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Creating a Bigger Pie?
The Effects of Employee Ownership, Profit Sharing, and Stock Options on Workplace Performance

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Christopher Mackin, and Douglas L. Kruse

> Cooperation aims to increase the margin from which the increment of gain is to be drawn. It makes industry more productive; it gives the employer somewhat more, and to the laborer much more than they now receive. . . . All the workmen with their employers constitute collectively an exceptionally good entrepreneur. . . . The survival of full cooperation in the long rivalry of systems depends on its power to excel other systems. . . . If in the comparison with other systems, it is shown that it ought to survive, it will do so, and that regardless of initial failures.
>
> —John Bates Clark, *The Philosophy of Wealth,* 1886

One-hundred and twenty years ago John Bates Clark, one of the founders of the American Economic Association, developer of marginal productivity theory, and the person for whom the prestigious Bates Clark Award is

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named, developed a vision of shared capitalism—the cooperative plan—and laid out a key test for this form of capitalist enterprise, its ability to survive in competition with other forms. In his 1886 book *The Philosophy of Wealth,* Clark said that he wanted "to take the workman permanently out of the position in which his gain is his employer's loss" through profit sharing and stock ownership by the workers. His solution to workers' risk aversion and lack of credit and personal funds to invest in capital was that the firm would pay profit shares to workers in the form of stock, which would make profit sharing a gradual vehicle for employee ownership.[1] Clark underlined the need for skilled management and committed investors and stressed that access to new capital investment was critical to the success of such enterprises. He also noted the need for a cooperative management culture in these corporations. Clark did not envision worker-elected managers nor worker-dominated boards of directors. Clark's views suggest that forms of shared capitalism that combine profit sharing and employee ownership without personal worker financing in a cooperative corporate setting would positively affect workplace performance and company success. Clark's interest in shared capitalism was mirrored in the first volume of the *American Economic Review,* which contained extensive articles on cooperative economic relations in New England and Minneapolis in issues 4 and 5.[2]

This chapter analyzes the relationship of various forms of shared capitalist compensation to six workplace outcomes—turnover, absenteeism, per-

Chicago provided valuable assistance with the US General Social Survey segment that forms the basis for some of the analysis. Refen Koh, Rhokeun Park, Michelle Pinheiro, and Patricia Berhau provided excellent assistance in survey scanning, entry, and verification.

1. Adam Smith (1776) credited the incentive of shared capitalism with improved economic performance for the French Metayers or sharecroppers, where the owner of the land and the sharecropper divided the produce equally after capital investments: "Such tenants, being freemen, are capable of acquiring property, and having a certain proportion of the produce of the land, they have a plain interest that the whole produce should be as great as possible, in order that their own proportion may be so" (quoted in Laffont and Martimort [2002, 10]). He stressed that sharecroppers would not risk their own capital to improve the proprietor's land without offering any resolution to this problem.

2. Issue 4 included a 100-page article "Cooperation in a Western City" by Albert Shaw (1886) about such enterprises in Minneapolis, which examined profit sharing by Charles Pillsbury in his mills and included an interview with Pillsbury. Issue 5 had a 129-page article "Cooperation in the Northeast" by Edward Bemis (1886) on Massachusetts companies. In the 1880s a group of doctoral students was assembled at Johns Hopkins University who divided up the United States into regions and studied forms of profit sharing and employee ownership in these regions. The university published these studies as a book (Adams 1888). John Bates Clark worked closely with this group of researchers, several of whose articles appeared in the new journal of the American Economic Association. Clark's views were similar to those of another prominent nineteenth-century economist, John Stuart Mill, who said "The form of association which if mankind continues to improve must be expected in the end to predominate is not that which can exist between a capitalist as chief and workpeople without a voice in the management but the association of the labourers themselves on terms of equality, collectively owning the capital with which they carry on their operations, and working under managers elected and removable by themselves" (John Stuart Mill, *Principles of Political Economy,* Books III-V and Appendices [1848], in J. M. Robson, ed., *Collective Works of John Stuart Mill, Vol. 3.* Toronto: University of Toronto Press, 1965, 775).

ceived effort of co-workers, loyalty to the firm, willingness to work hard, and frequency of worker suggestions to improve productivity—from the perspective of the "John Bates Clark vision" of shared capitalism. We also examine employee responses to questions about their response to shared capitalist incentives. Our analysis uses the General Social Survey (GSS) and NBER data sets (described in the "Studying Shared Capitalism" section of the introduction to this volume).

4.1 The Clark Vision in Modern Eyes

Modern theorists concerned with shared capitalism highlight the potential of corporate culture in helping unify ownership and control with minimal agency costs and enabling shared capitalism to fulfill its potential. In his address to the Industrial Relations Research Association, Joseph Stiglitz defined the goal of shared capitalism as "to increase each worker's involvement in and identification with the firm so that there will be some unification of agent and principal and a resulting tendency for higher effort . . . (in the belief that) a system of high involvement, high rewards, and high levels of skill and information, integrated with a corporate strategy that relies on front-line employees' ideas and creativity, is capable of impressive improvements in organizational performance" (2002). Analogously, in their book on incentives, Laffont and Martimort focus on "how the owners of firms succeed in aligning the objectives of various members, such as workers, supervisors, and managers, with profit maximization" (2002, 2). They emphasize that the decentralized nature of information and the cluster of transactions between the principal and the agent require an interaction of cultural norms and incentives to obtain the best economic institutions. Presaging our analyses of the importance of worker co-monitoring in shared capitalism (chapter 2), they stress that the multitude of tasks performed by the worker means that "a worker is not only involved in productive tasks but also must sometimes monitor his peers." In both cases, as well as in the analyses of others,[3] the implication is that shared capitalist compensation needs an appropriate corporate culture to reduce free rider and moral hazard problems and that low intensity incentives that substitute for wages and increase worker risk would have problematic effects on performance. These questions engage the issue of how much managers should own of the firms in which they work. For example, Morck, Shleifer, and Vishny (1988) show that simply more managerial ownership is not always optimal.

The other issue that theorists have identified as critical to the working of

3. Barnard (1938) defined incentives as involving a package of monetary and nonmonetary items saying material incentives were too weak unless enforced by other incentives. Even the *bête noir* of employee empowerment, Frederick Taylor, argued for paying fair wages along with generous performance-based pay and careful training to keep workers committed to maximum effort, although consultants selling Taylorism dropped this component (Kanigel 1997).

shared capitalism is the allocation of the risk of ownership and the problem of credit barriers keeping workers from becoming real capitalists. Echoing back to Adam Smith, Stiglitz (1974) argued that the key issue in the use of sharecropping, as opposed to having employees renting capital, is the balance between its incentive effects and risk-sharing features. Though the rental system "has greater incentive effects, it forces the worker to bear all the risks, and although the wage system allows the landlord, if he is risk neutral, to absorb all the risk, it may force heavy supervision costs on him." He asserted that the end of sharecropping was best explained by the development of capital markets that allow diversification of risk, capital intensity in production, and a faster rate of technological change. These analyses highlight the other distinct aspect of the John Bates Clark solution to the problem: share ownership arising from profit sharing as a way to allow workers to obtain ownership without taking on risk beyond their means. Akerlof's concept of a gift exchange carries this line of thinking a step further, with the exchange of ownership or profit-sharing above fixed pay for reciprocating effort serving as the risk-reducing mechanism for shared capitalism. Asking workers for an excessively risky personal investment in the firm may defeat the idea and dynamics of a gift exchange. In the United States today, Employee Stock Ownership Plans (ESOPs), stock options, and company stock matches for contributions to retirement savings plans offer workers ways to get equity in their company without buying it with their savings (though there is a small number of cases in which employees use 401(k) assets to create ESOPs or where work rule or wage or benefit concessions are traded for stock as in the 2008 Chrysler restructuring) (see Smiley et al. 2007).

Existing research on shared capitalism has generally found better workplace performance for firms with profit sharing and employee ownership.[4] However, many of these studies were based on large administrative data sets and shed little light on the mechanisms through which shared capitalism functioned "inside the black box." Here we use new data to go inside the black box.

4. Evidence from over 100 studies indicates a positive association on average between shared capitalism programs and company performance, but with substantial dispersion in results. For reviews of the employee ownership literature see Doucouliagos (1995); Kruse and Blasi (1997); Kruse (2002); Kaarsemaker (2006a, 2006b); and Freeman (2007). For subsequent studies see Kramer (2008) and Kim and Ouimet (2008). For detailed looks inside ESOP companies see Logue and Yates (1999) and Logue and Greider (2002). For a review of the broad-based stock option literature see Blasi, Kruse, and Bernstein (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); and subsequent studies by Zhuang and Xu (1996); Hansen (1997); Ohkusa and Ohtake (1997); Jones, Kato, and Pliskin (1997); Jones, Klinedinst, and Rock (1998); Collins (1998); McNabb and Whitfield (1998); Arthur and Jelf (1999); Black and Lynch (2000); Knez and Simester (2001); Boning, Ichniowski, and Shaw (2001); Kim (2005); Robinson and Wilson (2006); Peterson and Luthans (2006); and Hassan, Hagen, and Daigs (2006). The average estimated increase in productivity associated with employee ownership and profit sharing is about 4.5 percent, and is maintained when using pre/post comparisons and attempts to control for selection bias.

4.2 Measures of Shared Capitalism

Were Clark to return to the United States today, the first question he would ask about shared capitalism is the extent to which enterprises based on financial sharing and decision-making are found in the market—their "survival . . . in comparison with other systems." The GSS provides the best evidence for answering this question. The overall prevalence of shared capitalist compensation was presented in tables 1.1 and 1.3 of chapter 1. For our purposes here the most important result is that 45 percent of the for-profit private sector employees in the GSS sample report participating in some kind of shared capitalism program (36 percent in profit sharing, 25 percent in gain sharing, 19 percent in employee ownership, and 11 percent in stock options), which gives us good variation for examining the relation of these programs to worker outcomes. The prevalence is of course higher in the NBER sample, since these firms were selected on the basis of having these programs. There is no question that a layer of shared capitalism exists in the US economy. (See also table 4a.1 in the appendix of this chapter.)

As a first step in assessing the relation of shared capitalism to employee outcomes, we constructed a thermometer-style index of shared capitalism, which assigns points based on coverage by shared capitalism programs and the size of the financial stakes. This index helps us assess whether a thick layer of shared capitalism as envisioned by Clark makes any difference. This index is described in appendix B. We also present results breaking out the different forms of shared capitalism types and intensities using the more detailed NBER data.

4.3 Workplace Outcomes

We measure six workplace outcomes: (a) turnover (looking for another job versus staying with the company); (b) absenteeism; (c) workers' perception of the discretionary effort of co-workers; (d) worker loyalty to the firm; (e) workers' willingness to work hard for the firm; (f) the frequency of suggestions to improve efficiency. These outcomes are related to each other—for example, looking for another job predicts increased absenteeism, as does reduced willingness to provide discretionary effort to the company, and lower loyalty. Reduced willingness to provide discretionary effort to the company and lower loyalty relate to looking harder for another job. Increased absenteeism, looking hard for another job, and lower loyalty are linked to less discretionary effort. Because there are large literatures studying most of these outcomes separately, we decided against forming an index of these variables and instead look at each by itself. The summary statistics in appendix A show variation in the measures among respondents in our surveys in the form of large standard deviations. The absenteeism variable is the only one with a "peculiar" distribution since many people report

zero absences while there is a long tail of persons absent for different time periods.

We use basic multivariate statistics to assess the link between shared capitalist compensation and the outcomes. We estimate ordinary least squares (OLS) models of the impact of shared capitalist compensation on the workplace outcomes where appropriate, and ordered probit models when the outcomes have several values with a natural ordering (e.g., "not at all true, not very true, somewhat true, and very true"). Because more than half of the values of absenteeism are zero, we use the tobit model to analyze that outcome. We run the regressions with the same independent variables for the national and NBER data sets and then probe our results in the NBER data set by adding measures of other human resource policies that may independently affect the workplace outcomes, such as participation in an employee involvement team, training, and job security.

We interpret the results from the two surveys differently in light of the difference in their sample designs. Since the GSS is a nationally representative survey, it will have few if any workers in the same firm, so that it provides information on workers across firms. The variation in shared capitalist incentives and behavior reflects differences in firm policies. By contrast, the NBER survey covers a representative sample of workers in a nonrepresentative sample of firms. To deal with the nonrepresentative firm problem, we include company fixed effects in most calculations. This focuses on the effect of variation in shared capitalist incentives on attitudes and behavior within companies. However, we analyze some ESOP variables across companies as well as within companies because Employee Retirement Income Security Act (ERISA) rules require virtually all workers in a firm to be covered, so that the cross-firm variation in the data is potentially more informative than within-firm variation, which may reflect peculiarities between groups of workers within the firm.

Table 4.1 summarizes the empirical results of regression analyses of the relationship between the shared capitalism index and outcomes in our data sets. It shows that in both the NBER and GSS surveys, the likelihood of searching for another job is lower the higher is the shared capitalism index. When the controls in the national survey and in the NBER survey are the same, the coefficient on the index is the same. Addition of measures of other human resource policies reduces the coefficient in the shared capitalism variable in the NBER data, but it still remains significant (line 2b). In addition, the NBER asked workers if they would turn down a higher-paying job to stay with their firm. The shared capitalist index raises the likelihood that workers would do so (line 3), which implies that they value these policies either for the additional income they are likely to bring or for the stake they give workers in the company.

The NBER survey asked workers how many days they were absent in the previous six months—a question that was not included on the GSS. Here,

Table 4.1 **Relation of shared capitalism to workplace outcomes**

Dependent variables	Coefficient (s.e.) of shared capitalism index	Controls: Job and demographics	Controls: EI team	Controls: Training	Controls: Job security	*N*
	Turnover					
National data						
1 Not likely to search for new job (1–3 scale, ordered probit)	**0.039**** (0.017)	x				1,743
NBER company data						
2a Not likely to search for new job (1–4 scale, ordered probit)	**0.039***** (0.004)	x				39,132
2b	**0.018***** (0.005)	x	x	x	x	35,644
3a Would turn down another job for more pay to stay with	**0.059**** (0.027)	x				1,086
3b this co. (1–5 scale, ordered probit)	**0.062**** (0.028)	x	x	x	x	1,079
	Absenteeism					
NBER company data						
4a Number of days absent in past 6 mos. (tobit)	**0.152***** (0.056)	x				38,069
4b	**0.161***** (0.057)	x	x	x	x	34,834
	Job effort and loyalty					
National data						
5 Co-worker effort (1–10 scale, OLS)	**0.116***** (0.026)	x				1,741
6 Proud to be working for employer (1–4 scale, ordered probit)	**0.056***** (0.014)	x				1,745
NBER company data						
7a Co-worker effort (1–10 scale, OLS)	**0.018**** (0.007)	x				39,252
7b	0.006 (0.008)	x	x	x	x	35,653
8a Co-workers have enough interest in company issues to	**0.027***** (0.005)	x				38,980
8b get involved (1–7 scale, OLS)	**0.014**** (0.006)	x	x	x	x	35,518

(*continued*)

Table 4.1 (continued)

	Dependent variables	Coefficient (s.e.) of shared capitalism index	Controls				N
			Job and demographics	EI team	Training	Job security	
9a	Co-workers generally encourage each other to make	**0.038***** (0.008)	x				12,799
9b	extra effort (0–1, OLS)	**0.029***** (0.009)	x	x	x	x	12,537
10a	Loyalty toward co. (1–4 scale, ordered probit)	**0.041***** (0.004)	x				38,514
10b		**0.021***** (0.005)	x	x	x	x	35,082
11a	Willing to work harder to help co. (1–5 scale, ordered probit)	**0.023***** (0.004)	x				39,159
11b		**0.015***** (0.004)	x	x	x	x	35,595
12a	Frequency of suggestions (1–5 scale, ordered probit)	**0.035***** (0.005)	x				29,965
12b		**0.027***** (0.005)	x	x	x	x	26,860

Notes: Each row represents results of separate regression. See appendix A for variable definitions and descriptive statistics. Job and demographic controls include age, sex, race, tenure, occupation, education, full-time status, and ease of seeing co-workers for all regressions. The national data regressions also include work in a team and ln(yearly earnings), and the NBER regressions also include management level (3 dummies), supervisory status, union membership, disability status, payment on an hourly rate, country effects (21 dummies), closeness of supervision, ln(base pay), and company fixed effects. s.e. = standard error; OLS = ordinary least squares. Coefficients in bold are significant at $p < .05$.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

the estimate in line 4 of table 4.1 shows that the shared capitalism index alone—without looking at the impact of the firm's corporate culture—raises absences. This is the only outcome variable that is adversely associated with the index. Why? Reviewing absenteeism and turnover research, Johns (2002) emphasizes that persistent absenteeism signals a break in the psychological contract of trust and deeper problems in the corporate culture. This perspective sees absenteeism as part of a withdrawal continuum involving lateness-absenteeism-lack of loyalty-intended turnover-ultimate withdrawal of membership in the firm. Thus, the finding that shared capitalism has a different effect on absenteeism than on prospective turnover, loyalty, and other factors runs against the basic analysis of absenteeism. Studies of the relation between unionism, which also reduces turnover, however, often also find a positive association with absences. It may be that a greater sense of job security underlies both results. Another possibility is that absenteeism is a form of free riding that avoids co-worker scrutiny and criticism. Yet another possibility, which we explore later, is that the result is related to interactions with other firm policies and corporate culture.

Both the GSS and the NBER surveys ask workers how hard they believe their co-workers work. The estimates show that perceptions of co-worker effort are significantly positively related to the shared capitalism index, though the NBER result is no longer significant after controlling for several human resource policies (lines 5, 7). The NBER survey has two other measures that reflect perceptions of the extent to which co-workers are committed to the firm: the extent to which co-workers have enough interest in company issues to get involved in the firm, and whether co-workers generally encourage each other to make extra efforts. Again, the results show that shared capitalist programs raise the likelihood that workers report positively on these outcomes, both before and after controlling for human resource policies (lines 8–9).

Interpretation of the positive coefficients of a worker's receipt of shared capitalist compensation in predicting their perceptions of the work attitudes of co-workers is not, however, simple in the presence of the company dummy variables. The regressions reflect how workers paid with shared capitalist compensation view their fellow workers (with a glow) rather than how shared capitalism affects the workplace. Since we have many establishments or facilities within firms, they could also be telling us that facilities with greater shared capitalist compensation have workers who are willing to do more for the firm. One way to deal with this issue is to eliminate the company dummies from the regressions. This strengthens the estimated effects. Another way to deal with the problem is to aggregate the data by facilities so that we relate the average shared capitalism index at a workplace to the average perception of co-worker effort within that worksite. This asks the question most relevant to our analysis: whether respondents perceive greater effort in worksites with more shared capitalism, rather than whether workers

with greater personal shared capitalist compensation perceive greater effort in their fellow workers. Figures 4.1 to 4.3 display the scatter plot of observations for the site averages and the regression line for them. They show that the shared capitalist index at a worksite is positively associated with workers saying that co-workers give greater effort to the firm.

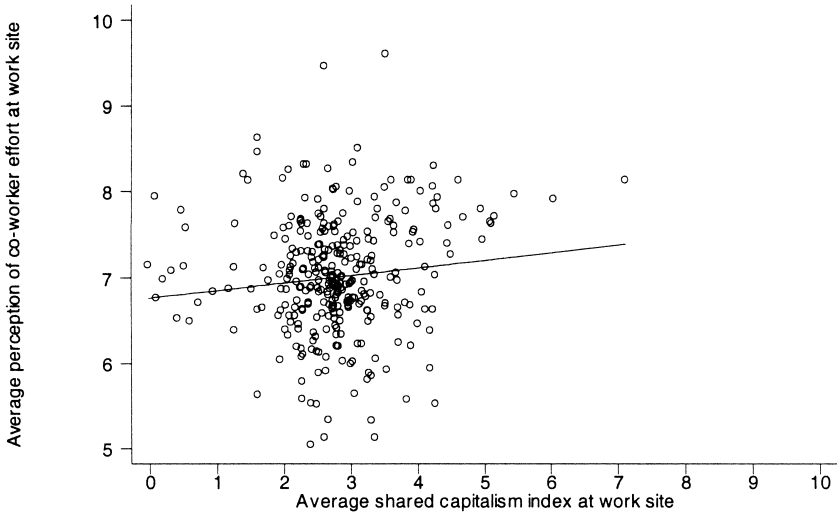

Fig. 4.1 Shared capitalism and worker effort
Note: Co-workers effort (1–10 scale) = 6.765 (.125) + 0.087 (.043) (shared capitalist index).

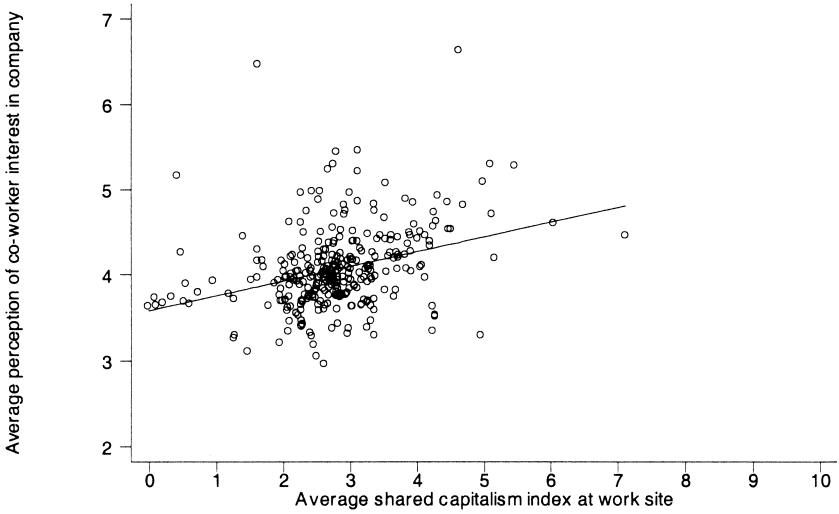

Fig. 4.2 Shared capitalism and co-worker interest in company
Note: Co-workers work interest in firm (1–10 scale) = 3.580 (.082) + 0.173 (.028) (shared capitalist index).

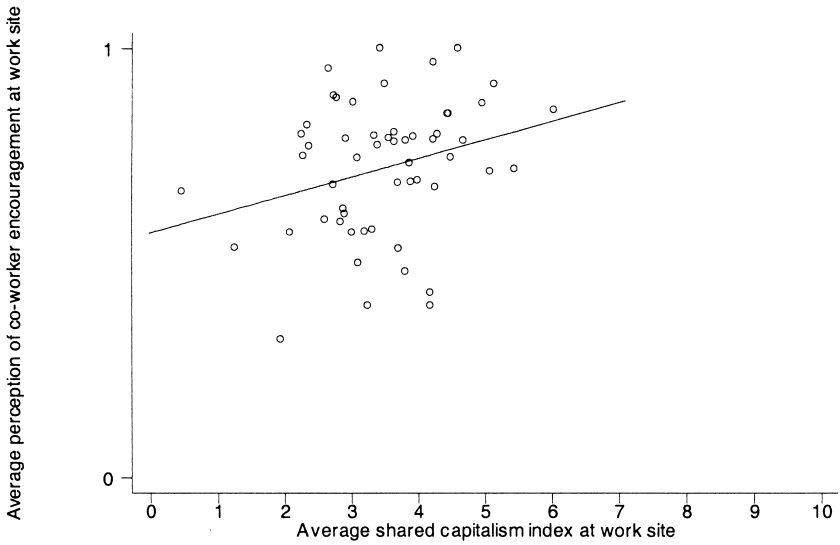

Fig. 4.3 Shared capitalism and worker encouragement
Note: Co-workers encourage others (1–10 scale) = 0.572 (.073) + 0.043 (.020) (shared capitalist index).

Finally, we turn from perceptions of how co-workers behave to questions in which workers report on their own attitudes and behavior and relate these responses to the workers' own shared capitalist compensation. Both surveys asked questions relating to worker loyalty. The GSS asked if workers were proud to be working for their employer: shared capitalism raises positive responses on this item (line 6). The NBER asked about loyalty to the firm: this measure is positively related to the shared capitalism index before and after controlling for high-performance policies in the NBER survey (line 10). The NBER survey also asked how willing workers would be to work harder to help the company, and the frequency with which they make suggestions about improving the workplace. The higher the shared capitalist index the more likely are workers to say that they themselves would work hard for the firm (line 11), and the more likely are workers to say that they make many suggestions (line 12).

4.4 Particular Programs

The NBER survey contains sufficiently detailed information and a large enough sample to allow us to disaggregate the shared capitalist index into its component parts to see which policies or programs contribute more/less to the estimated effects in table 4.1. Table 4.2 gives the results of these calculations for variables in which the individual reports on their own behavior or attitudes. Column (1) shows that the likelihood of not searching for a new

Table 4.2 **Workplace outcomes related to type of shared capitalism plan**

Dependent variable:	Not likely to search for new job (ordered probit) (1)	Absenteeism (Tobit) (2)	Loyalty (ordered probit) (3)	Willing to work harder (ordered probit) (4)	Suggestion frequency (ordered probit) (5)
Bonuses					
Profit sharing	0.096 (0.021)***	0.929 (0.268)***	0.011 (0.021)	0.039 (0.019)**	0.034 (0.023)
Profit sharing bonus as % of base pay	0.175 (0.100)*	0.529 (1.346)	0.546 (0.107)***	0.436 (0.095)***	–0.091 (0.132)
Gain sharing	0.085 (0.028)***	0.489 (0.360)	0.015 (0.028)	0.034 (0.026)	0.021 (0.034)
Gain sharing bonus as % of base pay	0.095 (0.114)	–4.117 (1.559)***	0.203 (0.123)	0.266 (0.109)**	–0.114 (0.199)
Individual bonus	0.082 (0.027)***	–0.975 (0.342)***	0.143 (0.027)***	0.063 (0.025)***	0.004 (0.032)
Individual bonus as % of base pay	0.012 (0.117)	–0.364 (1.602)	–0.100 (0.124)	0.128 (0.111)	0.152 (0.188)
Stock options					
Stock option holding	0.111 (0.059)*	1.583 (0.715)**	–0.140 (0.058)**	–0.085 (0.053)	–0.021 (0.070)
Stock option value as % of base pay	0.010 (0.006)*	0.085 (0.077)	0.003 (0.006)	0.002 (0.006)	–0.037 (0.032)
Rec'd stock option grant last year	–0.074 (0.058)	–0.633 (0.699)	0.187 (0.057)***	0.034 (0.052)	0.028 (0.071)
Stock option grant as % of avg. grant	0.037 (0.014)***	0.175 (0.165)	0.016 (0.014)	0.009 (0.012)	–0.032 (0.020)
Employee ownership					
Any employee ownership	0.072 (0.020)***	0.347 (0.248)	0.065 (0.019)***	0.015 (0.018)	0.166 (0.021)***
Employee-owned stock as % of pay	0.001 (0.010)	–0.171 (0.127)	0.051 (0.010)***	0.008 (0.009)	0.024 (0.014)*
n	37796	36,769	37192	37817	29,292
(pseudo) R^2	0.035	0.018	0.060	0.042	0.074
Cut point 1	–0.826 (0.239)		–0.578 (0.246)	–0.858 (0.226)	1.327 (0.313)
Cut point 2	–0.318 (0.239)		0.226 (0.246)	–0.318 (0.226)	3.560 (0.313)

Cut point 3	0.640 (0.239)		1.381 (0.246)	0.627 (0.226)	4.117 (0.313)
Cut point 4				1.864 (0.226)	4.826 (0.314)
Breakdowns by type of employee ownership[a]					
ESOP	0.097 (0.057)*	–0.539 (0.679)	–0.041 (0.055)	–0.091 (0.052)*	0.304 (0.064)***
ESOP stock as % of pay	–0.022 (0.022)	0.105 (0.265)	0.018 (0.022)	0.053 (0.020)***	0.034 (0.024)
ESPP	–0.013 (0.042)	0.780 (0.518)	0.047 (0.043)	0.058 (0.039)	–0.039 (0.068)
ESPP stock as % of pay	0.063 (0.035)*	–0.519 (0.441)	0.053 (0.036)	0.029 (0.031)	–0.094 (0.114)
401(k) stock	0.105 (0.019)***	0.118 (0.230)	0.111 (0.018)***	0.072 (0.017)***	0.115 (0.020)***
401(k) stock as % of pay	0.031 (0.017)*	–0.180 (0.213)	0.087 (0.016)***	–0.011 (0.015)	–0.003 (0.021)
Stock from options	–0.032 (0.040)	0.810 (0.503)	0.061 (0.043)	–0.002 (0.038)	–0.012 (0.069)
Stock from options as % of pay	–0.040 (0.021)*	–0.176 (0.286)	0.019 (0.024)	–0.001 (0.021)	0.047 (0.073)
Open mkt. stock	–0.018 (0.029)	–1.146 (0.399)***	0.089 (0.031)***	0.072 (0.028)**	0.160 (0.052)***
Open mkt. stock as % of pay	0.010 (0.049)	0.300 (0.625)	–0.031 (0.052)	0.035 (0.048)	–0.515 (0.255)**
ESOP coefficients without fixed effects[a]					
ESOP	0.168 (0.035)***	–0.190 (0.422)	0.186 (0.034)***	–0.001 (0.032)	–0.080 (0.038)**
ESOP stock as % of pay	–0.021 (0.020)	–0.170 (0.242)	0.017 (0.020)	0.051 (0.018)***	0.037 (0.023)

Notes: See appendix A for variable definitions and descriptive statistics. All regressions include controls for occupation (5 dummies), mgt. level (3 dummies), hourly pay status, supervisory status, tenure in years, hours worked per week, union status, age, gender, marital status (2 dummies), family size, college graduate, graduate degree, number of kids, race (4 dummies), disability status, ln(fixed pay), closeness of supervision, ability to observe co-workers, country effects (21 dummies), and company fixed effects. Standard error in parentheses.

[a]The sections labeled "Breakdown by type of employee ownership" and "ESOP coefficients without fixed effects" represent separate regressions that contain all of the bonus and stock option variables listed above, along with the control variables listed below.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

job is strongly related to profit-sharing and gain-sharing eligibility, employee ownership, and having a larger stock option grant last year, and that workers who receive individual bonuses are also less likely to look for another job.

Column (2) shows that the aberrant finding that shared capitalism increases absenteeism is higher among those who are eligible for profit sharing and who hold stock options. This goes against the findings of lower absenteeism in profit-sharing companies in UK and French firms (Wilson and Peel 1991; Brown, Fakhfakh, and Sessions 1999) and with a study of US firms that found employee ownership alone did not affect absenteeism (Hammer, Landau, and Stern 1981), though it is consistent with the finding by Brown, Fakhfakh, and Sessions (1999) that absenteeism increased slightly when profit sharing was introduced after employee ownership. The regression finding that absenteeism is lower among those who are eligible for individual bonuses lends some support to the possibility that higher absenteeism among those paid by group incentives reflects free rider behavior.

The next two columns show that loyalty and willingness to work hard are positively related to the size of the profit-sharing and gain-sharing bonuses, and to holding employer stock purchased through a 401(k) plan or on the open market (columns [3] and [4]). Loyalty is also positively linked to receiving a stock option grant last year, while willingness to work hard is linked to the size of one's ESOP stake. The frequency with which workers report making suggestions is, by contrast, significantly related only to employee ownership (column [5]).

Overall, the forms of shared capitalism that appear to have the strongest effects on outcomes are profit sharing and employee ownership.

The bottom panels in table 4.2 disaggregate the ownership variable and report coefficients when the company dummy is removed from the regression. The results for the disaggregation of the ownership variable show that the largest ownership impacts come with 401(k) plans and when workers buy shares on the open market. The sizable 401(k) effect compared to the ESOP ownership effect may reflect the greater individual ownership of the 401(k) (although the company stock match for which workers do not pay with their savings in 401(k) plans is comparable to an ESOP) while the impact of buying shares on the open market may reflect individual's positive assessment of the future of the firm. Finally, the regressions that exclude company dummies to pick up differences in shared capitalist compensation across companies as well as across facilities and individuals within facilities find stronger ESOP effects than the regressions that include the company dummy variables.

4.5 Complementarities → Corporate Culture?

A critical issue in analyzing a distinct organizational or institutional form is whether its impact on behavior and outcomes operates independently

of other practices or policies or whether its impact depends interactively on them. The thrust of theoretical analysis of shared capitalist compensation, from Clark to the present, is that changing the monetary incentives by itself is unlikely to occur or work well independent of other policies. Firms that introduce profit sharing or employee ownership must give workers the authority to make decisions that increase performance to change their behavior in ways that raise output and profits.[5] Research on "high performance work systems" have found that they work best as a package of complementary policies regarding recruitment, training/information, performance management/sharing, work redesign, and so on.[6] Recent evidence from the United Kingdom strongly suggests that the effects of shared capitalism are conditioned by complementarities with other policies (Robinson and Wilson 2006). Based on these considerations and evidence we expect that shared capitalist incentives should also work better when combined with certain other firm policies.

To examine the interaction or complementarity of shared capitalist compensation with high-performance workplace policies, we constructed an *index of high-performance work policies* that gives one point each for being in an employee involvement team, receiving formal training in the past twelve months, and having high job security.[7] We interacted this index with the shared capitalism index in regressions for the likelihood of searching for a new job, absenteeism, loyalty to the firm, willingness to work harder, and frequency of suggestions. In addition, we examined the interaction between shared capitalism and a measure of employer *supervision of employees.* Evi-

5. Research often finds an interaction between participation and ownership on output but most data sets contain little information on the mechanisms for this. The US Government Accountability Office (GAO) study (1987), which matched survey data with records on company finances, found an interaction between employee participation in management and employee ownership on productivity, as did the US National Institute of Mental Health study (Rosen, Klein, and Young 1986) and its follow-up study (Rosen and Quarry 1987). Freeman and Dube (chapter 5 of this volume) found that employee involvement had a larger impact on indicators of worker productivity, job satisfaction, and attitudes toward the firm than did participation in financial rewards, but that the highest outcomes occurred when firms combined pay for company/group performance, ownership stake in the firm, and employee involvement committees. Analyzing UK establishments, Conyon and Freeman (2001) found that the companies that adopted profit sharing, employee ownership, and broad stock option schemes had higher productivity and more information and decision sharing practices. Studies of ESOPs and other forms of employee ownership generally find a positive relationship between ownership and performance (Levine 1995, 81) that is strongest with worker participation.

6. Ichniowski et al. (1996); Ichniowski, Shaw, and Prennushi (1997); Huselid, Jackson, and Schuler (1997); Becker and Huselid (1998); and Becker, Huselid, and Ulrich (2001). Cappelli and Neumark found that high performance work practices such as self-directed work teams only significantly predicted increased productivity when combined with profit/gain sharing (2001, 34).

7. We experimented with indices that also included measures of information sharing, job rotation, and rigorous selection, and obtained similar results. We focus on the index based on employee involvement, training, and job security since the sample sizes are smaller for job rotation and rigorous selection, and the grade of the company on sharing information reflects an employee evaluation of the policy's success rather than the existence of a policy.

dence presented in chapter 8 shows that workers covered by more shared capitalist policies are less closely supervised than others, suggesting that shared capitalism substitutes for supervision in motivating workers. Combining shared capitalism with close supervision may reduce the effect of shared capitalism by sending a mixed message to employees: "We want you to work harder and be more committed to the company because of your (profit share/employer stock/stock options), but we're still going to keep a very close eye on you."

Finally, we also examine whether the extent to which shared capitalism substitutes for fixed wages may also be an important determinant of its effects. We expect that employees will react better to shared capitalist compensation when it is a gift-exchange add-on to existing compensation, rather than a substitute for which they sacrifice certain income flows for greater risk in compensation. While we do not have measures of alternative wages available to employees, the NBER survey asked how employees' fixed wages compare to market levels, from which we constructed a dummy variable indicating that the worker feels she or he is *paid at or above market levels.* We interact this variable with the shared capitalist index as well.

Table 4.3 summarizes the results of these calculations. The regression coefficients on the interaction terms show that other firm policies measured by the high performance practice index affects the impact of shared capitalism—representing possible complementarities on most outcome variables—and that supervision intensity and wage relative to market wage also have some interactive effects. Column (1) shows that the positive effect of shared capitalism on not searching for a new job exists only for those who are covered by the high performance policies and reveals a strong negative interaction of shared capitalism with close supervision. While column (2) finds no significant interactions for any of the three new variables with the shared capitalism index in affecting absenteeism, the high performance indicator reduces absences while close supervision raises them. With these variables and interactions the strong positive relation between shared capitalism and absenteeism is weakened and no longer significantly different from zero, suggesting that the effect found in table 4.1 may be masking that of high performance, supervision, and pay relative to market. Columns (3) and (4) show substantial shared capitalism interactions on loyalty and willingness to work hard. These outcomes are enhanced when shared capitalism is combined with high performance policies and fixed pay at or above the market level, and are hurt when shared capitalism is combined with close supervision.

Finally, column (5) shows that shared capitalism has a negative interaction with high performance policies and a positive link to supervision in affecting frequency of suggestions. The positive effect of shared capitalist policies among workers who are not covered by high performance policies might reflect the fact that those in high performance workplaces

Table 4.3 Interactions between company policies and workplace outcomes

Dependent variable:	Not likely to search for new job (ordered probit) (1)	Absenteeism (Tobit) (2)	Loyalty (ordered probit) (3)	Willing to work harder (ordered probit) (4)	Suggestion frequency (ordered probit) (5)
Shared capitalism index	0.002 (0.009)	0.064 (0.116)	–0.024 (0.009)***	0.017 (0.008)**	0.035 (0.012)***
High performance policy index	0.058 (0.016)***	–0.642 (0.201)***	0.135 (0.016)***	0.131 (0.015)***	0.253 (0.018)***
× shared capitalism index	0.013 (0.003)***	0.069 (0.042)	0.027 (0.003)***	0.008 (0.003)**	–0.015 (0.005)***
How closely supervised	0.001 (0.005)	0.117 (0.059)**	0.001 (0.004)	0.004 (0.004)	–0.017 (0.005)***
× shared capitalism index	–0.004 (0.001)***	–0.001 (0.014)	–0.005 (0.001)***	–0.007 (0.001)***	0.003 (0.002)**
Fixed pay at or above market	0.373 (0.024)***	–0.268 (0.311)	0.259 (0.024)***	0.147 (0.023)***	–0.073 (0.028)***
× shared capitalism index	0.003 (0.005)	–0.028 (0.069)	0.016 (0.005)***	0.011 (0.005)**	0.006 (0.008)
Selected controls[a]					
Individual bonuses (dummy)	0.087 (0.020)***	–0.782 (0.252)***	0.083 (0.020)***	0.104 (0.018)***	–0.009 (0.022)
Ease of seeing how well co-worker is working	–0.001 (0.003)	0.023 (0.033)	0.017 (0.003)***	0.031 (0.002)***	0.031 (0.003)***
n	31,411	30,706	30,920	31,364	24,936
(pseudo) R^2	0.103	0.017	0.101	0.054	0.081
Cut point 1	0.031 (0.269)		–0.286 (0.275)	–0.817 (0.254)	1.293 (0.291)
Cut point 2	0.595 (0.269)		0.575 (0.275)	–0.267 (0.254)	3.579 (0.291)
Cut point 3	1.682 (0.269)		1.790 (0.275)	0.683 (0.254)	4.167 (0.291)
Cut point 4			1.948 (0.254)	4.917 (0.292)	

Notes: See appendix A for variable definitions and descriptive statistics. All regressions include controls for occupation (5 dummies), mgt. level (3 dummies), hourly pay status, supervisory status, tenure in years, hours worked per week, union status, age, gender, marital status (2 dummies), family size, college graduate, graduate degree, number of kids, race (4 dummies), disability status, ln(fixed pay), closeness of supervision, ability to observe co-workers, country effects (21 dummies), and company fixed effects. Standard errors in parentheses.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

already have the means and motivation to provide suggestions. One interpretation of the positive interaction with supervision is that shared capitalism provides motivation to closely supervised workers to try to make changes in their work environment to relieve supervisory intensity. Whether these or other explanations account for the observed interactions, the important point is that the interactions are substantial, implying that analyses that treat shared capitalist compensation as a single innovation will invariably miss some of the ways in which it works and the conditions for it to work successfully.

As a graphic demonstration of the importance of the interactions, we show in figure 4.4 the relation between workers' likelihood of looking to leave the firm with the shared capitalist index contingent on different values of the interacting variables. Each line shows how the potential leaving variable changes with shared capitalism given the specified interaction. What is striking is the fanning out of the lines. Shared capitalism *increases* likely turnover when workers are very closely supervised and are not covered by any high performance policies (top line)—this may reflect workers becoming cynical and wanting to leave when they learn that management espouses a shared capitalism philosophy but still treats them like ordinary employees. In contrast, shared capitalism *decreases* likely turnover when workers are covered by high performance policies, especially as supervision is lowered. The strongest effects of shared capitalism are when it is combined with high performance policies and low levels of supervision, causing likely turnover to be cut from 12.0 percent to 6.6 percent as the shared capitalism index goes from 0 to 10 (bottom line of figure 4.4). The average results shown in table

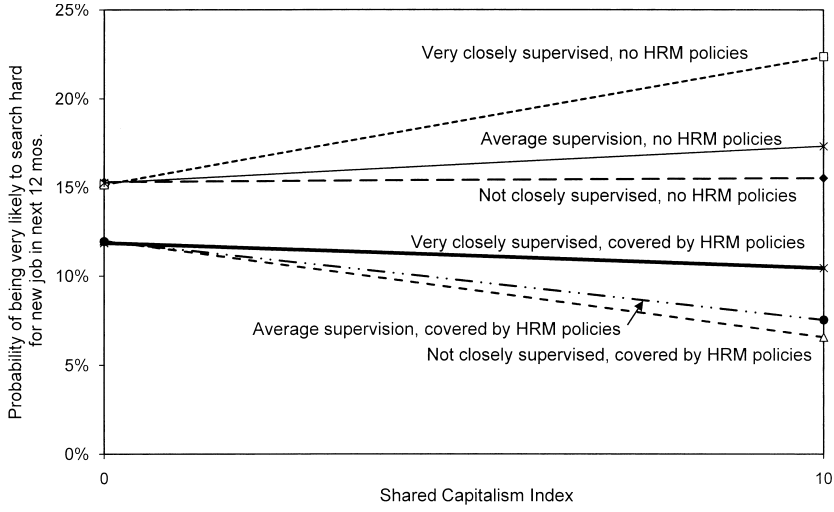

Fig. 4.4 Contingent effects of shared capitalism on likely turnover

4.2 reflect these diverse effects, weighted by the proportion of workers in the various interactive categories.

Finally, we view the interactions shown in table 4.3 and figure 4.4 as suggesting that the concept of "corporate culture" may provide a useful way to understand the relation between shared capitalism and the workplace outcomes. Analysts sometimes use the corporate culture term loosely without any operational measurement/definition that risks making it a catch-all phrase to describe residuals or puzzles. But when interaction or complementary effects are demonstrably important, it seems natural to think that some underlying latent variable—corporate culture—may more usefully describe reality than analyses of separate interacting variables.

4.6 Worker Views

As an alternative way to assess the impacts of shared capitalist incentives and of their interrelation with other aspects of corporate policy/culture, we asked workers the following hypothetical question on the NBER survey:

To what extent would each of the following affect your motivation to improve the business success of the company?[8]
You receive a cash incentive
The company grants you stock options
You receive some stock in the company ESOP
You can buy some company shares in the Employee Stock Purchase Plan (ESPP)
You buy some company shares in the open market

The upper panel of table 4.4 reports the responses to these questions. Close to three-fourths of workers said that their motivation would be improved to a "great" or "very great" extent by receiving a cash incentive (78 percent) or stock options (77 percent), while about two-thirds of workers said the same about receiving ESOP stock (69 percent) or buying shares through an ESPP (63 percent), and less than one-third said this about buying company stock on the open market (30 percent). It is possible that this pattern reflects employees' analysis of risk, with the cash incentive and options and receiving stock in an ESOP being the least risky forms of compensation, and buying shares in the open market placing the workers' capital at greatest risk. This pattern may also partly reflect the immediacy of the reward, with cash incentives and stock options providing the most immediate rewards. Alternatively, the lower responses for buying company stock through an ESPP or on the open market may reflect lower enthusiasm for shared capitalism that the

8. Employees were asked the stock options, ESOP, and ESPP questions only if the company provided these programs, and were asked the open market purchase questions only if they worked in a public company.

Table 4.4 Employee views of the impact of shared capitalist incentives on their behavior

	To what extent would each of the following affect your motivation to improve the business success of the company?				
	You receive a cash incentive from the co. (1)	The co. grants you some stock options (2)	You receive some stock in the co. ESOP (3)	You buy some co. shares in the ESPP (4)	You buy some co. shares on the open mkt. (5)
Tabulation of responses					
To a very little extent	2.2%	2.3%	4.4%	5.3%	20.1%
To a little extent	3.0%	3.6%	5.2%	6.7%	17.8%
To some extent	17.2%	17.2%	20.9%	25.2%	32.4%
To a great extent	32.5%	31.7%	28.8%	33.8%	17.5%
To a very great extent	45.1%	45.2%	40.8%	29.0%	12.2%
n	10,389	8,187	3,155	8,151	8,135
Ordered probit coefficients					
High performance policy index	0.022 (0.015)	0.222 (0.018)***	0.130 (0.028)***	0.173 (0.017)***	0.129 (0.017)***
How closely supervised	0.011 (0.006)**	–0.028 (0.006)***	0.010 (0.009)	–0.004 (0.006)	–0.002 (0.006)
Fixed pay at or above market	–0.147 (0.025)***	0.094 (0.028)***	0.045 (0.044)	0.093 (0.027)***	0.077 (0.026)***
Ease of seeing how well co-worker is working	0.019 (0.004)***	0.028 (0.005)***	0.035 (0.008)***	0.023 (0.005)***	0.013 (0.005)***
n	9749	7832	2816	7798	7787
(pseudo) R^2	0.015	0.060	0.053	0.038	0.022
Cut point 1	–2.834 (0.428)	1.859 (0.469)	–0.209 (0.710)	–0.057 (0.422)	–0.201 (0.441)
Cut point 2	–2.436 (0.428)	2.337 (0.468)	0.246 (0.710)	0.428 (0.422)	0.349 (0.441)
Cut point 3	–1.544 (0.428)	3.251 (0.469)	1.106 (0.710)	1.343 (0.422)	1.225 (0.441)
Cut point 4	–0.641 (0.428)	4.196 (0.469)	1.929 (0.711)	2.279 (0.423)	1.881 (0.441)

Note: Standard error in parentheses.

[a]All regressions include controls for occupation (5 dummies), mgt. level (3 dummies), hourly pay status, supervisory status, tenure in years, hours worked per week, union status, age, gender, marital status (2 dummies), family size, college graduate, graduate degree, number of kids, country (21 dummies), race (4 dummies), disability status, ln(fixed pay), and company fixed effects.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

worker must pay for, and is therefore not part of a "gift exchange" in which the employer provides shared capitalism on top of standard pay and benefits. It is noteworthy, however, that the small response to buying shares in the open market conflicts with the significant impacts of that activity on some of the outcome variables in table 4.2.

To see whether worker responses to the hypothetical are influenced by other aspects of company policy/practice, we estimated ordered probit regressions using the variables found to have important interactions with the shared capitalism index in table 4.3. The results of these regressions, summarized at the bottom of table 4.4, show positive effects of the high performance policy index in four of the five questions (columns [2] through [5]), supporting the notion of a major complementarity between high performance policies and shared capitalist compensation. Three of the regressions show positive effects of having fixed pay at or above market levels (columns [2], [4], and [5]), likewise supporting a complementarity, but only one regression shows a negative effect of closer supervision (column [2]). The regression that shows a different pattern from all others is the one assessing the effects of receiving a cash incentive (column [1]). In this case, close supervision and perceiving one's pay as below market raises its impact. The positive supervision interaction may be because workers believe that they are more likely to receive the incentive if their supervisor pays close attention to their effort. The stronger effect among those with below-market pay may reflect the view that cash incentives can help make up the perceived pay gap more quickly than by receiving company stock. Finally, we note that the ease of seeing how well co-workers work positively affects each response, supporting the idea that an environment of worker co-monitoring is a component in the effectiveness of shared capitalism plans.

4.7 Additional Issues

Our analysis cannot rule out some potentially different interpretations of the results. As discussed in the "Studying Shared Capitalism" section of the introduction to this volume, the findings may reflect the selectivity of workers into shared capitalist enterprises rather than or in addition to their response to the way those firms operate. Selectivity could affect the analyses of workers in shared capitalist firms versus others in the GSS survey and would limit generalizing the NBER results to workers who do not work in such firms. Even within a firm, moreover, there may be something special about those who choose greater participation in shared capitalism—for instance, by buying stock through an ESPP or 401(k)—or who management places in positions with more shared capitalist incentives. To get some notion of the possible effects of worker selectivity on our results, we examined the sensitivity of the results to two possible factors that might be associated with self-selection of workers into shared capitalism: a measure of self-rated

risk aversion, and family wealth. Neither of these variables made noticeable changes in the relationship of the shared capitalism index either alone or with interactions to the outcomes in tables 4.2 and 4.3.

A second problem relates to the selectivity of firms into our NBER sample and the endogeneity of the decision to offer shared capitalist compensation in both the NBER and GSS samples. Since our NBER results hold constant firm policies and characteristics by comparing workers with greater and lesser shared capitalism in the same firm, we doubt that they are seriously affected by selectivity of firms, but there is the selectivity or endogeneity of the specific policies that the firms have chosen, which still makes causal interpretations of the type we have offered open to criticism. In addition, because the NBER sample does not include firms with no shared capitalist arrangements and is based on firms' willingness to participate, we cannot rule out serious selectivity problems along the firm dimension that might interact with other factors. As described in the "Studying Shared Capitalism" section of the introduction, we experimented with specifications to reduce endogeneity but had little luck in finding suitable exogenous variables that would predict the endogenous variables but not directly affect the outcome variables of interest.

Even substantial selectivity among workers or firms, however, does not gainsay the importance of shared capitalist compensation, for it is presumably the interaction between shared capitalist incentives and mode of operating and worker characteristics that underlies the selectivity of workers, and the interaction between other firm policies and their choice of shared capitalist compensation that underlies the selectivity of firms. What selectivity does is weaken our ability to infer what might happen if additional firms adopted shared capitalist arrangements from the successes of existing firms with those practices.

4.8 Conclusion

The principal finding of this chapter is that shared capitalism affects workplace performance. The robustness of the finding is increased by the fact that the results from the NBER sample are broadly similar to the results from the nationally-representative GSS. Shared capitalism is linked to lower turnover and greater loyalty and willingness to work hard, particularly when combined with high-performance policies, low levels of supervision, and fixed pay at or above market levels. Workplaces where workers average more shared capitalist compensation report greater employee effort along several dimensions. The only outcome with which shared capitalist compensation is adversely related is absenteeism, but this result largely disappears when controlling for interactions with high performance policies and closeness of supervision.

Looking at particular programs, the strongest effects of shared capitalism

are for profit sharing and employee ownership. The largely positive results are corroborated by worker views: most workers report that cash incentives, stock options, ESOP stock, and ESPP participation motivate them to work harder. The less risky forms of shared capitalist programs—profit sharing, gain sharing, stock options, and ESOPs—have greater effects than the riskier programs in line with concerns about workers being averse to risking their own capital. (For a closer look at the role of objective and subjective risk in shared capitalism programs, see chapter 3.)

Finally, we find important interactions between shared capitalist programs and other aspects of company policies that affect workplace performance. High performance policies are positively linked to good workplace outcomes, and are driven by certain types of shared capitalism. This evidence, combined with chapter 2 (which finds that shared capitalism increases worker monitoring), challenges the critique that the motivations of the average worker interfere with the introduction of basic shared capitalism principles. The interaction of the effects of shared capitalism with other corporate policies suggests that the various shared capitalist and other policies may operate through a latent variable, "corporate culture." Practically speaking, the most important implication of this chapter is that shared capitalism and high performance policies appear to work together, with greater impacts when they are combined than when they are used separately.

Appendix

Table 4A.1 Prevalence of shared capitalism programs

	General Social Survey 2002–2006	NBER company data set	Sample sizes	
			GSS	NBER
Bonus eligibility				
Profit sharing	35.9%	71.3%	2,386	41,018
Gain sharing	24.9%	20.7%	2,386	41,023
Size of most recent bonus, if eligible for any				
Mean dollar value	$6,265	$11,329	693	26,113
Median dollar value	$1,500	$2,000	693	26,113
Mean % of pay	8.9%	12.1%	645	22,019
Median % of pay	4.6%	5.7%	645	22,019
Employee ownership				
Own employer stock in any form	19.4%	64.0%	2,406	41,206
Own employer stock through:				
Employee Stock Ownership Plan		8.1%		41,109
Employee Stock Purchase Plan		17.6%		40,990
401(k) plan		33.5%		40,885
Exercising options and keeping stock		5.0%		41,032
Open market purchase		7.3%		41,145
Value of employer stock, if own stock				
Dollar value: Mean	$63,130	$60,078	318	25,447
Dollar value: Median	$10,000	$14,375	318	25,447
% of pay: Mean	81.7%	65.0%	302	22,715
% of pay: Median	23.0%	30.6%	302	22,715
% of wealth: Mean		19.6%		23,141
% of wealth: Median		10.0%		23,141
Stock options				
Currently hold stock options	11.3%	21.9%	2,392	41,166
Ever granted stock options		22.3%		41,166
Granted stock options last year		20.4%		41,158
Value of stock options, if hold options:				
Mean dollar value of unvested options		$112,882		8,390
Mean dollar value of vested options		$143,117		8,497
Total dollar value: Mean		$249,901		8,656
Total dollar value: Median		$75,000		8,656
% of pay: Mean		183.7%		8,403
% of pay: Median		100.0%		8,403
% of wealth: Mean		60.3%		8,104
% of wealth: Median		28.6%		8,104
Any of above programs	44.9%	85.7%	2,430	41,206

Source: Tabulated from GSS and NBER surveys. The GSS sample is limited to private for-profit employees.

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