

**Do Broad-based Employee Ownership, Profit Sharing, and Stock Options
Help the Best Firms Do Even Better?**

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Abstract

This paper analyzes the linkages among group incentive methods of compensation (broad-based employee ownership, profit sharing, and stock options), labor practices, worker assessments of workplace culture, turnover, and firm performance in firms that applied to the “100 Best Companies to Work For in America” competition from 2005 to 2007. Although employers with good labor practices self-select into the 100 Best Companies firms sample, which should bias the analysis against finding strong associations among modes of compensation, labor policies, and outcomes, we find that employees in the firms that use group incentive pay more extensively participate more in decisions, have greater information sharing, trust supervisors more, and report a more positive workplace culture than in other companies. The combination of group incentive pay with policies that empower employees and create a positive workplace culture reduces voluntary turnover and increases employee intent to stay and raises return on equity.

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Introduction

This paper examines how employee compensation and managerial personnel practices affect employee well-being and firm performance among a special group of firms – those that applied to the Great Place to Work® Institute competition to be labeled one of the “100 Best Companies to Work For in America” that Fortune magazine publishes each year. In contrast to earlier studies of companies on the 100 best list (Edmans, 2011; Faleye and Trahan, 2011) our data include firms that made the list and those that applied but did not make the list, and uses both the firm and employee surveys that are part of the application process. Because applicants to the “100 best” list view their workplace policies and practices as exemplary, estimates of the link between those practices and worker and firm outcomes in this data set are likely to be biased downward compared to estimates that one would obtain from a random sample of firms. Thus, the data provide a high hurdle for claims that particular compensation policies and practices improve outcomes.

Our Great Place to Work (GPW) dataset contains information on the 780 firms that applied for the 100 best list in 2005-2007. The firms tend to be large ones. About half are public firms that in 2007 employed about 6 million workers or around 5% of the private sector workforce. Information on the firm's compensation policies and turnover rates comes from the firm's application. Information about work practices and workplace culture come from a survey of 200-300 randomly chosen workers that the Great Place to Work® Institute conducts at every firm. We obtain additional data for the economic performance of public companies from Standard and Poor's Compustat file.

The GPW dataset allows us to examine the link between three forms of compensation that tie employee earnings to the performance of the firm – employee stock ownership, profit and

gain sharing, and broad-based stock options, which has been labeled elsewhere as shared capitalist compensation (Kruse, Freeman, Blasi, 2010) – and worker reports on managerial practices and workplace culture; and to estimate the link from shared capitalist compensation, work practices, and workplace culture to worker and firm outcomes.

We find that:

1) There is great variation among the applicants to the “100 best companies to work for” list in their use of group incentive systems of pay, in workplaces practices, and in worker assessment of workplace culture.

2) The firms that use shared capitalist modes of compensation have policies that allow greater employee participation in decisions and greater information sharing than other firms, and have a more positive workplace culture than those in other firms.

3) The combination of group incentive pay and policies that empower employees and create a positive workplace culture increases employee intent to stay with a firm, lowers voluntary turnover, and raises return on equity.

The results are consistent with prior work on positive complementarities among high-performance work practices in affecting workplace performance, and show that group incentive pay is a key element in those complementarities. While prior results may be biased by unobserved firm heterogeneity, the reduced heterogeneity in this select sample strengthens the likelihood that the results reflect a causal impact of policies on employee well-being and firm performance.

The next section places our study in the context of the large extant body of literature on group incentive pay and worker and firm performance. We then describe the GPW sample and show that there are substantial differences in the use of shared capitalist modes of pay and work

practices even among these self-selected good employers. The following sections present our estimates of the linkages between modes of compensation and work practices and workplace culture and our estimates of the impact of these factors on economic outcomes. The final section concludes with a summary of results and discussion of outstanding issues.

The study of “shared capitalist” compensation and practices

Almost half of U.S. private sector workers participate in some form of group incentive plan through employee ownership, profit sharing, stock options, and gainsharing (Kruse et al., 2010), and the proportion of European Union firms with employee ownership or profit sharing has been growing since 2000 (Hashi and Hashani, 2013). Over 100 studies have been conducted across many countries on the relation between group incentive pay and related personnel practices and firm and worker performance. Most of the studies compare firm performance of firms with and without these forms of pay in cross-section data,ⁱ but some studies examine firms before and after their adoption of a group incentive compensation scheme, or control in other ways for selection bias.ⁱⁱ Meta-analyses analyzing the combined results of studies show statistically significant positive associations of employee ownership and profit-sharing with firm performance.ⁱⁱⁱ

There is also a wide dispersion in the magnitude of estimated effects within and across studies. Many analysts and practitioners interpret this dispersion as indicating that the context in which management establishes a group compensation system affects its success. Firms cannot simply institute a program that links worker pay to the firm performance and expect the firm to do better as if the method of pay was a technological fix to some engineering problem.^{iv} “To get the productivity-enhancing effects, 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” (Weitzman and Kruse, 1990: 100). “Bundling equity and profit sharing with financial information and participation in decision making can enhance worker contributions to the firm by creating employment relationships based on congruent psychological contracts. Such a bundle can form the basis of trust and aligned interests between workers and employer” (Rousseau and Shperling 2003: 564-565).

One likely reason why a group incentive system needs support from other practices to improve outcomes is that it must overcome the free rider or 1/N problem that plagues all forms of collective action. In an incentive plan with N workers, the payoff to the individual from his or her effort is diluted because each individual receives only 1/Nth of the reward from their work. It is narrowly rational to free ride on the effort of others, but if most workers do that, the group incentive system fails. In theory, workers can solve the free rider problem by establishing and enforcing work norms for high effort (Axelrod, 1984; Fudenberg and Maskin, 1986) but neither theory nor empirical studies specify what it takes to overcome the 1/N problem in different settings.^v On the employers' side, one interpretation of successful programs is that they work like a “gift exchange” (Akerlof, 1983) from the employer to employees in which the plans draw on feelings of reciprocity that help establish norms for greater effort and cooperation. On the workers' side, some workers may step up and monitor fellow employee efforts to enforce the work norm. Proportionately more workers in establishments with group incentive systems than workers in establishments without such incentives report that they would intervene with fellow employees to improve performance (Freeman, Kruse, and Blasi 2010). This demonstrates that worker self-monitoring is a real channel for policing a group incentive system. But it pushes the free rider question back a stage rather than eliminating it, for it raises the free rider question of why some workers undertake the monitoring activity rather than “letting Joe do it”.

The idea that group incentives need complementary policies to work well is consistent with theory (e.g., Ben-ner and Jones, 1995) and with the literature finding positive productivity effects of complementary HR practices (see meta-analysis in Combs et al. 2006). There is also some empirical support for complementarity between employee ownership and participation in decision-making (Bryson and Freeman 2010, Pendleton and Robinson 2010) although there is also evidence that group incentives may affect performance independently of participation in decisions (Kruse 1993, Conyon and Freeman 2004, Pendleton and Robinson 2010).

The GPW dataset provides a new way to illuminate the effects of group incentive compensation systems and accompanying policies and practices on economic outcomes, and to assess the complementarity among shared capitalist forms of compensation and particular ways of operating a firm. To our knowledge it is the largest sample of firms and workers that contains data on shared compensation practices, workplace practices, worker attitudes and responses to policies, and measures of firm performance. But it is a highly non-representative sample. Only firms that view themselves as having sufficiently good labor practices to make the 100 best list are likely to take the time and resources to apply to the Great Place to Work® Institute for consideration in the competition.

It is usual to regard a non-representative sample as inferior to a representative sample, but in this case the fact that the sample come from the upper tail of those with good labor practices is a strength. One weakness of most studies that link shared capitalist pay and practices to output is that there is always the potential that some unobservable characteristic of the employer, workplace, or situation of the firm overcomes the 1/N problem so that the group incentive pay system succeeds. If firms debating whether or not to introduce these modes of compensation cannot replicate that unique attribute or find their own way to overcome the 1/N problem, they

are unlikely to have the same success with group incentive pay as firms that have succeeded by adopting those forms of pay and practices. Having a sample of firms that view their labor practices as exemplary allows us to sign the likely selection bias as a downward bias.

To see this, consider a comparison of two applicants to the 100 best competition under the assumption that firms apply only if their workplaces exceed some level of good practice, P^* . Firm A has a group incentive compensation policy (and/or other shared capitalist modes of operating) so that it produces a workplace with good practice P_a , with $P_a > P^*$. Firm B does not have such a policy but has other attributes that leads it to view its workplace practices P_b as making it exemplary, $P_b > P^*$. Firm B's positive unobservable characteristic/policy makes it comparable to firm A with its shared capitalist mode of pay. If good workplace practices or firm B's unobservable characteristics produce better economic outcomes, comparisons of A and B would yield smaller differences in outcomes than would comparisons of A with some randomly drawn firm from the population of firms.

Apart from self-selection of firms, it is of course possible that there is self-selection of workers. It may be that firms with group incentive plans or other high-performance workplace practices have higher-quality workers in general, and that high performance is mistakenly attributed to the policies rather than to worker quality. The evidence does not, however, indicate that the estimated effects of high-performance policies are likely to be biased by omission of information on worker quality. Pre/post evidence from two studies indicates that average worker quality did not change as compensation was changed from individual to group incentives (initially high- and low-productivity workers were equally likely to leave), while average worker performance improved under the group incentives (Weiss, 1987; Hansen, 1997). In addition, administrative information on employees' prior absences, and work and earnings histories, made

little difference in the estimated effects of high involvement practices on current measures of absence (Brockerman et al. 2012). Apart from explicitly controlling for prior employee performance, one field experiment implemented random assignment of profit sharing at 3 of 21 establishments within a firm, finding that the performance of those establishments improved relative to the control group (Peterson and Luthans, 2006); also, laboratory evidence using a true experiment found higher productivity among subjects organized into employee-owned “firms” (Frohlich et al., 1998). These studies indicate that while the “best firms” may attract higher-quality employees in general, there is no evidence that this is systematically related to group incentives, so that employee self-selection is unlikely to represent a serious bias in estimating the effects of group incentive plans on employee behaviors and firm performance.

The empirical task for the rest of this study is twofold: 1) to see whether there are substantial differences in the use of group incentive modes of pay and related personnel policies and practices within the select group of GPW firms; and 2) to estimate whether within this group those modes of pay work separately or in combination with other practices to affect worker and firm outcomes.

The “100 Best Companies to Work For” Applicant Data Set

The data come from two surveys collected by the Great Place to Work® Institute: 1) the “Culture Audit” survey of workplace practices that representatives of companies fill out when they apply for selection to the 100 best list, and 2) the employee survey that the Institute gives to 200-300 representative employees in each company, to measure employee attitudes and perceptions of the company. The Institute gave us access to the surveys for the firms that made the 100 best list and those that applied and did not make the list under a confidentiality agreement which allowed us to link the data to other data sources and to analyze it on an Institute

server.

The Institute developed the Culture Audit from intensive field work with corporations over the last fifteen years. It contains information on the availability of shared capitalism plans, and other work practices and performance outcomes. About 400 companies supply Culture Audit and employee survey data each year as part of their application to be considered to be one of the “100 Best Companies to Work For in America.” Our sample contains 780 companies over the 3-year span 2005-2007. It has 1312 company-year observations (reflecting applications in multiple years by some of the companies). Three hundred seventy five of the companies are public, which allowed us to add measures of their economic performance from Standard & Poors' Compustat to the dataset. The remaining firms are privately-held, for which we do not have information on performance. The publicly owned companies are large companies traded on the NYSE and the NASDAQ. Based on Compustat data, our public company sample captures a substantial proportion of US public company activity: 10% of total sales, 10% of total employment, and 20% of the market value of all publicly traded corporations in 2007.

The employee surveys provide information on 230,465 employees with complete data for our regression specifications, or an average of 222 surveys per company-year. While firms can be tracked over time, individual employees cannot be tracked over time. The response rate for the employee survey is close to 60% (Edmans 2012), and there is no reason to believe that response rate is related to the variables of interest in this study.

Our data are multilevel. Some are at the firm level. Some are at the individual level within firms, which can be aggregated to firm level. Data on compensation policies and turnover come from management responses on the culture audit. Data on firms' financial performance, which is limited to public companies, come from the linked Compustat data file. These two

sources of data allow us to examine the effect of firm practices on firm outcomes in a different way than the two studies that have used the publicly available list of “100 best places to work” firms to assess the effects of good labor practices on firm performance. Edmans (2011) and Faleye and Trahan (2011) compare the stock market returns of firms that make the “100 best list” to the returns of industry and size-matched firms that are not on the list. They both find that companies on the 100 best list have higher shareholder returns, at least over some time periods.^{vi} We complement their studies by comparing performance among applicant firms with different human resource management policies with a more detailed analysis of these policies.

Information on employee empowerment and workplace culture comes from the employee responses to the randomly distributed surveys administered by the Institute. In some calculations we average individual reports to the company level, which allows us to test the potential mediating effects of employee reported patterns on the relation between modes of compensation and policy on firm outcomes. The individual responses also allow us to examine the relationship of worker reported measures of employee empowerment and workplace culture on individual-level outcomes, such as the intent to stay with the firm, and to link those outcomes to firm-level compensation policies.

Having data from both employees and managers and objective measures about firm performance avoids the problem of common method bias that often plagues studies with data from a single source or respondent, be it workers or managers. With only a single source, there is a danger of spurious covariance in variables due to the respondent's report on different attributes having a common base. The manager may report positively on practices that he or she believes are being implemented and view the firm's performance positively, while workers may have a different view on how the firm actually operates on the ground, and company financial

data may give yet a different picture of how the firm is performing. Having information from three sources allows us to examine whether patterns found with one type of data hold in others. For example, workers who report high trust in management may also report that they are more likely to stay with the firm, producing a strong relation among individuals, but if high trust workers are randomly distributed among establishments there may be no relation between trust and likelihood of staying at the establishment level. In the case of turnover, we have manager-reported data on company voluntary turnover as well as employee reports of their intent to stay at the firm that provides an independent check on the impact of modes of compensation and forms of operating a firm on outcomes.

Table 1 provides detail on the group incentive compensation systems used by firms in our data set over all company-years. The table demonstrates one key fact – that there is substantial variation in the compensation systems among firms in the GPTW data. Approximately one-sixth of firms (17.6%) report that they have an Employee Stock Ownership Plan (ESOPs), 18.1% report cash profit/gain-sharing plans, and 22.3% report deferred profit sharing plans. Given the widespread use of stock options to reward executives, the most common form of group incentive pay is granting stock options, which 44.5% of firms report. While most publicly-traded firms give stock options to some subset of their employees, this lower incidence in the sample reflects the large segment of the sample made up of closely-held firms which do not use employee stock options to the same extent.

There is also substantial variation in the attributes of the group incentive plans among firms that use these modes of pay. Of the companies with an ESOP, the mean proportion of shares held by the ESOP is 17.4%,. The median proportion is a much lower 5.9% – a divergence due to the fact that 9.1% of the firms are majority employee owned with over 50% of the shares

held by the ESOP. Of the companies with profit or gain sharing plans, the average *cash* plan provided to an employee is 7.2% of annual pay while the average *deferred* profit sharing plan provided a contribution equaling 6.5% of employee pay. In both cases the distribution is concentrated below the mean so that the median payout or contribution is notably smaller than the mean. Finally, of the companies with stock options, the average percent of employees granted stock options was 20.6% while the median was 6.5%. Three quarters of the firms gave options to less than 25% of employees while 16.4% of the companies were broad-based in that they granted stock options to more than half of their employees.

The heavy representation of ESOPs in this sample is noteworthy. There were only 7,041 ESOPs in the entire economy in 2007, representing only 1% of all firms with 20 or more employees; these ESOPs had 10.1 million participants who represented 9% of private sector workers.^{vii} Among publicly-held companies in the 2005-2007 period, 7.5% had ESOPs.^{viii} Therefore the 17.6% figure in Table 1 shows that GPW firms are more likely than other firms to have ESOPs, indicating that ESOPs may be seen by the “best firms” as a useful method of helping create good work environments. This high prevalence is good for research purposes since it provides a substantial base of ESOP companies for analysis.

In sum, the table shows a wide variation among firms in both the presence of different modes of group incentive pay and in the extent of such pay. This variation is necessary for us to make any inferences about the effects of shared capitalist modes of pay and accompanying practices on outcomes from the GPW sample.

Because the Culture Audit provides information on the details of compensation systems that reflect the extent to which the systems offer incentives to representative groups of workers, which creates a host of variables, for ease of analysis we combine the compensation measures

into a single statistic. This is a thermometer-style *index focusing on the extent of shared capitalist forms of pay*, where we give high scores to firms whose compensation system rewards more workers through group incentive pay and/or where incentive pay is a potentially larger share of worker earnings. The index is a summated rating of eight items that accord one point each for 1) Having an Employee Stock Ownership Plan (ESOP), 2) Having an ESOP owning 50% or more of the company, 3) Having a stock option plan that covers 25% or more of employees, 4) Having a stock option plan that covers 50% or more employees, 5) Having a cash profit/gain-sharing plan, 6) Having a cash profit/gainsharing plan paying more than the median percent of pay, 7) Having a deferred profit sharing plan, and 8) Having a deferred profit sharing with a contribution above the median percent of pay. With 8 items the range of the scale is 0 to 8.

Table 2 gives the distribution of firms by this measure and some summary statistics for this “shared capitalist compensation index”. Over half of the firm-year observations meet none of the eight criteria and thus have a score of zero. In these cases, the firms have no shared capitalism in the specified years. They are effectively the firm B “control group” for inferring the effects of shared capitalist modes of incentive pay on outcomes within the GPTW sample. Six percent of the observations have scores of 3 or more, with a maximum score of 5. They are effectively the firm A “treatment group” for inferring the effects of shared capitalist pay. In the ensuing analysis we relate the index to work practices and measures of workplace culture and economic outcomes and report in the appendices on the link between the components of the index and relevant outcomes.

This index is based on a similar index used in a number of studies in Kruse et al. (2010). It does not measure a unitary concept as is done by several psychological measures (e.g.,

perceived organizational support or leader-member exchange). Rather, it is intended to capture a range of policies that may substitute for one another but nonetheless reflect a commitment to directly share economic rewards with workers. Because the different policies may have different effects, we present results breaking down the different forms of shared capitalism in Appendix A.

Other policies and practices

Table 3 provides descriptive statistics on the measures of workplaces practices and workplace culture on which we focus.

With respect to workplace practices, we examine three variables that theory and prior research suggest are complementary to shared capitalism^{ix}: high-trust supervision, high participation in decisions, and high information sharing. These are highly correlated variables that we averaged to form a single index which we label "employee empowerment" ($\alpha=.890$). For workplace culture we use six measures: workers assessments of team or family feeling, employee cooperation, employee willingness to give extra to their work, the feeling that one receives a fair share of company profits, the Great Place to Work Trust Index[©], and the perception that "This is a great place to work." The Institute developed the Trust Index[©] as a summary measure of employee perceptions of the company. It includes all items from the employee survey, grouped into five dimensions and averaged across the dimensions.^x It provides a broad measure of company culture.

Table 3 also presents descriptive statistics for our individual-level measure of intent to stay, and company-level performance measures of voluntary turnover, and return on equity (ROE).

Turnover is one of the most important measures of worker satisfaction with how a firm operates, and has a strong effect on organizational performance (Park and Shaw 2013). The

ubiquitous finding from studies of job satisfaction is that low satisfaction is associated with high quits, which makes up most voluntary separation (retirement being the other part of voluntary separation). The question to workers on intent to stay with the firm is forward-looking and subjective while the company-level measure of voluntary turnover is backward-looking and objective. Aggregating the worker reports on intent to stay gives us a firm-level measure that we have correlated with the firm-level measure of turnover. To the extent that the practices or conditions that produce high or low turnover are stable over the period, the two measures should be negatively related. Their correlation is a strongly significant $-.245$. The size of this correlation is reduced by factors that are not stable over time (e.g., the current employees may have different characteristics and behaviors than the quitting employees) and by differences between measured intentions and actual turnover (e.g., employees may be intending to stay but be forced to quit for unforeseen family-related reasons).

Turning to firm outcomes, the most widely used financial measure of the performance of firms is return on equity (ROE), which reflects the value of the firm to shareholders. But ROE varies across industries depending on riskiness and other factors. We have “adjusted” ROE from a robust regression of ROE on forty industry dummies and firm size, separately by year, for the entire Standard and Poor’s Compustat data set. With this method we have effectively controlled for industry-specific risk factors that may vary over time. The resulting value represents the company’s performance relative to public companies of the same size in the same industry in the same year. There were some extreme values in ROE among the GPW companies after this adjustment, so we ran all regressions both with and without trimming the upper and lower 1% of ROE within the GPW sample. The basic results were similar; here we present the results using the trimmed measure. The mean value of $.039$ for adjusted ROE indicates that the applicants had

an average ROE that was 3.9 percentage points higher than the industry-year average for firms of the same size, consistent with the idea that these are better-performing firms in general.^{xi}

Shared Capitalist Compensation and Complementary Workplace Practices

As noted, a key issue in the analysis of group incentive systems is the extent to which they are accompanied by other work practices and a supportive workplace culture, presumably due to the complementarity of the pay and workplace operations. Table 4 summarizes the results of analyzing the relation between group incentive modes of pay and workplace practices and culture in the GPW data set. It records the coefficients from regression of workers' reports on each of the measures of workplace empowerment and culture on the shared capitalist index variable.

The regressions show that employees in companies with higher values on the shared capitalist index are more likely to report high-trust supervision, participation in decisions, information sharing, and more favorable outcomes on all of the culture measures. While the measures are not identical to those used in prior research, the coefficient magnitudes are consistent with prior results using similar measures; for example, a one-standard-deviation increase in the shared capitalism index is linked to a .023 standard deviation increase in the “give extra” measure, and is similarly linked to a .023 standard deviation increase in a measure of “At your workplace, how hard would you say that people work?” from Kruse, Freeman, and Blasi (2010). The calculations in appendix table A, which replace the index with its underlying components – dummy variables for presence or absence particular forms of pay and continuous variable measures of its extent – show that ESOP variables are most consistently significantly positively related to the practices and attitudes, with deferred profit-sharing as the second most significantly related.

Model Specifications and Results

Standard regression analysis is an appropriate tool to estimate the links from the compensation and workplace practice variables on outcomes in each of the three years of our data set taken independently. But because many firms apply to the Great Place To Work competition in more than one year, we can do better than simple OLS in an analysis that pools the data over the three years: the existence of the same firm in 2 or 3 of the years allows us to take account of firm-specific factors. In the 2005-2007 GPTW data set, 480 companies applied to the competition once in this period, 168 applied twice, and 182 applied three times, which creates a distinct structure to the error terms associated with an individual establishment. To exploit this pattern, we use a random effects specification of the model that uses both within-firm and between-firm variation to estimate the parameters linking variables.

First we examine the overall relationship of shared capitalism to the other outcomes using the following equations:

$$(1) \quad Y1_{ijt} = a + b1*SC_{jt} + b2*X1_{ijt} + b3*X2_{jt} + b4*R_j + e_{ijt}$$

$$(2) \quad Y2_{ijt} = a + b1*SC_{jt} + b2*X1_{ijt} + b3*X2_{jt} + b4*R_j + e_{ijt}$$

$$(3) \quad Y3_{jt} = a + b1*SC_{jt} + b2*X2_{jt} + b3*R_j + e_{jt}$$

where

$Y1_{ijt}$ = perception of empowerment and culture for individual i, firm j, year t

$Y2_{ijt}$ = intent to stay for individual i, firm j, year t

$Y3_{jt}$ = firm performance measure for firm j, year t

SC_{jt} = shared capitalism measure(s) for firm j, year t

$X1_{ijt}$ = employee-level controls for individual i, firm j, year t

$X2_{jt}$ = company-level controls for firm j, year t

R_j = firm-level random effect for firm j

e_{ijt} = error term for individual i, firm j, year t

e_{jt} = error term for firm j, year t

The X1 controls include individual-level employee demographic information (gender dummy, full-time dummy, 6 dummies for race/ethnicity, 5 dummies for age category, 7 dummies for occupation, 6 dummies for tenure category) and the X2 controls include company-level characteristics (defined benefit pension plan dummy, natural logarithm of total employment, unionized percent of workforce, whether publicly-held, age of company, dummies for services and manufacturing, and natural logarithms of average hourly pay for largest hourly-paid group and average salary for largest salaried group).

In the next stage of analysis we examine the potential moderating effects of empowerment and culture by using interactions with shared capitalism.

$$(4) \quad Y2_{ijt} = a + b1*Y1_{ijt} + b2*SC_{jt} + b3*(Y1_{ijt} * SC_{jt}) + b4*X_{jt} + b5*R_j + e_{ijt}$$

$$(5) \quad Y3_{jt} = a + b1*\bar{Y1}_{jt} + b2*SC_{jt} + b3*(\bar{Y1}_{jt} * SC_{jt}) + b4*X_{jt} + b5*R_j + e_{jt}$$

where

$\bar{Y1}_{jt}$ = mean of Y1 variable across individuals in firm j, year t

The b3 coefficients will indicate whether empowerment and culture moderate the effects of shared capitalism.

The individual-level variables are based on 1-5 scales as shown in Table 3. We tested ordered probit models that allow for a natural ordering of the values without requiring that the estimated effects remain constant across values. The pattern of results from ordered probits was extremely similar to that obtained using the above specifications; here we present the standard regression coefficients since they are easier to interpret.

An important issue is unobserved firm-level variables, such as managerial quality or other HR policies. For research purposes, the panel data unfortunately provide little within-firm variation that allows one to automatically control for such variables using fixed-effect specifications. For example, among the 780 firms represented in this dataset, only one changed ESOP status during this period. Only 47 of the firms had any change in the shared capitalism index, and some of this measured change undoubtedly reflects measurement error (e.g., from different people filling out the survey in different years) which represents a serious problem in fixed-effects estimates and biases coefficients toward zero. There is a further issue of timing: while the company and employee surveys were done in the same calendar year, it is not always evident which was done first, and whether any changes in shared capitalism policies would be expected to immediately cause changes in attitudes. Perhaps as a result of these issues, most of our fixed-effect estimates did not show the same significant pattern of results as the random-effects mixed model estimates. We will return to this issue of unobserved variables in discussing the findings.

Our model for the avenues through which shared capitalism may affect worker and firm outcomes is presented in Figure 1.^{xii}

Effects on Turnover

We next examine the links among intent to stay, voluntary turnover, the shared capitalist

index of rewards, and the complementary work practices and workplace culture.

Panel A of Table 5 summarizes calculations of the effect of shared capitalist compensation and the empowerment measure of workplace practices and the Trust Index©, introduced separately and interactively with the shared capitalist index on the worker level turnover measure of intent to stay. The figures in line 1 show that the index of shared capitalist pay by itself is moderately related to turnover behavior: it raises intent to stay. But its impact is dwarfed by either the employee empowerment measure of work place practices in line 2 or the Trust Index© measure in line 4. At the individual level these factors have an overwhelming impact on turnover. This is due in part to the “common source” bias that individuals who are personally well-treated or have trust in the firm are more likely to stay with it whereas workers who feel the opposite at the same workplace are less likely to stay. What is critical to the complementarity story is that the shared capitalism interaction terms are also positive and very significant, meaning that the combination of shared capitalism with workplace practices/culture has a stronger impact than when these are used separately. This is consistent with prior results showing that shared capitalism interacts positively with high-performance work practices in decreasing turnover intentions (Kruse, Freeman, and Blasi, 2010: 155).

The more relevant level of analysis for assessing firm personnel practices is the level of the firm. Panel B of Table 5 summarizes calculations of the effect of shared capitalist compensation and the firm-level averages of the empowerment measure of workplace practices and the Trust Index© on the firm-level measure of voluntary turnover. At this level, the shared capitalist variable obtains a negative coefficient by itself that remains substantial with the addition of the empowerment measure in line 7 and the Trust Index© in line 9. The shared capitalism coefficient of -.008 on line 6 is very consistent with an estimate from prior research

using similar controls that workers with performance-related pay had a -.007 lower probability of quitting (O'Halloran 2012, Table III, column 3), while another study using the same data finds that white men with profit sharing had a -.027 lower probability of quitting (Azfar and Danninger 2001: 625). The shared capitalism coefficient is economically as well as statistically significant, indicating that a one-standard-deviation increase in the shared capitalism index is linked to 6% lower turnover, while an increase from the minimum to maximum value of shared capitalism is linked to 30% lower turnover.^{xiii} The empowerment and Trust Index[©] variables have significant effects on turnover but they do not “dominate” the calculations as they did in panel A. In the firm-level analysis the interaction terms show the powerful moderating impact of the empowerment measure and the Trust Index[©] on behavior. The interactions are sufficiently strong as to flip the sign on the shared capitalism measure so that it is associated with high voluntary turnover at low levels of worker empowerment or trust, and low turnover at high levels of empowerment or trust.

These results are illustrated in Figure 2, which is based on regression 8 in Table 5.^{xiv} “Low” empowerment is here defined as the empowerment score for the firm at the 10th percentile, while “high” empowerment is the score at the 90th percentile. In a firm without any shared capitalism, voluntary turnover is predicted to drop slightly from 15.3% to 14.5% as a firm moves from low to high empowerment. In a firm with high shared capitalism (the maximum observed score of 5 on the index), voluntary turnover is predicted to drop from 17.7% to 6.3% as a firm moves from low to high empowerment. Our interpretation is that employees may react badly to shared capitalism when they are closely supervised and not given the tools to improve performance (“we want you to be inspired by the shared rewards, but we’re still going to keep a close eye on you”); in this case the shared capitalism may be seen primarily as shifting financial

risk onto employees. Kruse, Freeman, and Blasi (2010) found similar results for the interaction of supervision and high-performance practices.

Finally, we present panel C that uses the employee-reported intent to stay aggregated to the firm level. The results match the pattern in panels A and B, indicating that shared capitalist pay interacts with the empowerment and trust measures to decrease turnover whether turnover is measured at the employee or firm level, or with a forward-looking or backward-looking measure.

As discussed above with regard to Table 3, the results from these random-effects specifications may primarily reflect between-firm rather than within-firm variation, raising the possibility that unobserved firm-level variables are responsible for the results. In contrast to the results presented in Table 3, the pattern and significance of the results in Panel A of Table 4 are strongly maintained when using fixed-effects specifications, indicating that there is an important interaction between shared capitalism and firm policies in affecting intent to stay. The pattern of results in Panels B and C persists when using fixed-effects specifications, but the statistical significance disappears, indicating either that unobserved firm-level variables are responsible or that within-firm variation is dominated by measurement error.

Effects on company financial performance

Table 6 examines the effect of shared capitalist compensation and the empowerment measure of workplace practices and the Trust Index[©], introduced separately and interactively with the shared capitalist index, on the adjusted return on equity measure that reflects the value to shareholders of these modes of operation. Edmans (2011) found that the firms on the 100 best list had returns on the order of 2 percentage points or so higher than comparable firms, while Faleye & Trajan (2011) found that “companies selected for the list subsequently outperform comparable firms in terms of long-run stock returns.”^{xv} The calculation in line 1 shows that in a

sample that includes not only the firms that made the list but those that did not make the list, shared capitalist forms of pay produced significantly higher ROE as well.^{xvi} The relationship is economically as well as statistically significant, with a one-standard deviation increase in the shared capitalism index linked to a 12% increase in ROE.^{xvii} Addition of the employee empowerment index in line 2 and of the Trust Index© in line 4 show that those measures of workplace practices and culture are also associated with higher returns, while barely impacting the estimated coefficient on shared capitalist compensation index. These indices are also economically significant; e.g., a one-standard-deviation increase in the Trust Index© predicts a 69% increase in ROE. But again, the key finding is that it is the interactive effects of the variables that matter. At low levels of employee empowerment, shared capitalist modes of pay reduce ROE whereas at high levels of empowerment, shared capitalist modes of pay raise ROE. Similarly, at low levels of trust shared capitalist modes of pay reduce ROE whereas at high levels of trust, they raise it. We find similar results when empowerment and trust are broken into four dummy variables, allowing non-linearities (results available on request). Shared capitalism affects ROE most strongly among firms with values in the top quarter of the Trust Index©. As reflected in some of the above results, the statistical significance disappears when we use fixed-effects specifications, indicating the role of unobserved firm-level variables or measurement error that plays a strong role when examining within-firm variation.

Conclusion

Our analysis of the GPW data set finds that shared capitalist forms of pay are associated with high-trust supervision, participation in decisions, and information sharing, and with a variety of positive perceptions of company culture. At the firm level, shared capitalist forms of pay are associated with lower voluntary turnover and higher ROE. But it is the interaction

between the mode of compensation and work practices and workplace culture that dominates the impact of shared capitalist pay on turnover and ROE. These results confirm the overall findings from prior studies (including the results indicating that firm and worker self-selection does not play a substantial role) and point to the value of further research on how shared rewards interact with other workplace policies, particularly policies that give workers the means to make a difference in the workplace and help engender a climate of cooperation, as offering the best explanation for the dispersion of results around positive average effects in the literature.

As is true of all results in this field, there are caveats for the findings. The random-effects estimates mainly reflect comparisons between rather than within firms, raising the possibility that there are unobserved firm characteristics (e.g., managerial quality) that help account for the findings. We do find that the interaction effect of shared capitalism with employee empowerment and the Trust Index[©] on intent to stay is maintained, but our other results are no longer statistically significant, when using fixed effects; this indicates either the role of either unobserved firm-level variables and/or measurement error that plays a large role when examining within-firm variation. The lack of substantial within-firm variation may indicate that these firms aspiring to be “best firms” have found optimal combinations of policies and no longer feel the need to do extensive experimentation. An additional caveat is that our shared capitalism index has been used before (Kruse et al., 2010), but it has not been extensively tested and validated, which is why we also present results breaking down the different forms of shared capitalism. In further research it would be valuable to test other comprehensive measures of shared capitalism.

These findings have implications both for policy and research. For managers, these results indicate that group incentives are likely to have positive effects if implemented in the

appropriate way—with supportive HR policies rather than on their own. For policymakers, these results indicate that public policy supporting group incentives, which may be motivated by a concern to increase middle class incomes and share the rewards of economic performance more broadly, is unlikely to harm and may even improve economic performance (Blasi et al. 2014). For researchers, the results point to the value of further research on the causes and consequences of group incentives. It would be valuable to probe these findings with innovative strategies that provide stronger controls for worker quality and firm heterogeneity, shedding light on the causal role of group incentives on employee turnover and firm performance.

Bibliography

- Akerlof, George (1982). Labor Contracts as Partial Gift Exchange. Quarterly Journal of Economics, Vol. 97, pp. 543-569.
- Appelbaum, Eileen, Thomas Bailey, Peter Berg, and Arne Kalleberg (2000). Manufacturing Advantage. Ithaca: Cornell University Press.
- Axelrod, Robert M (1984). The Evolution of Cooperation. New York: Basic Books.
- Azfar, Omar, and Stephan Danninger (2001). Profit Sharing, Employment Stability, and Wage Growth. Industrial and Labor Relations Review, 54(3), pp. 619-630.
- Baron, Reuben M., and David A. Kenny (1986). The Moderator-Mediator Variable Distinction in Social Psychological Research” Journal of Personality and Social Psychology, Vol. 51, No. 6, pp. 1173-82.
- Benartzi, S. and R. Thaler (2001). Naïve Diversification Strategies in Defined Contribution Plans. American Economic Review Vol. 91, No. 1, pp. 79-98.
- Ben-Ner**, Avner; and Derek C. **Jones** (1995). Employee Participation, Ownership, and Productivity: A Theoretical Framework. Industrial Relations, 34(4): 532-54
- Blasi, Joseph R (1988). Employee Ownership: Revolution or Ripoff? New York: HarperCollins, Ballinger Books.
- Blasi, Joseph, and Douglas Kruse (1991). The New Owners The Mass Emergence of Employee Ownership in Public Companies and What it Means to American Business. New York: HarperCollins.
- Blasi Joseph, Michael Conte, and Douglas Kruse. 1996). Employee Stock Ownership and Performance Among Public Companies. Industrial and Labor Relations Review, Volume 50, Number 1, 60-79.

- Blasi, Joseph, Richard Freeman, and Douglas Kruse (2014). The Citizen's Share: Reducing Inequality in the 21st Century. New Haven, CN: Yale University Press.
- Blasi, Joseph, Douglas Kruse, and Aaron Bernstein (2003). In the Company of Owners: The Truth About Stock Options (And Why Every Employee Should Have Them). New York: Basic Books.
- Blasi, Joseph, Douglas Kruse, and Harry Markowitz (2010). Risk and Lack of Diversification under Employee Ownership. In Douglas Kruse, Richard Freeman, and Joseph Blasi, eds. Shared Capitalism at Work: Employee Ownership, Profit Sharing, Gainsharing, and Broad-based Stock Options. Chicago: University of Chicago Press.
- Bockerman, Petri, Alex Bryson, and Pekka Ilmakunnas (2012). Does high involvement management improve worker wellbeing? Journal of Economic Behavior and Organization, 84:6, 660-680.
- Buchele, Robert, Douglas Kruse, Loren Rodgers, and Adria Scharf (2010). Show Me the Money: Does Shared Capitalism Share the Wealth?" in Douglas Kruse, Richard Freeman, and Joseph Blasi, eds. Shared Capitalism at Work: Employee Ownership, Profit Sharing, Gainsharing, and Broad-based Stock Options. Chicago: University of Chicago Press.
- Bullock, R.J. and Mark E. Tubbs (1990). A Case Meta-Analysis of Gainsharing Plans as Organization Development Interventions. Journal of Applied Behavioral Science, 26, 3, pp. 383-404.
- Cappelli, Peter, and David Neumark (2001). Do 'High-Performance' Work Practices Improve Establishment-Level Outcomes?" Industrial and Labor Relations Review, July 2001, v. 54, iss. 4, pp. 737-75.
- Carstensen, Vivian, Knut Gerlach, and Olaf Hübler (1995). Profit sharing in German firms. In

Friedrich Buttler, Wolfgang Franz, Ronald Schettkat, and David Soskice (eds.),
Institutional frameworks and labor market performance: Comparative views on the U.S.
and German economies. London and New York: Routledge, 168-207.

Combs, J., Liu, Y., Hall, A., & Ketchen, D. (2006). How much do high-performance work
practices matter? A meta-analysis of their effects on organizational performance. Personnel
Psychology, 59: 501-528

Canyon, Martin J., and Richard B. Freeman (2004). Shared Modes of Compensation and Firm
Performance: UK Evidence. In David Card, Richard Blundell, and Richard B. Freeman,
eds. Seeking a Premier Economy: The Economic Effects of British Economic Reforms,
1980-2000. Chicago: University of Chicago Press, pp. 109-146.

Dawes, Robyn M., and Richard H. Thaler (1988). Anomalies: Cooperation. Journal of Economic
Perspectives, Summer 1988, v. 2, iss. 3, pp. 187-97

Doucouliaqos, C (1995). Worker participation and productivity in labor-managed and
participatory capitalist firms: a meta-analysis. Industrial and Labor Relations Review,
49(1), 58-77.

Dube, Arin, and Richard Freeman (2010). Complementarity of Shared Compensation and
Decision-Making Systems. In Kruse, Freeman, and Blasi, eds., Shared Capitalism at Work:
Employee Stock Ownership, Profit and Gain Sharing, and Broad-based Stock Options.
Chicago: University of Chicago Press.

Edmans, Alex (2011). Does the stock market fully value intangibles? Employee satisfaction and
equity prices" Journal of Financial Economics 101,621-640

Edmans, Alex (2012). "The link between employee satisfaction and firm value, with implications
for corporate social responsibility." The Academy of Management Perspectives 26(4): 1-

19.

Estrin, Saul, and Nicholas Wilson (1989). Profit Sharing, the Marginal Cost of Labour and

Employment Variability. Draft, Dept. of Economics, London School of Economics (May).

Faleye, Olubunmi and Emery A. Trahan (2011). Labor-Friendly Corporate Practices: Is What is

Good for Employees Good for Shareholders? Journal of Business Ethics Vol 01, No 1, 1-27,

Freeman, Richard B., Joseph R. Blasi, and Douglas L. Kruse (2011). Inclusive Capitalism for the American Workforce: Reaping the Rewards of Economic Growth through Broad-based Employee Ownership and Profit Sharing. Center for American Progress, Washington, D.C., March.

Freeman, Richard B., Douglas L. Kruse, and Joseph Blasi (2010). Worker Responses to Shirking under Shared Capitalism. In Douglas Kruse, Richard Freeman, and Joseph Blasi, eds. Shared Capitalism at Work: Employee Ownership, Profit Sharing, Gainsharing, and Broad-based Stock Options. Chicago: University of Chicago Press.

Freeman, Steven F (2007). Effects of ESOP Adoption and Employee Ownership: Thirty years of Research and Experience. Working Paper #07-01, Organizational Dynamics Programs, University of Pennsylvania.

Frohlich, N., J. Godard, J. A. Oppenheimer, and F. A. Starke (1998). Employee versus conventionally- owned and controlled firms: An experimental analysis. Managerial and Decision Economics 19 (4/ 5): 311– 26.

Fudenberg, Drew, and Eric Maskin (1986). The Folk Theorem in Repeated Games with Discounting or with Incomplete Information” Econometrica, Vol. 54, No. 3 (May), pp. 533-54.

- Griffeth, Rodger W., Peter W. Hom, and Stefan Gaertner (2000). "A meta-analysis of antecedents and correlates of employee turnover: Update, moderator tests, and research implications for the next millennium." *Journal of management* 26(3): 463-488.
- Handel, Michael, and Maury Gittleman (2004). Is There A Wage Payoff to Innovative Practices?" *Industrial Relations*, Vol. 43 (1), pp. 67-97.
- Hansen, D. G (1997). Worker performance and group incentives: A case study. *Industrial and Labor Relations Review* 51 (1): 37– 49.
- Hart, R.A., and Olaf Hubler (1991). Are Profit Shares and Wages Substitute or Complementary Forms of Compensation?" *Kyklos* 44, pp. 221-231.
- Hubler, Olaf (1993). Productivity, Earnings, and Profit Sharing: An Econometric Analysis of Alternative Models. *Empirical Economics*, 18, pp. 357-380.
- Ichniowski ,Casey, Kathryn Shaw, and Giovanna Prennushi (1997). The Effects of Human Resource Management Practices on Productivity: a Study of Steel Finishing Lines. *American Economic Review*, Volume 87. Number 23, 291-313.
- Jones, Derek C.; Kalmi, Panu; Kauhanen, Antti (2010). Teams, Incentive Pay, and Productive Efficiency: Evidence from a Food-Processing Plant. *Industrial and Labor Relations Review*, July 2010, v. 63, iss. 4, pp. 606-626.
- Jones, D., T. Kato, and J. Pliskin (1997). Profit sharing and gainsharing: A review of theory, incidence, and effects. In *Handbook of human resources*, ed. D. Lewin, D. Mitchell, and M. Zaidi. Greenwich, CT: JAI Press.
- Kaarsemaker, Eric C.A (2006). Employee ownership and its consequences: Synthesis-generated evidence for the effects of employee ownership and gaps in the research literature” York, UK: University of York.

- Kahneman, Daniel, Jack L. Knetsch, and Richard Thaler (1991). Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias. Journal of Economic Perspectives, Volume 5, Issue 1, Winter 1991, 193-206
- Kandel, Eugene, and Edward P. Lazear (1992). Peer Pressure and Partnerships. Journal of Political Economy, Vol. 100, No. 4 (August), pp. 801-17.
- Kardas, Peter; Adria L. Scharf; and Jim Keogh (1998). Wealth and Income Consequences of ESOPs and Employee Ownership: A Comparative Study from Washington State. Journal of Employee Ownership Law and Finance. Vol. 10, No. 4, Fall.
- Kaufman, Roger T (1998). The Effects of Gain Sharing on the Basic Wage: The Case of IMPROSHARE . Labour, Autumn 1998, v. 12, iss. 3, pp. 595-610.
- Kim, E. Han and Paige Ouimet (2011). Employee Stock Ownership Plans: Employee Compensation and Firm Value. working paper, Ross School of Business, University of Michigan.
- Kroumova, M (2000). Investment in employer stock through 401(k) plans: Is there reason for concern?" PhD dissertation. New Brunswick, NJ: Rutgers University.
- Kruse, Douglas (1993). Profit Sharing: Does It Make A Difference? Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.
- Kruse, Douglas, and Joseph Blasi (1997). Employee Ownership, Employee Attitudes, and Firm Performance: A Review of the Evidence." In David Lewin, Daniel J.B. Mitchell, and Mahmood A. Zaidi, eds., Human Resources Management Handbook, Part 1. Greenwich, CT.: JAI Press.
- Kruse, Douglas, and Joseph Blasi (1999). Public Opinion Polls on Employee Ownership and Profit Sharing. Journal of Employee Ownership Law and Finance, Vol. 11, No. 3, Summer

1999, pp. 3-25.

Kruse, Douglas, Richard Freeman, and Joseph Blasi (Eds) (2010). Shared Capitalism at Work: Employee Stock Ownership, Profit and Gain Sharing, and Broad-based Stock Options. Chicago: University of Chicago Press.

Lazear, Edward P (1992). Compensation, Productivity and the New Economics of Personnel. In Lewin, David, Olivia Mitchell, and Peter Sherer, eds., Research frontiers in industrial relations and human resources. Madison, WI: Industrial Relations Research Association, pp. 341-80

O'Halloran, Patrick (2012). Performance pay and employee turnover. *Journal of Economic Studies*, 39(6): 653 – 674.

Organization for Economic Cooperation and Development (OECD) (1995). Profit sharing in OECD countries. OECD Employment Outlook, pp. 139– 69.

Oxera (2007). Tax Advantaged Share Schemes: Analysis of Productivity Effects. HM Revenue and Custom Research Reports 32 and 33, January and August.

Park, Tae-Youn, and Jason D Shaw (2013). Turnover Rates and Organizational Performance: A Meta-Analysis. *Journal of Applied Psychology*. March 98(2): 268-309.

Pendleton, Andrew; Robinson, Andrew (2010). Employee Stock Ownership, Involvement, and Productivity: An Interaction-Based Approach. Industrial and Labor Relations Review, October 2010, v. 64, iss. 1, pp. 3-29.

Peterson, Suzanne J., and Fred Luthans (2006). The Impact of Financial and Nonfinancial Incentives on Business-Unit Outcomes Over Time. Journal of Applied Psychology, Vol. 91, No. 1, 156–165

Poutsma, Erik, Panu Kalmi, and Andrew Pendleton (2006). The Relationship between Financial

- Participation and Other Forms of Employee Participation: New Survey Evidence from Europe. Economic and Industrial Democracy, November, vol. 27, no. 4, pp. 637-67.
- Renaud, S., S. St-Onge, and M. Magnan (2004). The impact of stock purchase plan participation on workers' individual cash compensation. Industrial Relations 43(1): 120– 47.
- Rousseau, Denise M. and Zipi Shperling (2003). Pieces of the Action: Ownership and the changing Employment Relationship. Academy of Management Review, Vol. 28, No. 4, 533-570.
- Scharf, Adria, and Christopher Mackin (2000). Census of Massachusetts Companies with Employee Stock Ownership Plans (ESOPs)." Boston: Commonwealth Corporation.
- Sesil, James, Maya Kroumova, Douglas Kruse, and Joseph Blasi (2007). Broad-based Employee Stock Options in the United States: Company Performance and Characteristics. Management Review, Vol. 18, No. 2, 2007, pp. 5-22.
- Trebucq, S. (2004). The effects of ESOPs on performance and risk: evidence from France. Corporate Ownership & Control, 1(4), 81-93.
- U.S. Bureau of Labor Statistics (2007). National Compensation Survey: Employee Benefits in Private Industry in the United States, 2005, Bulletin 2589. Washington, D.C.: U.S. Bureau of Labor Statistics, May.
- U.S. Bureau of Labor Statistics (2010). National Compensation Survey: Employee Benefits in the United States, March 2010, Bulletin 2752. Washington, D.C.: U.S. Bureau of Labor Statistics, September.
- United States General Accounting Office (1987). Employee Stock Ownership Plans. Washington, D.C.: U.S. General Accounting Office, Report GAO/PEMD-88-1. END
- Weiss, Andrew (1987). Incentives and Worker Behavior. In Haig Nalbantian, ed., Incentives,

Cooperation, and Risk Sharing (Totowa, N.J.: Rowman and Littlefield, 1987), pp. 137-150.

Weitzman Martin (1984). The Share Economy. Cambridge, MA: Harvard University Press.

Weitzman, Martin L, and Douglas Kruse (1990). "Profit Sharing and Productivity. In Alan

Blinder, ed., Paying For Productivity: A Look at the Evidence. Washington, D.C.:

Brookings Institution.

Welbourne, T. M., and L. R. G. Mejia (1995). Gainsharing: A critical review and a future

research agenda. Journal of Management 21 (3): 559– 610.

Notes

- i For reviews of the employee ownership literature see Blasi (1988); Doucouliagos (1995), Kruse and Blasi (1997), Kaarsemaker (2006), Freeman (2007), Oxera (2007), and Kruse, Freeman, and Blasi (2010). For a review of the broad-based stock option literature see Blasi et al. (2003). For reviews of the profit sharing and gain-sharing literatures see Weitzman and Kruse (1990), Bullock and Tubbs (1990), Kruse (1993), OECD (1995), Doucialiagos (1995), Welbourne and Mejia (1995).
- ii One field study implemented random assignment of profit sharing at 3 of 21 establishments within a firm, finding that the performance of those establishments improved relative to the control group (Peterson and Luthans, 2006). A laboratory experiment among subjects organized into employee-owned “firms” found higher productivity (Frohlich et al., 1998). A study using an employee survey before and after the introduction of a profit sharing plan found an increase of anti-shirking behaviors (Freeman, Kruse, and Blasi 2010: 31). Two studies find that average worker quality base on observables did not change as compensation changed from individual to group incentives, while average worker performance improved (Weiss, 1987; Hansen, 1997).
- iii Doucialiagos, 1995; Kruse and Blasi, 1997; Weitzman and Kruse, 1990.
- iv An analysis of two nationally representative surveys and over 41,000 employee surveys in shared capitalism companies found that these plans have the most positive effects on performance-related attitudes and behaviors when they are combined with high-trust supervision (trusting employees to work well without close supervision), base wages at or above market, and high-performance policies (job security, training, and employee involvement in decisions)(Kruse et al., 2010). Without these policies these plans can have no or negative effects, indicating that

the dispersion in results across the 100+ studies we have reviewed may be explained in part by the types of policies that do or do not accompany shared capitalism. Other recent studies finding evidence of complementarities between shared capitalism and workplace policies include Jones et al. (2010) and Pendleton and Robinson (2010).

v Laboratory experiments show that cooperation occurs more often than predicted by models of self-interest, and is more likely when participants form a group identity by talking with each other before making their choices (Dawes and Thaler, 1988; Kahneman, Knetsch, and Thaler, 1991). Empathy with co-workers through communication can help develop and enforce norms that support higher performance (Kandel and Lazear, 1992; Lazear, 1992).

vi Using only those corporations designated as the Best Companies, the Edmans study constructs both a value-weighted and an equal-weighted portfolio from 1984-2009, both of which have better long-run stock returns above the risk-free rate with the findings robust to controls for industries and outliers. The study hypothesizes that “employee satisfaction”, as determined by a firm’s appearance on the Best Company list, plays a key role in this linkage, noting that two-thirds of the ranking for the list is based on the random employee surveys of employees. The Faleye and Trahan study also examines only the companies designated Best Companies from 1998-2005 and finds a statistically significant average abnormal stock price reaction to the announcement of the Fortune list. In addition, the Best Companies outperform comparable firms on measures on employee productivity, firm-level total productivity,

is by authors of CompuStat data matched to Form 5500 data.

le, Dube and Freeman (2010); Conyon and Freeman (2004).

ensions are labeled camaraderie (10 items, $\alpha=.94$), credibility (13 items,

2 items, $\alpha=.93$), pride (8 items, $\alpha=.93$), and respect (13 items,

Index© that averages these five dimensions has an alpha of .970. We

stay” item since we examine the relationship between the Trust Index©

ble 7.

n Edmans’ (2011) estimate of an excess return of 2.1% annually over the

a portfolio made up of Best Company winners relative to a portfolio of

e 1 allows for the effects of shared capitalism on worker and firm

mediated and moderated by employee empowerment and culture. We have

results available on request), and the results point toward a richer story of

ng the effects of shared capitalism

d by multiplying the -.008 coefficient by the 1.05 standard deviation from Table

ean turnover of .14 from Table 3.

ying the .019 coefficient by the 1.05 standard deviation from table 2, and

mean from Table 3.

Figure 1: Overall model

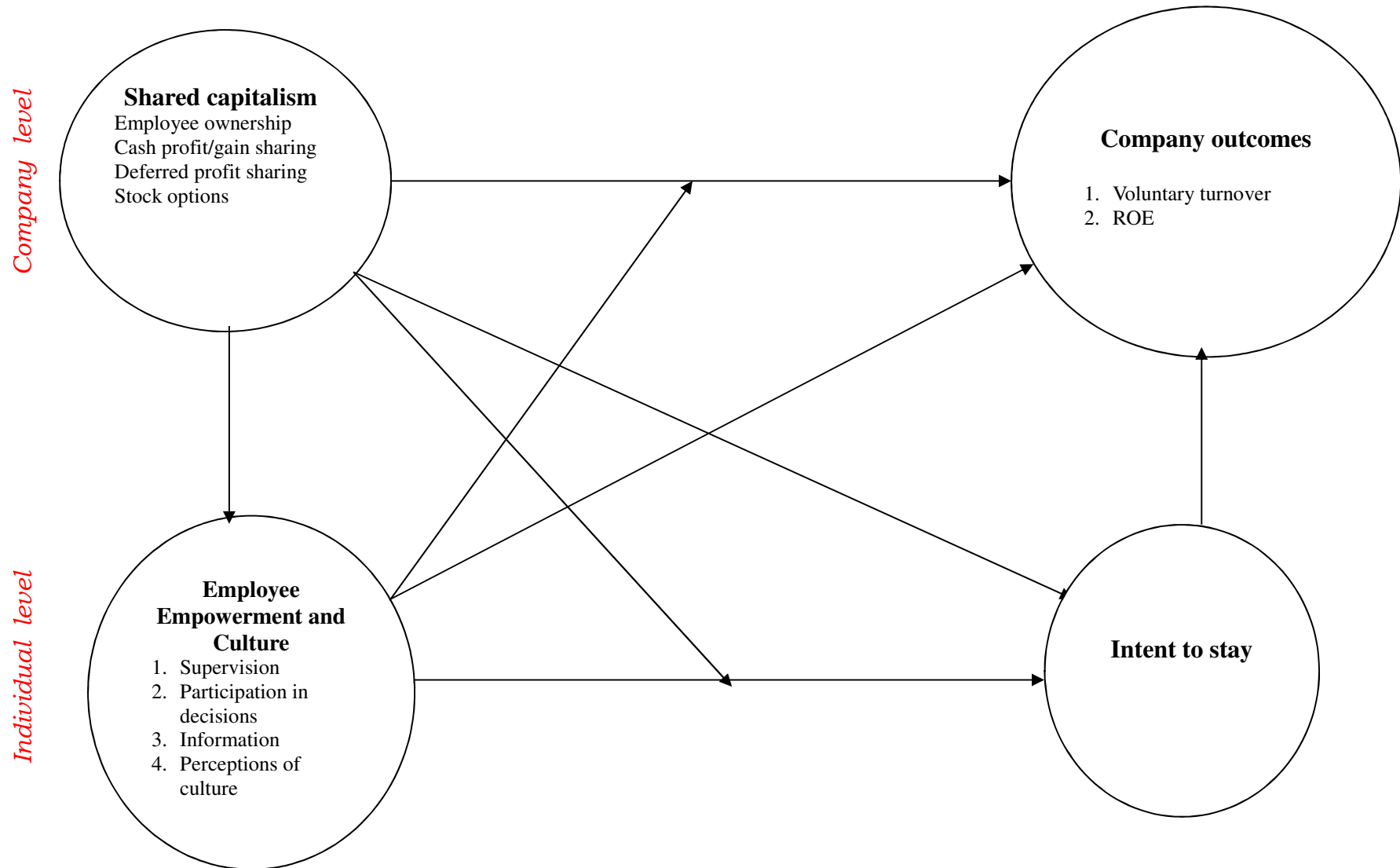


Figure 2: Shared Capitalism, Empowerment, and Voluntary Turnover

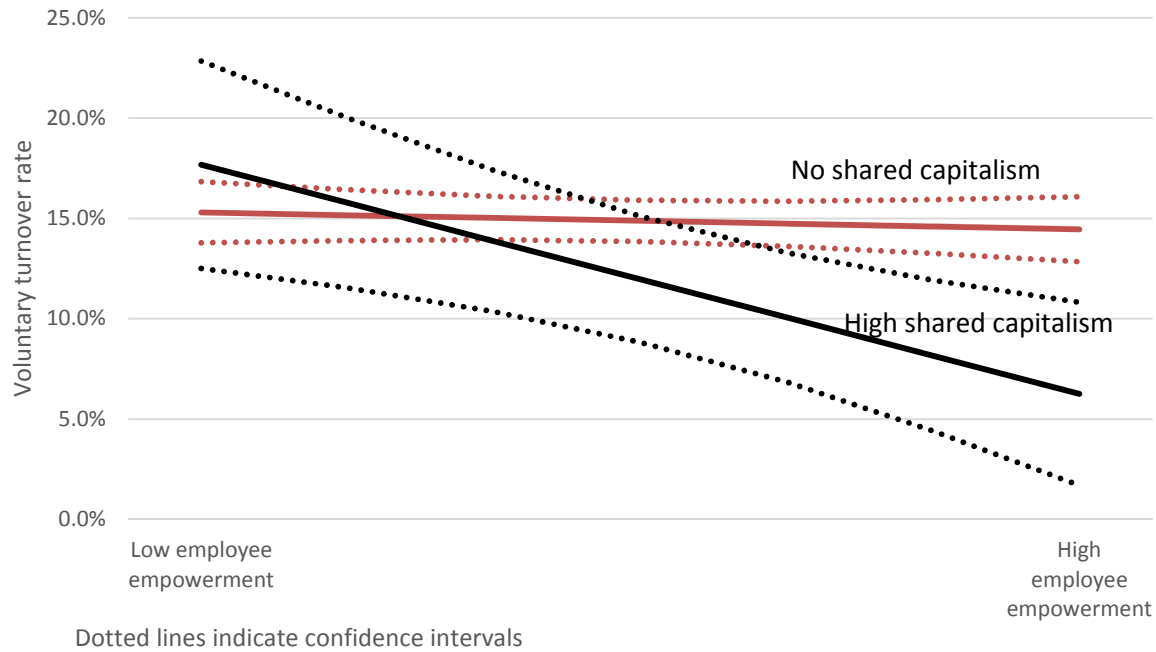


Table 1: Group Incentive Compensation Plans in GPW Database, 2005-2007

Combining all company-years (n=1312)

Plan and characteristics	Percentage of firms with plan	Percentage of firms with attribute if they have compensation form (s.d. in parenthesis)
Employee Stock Ownership Plan	17.6%	
Of those with, mean % of company owned by plan		17.4% (26.9)
Median % of company owned by plan		5.9%
Percentage with >50% of company owned		9.1%
Cash profit/gain sharing plan	18.1%	
Of those with, mean payout as % of pay		7.2% (10.5)
Median payout as % of pay		4.7%
Deferred profit-sharing plan	22.3%	
Of those with, mean contribution as % of pay		6.5% (8.7)
Median contribution as % of pay		3.9%
Stock options granted in past year	44.5%	
Of those with, mean % of employees granted		20.6% (29.1)
Median % of employees granted		6.50%
Percentage < 25% of employees granted		74.50%
Percentage > 50% of employees granted		16.40%

Table 2: Summary index of the extent of “shared capitalist” modes of compensation

Distribution of Company-Year observations (n=1089)	Percentage of firms
0	52.3%
1	20.9%
2	20.4%
3	4.0%
4	2.0%
5	0.4%
Mean and Standard deviation	0.835 (1.05)

Note: Index defined as in text, with one point for 1) an Employee Stock Ownership Plan (ESOP), 2) an ESOP owning 50% or more of the company, 3) a stock option plan covering 25% or more of employees, 4) a stock option plan covering 50% or more employees, 5) a cash profit/gainsharing plan, 6) a cash profit/gainsharing plan paying more than the median percent of pay, 7) a deferred profit sharing plan, and 8) a deferred profit sharing with a contribution above the median percent of pay.

Table 3: Measures of Employee Empowerment, Workplace Culture, and Firm Performance										
Var. name	Variable definition/survey statement [^]	Mean	(S.d.)	Distribution of responses					Sample size	
				1	2	3	4	5		
Employee empowerment										
High-trust supervision	Management trusts people to do a good job without watching over their shoulders.	4.262	(0.96)	2%	4%	11%	31%	52%	230465	
Participation in decisions	Management involves people in decisions that affect their jobs or work environment.	3.841	(1.08)	4%	7%	21%	35%	32%	230465	
Info sharing	Management keeps me informed about important issues and changes.	4.044	(1.02)	3%	6%	17%	34%	41%	230465	
Culture										
Team	There is a "family" or "team" feeling here.	4.232	(0.99)	2%	4%	13%	28%	52%	230465	
Cooperation	You can count on people to cooperate.	4.129	(0.87)	1%	3%	17%	40%	39%	230465	
Give extra	People here are willing to give extra to get the job done.	4.230	(0.88)	1%	3%	14%	36%	46%	230465	
Fair share	organization.	3.691	(1.20)	7%	10%	21%	31%	31%	230465	
Trust index	Great Places to Work Trust Index	4.194	(0.72)	^^	^^	^^	^^	^^	230465	
Great place	place to work.	4.366	(0.95)	2%	3%	11%	23%	60%	230465	
Intent to stay	I want to work here for a long time.	4.272	(1.04)	3%	4%	13%	23%	57%	230465	
Company performance										
Voluntary turnover	Voluntary separations (excluding retirements) of full-time employees as proportion of full-time employment	0.140	(0.12)	^^	^^	^^	^^	^^	1011	
ROE	Return on equity (from S&P Compustat)	0.167	(0.15)	^^	^^	^^	^^	^^	399	
ROE adjusted	Return on equity relative to year-industry mean (upper and lower 1% trimmed)	0.039	(0.15)	^^	^^	^^	^^	^^	399	
[^] All employee survey items scored on 1-5 scale (1="almost always untrue", 5="almost always true")										
^{^^} Continuous variable										
<i>Survey statements are protected by copyright by Great Place to Work® Institute</i>										

Table 4: Summary of Regressing Workplace Practices and Culture on Shared Capitalist Modes of Pay

Coefficients and T-Statistics from random-effects maximum likelihood multilevel model estimates. Each row represents results from one regression. See Appendix Table A for fuller results and control variables.

	Coefficient, t statistic in parenthesis	Wald chi-square (38)	N	Compensation with most significant impact, followed by compensation with 2 nd most significant
Workplace Practice				
High trust supervision	.020 (3.17)***	3629.7	230465	ESOP, Deferred profit sharing
Participation in work decisions	.020 (2.45)**	6971.6	230465	ESOP, Deferred profit-sharing
Management shares information	.016 (2.21)**	6128.3	230465	ESOP, Deferred profit-sharing
Workplace Culture/Attitudes				
Team feeling	.015 (2.15)**	6329.0	230465	ESOP, Deferred profit-sharing
People cooperate	.013 (2.24) **	4846.8	230465	ESOP, Deferred profit-sharing
Give extra	.020 (3.28)***	6830.2	230465	ESOP, Deferred profit-sharing
Fair share of profits	.017 (2.13)***	12075.0	230465	ESOP, Deferred profit-sharing
Great Place to Work Trust Index©	.014 (2.40)**	9298.7	230465	ESOP, Deferred profit-sharing
All in all, great place to work	.023 (3.18)***	4643.7	230465	ESOP, Deferred profit-sharing

** p<.05 *** p<.01 T-statistics in parentheses, based on robust standard errors.

Table 5: Summary of Regressing Turnover Behavior on Workplace Practices, Culture, and Shared Capitalist Modes of Pay

Panel A: Worker level “intent to stay at company”

	Shared Capitalism Index	Employee empowerment index in lines 2 and 3; Trust Index in lines 4 and 5	Interaction	N
1	0.013 (1.87)*			230465
2	-0.001 (0.17)	0.741 (387.38)***		230465
3	-0.026 (3.19)***	0.736 (299.47)***	0.007 (3.76)***	230465
4	-0.003 (0.97)	1.118 (558.69)***		230465
5	-0.043 (5.12)***	1.110 (432.17)***	0.010 (5.16)***	230465

Panel B: Employer level, voluntary turnover rate for firm

	Shared Capitalism Index	Employee empowerment index in lines 7 and 8; Trust Index in lines 9 and 10	Interaction	N
6	-0.008 (2.22)**			1011
7	-0.007 (1.95)*	-0.044 (2.68)**		1011
8	0.137 (2.44)**	-0.016 (0.81)	-0.036 (2.57)***	1011
9	-0.007 (1.94)*	-0.054 (2.83)**		1011
10	0.153 (2.35)**	-0.023 (1.00)	-0.039 (2.46)**	1011

Panel C: Employer level, aggregated worker “intent to stay at firm”

	Shared Capitalism Index	Employee empowerment index in lines 12 and 13; Trust Index in lines 14 and 15	Interaction	N
11	0.014 (1.98)**			1011
12	-0.001 (0.19)	0.808 (40.94)***		1011
13	-0.123 (1.81)*	0.784 (33.10)***	0.030 (1.80)**	1011
14	-0.002 (0.63)	1.010 (42.10)***		1011
15	-.142 (2.13)*	0.983 (42.26)***	0.034(2.10)**	1011

*P<.10 ** p<.05 *** p<.01 T-statistics in parentheses, based on robust standard errors.

In Panel A, all regressions are run using a random-effects maximum likelihood multilevel model, with random effects both at the company-year level and the company level. Company-level control variables include defined benefit pension, ln(total employment), ln(avg. hourly pay), ln(avg. salaried pay), company age, whether publicly-held, manufacturing, services, and percent of employees who are

unionized. Individual-level control variables include gender, race/ethnicity (7 dummies), age (5 dummies), tenure (7 dummies), and occupation (7 dummies). In Panels B and C, all regressions use random effects with correction for autogression. Control variables include defined benefit pension, $\ln(\text{total employment})$, $\ln(\text{avg. hourly pay})$, $\ln(\text{avg. salaried pay})$, company age, whether publicly-held, manufacturing, services, and percent of employees who are female, black, Hispanic, Asian, other race, age 26-34, age 35-44, age 45-54, age 55+, and unionized.

Table 6: Summary of Regressing Adjusted Return on Equity on Workplace Practices and Culture, and Shared Capitalist Modes of Pay

Coefficients and T-Statistics from random-effects maximum likelihood multilevel model estimates. Each row represents results from one regression.

	Shared Capitalism Index	Employee empowerment index in lines 4 and 5; Trust Index in lines 8 and 9	Interaction	Wald chi-sq
1	0.019 (2.31)**			26.1
2	0.018 (2.27)**	0.112 (2.73)***		34.5
3	-0.146 (1.15)	0.067 (1.25)	0.041(1.30)	36.2
4	0.017 (2.17)**	0.161 (3.42)***		39.1
5	-0.214 (1.49)	0.101 (1.68)*	0.056 (1.61)	41.7

*P<.10 ** p<.05 *** p<.01 T-statistics in parentheses, based on robust standard errors.

All regressions use random effects with correction for autoregression. Control variables include defined benefit pension, ln(total employment), ln(avg. hourly pay), ln(avg. salaried pay), company age, whether publicly-held, manufacturing, services, and percent of employees who are female, black, Hispanic, Asian, other race, age 26-34, age 35-44, age 45-54, age 55+, and unionized.

Appendix Table A: Predicting Workplace Practices, Culture, and Intent to Stay under Shared Capitalism															
Dep. var.:	Workplace practices									Culture					
	High-trust supervisor			Part. in decisions			Info sharing			Team		Cooperation			
	(1)			(2)			(3)			(4)		(5)			
Shared capitalism index	0.020	(3.17)	***	0.020	(2.45)	**	0.016	(2.21)	**	0.015	(2.15)	**	0.013	(2.24)	**
n	230465			230465			230465			230465		230465			
Wald chi-sq. (38)	3629.7			6971.6			6128.3			6329		4846.8			
Elements of index															
Stock options 1-25%	-0.004	(0.24)		-0.015	(0.67)		-0.024	(1.10)		-0.024	(1.17)		-0.004	(0.26)	
Stock options 25-49%	0.031	(1.10)		0.036	(1.00)		0.015	(0.43)		0.014	(0.42)		0.027	(1.01)	
Stock options 50%+	0.042	(0.64)		0.011	(0.29)		-0.024	(0.69)		-0.018	(0.53)		0.013	(0.48)	
ESOP 1-49% of co.	0.076	(3.35)	***	0.067	(2.33)	**	0.072	(1.71)	*	0.068	(2.63)	***	0.040	(1.90)	*
ESOP 50%+ of co.	0.145	(2.62)	***	0.125	(1.78)	*	0.108	(1.65)		0.142	(2.23)	**	0.108	(2.11)	**
Def. PS <4% of pay	0.052	(2.12)	**	0.031	(1.02)		0.041	(1.46)		0.035	(1.27)		0.037	(1.63)	
Def. PS 4%+ of pay	0.085	(3.64)	***	0.086	(2.91)	***	0.063	(2.31)	**	0.050	(1.90)	*	0.064	(2.99)	***
Cash PS/GS <5% of pay	-0.006	(0.32)		-0.002	(0.07)		-0.004	(0.17)		-0.002	(0.09)		-0.011	(0.59)	
Cash PS/GS 5%+ of pay	-0.015	(0.70)		-0.014	(0.52)		0.007	(0.27)		0.007	(0.29)		-0.016	(0.77)	
n	230465			230465			230465			230465		230465			
Wald chi-sq. (45)	3654.4			6984.4			6140.9			6341.6		4861.9			
Continuous variables															
Any stock options	-0.005	(0.25)		-0.019	(0.80)		-0.025	(1.15)		-0.027	(1.29)		-0.007	(0.42)	
% of ees. given options	0.000	(0.89)		0.001	(1.36)		0.000	(0.63)		0.000	(0.99)		0.000	(1.37)	
ESOP	0.067	(2.73)	***	0.061	(1.97)	**	0.066	(2.29)	**	0.060	(2.15)	**	0.034	(1.50)	
% of co. owned by ESOP	0.001	(1.61)		0.001	(1.04)		0.001	(0.86)		0.001	(1.36)		0.001	(1.50)	
Deferred PS plan	0.050	(2.19)	**	0.039	(1.34)		0.033	(1.26)		0.025	(0.94)		0.027	(1.29)	
Def. PS as % of pay	0.276	(1.45)		0.331	(1.36)		0.300	(1.34)		0.290	(1.32)		0.375	(2.13)	**
Cash PS/GS plan	-0.004	(0.23)		-0.008	(0.38)		-0.003	(0.16)		0.003	(0.16)		-0.012	(0.78)	
Cash PS/GS as % of pay	-0.001	(1.02)		0.000	(0.08)		0.000	(0.38)		0.000	(0.26)		0.000	(0.15)	
n	230465			230465			230465			230465		230465			
Wald chi-sq. (46)	3656.5			6983.6			6141.8			6343.4		4866.9			
* p<.10 ** p<.05 *** p<.01 T-statistics in parentheses, based on robust standard errors.															
Each column has three regressions: 1)with the shared capitalism index, 2) breaking out the elements of the shared capitalism index, and 3) using the continuous variables underlying the shared capitalism index. All regressions are run using a random-effects maximum likelihood multilevel model, with random effects both at the company-year level and the company level. Company-level control variables include defined benefit pension, ln(total employment), ln(avg. hourly pay), ln(avg. salaried pay), company age, whether publicly-held, manufacturing, services, percent of employees who are unionized, and (just for Panel B) a dummy indicating stock options for 1-25% of employees. Individual-level control variables include gender, race/ethnicity (7 dummies), age (5 dummies), tenure (7 dummies), and occupation (7 dummies). Regressions were run using Stata's xtmixed command.															

Appendix A (cont.)													
Dep. var.:	Culture											Intent to stay	
	Give extra		Fair share		Trust Index©		Great place						
	(6)		(7)		(8)		(9)			(10)			
Shared capitalism index	0.020	(3.28) ***	0.017	(2.83) ***	0.014	(2.40) **	0.023	(3.18) ***			0.013	(1.87) *	
n	230465		230465		230465		230465			230465			
Wald chi-sq. (38)	6830.2		12075		9298.7		4643.7			7643			
Elements of index													
Stock options 25-49%	0.047	(1.77) *	0.070	(1.39)	0.032	(1.25)	0.051	(1.61)			0.044	(1.40)	
Stock options 50%+	0.071	(2.59) ***	0.078	(1.49)	0.008	(0.30)	0.003	(0.09)			-0.015	(0.45)	
ESOP 1-49% of co.	0.042	(1.93) *	0.161	(3.85) ***	0.055	(2.58) ***	0.071	(2.67) ***			0.062	(2.41) **	
ESOP 50%+ of co.	0.089	(1.70) *	0.296	(2.93) ***	0.115	(2.24) **	0.162	(2.55) **			0.181	(2.92) ***	
Def. PS <4% of pay	0.043	(1.86) *	0.089	(1.99) **	0.033	(1.44)	0.023	(0.81)			0.013	(0.48)	
Def. PS 4%+ of pay	0.074	(3.31) ***	0.222	(5.17) ***	0.063	(2.89) ***	0.085	(3.12) ***			0.059	(2.26) **	
Cash PS/GS <5% of pay	-0.021	(1.16)	0.009	(0.27)	-0.017	(0.95)	-0.022	(0.98)			-0.024	(1.12)	
Cash PS/GS 5%+ of pay	-0.016	(0.77)	0.099	(2.48) **	-0.007	(0.34)	0.028	(1.10)			0.006	(0.23)	
n	230465		230465		230465		230465			230465			
Wald chi-sq. (45)	6851.8		8713.3		9315.9		4661.3			7662.7			
Continuous variables													
Any stock options	-0.008	(0.48)	0.015	(0.45)	-0.007	(0.40)	-0.006	(0.30)			0.005	(0.22)	
% of ees. given options	0.001	(3.60) ***	0.001	(1.66)	0.000	(1.18)	0.000	(1.00)			0.000	(0.05)	
ESOP	0.038	(1.64)	0.136	(3.04) ***	0.049	(2.12) **	0.059	(2.08) **			0.048	(1.73) *	
% of co. owned by ESOP	0.001	(1.12)	0.002	(1.94) *	0.001	(1.36)	0.001	(1.65)			0.001	(2.11) **	
Deferred PS plan	0.033	(1.45)	0.111	(2.60) ***	0.033	(1.52)	0.023	(0.84)			0.022	(0.84)	
Def. PS as % of pay	0.434	(2.39) **	0.766	(2.16) **	0.247	(1.37)	0.504	(2.27) **			0.237	(1.10)	
Cash PS/GS plan	-0.024	(1.52)	0.031	(1.03)	-0.013	(0.81)	-0.002	(0.09)			-0.010	(0.51)	
Cash PS/GS as % of pay	0.000	(0.60)	0.002	(1.21)	0.000	(0.20)	0.000	(0.12)			0.000	(0.38)	
n	230465		230465		230465		230465			230465			
Wald chi-sq. (46)	6861.8		8712		9315.8		4657.4			7658.5			

* p<.10 ** p<.05 *** p<.01 T-statistics in parentheses, based on robust standard errors.

Each column has three regressions: 1)with the shared capitalism index, 2) breaking out the elements of the shared capitalism index, and 3) using the continuous variables underlying the shared capitalism index. All regressions are run using a random-effects maximum likelihood multilevel model, with random effects both at the company-year level and the company level. Company-level control variables include defined benefit pension, ln(total employment), ln(avg. hourly pay), ln(avg. salaried pay), company age, whether publicly-held, manufacturing, services, percent of employees who are unionized, and (just for Panel B) a dummy indicating stock options for 1-25% of employees. Individual-level control variables include gender, race/ethnicity (7 dummies), age (5 dummies), tenure (7 dummies), and occupation (7 dummies). Regressions were run using Stata's xtmixed command.

Appendix Table B: Predicting Firm-level Outcomes with Shared Capitalism					
	Dep. var.:	Voluntary turnover, full-time workers		Return on equity	
		(1)		(4)	
Shared capitalism index		-0.008	(0.004) **	0.0185	(2.310) *
R-squared		0.34		0.107	
n		1011		399	
Elements of index					
Stock options 1-25%		0.004	(0.38)	-0.007	(0.31)
Stock options 25-49%		-0.025	(1.41)	0.001	(0.02)
Stock options 50%+		-0.012	(0.69)	-0.013	(0.39)
ESOP 1-49% of co.		-0.015	(1.26)	0.036	(1.48)
ESOP 50%+ of co.		0.036	(1.07)	na	
Def. PS <4% of pay		0.029	(2.23) **	0.003	(0.09)
Def. PS 4%+ of pay		-0.018	(1.42)	0.074	(2.18)
Cash PS/GS <5% of pay		-0.013	(1.17)	0.052	(1.48)
Cash PS/GS 5%+ of pay		-0.023	(1.84) *	0.049	(1.65)
R-squared		0.353		0.09	
n		1011		399	
Continuous variables					
Any stock options		0.003	(0.29)	-0.009	(0.38)
% of ees. given options		0.000	(1.12)	0.000	(0.65)
ESOP		-0.020	(1.47)	0.035	(1.25)
% of co. owned by ESOP		0.001	(1.41)	0.000	(0.02)
Deferred PS plan		0.019	(1.56)	0.005	(0.15)
Def. PS as % of pay		-0.225	(2.06) **	0.669	(1.10)
Cash PS/GS plan		-0.015	(1.50)	0.056	(1.64)
Cash PS/GS as % of pay		0.000	(0.41)	-0.001	(0.30)
R-squared		0.343		0.093	
n		1011		399	

* p<.10 ** p<.05 *** p<.01 T-statistics in parentheses, based on robust standard errors
All regressions use random effects with correction for autogression. Control variables include defined benefit pension, ln(total employment), ln(avg. hourly pay), ln(avg. salaried pay), company age, whether publicly-held, manufacturing, services, and percent of employees who are female, black, Hispanic, asian, other race, age 26-34, age 35-44, age 45-54, age 55+, unionized, and (just for Panel B) a dummy indicating stock options for 1-25% of employees.