Motivating Employee-Owners in ESOP Firms: Human Resource Policies and Company Performance

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Over one-fifth of U.S. private-sector employees – 24 million workers -- own stock in their own companies. Eight million participate in Employee Stock Ownership Plans (ESOPs) (Blasi, Kruse, and Bernstein 2003: 249). The growth of ESOPs over the past 25 years is part of a general growth in compensation arrangements linking worker pay to company performance, including profit sharing, gain-sharing, and broad-based stock options in addition to the various methods of employee ownership (Kruse 1993; Freeman and Dube 2000; Sesil et al 2002, Blasi, Kruse, and Bernstein 2003). Existing research shows that employee ownership firms tend to match or exceed the performance of other similar firms on average (Kruse and Blasi 1997), but with considerable dispersion of outcomes. The bankruptcy of United Airlines highlights that employee ownership can fail to deliver on its promises in some circumstances (Mackin 2002) while the continued success of firms like SAIC shows that ownership can produce long term growth in highly competitive technological industries.

In principle, by tying worker pay more closely to firm performance and involving workers in decision-making, employee ownership arrangements can help reduce the principal-agent problem in the workplace and increase performance. The most common theoretical objection to positive effects of employee ownership and other group incentive plans is the "free rider" or "1/N" problem, which arises due to the weak link between an individual's performance and financial payoff as the workgroup grows larger (if there are N workers, an individual will get on average only 1/N of the extra surplus that he or she generates). As standard economic analysis provides no way to resolve the free rider problem, many researchers agree with Weitzman and Kruse that "something more may be needed—something akin to developing a corporate culture that emphasizes company spirit, promotes group cooperation, encourages social enforcement mechanisms, and so forth" (1990: 100). A three-pronged combination of i)

incentives, which must be sufficiently meaningful to workers to motivate them; ii) participation, which must be sufficiently meaningful for workers to make critical decisions; and iii) a workplace environment or company ethos that resolves, or at least diminishes, the free rider problem appears to be the key to improving performance through employee ownership.

Econometric studies of employee ownership and participation compare firms with different ownership and incentive structures (ownership through pension plans such ESOPs, profit-sharing, broad-based stock options, worker cooperatives, and direct stock ownership) or different participative mechanisms (employee involvement committees, teams, etc) to firms lacking these systems. Most of the studies rely on administrative or company data, leaving to case investigations analysis of how an ownership or participation scheme works in practice. Meta-analyses estimate that the average increase in productivity associated with ESOP adoption is 4.5%, and give comparable effects for other forms of ownership incentive structures.[1] But around the average effect are a wide band of outcomes that makes it clear that giving employees an ownership stake is by no means a cure-all to company or workplace problems.

Consistent with this, studies that compare employee attitudes and self-assessed work behavior under employee ownership give a mixed picture (Kruse and Blasi, 1997; Kruse, 1999). Several studies find higher satisfaction, commitment, and motivation among employee-owners, but others find no significant differences between owners and non-owners, or before and after an employee buyout. Most studies find that organizational commitment and identification are

[1] There have been 32 large-sample studies on firm performance under employee ownership (Kruse and Blasi 1997; Kruse 1999). While many make cross-sectional comparisons between firms with and without plans, some compare firms before and after the adoption of such plans, and some look within firms to measure the effects of different features. While the majority of studies do not establish a statistically significant positive link between employee ownership and performance, meta-analyses strongly point toward a significant positive link overall (there are far more positive results than would be expected if there is in fact no true relationship). These positive results also generally appear in research on profit-sharing and gain-sharing plans (Bullock and Tubbs 1990; Kruse 1993; Collins 1998: 16-17).

higher under employee ownership, but find results that vary from favorable to neutral on job satisfaction, motivation, and such important forms of behavior as turnover, absenteeism, grievances, tardiness, and injuries.

Productivity studies rarely link employee reports on how ownership plans actually work to company output, in part because employee surveys lack the quantitative output data necessary for such a productivity analysis. Employees in worker owned and participative firms report that their firms perform better than do employees in other firms (Freeman and Dube 2000), but the workers may not giving a sufficiently accurate assessment of their firm's actual performance. It is only by combining evidence from workers and firms – matched employee-employer data files – that we are likely to make progress in understanding what makes some ownership plans work while other fail, and thus to explain the diversity of outcomes from companies choosing at least nominally similar ownership structures.[2]

This paper uses survey data from 13 ESOP companies to examine the factors that affect the differential impact of employee ownership on productivity and work behavior. The surveys were conducted at different periods of time by Ownership Associates, a consulting firm[3], and by our research team The Ownership Associates (OA) survey (Ownership Culture Survey) covers employees and managers in eleven ESOP companies over the period 1996-2002. The OA survey

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[2] Even matched data will not resolve some problems in interpreting results. There may be selection bias in the firms that adopt these plans or workers who work under them, although existing work does not support the notion that selectivity explains results. Studies that adjust for the potential endogeneity of employee ownership find little impact. Studies on the types of workers who choose to work in employee ownership and profit-sharing companies indicate that both high and low performers tend to avoid pay plans tied to group performance; average worker quality is not very different under these plans, so that issues of worker quality are not likely to bias the firm-based estimates. Still, absent a genuine experiment, there will always be some uncertainty about whether results generalize to firms that have not chosen employee ownership.

[3] Ownership Associates, Inc. is a Cambridge, MA consulting firm "providing strategic and technical advice to groups exploring employee ownership." See www.ownershipassociates.com

asked employees about their views and attitudes toward various aspects of their workplace, including the effort employees gave, their level of involvement in decision making, and their feelings about ownership of the firm. The managers filled out a survey on human resource policies, firm performance, and ESOP characteristics.[4] The firms in this survey are relatively small, with the number of employees ranging from 27 to 1800, with a mean of 396 and median of 181. Seven of the companies had between 100 and 300 employees. There are a total of 2139 survey respondents from the 11 companies, giving a response rate for workers of 71% across all companies. Because the survey obtained both worker reports on participation, effort, and ownership, and company data on actual outcomes, these data provide a check on the extent to which worker reports of effort show up in actual firm performance. Our second data set contains information on employees in two firms that the NBER's shared capitalism research project surveyed in 2002. Here the focus is on individual variation in the ways workers try to prevent free riding behavior from undoing the potential positive effects of ownership and participation. In particular, we ask workers how they would respond to employees who are not carrying their weight in the firm and relate their responses to the position of the employees in participative structures.

Our samples are small and thus give results that should be viewed as suggestive. The National Opinion Research Center (NORC) has completed a national survey using questions that we devised analogous to those in the current study. This survey has both a representative sample of workers and data that match workers with firms. Some of the questions on this survey mimic those on our company surveys, which will allow us to compare responses from employee-owned

[4] Most of the companies in the Ownership Associates survey converted to employee ownership when the principal owner of the firm retired. None of the firms were having serious performance difficulties before conversion and none required workers to give concessions for ownership.

enterprises for which we have detailed knowledge with the responses from non-employed owned workers and firms. Thus, this paper is a foray with limited data into an area that will offer new and nationally representative information in the near future.

Some readers may worry that our samples are overly selective, and could produce results that do not generalize to other ESOP companies, much less to firms more generally. But the OA sample is well-suited to assess the variation in outcomes among firms with a similar ownership structure, and the NBER shared capitalism sample is well-suited to examine the variation of workers within them. On the one side, by basing our analysis on comparisons within these groups, we potentially avoid errors in interpretation due to selectivity. On the other side, a set of fairly similar firms with comparable ownership structure provides just the right sample to assess variation within the employee ownership structure.

Variation in Employee-reported and Company Performance Measures

The starting point for our analysis is the variation in outcomes among employee-owned firms. Table 1 shows wide variation in employee-reported measures of work outcomes in the 11 firm OA sample; wide variation in objective company measures of outcomes; and, critical for our research strategy, a substantive positive relation between the two measures. The top half of Table 1 gives the mean and standard deviation of employee responses to 6 statements about work activity at the firm on a seven point scale. It shows whether employees agree with 4 positive statements ("People at [OurCo] work hard … care about meeting customer needs … are willing to make sacrifices to help co-workers; are very committed to the company and its future"; and whether they agree with 2 negative statements: "As long as jobs are secure, company performance is unimportant … and [OurCo] employees work less when supervisors are not

watching."[5] In addition, we have formed summary indices of the positive statements, and of all six statements, reverse coding the negative statements so that the summary statistic reflects positive reports overall. While the data show considerable variation in the responses in the entire sample, indicating that employees have a wide range of views, the general pattern is for workers to agree with the more positive statements. The critical statistics are the F-statistics in column 4, which tests whether there are consistent firm-level differences within this variation. These statistics show sizable firm differences, which increase in significance as we form the summary statistics. The implication is that workers at different ESOP firms have consistently different views of worker performance at their firms.

The bottom of Table 1 gives the firm-reported performance measures. Because the firms are in different industries, we adjusted the reported measures for industry levels or trends over the past three years, using data on public companies from Standard and Poor's Compustat. Since the ESOP companies are all privately-held and relatively small companies, they tend to have lower productivity than the larger Standard and Poor's firms (thus the negative value for average ln(sales/employee)). In addition, their employment and sales growth is lower than the average in the industry in which they operate. At the same time, their profit margin and stock price growth exceeded industry averages. What is important for our purposes, however, is not the difference between these firms and others in their given sector, but the variation among the firms themselves (relative to their given sector). The standard deviation of each of the industry-adjusted objective company performance measures exceeds the absolute value of the mean of all but one of the measures, implying a huge disparity in outcomes.

Are the employee reports of productive behaviors related to the objective firm-reported

[5] This was asked at only 8 of the 11 companies, so the sample size is smaller.

measures? Since the worker-reported measures and the objective company measures relate to different aspects of performance, we expect some variation even if the employee reports are accurate. The correlation between "people at our company work hard", for instance, and performance need not be high even if workers report correctly on work effort, since there are many influences upon company performance apart from employee behaviors. Nonetheless to the extent that employee behaviors influence performance, there should be a positive link between reported productive behaviors and company performance if the employee reports are meaningful. Columns 4-6 of Table 1 report firm-level correlations between the objective company measures and the average within-company scores of three employee-reported measures (People at [OurCo] work hard," which has the greatest face validity among the employee measures, plus the 4-item and a 6-item summary indices.[6]) All of the correlations are positive, though they vary greatly in magnitude. The highest correlations are with the profit margin (.582 to .630) and 3-year employment growth (.481 to .621). Correlations with productivity levels (measured as ln(sales/employee)) vary (.019 to .337), while correlations with productivity growth over the past three years show a consistent pattern (.328 to .373). While the sample of firms is too small to make any strong statistical statement, the consistent positive correlations provide some validation for the employee-reported measures.

[6] The alpha scores for the two indices are .75 and .78, respectively.

Hypotheses: Complementarity and Three Prongs

What might explain the variation in the employee-reported measures of employee work activity among employee owned firms? Does the historical genesis of ownership affect outcomes? Do employee-owned firms adopt different human resource policies with ensuing differential effects on outcomes?

We offer two hypotheses to explain the variation in employee-reported work effort. The first is the "complementarity hypothesis" that greater participation/influence in decisions in addition to the economic incentives of an ownership stake per se are necessary to generate productive employee attitudes and behavior beyond those in other firms. The logic for the complementarity of participation and incentives is impeccable. Why should ownership without participation improve worker effort if workers have no way to respond to the incentives of ownership? Similarly, why should opportunities to participate without incentives – say through teams of quality circles, where there is no economic payoff to additional effort – generate the types of behavior that will improve company outcomes? Firms need incentives and opportunities working together for employee ownership or any other form of organization to yield improved performance. There is evidence that employee ownership and participation are positively correlated (Freeman and Dube 2000; Conyon and Freeman 2001), so that employee-owned firms are more likely to have participative structures than other firms, and conversely. But the evidence that this produces superior outcomes is less clear. Freeman and Dube found that employee reports of productive behaviors were higher in companies that combined employee ownership or profit sharing with employee participation in decision-making and concluded that "the impact of compensation practices appears to be contingent on such decision making structures" (2000: 18). But, lacking matched firm data, they had no evidence that the

employee reports translate into actual superior company performance.

The "three prong" hypothesis is that complementarity of incentives and participation is itself not enough to produce the best outcomes. This is because the opportunity to free ride on the efforts of others can undermine even the best ownership incentive. Firms, or workers, must do something more to prevent free riding behavior from demoralizing an ownership incentive system and destroying its potential. They must set in motion forces that lead employees to view themselves as critical contributors to output even though each individual's contribution is modest, much as democracies must motivate voters to go the polls even though it is rare that any single vote determines any election. Economists understand less about the ways in which employee-owned organizations and their employees or other firms accomplish this than they understand responses to individual incentives. Our data allow us to examine some human resource policies that may enforce/motivate behavior against the free riding tendency.

Specific human resource policies

Human resource policies may be a part of the "something more" that establishes a cooperative solution. In particular, group incentive systems may be productively combined with policies that draw more fully on worker skills and information about the work process, and increase workers' sense of participation, security, and fair treatment. Such policies in employee ownership companies may help to create a greater "sense of ownership" that leads to greater effort, commitment, worker co-monitoring (reducing central monitoring by supervisors), and information sharing. A growing number of studies of human resource practices show that

> innovative human resource practices can improve business productivity, primarily through the use of systems of related work practices designed to enhance worker participation and flexibility in the design of work and decentralization of managerial tasks and responsibilities (Ichniowski, et al 1996: 322).

Ichniowski et al (1996), Appelbaum et al. (2000) and Becker, Huselid, and Ulrich (2001) all find that new systems of participatory work practices have substantial effects on business performance while isolated changes in individual work practices do not generally improve performance. These studies relate to diverse firms, rather than the employee-ownership firms on which we focus. The three-pronged hypothesis is that these policies and practices have larger effects on employee owned firms than on firms that lack the ownership incentive and accompanying modes of participation. With our data, however, we can only explore the possible link between these policies and worker efforts among the employee-owned firms.

Table 2 shows the diversity of human resource policies among the eleven OA companies. Column 1 reports the percentage of practices across the companies, while column 2 reports the percentage weighted by employment. Only two firms use techniques that clearly increase involvement in job-level decisions (quality circles and autonomous workgroups), though seven firms have employee task forces, five have employee involvement in new hires, and three have employee representation on the board of directors. Summarizing these involvement activities the "EI index" in the table shows that the average company in the sample used only 1.55 of these five techniques.

The survey asked about nine methods of sharing information with employees. The most common methods are new employee orientations and regular meetings at the department or workgroup level (each used by ten firms), while the least popular is an intranet (used by three firms). On average firms use 6.18 of these methods, as measured by the "Information index."

The company survey asked about several other policies. All but one of the eleven firms have a 401(k) plan, while only three have a deferred profit-sharing or other type of defined contribution pension, and none have defined benefit pensions. While none of the eleven firms is

unionized, five of them have formal grievance procedures, which can help increase employees' sense that they will be treated fairly. Four of the firms report labor-management training to enhance employee skills and workplace relations. Complementing the methods to share information with employees, seven companies report administering employee surveys to collect employee views, while three report having suggestion systems. Ten of the eleven companies report some type of cash profit sharing or bonus system, while half of these report that the bonus is at least partly tied to individual performance.

Table 2 also reports on several variables connected to the ESOP. On average, companies contributed close to 10% of their total payroll cost to the ESOP in the previous year, with percentages ranging from 3% to 20%. The percent of the company owned by the ESOP averages 54.2%, ranging from 9% to 100%. More important potentially for worker incentives, the ESOP value per employee averages $41,988, ranging from $3,200 to $181,052. Several studies indicate that such wealth tends to come on top of, rather than in place of, other pension plans, wages, and benefits (reviewed in Kruse 2002). Seven of the companies reported a performance-related reason for adoption of the ESOP, which will be used to help control for selection bias that may contaminate the results (since companies reporting performance-related reasons for adoption were probably more likely to have performance difficulties prior to adoption).[7]

There are far more human resource policies than companies in the OA survey, which makes it impossible to sort out the independent effects of policies. To deal with this problem, we added together seven of the policies to form the HR index reported at the bottom of the table. The index assigns one point each for being above the median on 1) the EI index, 2) the

[7] Six companies checked the reason "To encourage employees to think like owners," four checked "To improve productivity," and six checked "To retain or recruit employees." The other listed reasons for ESOP adoption, which can overlap, were "to purchase stock from an owner" (6 companies), "to raise

information index, and 3) the percent of pay contributed to the ESOP, and one point each for having 4) a pension other than 401(k), 5) a formal grievance procedure, 6) labor-management training, and 7) employee surveys. Factor analysis and assessment of alpha scores showed that these were the policies that best fit together, appearing to measure the intensity of a common approach to human resources. The average score on the 0-7 HR index, as shown in Table 2, is 3.55.[8]

HR Policies and Performance

Are the HR variables linked to performance? Table 3 reports regressions of the three employee-reported performance measures ("People at [OurCo] work hard," and performance indices 1 and 2 from Table 2) on the HR index and on the use of individual bonuses and a suggestion system. Whereas the HR index relates to group incentives and participation, these variables reflect individual incentives. In addition, in the even numbered columns, we include a variable for whether the firm introduced the ESOP because of economic performance concerns. For six of the companies we also had information on employees' age, gender, and broad job classification, but regressions including these variables for this subset showed little difference in the main variables of interest, and the table reports the results for the total sample absent those demographic variables.

The results in Table 3 show that the HR index is positively related to the worker reported work effort, and significantly different from zero in five of the six regressions. They also show a positive relation between individual bonuses and the outcome variables and a negative relation

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capital for the company" (1 company), "for tax advantages" (5 companies), and "as an employee benefit" (7 companies).

[8] The alpha score on this index is .85. The 401(k), bonus, and suggestion system variables had low positive correlations with the other items in the index, while bonuses based on individual performance had negative correlations with the other items in the index.

between the use of a suggestion system and outcomes.[9] Multi-collinearity among these variables due to the limited number of companies, however, makes the estimates of policies very sensitive to the other variables included in the regression. Focusing on the HR index as our best indicator of company policies, we estimate that an increase of one standard deviation (1.97, from Table 2) increases the score on "People at [OurCo] work hard" by about .2, and increase the scores on performance indices 1 and 2 by about .8 and 1.2, respectively. These represent increases of about 15-20% of a standard deviation in the performance measures.

Are these coefficients affected by selection bias due to the types of firms that implemented HR policies? Firms with low productivity may be more likely to adopt HR policies to enhance performance, which would cause a downward bias in the HR index coefficient. One way to partially address this possibility is to use information on the reasons for ESOP adoption. As noted earlier, seven of the firms listed a performance-related reason for ESOP adoption, which may indicate a higher likelihood of pre-existing performance problems. Inclusion of this variable in the even-numbered regressions does not reduce the effect of the HR variables on the "people at our company work hard" outcome measure nor the summary performance index 1 though it does slightly weaken the link between performance index 2 and the HR index.

HR Policies and Cooperative Solutions

Do the HR policies affect other workplace outcomes that might make it easier to sustain a high participation/outcome solution against tendencies to free ride?

To answer this question, we have examined the link between other worker-reported aspects of the workplace and the HR policies. These "other outcomes" range from variables

[9] Suggestion systems are often nothing more than a "suggestion box" on the wall, which are so mundane that they don't indicate much about HR policy. It is possible that formal suggestion systems are even a substitute for meaningful involvement.

closely linked to ownership – whether or not employees have a real influence over the direction of the firm, company response to employee suggestions, and encouragement of worker participation in decisions—to relations with co-workers and views of management and supervisors, among others. Table 4 reports coefficients from separate regressions of each of these variables on the HR index. The HR index is positively related to most of these workplace outcomes, although fewer than half of the estimates are significantly different from zero. Significant positive outcomes are most likely in perceptions of fairness, co-worker relations, good supervision, and worker input and influence. Apart from being important in themselves, each of these outcomes may be important in company performance (and are in fact correlated with perceptions of better performance). Two results, however, go against expectation. Employee ownership and employee involvement may, as noted, help increase performance by decreasing centralized supervision. Workers with higher scores of the HR index were actually slightly (but not significantly) more likely to say that "People feel they are too closely supervised—someone is always checking up on them." While this might indicate that supervision is higher in firms with more HR policies (because managers or fellow employees have a greater stake in ensuring that workers work hard) it may also indicate that workers who are covered by more HR policies do not think they need to be supervised as much, and may somewhat resent the supervision they do receive. This suggests that supervisors and middle managers may have particular problems in adapting to employee ownership plans and other group incentive plans.

A second result that is relevant to company performance concerns feelings of ownership. One of the key questions on the OA survey asks workers "How much do you feel like an owner of this company?" This variable is essentially uncorrelated with the HR policy

index. There are two possible explanations. The first is that the feeling of ownership is irrelevant to actual work performance and thus is unaffected by policies designed to improve workplace performance. If this were the case, there would be no correlation between employee feelings of ownership and employee reports on work outcomes. In fact, Table 5 shows a positive correlation between the sense of ownership and our three outcome measures by itself and with the inclusion of the nearly independent HR index. The most sensible interpretation of these results is that both ownership and participation enter workers' work effort, but that workers judge their ownership by the actual economic incentives and not by the policies that firms of all sorts use to be "good employers". The implication is that neither the workers nor the researchers should expect a sense of ownership from the standard array of advanced HR policies. To test this notion, we examined the relation between workers' feelings of ownership and two measures of actual ownership – the average ESOP value for employees in the firm and the percentage of the company that the ESOP owned. Both of these factors are positively correlated with workers' feelings about ownership (the correlation with ln (average ESOP value) is .125, and with percent of company owned is .1356, both significant at $p<.001$). Reality would appear to be more important in judging ownership than HR policies that do not actually affect the ownership stake of workers. It may, however, be the case that much depends on how the policies are presented to workers: a company could talk about participation or information sharing as a policy which is worthwhile in its own right, or as a policy which is tightly linked to employee-ownership. It could be this linkage that has an effect on ownership identity, not the policies themselves.

The NBER Sample and Employee Response to Free-Riding

In 2002 the NBER Shared Capitalism research project undertook a set of surveys of firms with particular employee ownership structures and commissioned NORC to ask a set of questions of a nationally representative sample of workers regarding ownership, participation, and company culture, and to develop a matched employer-employee data set as well. At this writing, we have available data from two employee owned firms in the 250-500 employee category, with an average response rate from workers of 54%. One of the smaller firms is 100% employee owned, while the other firm is one-third owned by employees, so these are in the upper tail of ESOP firms in terms of ownership. We concentrate on how employee participation on EI committees and involvement in group decision-making affects responses to free riding behavior. The key question on our survey relating to employee response to free-riding behavior is:

If you were to see a fellow employee not working as hard or well as he or she should, how likely would you be to:

Talk directly to the employee
Speak to your supervisor or management
Do Nothing

The responses were given on a four point scale, running from (1) not at all likely, to (2) not very likely, to (3) somewhat likely, to (4) very likely. For ease of presentation and to allow for a relatively simple difference-in- difference analysis of the data, we summarize the responses as the mean of the coded answers. The descriptive statistics in the upper panel of Table 6 show that workers at both of the small firms were likely to talk directly to the employee or speak to the supervisor, though there is considerable variation among individuals with a standard deviation of about one unit (the difference between two categories). The bottom panel of Table 6 gives three indicators of the role of the worker in the firm: whether the worker served on an employee

involvement committee or team or task force; whether the employee received training in the past year and the employee's perceived involvement in three activities: doing their own job; setting goals for their work group or department; and participating in overall company decisions. In company A, where the workers are more skilled, approximately half of the work force serves on EI committees and 60% received some training. By contrast, in firm B just 29% serve on some EI committee and 17% received some training. In both firms, workers report having greater involvement in deciding to do their own jobs than in setting goals for their work group, and least involvement in overall company decisions.

Under which of these situations is a worker more likely to intervene actively when they see someone not working up to speed? We expect workers to be more likely to respond against free riding when they are involved in a group work activity than when they are in a more individualistic work situation. If this is the case, workers on EI teams are more actively to intervene against free riding than other workers. Workers more involved in setting goals for their work group or department are more likely to intervene actively than other workers. Do the data show such patterns, and if so, to what extent, if at all, can we interpret them as being causally related to the workers' position in the organization as opposed to some unobserved individual characteristic?

EI Committees, involvement in decisions, and response to free-riding

The evidence in Table 7 shows that workers on EI committees are far more likely to talk directly to the employee and much less likely to do nothing than workers who are not on such committees. The mean score for the response of "talk directly" for workers in company A who are on committees is 2.93 compared to a mean score of 2.21 for those who are not on committees, giving a statistically significant difference of 0.72 in company A. The comparable

difference in company B is 0.50. The differences between EI members and other workers in speaking to a supervisor about a worker not doing his or her job is smaller though still significant, 0.36 and 0.35, while the differences in doing nothing are significant in the opposite direction. These results are consistent with the notion that the position of workers on EI committees leads them to intervene more than other workers when they see someone not doing their job and, most important, to intervene directly to a greater extent than going to a supervisor. The difference between talking to the employee directly and speaking to the supervisor or manager is a substantial 0.36 in company A (0.72-0.36) and 0.15 in company B (0.50-0.35).

Absent a before/after experiment of placing employees on EI committees and seeing how they react to this group responsibility, we probe for causality in the observed relation by comparing the difference in worker response to other differences in responses between workers, and to differences associated with other aspects of the person's working life. We do this in two ways. First, we contrast the difference in response to free riding between workers serving on EI committees and workers not serving on EI committees to the workers' assessment of their willingness to work hard for the company. We derive this variable from a question: "I am willing to work harder than I have to in order to help the company I work for succeed", which we scaled on a five-point scale, including the neutral response "neither agree nor disagree". Persons on EI committees in both companies report that they are more likely to work harder than do workers who are not those committees, but the magnitude of the difference is markedly smaller than the difference in their likelihood of talking directly to the employee who is doing poorly. That is, the EI/Non EI difference in opposing free riding behavior is greater than the personal difference in work effort between EI and Non EI workers.

Second, we compare the difference in response of persons with EI involvement to free

riding to the difference in responses by workers who received training and workers who did not receive training. Workers given training by the firm are likely to be valued employees, and thus might be expected to intervene when other employees are not doing their job. The results in the bottom panel of Table 7 show such a pattern (at least for company A). But once again the differences for talking directly to employees are smaller in these contrasts than the differences between persons on EI committees and those not on such committees.

Our surveys contain multiple other questions from which we can derive differences for comparison with those from the EI committee contrast. All those we have examined show smaller differences than the ones found for the EI committee involvement, which is consistent with the notion that there is a real impact from the role that workers play in organizational decision-making.

Table 8 examines this pattern using a different set of questions. It uses responses to questions about the perceived involvement of workers on their own job, in setting goals for their work group, and in the overall company, to see whether group activity produces greater worker efforts to police free riding behavior than other forms of involvement. The table gives the average scores of workers in terms of their likelihood of responding to workers not doing their job right by the level of perceived involvement in the specified activity. In all cases, workers who are more involved in some activity are more likely to talk directly to employees who are performing poorly and are more likely to speak to supervisors and less likely to do nothing about the poorly performing employee, than employees who feel no sense of involvement in the specified area. The key question is whether these differences are greater for workers involved in their workgroup than for those involved in their own job or in overall company decisions. The data in the table show this pattern. The P-values reflecting the difference in responses among

categories compared to a null of no difference are markedly smaller for "perceived involvement in setting goals for work group" than for either of the other categories. In company A, there is no statistical difference by involvement in one's own job in the likelihood of talking directly to the poor performer compared to a highly significant difference by involvement in setting workplace goals.

Because at this writing we lack data from a nationally representative sample that would give us a non-employee owned comparison group, we do not know whether employee owners make a greater effort to police poor performance than other workers (which we anticipate), nor whether serving on an EI committee or being more involved in setting workgroup goals has a greater or lesser effect in an employee-owned enterprise than in another enterprise (which is unclear). But the data from the firms we have examined provide a useful initial picture of how the workers' participation in decision-making is associated with their efforts to reduce free riding behavior.

Conclusion

Economic theory suggests that by itself ownership is unlikely to affect greatly worker effort and performance. Ownership must be combined with employee involvement and other policies that give workers the power to act on the incentives; and employee owned and other organizations that rely on group incentives must battle against the tendency to free ride. Our analysis of variation in worker-reported effort across eleven ESOP firms and of workers within two ESOP firms tends to support the need to combine the incentive of ownership with the involvement of participation. We find significant differences in worker assessment of work effort across ESOP firms, indicating that even in firms with substantial employee ownership, other factors influence outcomes. Relating worker-reported outcomes to their sense of ownership and

an index of HR policies shows that ownership and HR policies are both positively linked to employee reports of workplace performance, which is itself related to company performance. Our analysis of employee response to co-workers who are failing to do a good job shows that workers on employee involvement committees or who otherwise report being involved in setting goals for their work group are more likely to talk directly with the non-performing worker and are less likely to do nothing. Conceptually, an understanding of how employee ownership works successfully, or not, requires a three-pronged analysis of: the incentives that ownership gives; the participative mechanisms available to workers to act on those incentives; and incentives/corporate culture that battles against tendencies to free ride. All firms, whether employee owned or not, have to combine these three elements in some fashion to motivate workers to perform as best they can. Employee ownership provides a distinct solution to the incentive problem, but must still deal with the participation and free-riding problems.

References

Appelbaum, Eileen, Thomas Bailey, Peter Berg, and Arne Kalleberg. 2000. Manufacturing Advantage: Why High-Performance Work Systems Pay Off. Ithaca, NY: Cornell University Press.

Becker, Brian, Mark Huselid, and Dave Ulrich. 2001. The HR Scorecard: Linking People, Strategy, and Performance. Boston, MA: Harvard Business School Press.

Blair, Margaret, Douglas Kruse, and Joseph Blasi. 2000. "Is Employee Ownership an Unstable Form? Or a Stabilizing Force? in Thomas Kochan and Margaret Blair, eds., The New Relationship: Human Capital in the American Corporation. Washington, D.C.: The Brookings Institution.

Blasi, Joseph, Douglas Kruse, and Aaron Bernstein. 2003. In the Company of Owners. New York: Perseus Books.

Blinder, Alan S. (Ed.). 1990. Paying for Productivity: A Look at the Evidence. Washington, D.C.: Brookings Institution.

Collins, Denis. 1998. Gainsharing and Power: Lessons from Six Scanlon Plans. Ithaca and London: Cornell University Press, ILR Press.

Conyon, Martin J., and Richard Freeman. 2001. "Shared Modes of Compensation and Firm Performance: UK Evidence," Working Paper No. 8448, National Bureau of Economic Research, Cambridge, MA.

Craig B. and J. Pencavel. 1992. "The Behavior of Worker Cooperatives: The Plywood Companies of The Pacific Northwest," American Economic Review, 82, 1083-1105.

-----. 1993. "The Objectives of Worker Cooperatives," Journal of Comparative Economics, Vol. 17(2), June, pp. 288-308.

-----. 1995. "Participation and Productivity: A Comparison of Worker Cooperatives and Conventional Firms in The Plywood Industry," Brookings Papers on Economic Activity, 212-160.

Freeman, Richard, and Arin Dube. 2000. "Shared Compensation Systems and Decision Making in the U.S. Job Market," Draft, Harvard University Department of Economics.

Freeman, R and Joel Rogers. 1999. What Workers Want. New York: Russell Sage and Cornell University Press.

Freeman, R, Morris Kleiner, and Sherrie Oster, 1999 "Does Employee Involvement Work?" paper for AEA Meetings, January 2000

Kruse, D. 1993. Profit Sharing: Does It Make A Difference? Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

-----. 1999. "Economic Democracy or Just Another Risk for Workers? Reviewing the Evidence on Employee Ownership and Profit Sharing," paper delivered at "Democracy, Participation, and Development" conference, Columbia University, April. School of Management and Labor Relations, Rutgers University.

-----. 2002. "Research Evidence on the Prevalence and Effects of Employee Ownership," Journal of Employee Ownership Law and Finance, Vol. 14, No. 4, Fall, pp. 65-90.

-----, and Joseph Blasi. 1997. "Employee Ownership, Employee Attitudes, and Firm Performance: A Review of the Evidence," in The Human Resources Management Handbook, Part 1. Edited by David Lewin, Daniel J.B. Mitchell, and Mahmood A. Zaidi. Greenwich, CT.: JAI Press.

-----. 1999. "Public Opinion Polls on Employee Ownership and Profit Sharing," Journal of Employee Ownership Law and Finance, Vol. 11, No. 3, Summer, pp. 3-25.

Levine, David. 1995. Re-inventing the Workplace: How Both Business and Employees Can Win

Logue, John, and Jacquelyn Yates. 2001. The real world of employee ownership. Ithaca, N.Y.; London: ILR Press.

Mackin, Christopher. 2002. "United It Was Not," unpublished manuscript. Cambridge, MA www.ownershipassociates.com

Sesil, James, Maya Kroumova, Joseph Blasi, and Douglas Kruse. 2002. "Broad-based Employee Stock Options in High-Technology Firms: Company Performance Effects," British Journal of Industrial Relations, Vol. 40, No. 2, June, pp. 273-294.

Winther, Gorm, and Richard Marens. 1997. "Participatory Democracy May Go A Long Way: Comparative Growth Performance of Employee Ownership Firms in New York and Washington States," Economic and Industrial Democracy, Vol. 18(3), August, pp. 393-422.

TABLE 1: Employee-reported and Company Performance Measures

	Mean	(s.d.)	n	F-stat. for co. differences^	Correlation of objective measures with average within-company scores on: *"People at OurCo work hard"*	*Performance Index1*	*Performance Index2*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
EMPLOYEE-REPORTED MEASURES^^							
"People at [OurCo] work hard."	5.66	(1.37)	2139	24.43			
"People at [OurCo] care about meeting our customers' needs."	5.68	(1.29)	2139	25.44			
"People at this company are willing to make sacrifices to help co-workers."	4.65	(1.64)	2139	37.24			
"Employees at [OurCo] are very committed to the company and its future."	4.81	(1.51)	2139	19.58			
Performance index1 (sum of above four)	20.8	(4.43)	2139	42.35			
"As long as their jobs are secure, company performance is unimportant to people at [OurCo]."	3.08	(1.70)	1690	21.32			
"[OurCo] employees work less when supervisors are not watching."	3.42	(1.92)	1693	21.18			
Performance index2 (sum of above six, last two reverse-scored)	30.49	(6.49)	1686	55.76			
OBJECTIVE COMPANY PERFORMANCE MEASURES (industry-adjusted)^^^							
Avg. ln(sales/employee) over past 3 years	-0.425	(0.682)	10		0.337	0.135	0.019
Avg. profit margin over past 3 years	0.319	(0.309)	9		0.630	0.631	0.582
Employment growth over past 3 years (pct.)	-0.086	(0.355)	10		0.621	0.561	0.481
Sales growth over past 3 years (pct.)	-0.200	(0.315)	10		0.495	0.416	0.407
Stock price growth over past 3 years (pct.)	0.190	(0.246)	9		0.189	0.147	0.352
Ln(sales/employee) growth over past 3 years	-0.080	(0.117)	10		0.373	0.328	0.328

^ F-statistic for test of null hypothesis that employee-reported measures do not differ among the 11 firms, rejected in every case at the p<.0001 level.

^^ All employee-reported measures use 1-7 scale, with 1="strongly disagree," 4="neutral," and 7="strongly agree."

^^^ For the industry adjustment, average values for public firms in the same size class and 2-digit SIC were subtracted from each company's score.

TABLE 2: Human Resource Policies

	Among firms (1)	(s.d.) (2)	Among all employees^ (3)	(s.d.) (4)
Sample size	11		2139	
EMPLOYEE INVOLVEMENT				
Quality circles	9.1%		5.1%	
Employee task forces	63.6%		75.6%	
Autonomous work groups	9.1%		5.3%	
Employee involvement in new hires	45.5%		66.2%	
Employee representation on the board of directors	27.3%		32.3%	
EI index—sum of above	1.55	(0.93)	1.85	(0.96)
METHODS TO SHARE INFORMATION WITH EMPLOYEES				
Newsletter	72.7%		88.3%	
Memos	63.6%		79.9%	
Email	63.6%		75.6%	
Intranet	27.3%		39.0%	
Bulletin board	81.8%		87.1%	
Regular meetings at dept./workgroup level	90.9%		96.7%	
Regular meetings at company level	63.6%		74.6%	
Centralized file of policies/procedures	63.6%		77.7%	
New employee orientation	90.9%		96.5%	
Information index—sum of above	6.18	(2.09)	7.15	(2.02)
OTHER POLICIES				
401(k) plan	90.9%		94.7%	
Other pension	27.3%		55.9%	
Formal grievance procedure	54.5%		70.7%	
Labor-management training	45.5%		66.2%	
Employee surveys	63.6%		74.2%	
Any bonuses	90.9%		96.5%	
Bonuses based on indiv. performance	45.5%		30.5%	
Suggestion system	27.3%		36.1%	
ESOP VARIABLES				
Pct. of pay contributed to plan—mean	9.8%	(5.5%)	10.6%	(4.2%)
Pct. of company owned by ESOP	54.2%	(27.2%)	51.3%	(21.9%)
Average ESOP value per employee	$41,988	($62,238)	$31,853	($53,200)
Performance-related reason for ESOP adoption^^	63.6%		76.1%	
HR INDEX^^^	3.55	(1.97)	4.82	(2.33)

^ Column 3 represents the percent of employees who are in firms with these policies (not all of whom may actually be covered by the policy).

^^ A motivation for the ESOP was "To encourage employees to think like owners," "To improve productivity," and/or "To retain or recruit employees."

^^^ The HR index adds one point each for: 1) above median on EI index, 2) above median on information index, 3) above median on pct. of pay contributed to ESOP, 4) other pension, 5) grievance procedure, 6) labor-management training, and 7) employee surveys.

TABLE 3: Predicting Employee-Reported Performance with HR Variables

Dependent variables:	"People at OurCo work hard"		Performance index 1		Performance index 2	
Independent variables	(1)	(2)	(3)	(4)	(5)	(6)
HR index	0.109 *	0.117 *	0.407 *	0.449 *	0.613 *	0.550
	(0.031)	(0.039)	(0.160)	(0.189)	(0.288)	(0.379)
Bonuses based on indiv. performance	0.596 *	0.571	2.048	1.913	6.172 *	6.732 *
	(0.283)	(0.297)	(1.127)	(1.171)	(1.506)	(1.086)
Suggestion system	-0.348 *	-0.350 *	-2.048 *	-2.058 *	-3.663 *	-3.907 *
	(0.124)	(0.143)	(0.652)	(0.701)	(0.407)	(0.377)
Performance-related reason for ESOP adoption		-0.127		-0.704		1.495
		(0.351)		(1.067)		(1.389)
Constant	5.078 *	5.146 *	18.953 *	19.333 *	27.504 *	26.556 *
	(0.225)	(0.320)	(1.193)	(1.101)	(2.112)	(1.547)
R-squared	0.04	0.041	0.074	0.078	0.138	0.141
n	2139	2139	2139	2139	1686	1686

* Significantly different from zero at p<.05.
Standard errors adjusted for within-firm correlations among employees.
See Tables 1 and 2 for descriptive statistics.

TABLE 4: Predicting Other Workplace Outcomes

Dependent variables^	Coefficient on HR index (1)	(s.e.) (2)		Dep. var. Mean (3)	(s.d.) (4)
INPUT					
"Employees at OurCo have real influence over the direction of our company."	0.110	(0.043)	*	4.03	(1.80)
"This company rarely responds to employee suggestions." (reverse-scored)	0.117	(0.056)	*	3.70	(1.71)
"This company encourages people to participate in decisions that affect their day-to-day work."	0.137	(0.073)		4.58	(1.73)
FAIRNESS					
"Company rules and regulations are fair."	0.135	(0.020)	*	5.05	(1.61)
"Overall, this company is fair to its employees."	0.027	(0.480)		5.01	(1.57)
"I receive my fair share of company successes."	0.049	(0.021)	*	4.43	(1.63)
SATISFACTION					
"Employees are satisfied working at this company."	0.101	(0.076)		4.43	(1.57)
CO-WORKER RELATIONS					
"I have good relations with my co-workers."	0.031	(0.014)	*	6.14	(1.06)
VIEWS OF MANAGEMENT					
"OurCo managers are held accountable for their decisions."	0.041	(0.022)		4.54	(1.69)
"Employees at OurCo trust senior management."	0.060	(0.040)		4.50	(1.66)
"Management uses employee ownership mainly for its own purposes." (reverse-scored)	0.020	(0.049)		3.87	(1.81)
VIEW OF SUPERVISION					
"Employees at OurCo trust their supervisors."	0.089	(0.029)	*	4.50	(1.66)
"People feel they are too closely supervised --someone is always checking up on them."	0.042	(0.027)		3.20	(1.62)
"The person I report to is fair to me."	0.063	(0.021)	*	5.65	(1.57)
SENSE OF OWNERSHIP					
"How much do you feel like an owner of this company?" (1-10 scale)	-0.070	(0.122)		4.65	(2.79)

* Significantly different from zero at p<.05

^ All dependent variables are measured on 1-7 scale, except as noted.

All regressions include suggestion systems, and bonuses based on individual performance, as predictors. See Table 2 for definition and descriptive statistics for HR index.

TABLE 5: Predicting Employee-reported Performance with HR Variables and Sense of Ownership

Dependent variables:	"People at OurCo work hard"		Performance index 1		Performance index 2	
Independent variables	(1)	(2)	(3)	(4)		(3)
Sense of ownership	.103 *	0.101 *	0.666 *	0.654 *	0.971 *	0.913 *
	(.029)	(0.027)	(0.134)	(0.121)	(0.149)	(0.147)
HR index		0.112 *		0.425 *		0.608 *
		(0.032)		(0.120)		(0.215)
Bonuses based on indiv. performance		0.589 *		2.016 *		6.172 *
		(0.284)		(1.041)		(1.187)
Suggestion system		-0.348 *		-2.019 *		-3.454 *
		(0.148)		(0.665)		(0.366)
Constant	5.194 *	4.611 *	17.758 *	15.892 *	26.189 *	23.422 *
	(0.199)	(0.226)	(1.140)	(0.816)	(1.665)	(1.290)
R-squared	.026	.065	.104	.177	.100	.232
N	2066	2066	2066	2066	1628	1628

* Significantly different from zero at p<.05

Standard errors adjusted for within-firm correlations among employees.

See Tables 1, 2, and 4 for descriptive statistics.

TABLE 6: Descriptive Statistics for Within-Company Comparisons

	Scaling	COMPANY A Mean	(std. dev.)	COMPANY B Mean	(std. dev.)
Performance measures					
If co-worker not working hard or well, would:					
Talk directly to employee	(1="not at all likely" to 4="very likely")	2.63	(1.01)	2.26	(1.12)
Speak to supervisor or manager	(1="not at all likely" to 4="very likely")	2.84	(0.92)	2.48	(1.13)
Do nothing	(1="not at all likely" to 4="very likely")	1.94	(0.96)	2.40	(1.14)
Willing to work harder than I have to in order to help company succeed	(1="strongly disagree" to 5="strongly agree")	4.39	(0.73)	4.24	(0.94)
Human resource measures					
Member of employee involvement team, committee, or task force	(1="yes", 0="no")	58.2%	(0.49)	29.0%	(0.45)
Received formal training from employer in past 12 months	(1="yes", 0="no")	60.1%	(0.49)	17.3%	(0.38)
Perceived involvement in:					
Deciding how to do job	(1="a lot" to 4="none")	1.45	(0.77)	1.77	(1.00)
Setting goals for work group or dept.	(1="a lot" to 4="none")	2.02	(1.00)	2.27	(1.19)
Overall company decisions	(1="a lot" to 4="none")	3.01	(0.94)	2.84	(1.09)
n		203		212	

TABLE 7: Within-company Comparisons: Performance Measures by Employee Involvement and Training

Figures represent average scores on performance measures, broken down by scores on employee involvement or training.

Covered by practice:	COMPANY A Yes (1)	No (2)	Diff. (3)	(p-value) (4)		COMPANY B Yes (5)	No (6)	Diff. (7)	(p-value) (8)	
By whether in employee involvement team, committee, or task force										
If co-worker not working well, would										
Talk directly to employee (4="very likely")	2.93	2.21	0.72	(0.000)	*	2.59	2.09	0.50	(0.003)	*
Speak to supervisor or manager (4="very likely")	2.99	2.63	0.36	(0.005)	*	2.75	2.40	0.35	(0.044)	*
Do nothing (4="very likely")	1.74	2.22	-0.48	(0.000)	*	2.13	2.56	-0.43	(0.018)	*
Willing to work harder than I have to (5="strongly agree")	4.52	4.21	0.31	(0.003)	*	4.40	4.18	0.22	(0.133)	
By whether received training in past 12 months										
If co-worker not working well, would										
Talk directly to employee (4="very likely")	2.77	2.42	0.35	(0.014)	*	2.17	2.21	-0.04	(0.834)	
Speak to supervisor or manager (4="very likely")	2.96	2.65	0.31	(0.020)	*	2.50	2.48	0.02	(0.925)	
Do nothing (4="very likely")	1.85	2.06	-0.21	(0.138)		2.58	2.41	0.17	(0.407)	
Willing to work harder than I have to (5="strongly agree")	4.43	4.33	0.10	(0.341)		4.24	4.24	0.00	(0.972)	

* $p<.05$ P-values are from tests of no difference between those who are and are not covered by the practice.
Descriptive statistics in Table 6.

TABLE 8: Within-company Comparisons: Peer Pressure by Perceived Involvement

Level of perceived involvement:	COMPANY A A lot (1)	Some (2)	Only a little (3)	None (4)	(p-value) (5)		COMPANY B A lot (6)	Some (7)	Only a little (8)	None (9)	(p-value) (10)	
By perceived involvement in how to do one's job												
If co-worker not working well, would												
Talk directly to employee (4="very likely")	2.26	2.33	1.95	2.16	(0.582)		2.76	2.27	2.40	2.00	(0.014)	*
Speak to supervisor or manager (4="very likely")	2.60	2.55	2.45	1.83	(0.065)		2.92	2.68	2.33	3.00	(0.067)	
Do nothing (4="very likely")	2.19	2.69	2.45	2.94	(0.015)	*	1.80	2.46	2.07	1.83	(0.002)	*
By perceived involvement in setting goals for workgroup or dept.												
If co-worker not working well, would												
Talk directly to employee (4="very likely")	2.49	2.39	2.13	1.69	(0.000)	*	3.06	2.43	2.35	1.95	(0.000)	*
Speak to supervisor or manager (4="very likely")	2.85	2.61	2.60	1.81	(0.000)	*	3.12	2.65	2.60	2.74	(0.005)	*
Do nothing (4="very likely")	2.13	2.37	2.47	2.89	(0.006)	*	1.59	2.19	2.05	2.56	(0.000)	*
By perceived involvement in overall company decisions												
If co-worker not working well, would												
Talk directly to employee (4="very likely")	2.74	2.34	2.25	1.89	(0.003)	*	3.45	3.04	2.54	2.24	(0.000)	*
Speak to supervisor or manager (4="very likely")	2.96	2.73	2.59	2.09	(0.001)	*	3.1	3.04	2.77	2.67	(0.116)	
Do nothing (4="very likely")	2.00	2.28	2.29	2.74	(0.017)	*	1.6	1.71	2.05	2.13	(0.058)	

* p<.05 P-values are from F-tests of no difference among the categories of perceived influence.