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Sharing Ownership Rights with the Employees in the New Economy

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SHARING OWNERSHIP RIGHTS WITH EMPLOYEES IN THE NEW ECONOMY

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ABSTRACT

This paper looks at the impact of sharing the rights of ownership with employees. The effects of decentralized decision-making and group incentive schemes are evaluated when used independently and in combination. The findings indicate an insignificant effect when task control is shared in isolation, mixed evidence when return rights are shared in isolation and a positive effect when control and return rights are shared in combination.

According to Margaret Blair, author of "Ownership and Control: Rethinking Corporate Governance for the Twenty-First Century", the debate on corporate governance is to fixated on the relationship between corporate management and shareholders"(Blair, 1995). She argues that other stakeholders, especially employees, may often be in a better position to exersize the rights of ownership. This notion would hold that those with productivity enhancing information should have the authority to act on it and have the incentive necessary to do so. In the following paper I test this rationale in order to establish if there are efficiencies associated with sharing the rights of ownership to employees.

Property rights include the right to 'control' an asset and the right to the residual profits or 'returns' after all obligations have been met. Incentive contract theory, an extension of Agency theory asks the question; how do we most efficiently motivate employees to share and act on their private information in situations were they have information which management does not have access? This paper builds a theoretical rationale and tests it empirically in order to evaluate the efficacy of sharing the rights of ownership to employees as an efficient incentive contract.

Organizations are increasingly using employee involvement programs and financial participation programs which share a firm's profits in the form of dispersing shares or profit-sharing. There is also increasing research into which of these types of financial participation are associated with the greatest performance outcomes (Cooke, 1994; Fernie and Metcalf, 1995). Researching the impact of these practices in combination is well warranted because economic and psychological theory support the fact that much of

the gains associated with the use of these combined practices are due to those with the greatest job knowledge having the incentive and authority to act on their superior knowledge (Levine and Tyson, 1990). The questions evaluated in this paper is: is it advantageous for firms to use participation programs such as participation in decision-making and financial participation such as profit-sharing? If so, where do the performance effects actually lie?; are they associated with participation in decisions, financial participation or the combination of the two?

I start with an overview of some of the theoretical considerations and previous empirical work on employee involvement and group incentives used independently and interactively. An evaluation of the impact of the independent and interactive effects of a high level of shopfloor worker decentralized decision-making and group incentives is conducted.

THEORETICAL DEVELOPMENT

Incentive Contract Theory

Incentive contract theory asks the fundamental questions which are addressed in this paper. Why do employees work hard when their work can not be perfectly monitored, and how can they be motivated to provide productivity enhancing ideas when they have knowledge of the production process which management does not have (Lazear, 1986). There are an infinite number of different forms and types of incentive contracts which employers can choose from and some have more efficient outcomes than others. Addressing issues raised by agency theory (Eisenhardt, 1988) incentive contract theory recognizes the need to more closely align the interest of 'owners' with 'non-owners' in order to achieve maximum efficiency. This

takes the form of establishing agreements or 'contracts' with employees. Developed in the last decade, incentive contract theory grew out of the need to examine issues associated with the establishment of these contracts. Issues include the right insurance-risk mix and the use of formal vs. informal monitors (Salanie, 1999) The contracts developed are both explicit and implicit. Explicit contracts consist of the formal agreements entered into with the individuals while implicit contracts are the informal norms and implicit understandings which are established within firms.

Milgrom and Roberts (1992) indicate that the concept of ownership, combined with statutory property rights are the fundamental means to provide an incentive to create and develop an asset. The two fundamental aspects of ownership include: firstly, the rights of "residual rights of control", which is the right to make decisions concerning the use of an asset; secondly, the right to "residual returns" which is the right to revenues left over after all obligations have been met. According to Milgrom and Roberts it is the combination of these two rights which provides the individual incentive effects of ownership. The combination is seen to be the most powerful incentive due to the fact that the person making the decision bears the financial results of their decision. Milgrom and Roberts also state that these effects are most efficient when these property rights are transferable, or are able to be assigned to the person who is best suited to be in charge. Further developing the notion of sharing the rights of ownership are Ben-Ner and Jones (1995). Ben-Ner and Jones develop a theoretical framework which combines these two aspects of ownership, control and return, and suggest possible firm performance outcomes associated with sharing these rights with employees. They contend that the greatest efficiency outcomes exist when *both* these rights are shared with employees.

Control Rights. Employers are increasingly attempting to access potentially productivity-enhancing information which resides with employees. There has been a broad variety of different employee participation and involvement programs put in place by employers primarily to obtain this information. The intent of quality circles, information-sharing meetings, teams, employee involvement and participation programs has, at least partially, been to access the information which exists with employees (Wagner, 1994). Two practices in particular which attempt to gain access to the information to which employees have access to are the decentralization of decisions and mechanisms such as meetings or information-sharing sessions, designed to either convey information about the state of the business or to access useful information which employees may possess. In particular, there has recently been a focus on pushing decisions down to lower levels in the Organization. These efforts are associated with the belief that there are decisions and tasks which employees are in a better position to make than those further up in the organization.

In both economic and psychological theory there is some support for the use of employee involvement, especially in situations of asymmetric or private information. One of the primary benefits associated with the use of employee involvement programs is that employees have access to information and knowledge from which management could benefit (Levine and Tyson, 1990). Psychological theory describes another mechanism associated with the productivity effects of participation; the impact of participation and involvement on individual motivation and, correspondingly, on individual effort. The theoretical view is associated with the psychological theory - affective theory. Affective theory states that being able to participate in the work process would appeal to an individual's higher order needs, which in turn will lead to greater work satisfaction. In so far as work satisfaction has a positive impact on effort, greater satisfaction

may translate into greater productivity (Miller and Monge, 1986). A further reason why it is thought that employee involvement has an impact on establishment performance is that there are organizational structural changes which occur in a participatory environment which promote cost savings to the establishment. Participation is thought to promote mutual monitoring (Bradley and Gleb, 1981) which may result in reduced direct costs associated with less need for supervisors to act as monitors.

The majority of research into worker participation has been within the very broad area of employee participation. This concept encompasses practices ranging from ornamental employee advisory committees, with employees only able to make suggestions, to initiatives which give employees primary control over the work process and many of the decisions which are made regarding how the work is carried out. In previous research, the typical means of measuring whether a firm or establishment does have employee participation programs or processes is to ask whether quality circles, advisory committees or employee involvement initiatives exist. At the firm level this type of question tells us very little, and depending on measures used, could tell us very little at the establishment level. While some of the empirical evidence is mixed in relation to the performance effects of employee involvement, the majority of the evidence shows there is a positive association between employee involvement and company performance. Berman and Berman (1989) found there was a significant negative relationship between employee involvement and their measure of productivity. Levine and Tyson (1990) found there to be mixed effects associated with employee involvement, largely dependent on the form of employee involvement used. They found participation to be more effective in settings where incentives were included, and the type of participation was substantive. In a meta-study of 43 research articles Doucouliagos (1995) found that participation was overall associated with

greater performance in all cases except co-determination, where there was a negative association with performance.

However, it is thought that there may be problems associated with using a high degree of employee involvement without any incentives. In situations where employees have a high degree of control over their work or involvement in, for example, how their work is carried out, without incentives, there is the opportunity for moral hazard. Moral hazard or self-interested misbehavior is the potential to shirk duties or responsibilities in so far as monitoring will allow (Milgrom and Roberts, 1992). In a situation where employees have either control over the job task or are highly involved in the work process, they may be in a position where they can reduce effort, thus not achieving optimal performance. This brings us to the first hypothesis which I am testing:

Hypothesis I: *In situations where control rights are shared with employees without return rights there will be no impact company performance.*

Return Rights. The overall theoretical argument associated with an increase in productivity linked to profit-sharing is largely due to increased efficiency associated with the use of labor (Bhargava, 1994; Fitzroy and Kraft, 1986, 1987; Wietzman and Kruse, 1990). The rationale used to support the potential productivity effects of profit-sharing is that the increase in effort, including greater opportunity to act on asymmetric information, increased co-operation among workers, and that more peer monitoring may result in a greater level of productivity in profit-sharing firms.

Much of the theorized increased productivity effects associated with group incentive schemes concerns the fact that employees in profit-sharing firms have a greater level of motivation and exhibit a higher level of effort (Bhargava, 1993, 1994; Cable and Wilson, 1990; Wadhawani and Wall, 1990). Group incentives are here meant to include practices such as profit-sharing or company-wide bonuses. Regarding the positive effects of these incentives, the work of Weitzman (1988, 1990) and Kruse (1988, 1993) has drawn substantial attention to the productivity and employment effects of group incentive schemes or profit-sharing. The positive productivity effects associated with these group incentive schemes are primarily due to employees aligning their efforts in a direction which maximizes profits. Other positive influences include the fact that there should be a higher degree of mutual monitoring which will reduce the need for supervisory control and associated costs.

There are, however, arguments against any productivity effects associated with group incentive schemes such as profit-sharing and company bonuses. One of the strongest charges against the productivity-enhancing effects of group-based incentive scheme is the free-rider or 1/n problem. In addition to the free-rider problem there is also the fact that many employees may be averse to increasing the amount of compensation which they have at risk. The firm may be in a better position to absorb any risk associated with outside factors affecting remuneration. The free-rider problem has been dealt with largely by relying on arguments taken from game theory (Weitzman and Kruse, 1990). The argument states that there is a co-operative and non-co-operative solution associated with group interactions. As people engage in a repeated game they have a choice to "free-ride" on the efforts of others or to work together. In the matter of profit-sharing it is the case that when everyone works together everyone will be better off. Consequently, as the

game is repeated those involved may eventually move towards a co-operative solution.

Weitzman (1995) points out that for profit-sharing to work there needs to be something else present. He states that there needs to be something akin to "company spirit"; this is needed to reduce the negative effects associated with the free-rider problem. In their theoretical work Drago and Turnbull (1988) determine that group incentives are more efficient than individual incentives in team production settings, provided a climate of "trust" and co-operation is developed. It may be that a high degree of employee involvement and decentralization is a signal to workers which promotes an environment of trust and a co-operative culture (Kruse, 1999). This view is supported by a number of theorists including: Kandal and Lazear (1992); Weitzman and Kruse (1990); Drago and Turnbull (1988). The rationale being that in settings where it is difficult to monitor effort or output, workers need to feel sufficiently guilty about letting down their peers so that this will prevent them from shirking their duties.

There are, however, problems when return rights are used in isolation. According to Ben-Ner and Jones (1995), in the case of only return rights, economic theory states that if residual returns are going to employees there may be less incentive for owners and their agents to direct and control employees in a way which positively impacts establishment performance. While employees motivated by financial incentives may exert more effort, productivity depends on how well management can direct these efforts. Return rights in themselves may have a positive impact on structural variables, which may in turn positively impact co-operation among individuals and various parts of the organization. This would take place because there is a greater alignment of objectives which could, therefore, generate an incentive to maximize firm performance. There is, however, the issue that as profits are shared more generally with employees there will be less

incentive for owners and their agents to direct and monitor the work of employees. Consequently, the second hypothesis would include:

Hypothesis II: *In situations where return rights are shared with employees without control rights there will be no impact on company performance.*

Combination of Control and Return Rights. In a situation where control and return rights are combined the interests of the principal and their agents may be more closely aligned. Combining the claim to residual profits with control over work processes creates an environment in which employees have the authority to use their superior job knowledge to enhance efficiency, as well as the incentive to ensure they align their efforts with the best interests of the establishment. Through combining group incentive schemes and worker control over the work process both the moral hazard and, to a degree, the free-rider problem are addressed. By combining both of these practices, those with the greatest job information and who are in the best position to make efficiency-enhancing job changes, are provided with the incentive necessary to improve establishment performance. The combination of these practices reduces the moral hazard problem due to the fact that people now have the incentive necessary to minimize employee shirking.

There are a number of studies which explore the relationship between combining control and return rights and the impact they have on Organizational outcomes. Conte and Svejnar (1988) find that employee participation (EP) and profit-sharing had significant effects both independently and combined. Mitchell et al. (1990) found that employee participation and group-based incentives were significant independently but not

combined. Kruse (1993) found positive effects of profit-sharing but no combined effects or independent effects of EP. Cooke (1994) found that the combination of EP and group-based compensation schemes had fairly substantial effects on firm performance. These effects were also considerably amplified in unionized firms. Fernie and Metcalf (1995) found that workplaces with employee involvement characteristics, such as employee-management communication channels and the presence of incentive schemes, had higher productivity than other types of workplaces. Sesil (1999) evaluates the impact of these practices in high-technology firms and finds there to be better performance where the practices are used in combination.

The third hypothesis would include:

Hypothesis III: The sharing of both control and return rights will represent the most efficient incentive contract and positively impact company performance

METHODS

Data-Set and Establishment Characteristics

Corporate Performance Project. The Corporate Performance Project is a longitudinal research project being carried out jointly by the Centre for Economic Performance at the London School of Economics and the Institute of Work Psychology at the University of Sheffield. One of the principal aims of the project is to research how management practices impact upon the performance of establishments. The project obtains information from manufacturing establishments located in the United Kingdom. The data was gathered using on-site structured interviews with the establishment's human resource manager, plant manager,

or other production manager. The financial data was collected from company reports or directly from the establishments. There was a 5 per cent participation rate of those who were contacted. This low participation rate was largely due to the detail of information required for the research project. The project ran between 1990 and 2000. The first period of data collection was conducted between 1992 and 1994. The second period of collection was between 1994 and 1996. The database contains information on 118 establishments gathered during the first period, 1992 through 1994. The second period of data available for the time period 1995 and 1996 contains information on 60 establishments. Forty-five of the establishments interviewed in the first round of interviews were again interviewed in the second round, 15 new establishments were added in the second wave of interviews.

The data-set contains very detailed information on the types of management practices, the structure of the establishment, the market they operate in, work practices and Organizational designs, establishment performance outcomes and human resource policies and practices. Establishment performance outcomes include sales turnover and profitability. The questionnaire was designed by both economists and organizational psychologists so measures of the management practices are included, as are establishment performance indicators. Also included in the data-set is information on product market, technological sophistication and management practices which may influence outcomes.

Establishment Characteristics. The establishments have between 60 and 1,929 employees, with an average of 238 employees per establishment. Total turnovers in the establishments are between, 15,000 and, 250 million British Pounds with an average of, 18.6 million Pounds and a standard deviation of, 3.3 million Pounds. Relative to other establishments in the manufacturing sector these establishments would be

considered small to medium sized. Seventy per cent of the establishments are owned by a parent or holding company, 37 per cent are Plc and 63 per cent are Ltd. Seventy nine per cent of the establishments do not share facilities with the parent company or share facilities to only a small degree. The establishments are UK manufacturing establishments in the following sectors: engineering, 45 per cent; electronics, 9 per cent; plastics, 24 per cent; food & drink, 7 per cent; Misc. 15 per cent.

---- Insert Table 1 about here -----

Independent Variables. Shopfloor workers in an establishment are considered to have a high degree of control over job tasks if they have the authority to shut down the production process if they perceive there to be a quality problem but are not eligible for any incentives they have control rights (Control). Where shopfloor workers have access to group incentives in the form of either a company bonus or profit sharing but no authority to shut down the production process if they perceive a quality problem they have return rights (Return). Finally, if they have both the right to shut down the production process and are paid a group bonus or profit-sharing they have both rights (Control/Return).

Dependent Variables. Two financial measures and one measure of labor productivity are used to determine the impact the variables of interest and control variables have on establishment performance. Establishment performance measures include ROS and ROA. ROS is defined as profit before tax divided by total establishment sales. ROA is defined as profit before tax divided by assets.

The measure of profits before tax is: sales revenue minus cost of sales (materials, wages & salaries,

depreciation, rent, interest payments, any exceptional/extraordinary costs (e.g. reorganization costs)). In order to standardize total sales, profits and assets they have been deflated to base year 1990 using a deflator taken from the International Monetary Fund International Financial Statistics CD-Rom for UK manufacturing in 1997. Total sales profits and assets were deflated at the 2-digit level.

In examining the control and independent variables there is no variation in the pay practices between these two periods. The fact that there is no change in these practices this disallows for first difference or change over time analysis in the panel data-set of 45. Given that there is no change in the practices during the two periods, it is possible to extend the data-set to include information on the presence of the control and independent variables in future years. That is, if the remuneration practice was in place during the first round of interviews in 1993 and was also in place in the second round of interviews in, say, 1995, I presume the practices were not discontinued and restarted during the one year in between, therefore, there is information on 1993 through 1995 for that establishment. Given that in 45 of the 118 establishments there was no change in these practices, I also assume that the same holds true for the other establishments and hold constant the status of the practices in future periods (MacDuffie, 1995; Maddala, 1977).

Control Variables. The quality of the workforce and skill level is controlled for by including whether the blue collar workforce is given multi-skill training (Multiskill). Multi-skilling of the workforce is increasingly being used in establishments which are subject to product market competition and need considerable flexibility in the workforce. This variable may not only capture the effects of skill-levels but also the macro-level product market condition which the firm operates within. In order to control for economies and diseconomies of scale on performance I include the log of number of employees at the establishment

(LnSize). In order to control for the effects of unionization on establishment profitability a dummy variable is included if an establishment has a union (Union). In order to control for the additional efficiency effects associated with a high level of two-way employee - management communication I include a dummy variable for those establishments which have a high level of two-way communication (Information). To capture the effects of management quality, I have included a measure of whether the establishment uses a functionally integrated strategic planning process (Strategy). The use of the strategy variable is meant to directly control for one of the primary factors which the use of panel data will attribute for. It is not unreasonable to think that the test variables are picking up some element of management quality which may well attribute for some of the superior performance. That is, if these establishments have chosen the correct human resource practice they may well have also chosen the correct market, finance, and strategic planning process. The strategy variable is attempting to pickup the existence of other correctly chosen management practice. The interviews were conducted over a five year period between 1992 and 1996. In order to control for any variations year dummy variables are included. To control for the effects by industry, sector dummies at the 2 digit level are included.

RESULTS

Variable Means and Standard Deviations for the Combined Practices. In table 2, we see that establishments which share both control and return rights (Control/Return) when compared to those which do not transfer these rights (NoConNoRet) have greater ROA and ROS, are smaller, less unionized, share more information and are more likely to use multi-skilling. Sharing these rights are more likely in smaller

establishments where monitoring costs are lower. While the sharing of these rights may be a substitute for formal monitors, apparently the transferal of these rights are more acceptable in settings where less formal monitoring is necessary. Unions have traditionally been somewhat opposed to the use group incentives and this may in part reflect why the transferal of these rights are less likely in settings where there is a Union. The fact that these establishments are more likely to have communication processes in place is also expected because you would expect managers or supervisors to want to be kept informed regarding decisions taken by the workforce. The fact that these establishments also have a higher degree of multi-skilling is also expected because in settings where the workforce has greater levels of human capital or job knowledge there would be greater gains associated with giving more discretion and incentives.

--- Insert Table 2 About Here ---

In terms of the types of Organizations which use high levels of worker process control and group incentives, engineering and electronic manufacturing use them to a greater degree, on average. Plastic manufacturers use group incentives to a reduced degree, however, they use shopfloor worker process control approximately the same on average as other establishments. Food and drink manufacturers use group incentives slightly more on average, however, they use little shopfloor worker control. Food and drink manufactures typically have lower skill level workers which may indicate that these establishments have less to gain from giving employees control over some aspect of the work process. Work process control would only benefit Organizations where there is latitude for individual judgement and action in the work process, and where shopfloor workers are in a better position to make work-related task decisions than supervisors or

managers. If the work process is highly standardized, a high level of employee discretion may be unnecessary.

Regression Analysis. In Table 3 we see the results for our evaluation of the impact of sharing the rights or ownership on establishment-level financial outcomes. We find support for our first hypothesis that the sharing of control rights in isolation do not result in significant impact on company performance. This holds for both ROA and ROS and also when we evaluate performance in time t-1. Evidently neither the cost savings or the increase in productivity is substantial enough to result in higher levels of company financial performance.

With the exception of Model 1 we see there is no impact on performance associated with the sharing of return rights in the form of group incentives or profit-sharing to employees. This holds for ROA in time t-1 and for ROS in both time t and t-1.

Finally, we find strong support for our third hypothesis that the sharing of these rights are the most efficient when they are transferred in combination and not in isolation. This holds in all of our models for both ROA and ROS and in time t and time t-1.

--- Insert Table 3 About Here ---

DISCUSSION AND CONCLUSION

This paper provides evidence that there are better financial outcomes in establishments which sharing the rights of ownership rights to employees. Additionally, it is also determined that these practices have the

largest impact when they are transferred in combination. While we did not find evidence that there was a negative impact on performance associated with transferring *only* decision-making authority or *only* group incentives we did significant positive performance effects where the rights were shared in combination.

An evaluation of the impact of these practices when used in isolation allows us to better disentangle where the performance effects actually lie. Is it associated with the sharing of control rights, the sharing of return rights or both of the rights? As discussed, the sharing of control rights in isolation leaves open the possibility of moral hazard or the possibility of employee shirking their duties. While we do not have any evidence that sharing of control rights to employees harms performance, we do not find any evidence that performance is enhanced. Apparently the authority to act on superior private information is not enough in itself to prompt employees to do so.

Additionally, the sharing of return rights in isolation are generally not associated with better performance. While employees have the incentive to act on their superior information they do not have the necessary control over their job to do so. While again this does not result in a negative impact on performance there is no positive impact on performance.

We find strong evidence that where employees have the right of control over assets and right to some of the residual profit establishment financial performance is enhanced. Apparently those closest to the job or task are in a better position to take certain decisions then those further removed from those tasks. However, turning over this control is only beneficial to performance where the rights are shared in combination. Sharing some of the residual return rights to employees apparently results in them having the incentives necessary to act on their superior information and either move to cut costs or increase productivity.

While cross-sectional research is prone to omitted variable bias the use of the random effects estimator will eliminate any remaining heterogeneity not attributed for though the use of control variable. Simultaneity or endogeneity is also a concern where the direction of the arrow of causality is not entirely clear, however the use of lag variables should at least partially control for this problem. A potential problem with this paper is the small sample which responded to the survey. This may result in some selection bias which may effect the results. This is however a necessary trade-off when examining the impact of practices on the establishment level. Firm-level analysis leaves open for measurement error associated with the practices being evaluated not necessarily being consistent through-out the entire firm. In establishment level research this problem is mostly avoided because the unit of observation is one establishment and not a multi-establishment firm (average establishment size in this study is 325). These findings provide evidence that the sharing ownership rights of residual control and residual return lead to greater profitability when used in combination. Using two identifiable practices we see that the two practices used in combination result in superior outcomes than if taken in isolation.

REFERENCES

Bhargava, S. 1993. The Productivity Miracle in the U.K.: What Role Did Profit - Sharing Play?, University of York Discussion Papers in Economics No. 93/3.

Bhargava S. 1994. Profit sharing and the financial performance of companies: Evidence from U.K. panel data. Economic Journal, 104: 1044 - 1056.

Blair, M.M. 1995. Ownership and Control: Rethinking Corporate Governance for the Twenty-First Century. Washington, DC: The Brooking Institution.

Bradley, K., & Gelb, A. 1981. Motivation and control in the Mondragon experiment. British Journal of Industrial Relations, 19: 211 - 231.

Cable, J.R., & Wilson, N. 1989. Profit sharing and productivity: An analysis of U.K. engineering firms. Economic Journal, 99: 366 - 375.

Cable, J.R., & Wilson, N. 1990. Profit sharing and productivity: Some further evidence. Economic Journal, 100: 550 - 555.

Conte, M.A., & Svejnar, J. 198). Productivity effects of worker participation in management, profit-sharing, worker ownership of assets, and unionization in U.S. firms. International Journal of Industrial Organization, 6(1): 139 - 151.

Cooke, W.N. 1994. Employee participation programs, group-based incentives, and company performance: A union-nonunion comparison. Industrial and Labor Relations Review, 47(4): 594 - 609.

Doucouliagos, C. 1995. Worker participation and productivity in labor- managed and

and participatory capitalist firms: A meta-analysis. Industrial and Labor Relations Review, 49(1): 58 - 77.

Drago, R., & Turnbull, G.K. 1988. Individual vs. group piece rates under team technologies. Journal of Japanese and International Economics, 2: 1 - 10.

Eisenhardt, K.M. 1988. Agency- and institutional-theory explainations: The case of retail sales compensation. Academy of Management Journal, 31(3): 488-511.

Estrin S., & Wilson, N. 1987. The Microeconomic Effects of Profit Sharing: the British Experience. Discussion Paper No. 247, Centre for Labour Economics, London School of Economics.

Fernie, S., & Metcalf, D. 1995. Participation, contingent pay, representation and workplace performance: Evidence from Great Britain. British Journal of Industrial Relations, 33(3): 279 - 315.

Fitzroy, F.R., & Kraft, K. 1986. Profitability and profit-sharing. Journal of Industrial Economics, 35(2): 113 - 130.

Fitzroy, F.R., & Kraft, K. 1987. Cooperation, productivity and profit-sharing. Quarterly Journal of Economics, 102: 23 - 35.

Kandel, E., & Lazear, E. 1992. Peer pressure and partnerships. Journal of Political Economy, 100(4): 801 - 817.

Kruse, D. 1988. Essays on Profit-Sharing and Unemployment. PhD Dissertation, Harvard University.

Kruse, D. 1993. Profit Sharing: Does it Make a Difference? Kalamazoo, MI: W.E. Upjohn Institute

for Employment Research.

Kruse, D. 1999. Economy democracy or just another risk for workers? Reviewing the evidence on employee ownership and front sharing. Presented for the Democracy, Participation and Development Conference, Columbia University.

Lazear, E.P. 1986. Salaries and piece rates. Journal of Business, 59: 405 - 431.

Lazear, E.P. 1995. Personnel Economics. Cambridge, Mass: The MIT Press.

Lesieur, F.G. 1958. The Scanlon Plan: A Frontier in Labor-Management Cooperation. Cambridge, Mass.: MIT Press.

Levine, D.I., & Tyson, L.D. 1990. Participation, productivity and the firm's environment. In A. Blinder (ed.), Paying for Productivity. Washington, DC: The Brookings Institution.

MacDuffie, J.P. 1995. Human resource bundles and manufacturing performance: Organizational logic and flexible production systems in the world auto industry. Industrial and Labor Relations Review, 48: 197 - 221.

Maddala, G.S. 1977. Econometrics. New York: McGraw-Hill.

Milgrom, P., & Roberts, J. 1992. Economics, Organization and Management. Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Milgrom P., & Roberts, J. 1995. Complementarities and fit: Strategy, structure, and organizational change in manufacturing. Journal of Accounting and Economics, 19: 179 - 208.

Miller, K.L., & Monge, P.R. 1986. Participation, satisfaction, and productivity: A meta-analytic review. Academy of Management Review, 29: 727 - 753.

Mitchell, J.B., Lewin, D., & Lawler, E,E. 1990. Alternative pay systems, firm performance, and productivity. In A. Blinder (ed.), Paying for Productivity. Washington D.C.: The Brookings Institution.

Richardson, R., & Nejad, A. 1986. Employee share ownership scheme in the UK - An evaluation. British Journal of Industrial Relations, 24(2): 233 - 250.

Salanié, B. 1999. The Economics of Contracts: A Primer. Cambridge, MA: The MIT Press.

Sesil, J. 1999. The impact of employee Involvement and group incentives on performance in UK high technology establishments. In Oakey, R., During W., & Mukhtar, S-M, New Technology Firms in the 1990's: 297-308. New York, NY: Elsevier Science Ltd.

Wagner, J.A. 1994. Participation's effects on performance and satisfaction: A reconsideration of research evidence. Academy of Management Review, 19(2): 312 - 330.

Weitzman, M.L. 1984. The Share Economy. Cambridge, MA: Harvard University Press.

Weitzman, M.L. 1995. Incentive effects of profit sharing. Harvard University Mimeo.

Weitzman, M., & Kruse, D. 1990. Profit sharing and productivity. In A. Blinder (ed.), Paying for Productivity. Washington DC: The Brookings Institution.

TABLE 1

Variable Definition

Variable	Definition
ROA	Pre-tax profit divided by assets.
ROS	Pre-tax profit divided by total establishment sales.
Control	1 if the establishment has shopfloor worker quality task control and no group incentive schemes, 0 otherwise.
Return	1 if the establishment has no shopfloor worker quality task control and a group incentive scheme, 0 otherwise.
Control/Return	1 if the establishment has has transferred *both* control and return rights to shopfloor workers.
Information	1 if the establishment has a high level of Mgmt>Employee Employee>Mgmt communication, 0 otherwise.
Union	1 if the establishment has a union, 0 otherwise.
Multi-Skill	1 if the establishment uses multi-skill training, 0 otherwise.
Strategy	1 if the establishment has a functionally integrated strategic planning process, 0 otherwise.
Size	Average number of employees in year t.
LnSize	Log of the average number of employees in year t.
Assets	Gross book value of depreciable assets.
LnAssets	Log of gross book value of depreciable assets.

Year in which interview took place and sector dummies also included in regressions

TABLE 2

Variable Means and Standard Deviations by Control, Return and Combined Control and Return Rights.

Variable	Control/Return (81)		Return (72)		Control (107)		NoConNoRet (137)		Total (397)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
ROA	.14	.17	.13	.11	.12	.13	.10	.12	.12	.14
ROS	.06	.06	.06	.07	.06	.11	.04	.05	.06	.09
Size	294	305	256	268	238	252	367	585	325	467
LnSize	5.3	.77	5.4	.76	5.2	.73	5.4	.91	5.3	.83
Union	.52	.50	.53	.50	.66	.48	.63	.48	.60	.49
Information	.26	.44	.11	.32	.34	.48	.13	.34	.21	.41
MultiSkill	.70	.46	.25	.44	.51	.50	.38	.49	.46	.50
Assets (000)	57	214	47	197	75	383	68	316	60	321
LnAssets	8.8	1.7	9.2	1.9	8.7	1.8	8.6	1.7	8.8	1.8
Engineering	.50	.50	.28	.45	.53	.50	.42	.50	.45	.50
Electronics	.12	.33	.18	.39	.07	.25	0	0	.08	.27
Plastics	.21	.41	.08	.28	.28	.45	.25	.43	.23	.41
Food&Drink	0	0	.19	.40	.04	.19	.15	.36	.10	.30
Miscellaneous	.17	.38	.26	.44	.08	.28	.19	.39	.17	.37

TABLE 3

Random Effect Estimates of Return on Assets and Return on Sales for UK Manufacturing Establishments. Control, Return and Combined Control and Return Rights. (Standard Errors in Parentheses.)

Variables	Model 1	Model 2	Model 3	Model 4
Control	.05	.03	.02	.02
	(.04)	(.04)	(.02)	(.02)
Return	.09+	.06	.03	.03
	(.05)	(.06)	(.02)	(.02)
Control/Return	.11**	.10*	.04**	.05**
	(.04)	(.05)	(.02)	(.02)
Information	-.02	-.004	.01	.01
	(.04)	(.04)	(.02)	(.02)
Union	-.06*	-.06+	-.02	-.01
	(.03)	(.03)	(.01)	(.01)
MultiSkill	.06+	.06+	.02	.02+
	(.03)	(.03)	(.01)	(.01)
Strategy	-.01	-.03	.0004	.001
	(.03)	(.04)	(.01)	(.01)
LnSize	.02	.02	.004	.01
	(.02)	(.02)	(.01)	(.01)
LnAssets	-------	-------	-.0003	-.008
			(.003)	(004)
Intercept	.11	.07	.03	.04
	(.12)	(.13)	(.05)	(.05)
R2	.22	.21	.17	.19
N	178	141	178	141

Note: Sector and year in which interview conducted dummies included in the regression but not reported.
Model (1), Regression includes independent variables + controls using ROA in time t.
Model (2), Regression includes independent variables + controls using ROA in time t -1.
Model (3), Regression includes independent variables + controls using ROS in time t.
Model (4), Regression includes independent variables + controls using ROS in time t -1.
+ p< .10
* p< .05 level
** p< .01 level