersed ownership accrue to most workers, with those at the top including managers apparently benefiting least. Our results contrast therefore with those for other studies which find that managers exploit discretion to benefit themselves more than other employees (Cronqvist *et al.* 2009; Tosi *et al.* 1999).

## 5. Discussion and Conclusions

This paper has compared pay in concentrated and dispersed ownership workplaces. As in Cronqvist *et al.* (2009), it finds that ownership dispersion is associated with higher levels of pay. Even after controlling for demographic, job, and workplace characteristics, ownership dispersion correlates with higher hourly pay. After controls, the ownership dispersion premium is around 7 log points, similar to other recent work (Cronqvist *et al.* 2009). Around three-quarters of the 30 log point raw pay difference between employees in dispersed and concentrated ownership workplaces is to be found in employee characteristics (e.g. qualifications), job characteristics (e.g. occupational composition and tenure), and workplace characteristics (e.g. size). Even so, around a quarter of the

pay differential is unexplained by these other characteristics. This is the dispersed ownership premium.

A novelty of the paper is that we examine pay differences at various points of the pay distribution. Earlier research has been limited in this respect. Surprisingly, given the prevailing finding in the literature that top managers benefit more than others from ownership dispersion, the size of the pay differential is more or less the same across the distribution, but with a smaller and insignificant ownership coefficient at the 95<sup>th</sup> percentile (where many managers are found). These findings suggest that managers with discretion award high pay to workers for reasons other than legitimising their own salary premia.

Several other explanations for a dispersed ownership premium were mooted earlier in the paper. Of these, an ‘empire-building’ explanation along the lines of managerialist arguments receives little support. Although workplace size has a positive relationship with hourly pay, the coefficients on the company size dummies are mainly insignificant (the exceptions are the female-only and interval regression models where the coefficients for smaller companies are significant at  $p < 0.05$ ). Another posited explanation suggests that high pay may help to insulate managers from takeovers. . Unfortunately, we cannot fully test this explanation due to data limitations, but it is worth noting that the coefficient for the listed companies’ dummy (i.e. those workplaces which are most exposed to the market for corporate control) has an insignificant relationship with pay levels. Moreover, interacting dispersed ownership with listed company status generates an insignificant interaction term, whilst leaving the base coefficients more or less unchanged.

A fundamental issue concerns whether managers with discretion from owners will pursue self-interested or enlightened managerial policies and practices. A principal-agent perspective highlights the pursuit of self-interest where monitoring is weak, whereas the implication of

'strategic' HRM perspectives is that managers with discretion will implement policies for the good of the firm. The results in the paper are to some extent consistent with efficiency wages, whereby managers pay a premium on market wages to achieve a high quality workforce. The decline in the ownership premium as workforce quality and compositional effects are controlled for provides some support for this. However, they cannot prove it, and around a quarter of the premium is unexplained by observed individual and workplace characteristics. Ultimately it is not possible to determine whether managerial motives are influenced by a desire for a 'quiet life' or altruism. Managers could be simply sharing rents to keep workers happy and, by extension, themselves. Unlike Cronqvist *et al.* (2009), however, we find no evidence that union presence is an important factor here. It is possible that managers with discretion use higher worker pay to legitimise their own substantially higher pay, even though they do not appear to use this discretion to secure even higher pay for themselves. It is also arguable that dispersed ownership will tend to be found in larger organisations that are more able to dominate their markets and hence generate rents. Dispersed ownership can give greater freedom to distribute these rents to workers. However, there is little to suggest that these organisations are able to generate greater rents. Further regressions (not shown) do not find that superior financial performance or market power have any bearing on the size of the pay premium. In addition, company size has little relationship with the pay premium. Given all this, we incline towards an efficiency wages explanation (as in Gorton and Schmidt 1999), but the unexplained element of the premium remains stubbornly resistant to experimentation with further controls.

We note several limitations in our study. First, the measure of ownership dispersion in WERS is blunt: some may question whether 25 per cent ownership is an appropriate separation point between concentrated and dispersed ownership. Data availability drives our usage of this particular measure. Nevertheless, as argued earlier, it has a basis in the literature on ownership

structure, where 20-25 per cent appears to be a key threshold for control. A rather different argument is that ownership dispersion can put managers under more rather than less pressure to restrict wage levels in that it exposes managers to the market for corporate control. This argument would apply mainly to workplaces belonging to listed firms, who are concentrated in our dispersed category. However, we find the coefficient for listed companies has very muted effects in our regressions and decompositions. Nevertheless, it could be argued that the identity of owners is important. Recent studies have drawn attention to differences between committed and transient owners, finding that pay dispersion between managers and workers is higher where owners have a short-term orientation (Connelly *et al.* 2013). Unfortunately, limited information on owner identity in WERS does not allow us to pursue this line of analysis.

Second, the cross-sectional character of the study is an obvious limitation. A longitudinal panel would enable greater attention to selection, causality, and the potential endogeneity of ownership. Unfortunately, the WERS panel does not contain the ownership measure used here. The most obvious factor relating to selection and endogeneity is organisational size. Larger companies are more likely to pay high wages (Brown and Medoff 1989) and to select into dispersed ownership. However, we are struck by the insignificance of the organisational size dummies throughout the analysis. Even if high wage workplaces ‘select’ into dispersed ownership because concentrated owners wish to exit obligations to pay high wages, this is consistent with our primary argument that ownership dispersion is associated with differential wage levels. However, it would be interesting to consider cases where concentrated owners (e.g. private equity houses) take on high wage workplaces with a view to bringing managers and pay under greater control.

Third, we lack data on managerial motivations, something we share with every other study on this topic. Is the unexplained pay gap due to management self-interest, as in principal-agent

perspectives, or altruistic conceptions of organisational stewardship, or perhaps even both? The explained part of the pay gap may arise from enlightened managerial practices, such as a concern to develop high levels of human capital, but it is also true that better quality workers facilitate a quieter life. The emphasis on 'objective' features of employment and industrial relations practices in WERS deters questioning on these more subjective aspects of management practice. To develop robust measures of managerial intentionality would require major changes to the design of WERS.

Notwithstanding these limitations, this paper has demonstrated links between ownership and employee pay. It is clear that pay is higher in dispersed workplaces, even after controlling for an extensive range of worker and workplace characteristics. Moreover, the pay premium is found across most of the pay distribution.

The results suggest a number of opportunities for further research. First, using the WERS data, it would be interesting to explore other possible labour outcomes of ownership concentration / dispersion, such as effects on quality of work and voice arrangements. Second, it would be useful to identify other data sources, public and private, which might provide more data on ownership and pay. Ideally such data should also be longitudinal so as to shed more light on causality. However, the ability to match these with WERS will be limited and such sources will not have the detail on employment matters contained in WERS. Third, it would be useful examine the situation in other countries, in so far as similar data exist. Thus, it is well known that there is more concentrated ownership in much of continental Europe and it would be interesting to see whether this has the same restraining effect on pay.

**Table 1. Pay levels and proportions of employees in each ownership category**

	Dispersed ownership	Concentrated ownership
Proportion of employees (% of weighted sample)	43.42	56.58
Average gross hourly pay (log)	2.55	2.24

**Table 2. Variable descriptions and summary statistics**

Variable name	Variable description	Linearized means
<i>Dependent variable</i>		
Hourly pay	Log of average weekly pay divided by usual hours of work (using mid-points of 14 pay bands)	2.372
<i>Key independent variables</i>		
Dispersed ownership	= 1 if employed in a workplace that does not have an owner with a >25% stake.	0.434
<i>Demographic characteristics</i>		
Female	= 1 if female	0.449
Age under 20	= 1 if aged under 20.	0.028
Age 20-29	= 1 if aged 20-29	0.228
Age30-39	= 0 if aged 30-39. Reference category	
Age 40-49	= 1 if aged 40-49	0.244
Age 50-59	= 1 if aged 50-59	0.193
Age 60+	= 1 if age 60 and over	0.067
Ethnicity	= 1 if white British	0.962
Married	= 1 if married	0.668
Dependents	= 1 if any dependent children	0.348
Disabled	= 1 if has long-term limiting health problem or disability	0.078
Qual1	= 0 if no academic qualifications. Reference category	
Qual2	= 1 if 'other' is highest academic qualification	0.037
Qual3	= 1 if CSE or equivalent is highest academic qualification	0.101
Qual4	= 1 if O-Level or equivalent is highest qualification	0.270
Qual5	= 1 if 1 A-Level or equivalent is highest qualification	0.037
Qual6	= 1 if 2 or more A-Levels is highest qualification	0.082
Qual7	= 1 if degree or equivalent is highest qualification	0.213
Qual8	= 1 if highest qualification is post-graduate or equivalent	0.076
Union	= 1 if employee is a member of a trade union	0.165
<i>Job characteristics</i>		
Manager	= 0 if employee is a manager or senior official (Standard Occupational Classification 2000). Reference category	
Professional	=1 if employee is a professional	0.141
Associate Professional	=1 if employee is in an associate professional or technical occupation	0.167

Administration	=1 if employee is in an administrative or secretarial occupation	0.134
Skilled	= 1 if employee is in a skilled trade	0.086
Caring	= 1 if employee is in a personal service occupation	0.048
Sales	= 1 if employee is in a sales or customer service occupation	0.099
Operative	= 1 if employee is a process, plant or machine operative	0.089
Routine	= 1 if employee is in a routine occupation	0.109
Tenure <1	= 0 if tenure is under 1 year. Reference category	
Tenure 1<2	= 1 if tenure is over 1 but under 2 years	0.121
Tenure 2<5	= 1 if tenure is 2 to under 5 years	0.262
Tenure 5<10	= 1 if tenure is 5 to under 10 years	0.238
Tenure 10+	= 1 if tenure is 10 years or more	0.230
Temporary	= 1 if on temporary contract	0.034
Fixed	= 1 if on fixed term contract	0.019
IndivPBR	= 1 if receives individual payment by results	0.169
GroupPBR	= 1 if receives group payment by results	0.109
ProfitSharing	= 1 if receives profit sharing	0.161
<i>Workplace characteristics</i>		
Listed	= 1 if belongs to listed company	0.213
Foreign	= 1 if owned by foreign company	0.218
Cosize	= 0 if company has less than 100 employees. Reference category	
Cosize1	= 1 if company has 100 - 999 employees	0.230
Cosize2	= 1 if company has 1,000 – 9,999 employees	0.268
Cosize3	= 1 if company has 10,000 or more employees	0.198
Estabsize	Number of employees in establishment (continuous)	477.062
Labprod	= 1 if workplace productivity is much better than average for similar workplaces in the same industry	0.111

**Table 3: The influence of ownership dispersion on hourly pay rates***OLS and interval regressions: coefficients (linearized standard errors)*

	Hourly pay rates  Model 1	Hourly pay rates  Model 2	Hourly pay rates  Model 3	Hourly pay rates: men Model 4	Hourly pay rates: women Model 5	Hourly pay rates: Interval regression Model 6
Dispersed ownership	0.301 (0.043)***	0.123 (0.024)***	0.077 (0.021)***	0.066 (0.024)**	0.075 (0.028)*	0.077 (0.022)***
<i>Demographic characteristics</i>						
Female		-0.141 (0.019)***	-0.115 (0.018)***	-	-	-0.128 (0.019)***
Age under 20		-0.358 (0.052)***	-0.311 (0.051)***	-0.225 (0.057)***	-0.495 (0.069)***	-0.367 (0.048)***
Age 20-29		-0.178 (0.024)***	-0.155 (0.022)***	-0.151 (0.025)***	-0.168 (0.033)***	-0.153 (0.022)***
Age30-39 (Reference)		-	-	-	-	-
Age 40-49		0.041 (0.024)	0.040 (0.024)	0.009 (0.030)	0.061 (0.032)	0.052 (0.026)*
Age 50-59		0.012 (0.024)	0.009 (0.024)	-0.044 (0.037)	0.033 (0.031)	0.024 (0.025)
Age 60+		0.006 (0.034)	0.012 (0.034)	-0.046 (0.043)	0.051 (0.045)	0.030 (0.035)
Ethnicity		0.024 (0.030)	0.074 (0.026)**	0.031 (0.041)	0.100 (0.034)**	0.092 (0.026)***
Married		0.0734 (0.017)***	0.066 (0.016)***	0.051 (0.020)*	0.077 (0.021)***	0.067 (0.016)***
Dependents		0.012 (0.016)	0.017 (0.015)	0.001 (0.023)	0.015 (0.020)	0.024 (0.016)
Disabled		-0.024 (0.023)	-0.021 (0.022)	0.012 (0.030)	-0.052 (0.031)	-0.023 (0.022)
Qual 1 (Reference)		-	-	-	-	-
Qual2		0.029 (0.041)	0.025 (0.037)	-0.040 (0.047)	0.044 (0.047)	0.027 (0.037)
Qual3		0.132 (0.028)***	0.129 (0.028)***	0.120 (0.040)**	0.133 (0.035)***	0.136 (0.028)***
Qual4		0.114 (0.023)***	0.109 (0.023)***	0.091 (0.029)***	0.123 (0.033)***	0.116 (0.023)***
Qual5		0.115 (0.039)**	0.118 (0.035)**	0.101 (0.065)	0.133 (0.044)**	0.119 (0.034)***

Qual6		0.154 (0.031)***	0.138 (0.030)***	0.124 (0.041)**	0.138 (0.042)***	0.149 (0.030)***
Qual7		0.262 (0.031)***	0.235 (0.029)***	0.207 (0.033)***	0.248 (0.041)***	0.255 (0.030)***
Qual8		0.328 (0.049)***	0.287 (0.046)***	0.299 (0.062)***	0.275 (0.061)***	0.326 (0.051)***
Union		0.033 (0.020)	0.020 (0.021)	0.060 (0.034)	0.002 (0.025)	0.010 (0.021)
<i>Job characteristics</i>						
Manager (Reference)		-	-	-	-	-
Professional		0.028 (0.046)	-0.041 (0.041)	0.017 (0.057)	-0.053 (0.050)	-0.063 (0.046)
Associate Professional		-0.060 (0.041)	-0.116 (0.039)**	-0.125 (0.048)**	-0.103 (0.046)*	-0.137 (0.042)***
Administration		-0.295 (0.044)***	-0.338 (0.040)***	-0.263 (0.053)***	-0.419 (0.048)***	-0.355 (0.043)***
Skilled		-0.300 (0.042)***	-0.299 (0.039)***	-0.379 (0.073)***	-0.300 (0.044)***	-0.319 (0.042)***
Caring		-0.589 (0.047)***	-0.575 (0.048)***	-0.538 (0.059)***	-0.604 (0.063)***	-0.591 (0.050)***
Sales		-0.525 (0.046)***	-0.497 (0.047)***	-0.466 (0.053)***	-0.443 (0.074)***	-0.514 (0.049)***
Operative		-0.450 (0.045)***	-0.457 (0.043)***	-0.493 (0.066)***	-0.468 (0.048)***	-0.472 (0.045)***
Routine		-0.563 (0.042)***	-0.537 (0.041)***	-0.479 (0.053)***	-0.560 (0.047)***	-0.548 (0.044)***
Tenure <1 (Reference)		-	-	-	-	-
Tenure 1<2		0.055 (0.031)	0.052 (0.029)	0.040 (0.033)	0.060 (0.041)	0.043 (0.030)
Tenure 2<5		0.048 (0.028)	0.061 (0.030)*	0.029 (0.026)	0.076 (0.042)	0.057 (0.032)
Tenure 5<10		0.081 (0.032)*	0.087 (0.029)**	0.045 (0.028)	0.109 (0.041)**	0.079 (0.030)**
Tenure 10+		0.139 (0.032)***	0.140 (0.030)***	0.112 (0.036)**	0.151 (0.040)***	0.138 (0.031)***
Temporary		-0.154 (0.039)***	-0.110 (0.037)**	-0.135 (0.045)**	-0.113 (0.053)*	-0.123 (0.040)**
Fixed		-0.089 (0.040)*	-0.097 (0.032)**	-0.084 (0.043)*	-0.098 (0.046)*	-0.099 (0.032)**
IndivPBR		0.137 (0.026)***	0.102 (0.021)***	0.112 (0.032)***	0.101 (0.026)***	0.121 (0.022)***

GroupPBR		0.083 (0.029)**	0.061 (0.028)*	0.133 (0.039)***	0.016 (0.038)	0.075 (0.032)*
ProfitSharing		0.175 (0.030)***	0.142 (0.028)***	0.071 (0.045)	0.173 (0.035)***	0.160 (0.031)***
<i>Workplace characteristics</i>				Yes	Yes	Yes
Listed			0.022 (0.022)	-0.013 (0.029)	0.044 (0.027)	0.019 (0.023)
Foreign			0.104 (0.024)***	0.127 (0.031)***	0.082 (0.029)**	0.111 (0.026)***
Cosize (Reference)			-	-	-	-
Cosize1			0.056 (0.026)	0.024 (0.031)	0.075 (0.033)*	0.062 (0.026)*
Cosize2			0.024 (0.027)	-0.016 (0.029)	0.058 (0.035)	0.031 (0.028)
Cosize3			-0.018 (0.032)	-0.055 (0.037)	0.018 (0.042)	-0.005 (0.034)
Estabsize			0.000 (7.45e-06) **	0.000 (0.000)***	0.000 (6.99e-06) *	0.000 (7.35e-06) **
Labprod			0.106 (0.028)***	0.116 (0.034)***	0.108 (0.045)*	0.116 (0.030)***
Industry dummies	No	No	Yes	Yes	Yes	Yes
Location dummies	No	No	Yes	Yes	Yes	Yes
Constant		2.337 (0.064)***	2.249 (0.073)***	2.279 (0.092)***	2.029 (0.097)***	2.224 (0.075)***
N	8727	8727	8727	3924	4831	8727
PSU	915	915	915	814	787	915
R <sup>2</sup>	0.058	0.457	0.499	0.468	0.501	
/Insigma						0.825 (0.026)***

Notes: \* = significant at 95 per cent; \*\* = significant at 99 per cent; \*\*\* = significant at 99.9 per cent

The Stata output includes regression results for missing values of various variables so as to maintain sample size. These are not reported above.

**Table 4. Dispersed ownership and hourly wages across the pay distribution***Quantile regression*

	5%	25%	50%	75%	95%
Dispersed ownership (no controls)	0.170 (0.028)***	0.250 (0.011)***	0.294 (0.019)***	0.377 (0.022)***	0.198 (0.033)***
Constant	1.459***	1.848***	2.167***	2.535***	3.269***
N	8478	8478	8478	8478	8478
Pseudo R <sup>2</sup>	0.013	0.029	0.030	0.032	0.007
Dispersed ownership (with full controls)	0.076 (0.019)***	0.067 (0.011)***	0.073 (0.001)***	0.071 (0.011)***	0.053 (0.039)
Constant	1.491 (0.077)***	1.888 (0.044)***	2.120 (0.050)***	2.343 (0.055)***	3.405 (0.183)***
N	8478	8478	8478	8478	8478
Pseudo R <sup>2</sup>	0.329	0.370	0.388	0.369	0.173

Notes: \*\*\* = significant at 99.9 per cent.

Quantiles are estimated simultaneously using the STATA routine `sqreg`. The full model contains the full set of demographic, job, workplace, industry and location controls as in Table 3. Dependent variable = log hourly pay. Coefficients and bootstrap standard errors are reported

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## Endnotes

<sup>1</sup> CEO control relative to shareholder control is defined as a greater share of the votes than that of the combined stake of blockholders with more than 5 per cent. The authors use other measures of managerial / owner control, such as the presence of a controlling owner other than the CEO, individual blockholders, and institutional blockholders, with similar results. A novelty of the Swedish case is widespread use of dual-class shares. Depending on which class of shares are held, share-owning CEOs may have more control rights than cash-flow rights.

<sup>2</sup> Owner-control is the obverse of this, whilst owner-managed firms are those where a manager holds 5 per cent or more stock.

<sup>3</sup> By contrast, in owner-controlled firms changes in pay are linked to changes in performance rather than changes in company size. Owner-managed firms have pay arrangements which link employee pay closely to both performance and growth.

<sup>4</sup> In addition, they use a measure of gross monthly wages that is not corrected for hours worked.

<sup>5</sup> This may overstate somewhat the earnings of some of those in the top category (the ASHE survey finds that earnings at the top of the distribution are more bunched than the WERS procedure assumes).

<sup>6</sup> This has also been observed in wage analyses using earlier versions of WERS (Forth and Millward 2004).