

## WORKER RESPONSES TO SHIRKING

Richard Freeman  
Harvard University and NBER  
1050 Massachusetts Avenue, Cambridge, MA, 02138  
[freeman@nber.org](mailto:freeman@nber.org)

Douglas Kruse  
Rutgers University and NBER  
School of Management and Labor Relations  
94 Rockefeller Road, Piscataway, NJ, 08854  
[dkruse@rci.rutgers.edu](mailto:dkruse@rci.rutgers.edu)

Joseph Blasi  
Rutgers University and NBER  
School of Management and Labor Relations  
94 Rockefeller Road, Piscataway, NJ, 08854  
[jrbu@hotmail.com](mailto:jrbu@hotmail.com)

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Comments welcome

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## **Abstract**

Group incentive systems have to overcome the free rider or 1/N problem, which gives workers an incentive to shirk, if they are to succeed. This paper uses new questions on responses to shirking from the General Social Survey and a special NBER survey of workers in 14 companies and over 300 worksites with some form of group incentive pay to examine how well workers can monitor their peers and what they do when the peers are not working up to speed. Most workers say that they can detect fellow employees who shirk. Many report that they would speak to the shirker or report the behavior or a supervisor, and many report doing so in the past.

The proportion that takes action against shirkers is greatest among workers paid under group incentive systems, in smaller companies, and in companies with good employee-management relations. The group incentives interact with high-performance human resource policies such as employee involvement teams, training, task variety, low levels of supervision, and good fixed wages to induce more workers to act against shirking. In addition, workers in workplaces where there is more anti-shirking behavior report that co-workers work harder, encourage other workers more, and report that their workplace facility is more effective in several dimensions related to productivity and profits. We cast doubt on the alternative theory that anti-shirking behavior and shared capitalism are not causally related but are both consequences of production processes based on certain technologies.

What do workers do when they see someone slacking off in ways that reduce the productivity of their work group and enterprise?

The rational response depends on the circumstances. In a tournament race for promotion, having a competitor slack off is good news. You don't have to go all out to win the promotion. In a piece-rate pay system where the firm lowers the rate per piece when workers produce more than expected, you will also welcome the shirker. The more other workers shirk, the less likely it is that management will lower the rate per piece and make it harder to earn your weekly pay.

But when part of workers' pay comes in the form of some group incentive such as profit-sharing or share ownership or stock options, a worker who does not do his or her job takes "money out of the pocket" of other workers. The group would be better off if someone acted against the shirker. Someone has to be willing to punish the shirker. But standard analysis suggests that it will rarely be rational for anyone to intervene. The costs of intervening with the shirker fall on the intervener but that person gets only part of the benefit (in an N worker group the worker who intervenes gains 1/Nth of the benefit going to workers and none of the benefit that goes to capital). The implication is that rational workers will not act against a shirker just as rational players should not cooperate in a prisoner's dilemma game. Group incentive systems are thus doomed to failure.

The facts for labor practices as for prisoner's dilemma and other games of cooperation are different. Team production and group incentive plans, which succeed only if they overcome free riding and shirking, are widespread in modern economies. Since workers often have better information than management on what fellow workers are doing, worker responses to shirking are critical to the success or failure of these schemes. Many workplaces develop cultures where

workers discourage others from shirking. Lab experiments find cooperative behavior in collective goods games when game theory rationality predicts that the rational player defects. Directly relevant to our analysis, Fehr and Gächter (2000) have found that individuals punish defectors in laboratory experiments even when it is not in their individual self-interest to do so, due to norms of reciprocity that are strong among many individuals. Peer monitoring has also been found in group loans in Third World credit markets (Stiglitz 1990). Punishing free riders at a workplace may also benefit the intervener in the long run if other members of the group appreciate that person's action against free riders. They may reap long term rewards in the form of higher esteem and greater influence within a group. Self-interest aside, the evidence from anthropologists that voluntarily "policing" cooperation occurs in many societies suggests that it may be hardwired from evolution. Some economists have suggested how ostracism can be effective in promoting cooperation (Hirshleifer and Rasmusen (2003).

This study examines worker reactions to shirking by analyzing questions on this form of behavior that we developed and put on the 2002 and 2006 General Social Surveys (GSS) and on surveys of 14 companies containing over 300 worksites with some forms of group incentive plans that we conducted through the NBER. We asked workers about the ease of observing co-workers' performance, and the likelihood of responding to poor work performance. Our analysis of these questions, together with questions about incentive systems, firm human resource policies, and other aspects of the workplace, show:

1. Most workers believe that they can readily detect shirking by fellow employees.
2. Workers are most likely to take action against shirkers in workplaces where employees are paid by some form of "shared capitalism" – by which we mean profit sharing,

gain sharing, stock options, or other forms of ownership – and they participate in decisions or work in team settings.

3. Responses to these forms of group incentive pay are largest when they trust management and have good employee management relations, and when the firm adopts high-performance human resource policies, low levels of supervision, and pays fixed wages at or above market levels along with the incentive pay.

4. Consistent with the theory of free riding, anti-shirking behavior is greater in smaller firms and is particularly strong in small firms with shared capitalist pay.

5. Workers in workplaces where there is more anti-shirking behavior report that co-workers work harder, encourage other workers more, and report that their workplace facility is more effective in several dimensions related to productivity and profits.

The bottom line is that “shared capitalist“ arrangements – defined broadly as those in which firms share rewards and decision-making with workers -- and positive labor relations encourage workers to act against shirking behavior and thus strengthen the potential for group incentive systems and team production to overcome the free rider problem and succeed.

### **Group incentives and monitoring colleagues**

When will a worker act against a shirking fellow employee?

The natural economics answer is that a worker will so act when it pays off for that person, which almost invariably requires group incentive pay. Building on Drago and Garvey (1998), it is easy to show that workers are more likely to intervene the higher the amount of the group incentive, the higher the probability that intervening increases the performance of the co-worker, the lower the cost of intervening (which may depend on individual incentives), and the

smaller the number of co-workers. In addition, workers may gain respect from fellow workers and supervisors, which can translate into greater chances of promotion in the future. Workers may discourage "shirkers" through peer pressure and non pecuniary sanctions such as social ostracism, personal guilt, or shame (Kandel and Lazear 1991). Since the 1/N problem is smaller at small workplaces, cooperative agreements should be easier to establish and maintain in small companies than in large ones.

Workers can also engage in punishing behavior in order to enforce group norms of high effort, and change the behavior of free riders. Punishment may be effective in counteracting the free rider effect as found in the experimental results of Carpenter (2004). He explains his results by noting that an increase in the size of a group has two opposing effects: it "forces monitors to spread their resources thinner which might lead to more free riding," but "there are also more people monitoring each free rider so it is not obvious whether the total amount of punishment each free rider receives will increase or decrease" (2004: 4). Prendergast has suggested that monitoring with a sufficiently low cost can negate the free rider problem but notes that "empirical evidence on peer pressure reveals behavioral responses different from those posited in the theory".<sup>1</sup>

Finally in the workplace setting, management may seek to develop a corporate culture that emphasizes company spirit, promotes group cooperation, encourages social enforcement mechanisms, and so forth in order to encourage cooperative actions (Weitzman and Kruse, 1990; Blasi, Conte, and Kruse, 1996; Blasi, Kruse, and Bernstein, 2003: 226-228). Fudenberg and

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<sup>1</sup> Prendergast cites Weiss' study of workers in a pharmaceutical company (1987) and Hansen's examination (1997) of the incentives of telephone operators for a large financial corporation. Both found that group incentives improved the performance of workers who were less productive under individual schemes but decreased the performance of more productive workers

Maskin (1986) show theoretically how the free rider problem can be overcome in an ongoing relationship by a cooperative agreement among participants. Using artificial agent modeling with small groups, Axelrod (1997) has shown how mutual cooperation can develop among agents through reciprocity. Klos and Nootboom (2001) explore the creation of interaction networks that have trust as a major component.

Whatever model one uses to explain punishment of free riders, workers should be more likely to act against shirker when they: a) have some financial interest in the performance of the firm; b) regularly participate in workplace decisions, which should reduce the cost of speaking out; and c) have trust in management and good labor-management relations, since in those situations, they can reasonably expect the firm to reward them for helping shirking. If you don't trust management, you can hardly be expected to report shirking to management. If you regard labor-management relations as poor, you may regard shirking as a justifiable response to management's poor treatment of workers.

## **Data**

Our study asked about worker responses to shirker behavior on two datasets. The first is the General Social Survey (GSS) conducted by NORC. This is a national area probability sample of non institutionalized adults. The first is the 2002 and 2006 General Social Surveys (GSS), on which we placed several questions on shared capitalism programs. The 2002 GSS has a sample of 1,145 employees, and the 2006 GSS has a sample of 1,081 employees, in for-profit companies. The second dataset is based on surveys of employees in 14 companies with over 300 worksites that had one or more shared capitalist incentive program in 2001-2006, as part of

the NBER Shared Capitalism research program.<sup>2</sup> It is drawn from a larger sample of firms varying in size, industry, and type of program, which we contacted in various ways to participate; we were unable, however, to convince some to participate. Once firms agreed to the survey, we surveyed either all employees or a random sample of employees. The response rates from employees averaged 53% across the 14 companies. A total of 41,206 respondents provided usable surveys.

Neither survey is ideal. The GSS's virtue is that it is nationally representative. Its weakness is that it has limited numbers of persons with different forms of compensation arrangements, which makes it hard to reach statistically valid conclusions in some areas. Because it is a small national sample, comparisons among workers can be viewed as comparisons across firms. The NBER's virtue is that it has a large number of respondents. Its weakness is that the sample of firms is non random. Because it covers a small number of firms, most of our analyses include firm fixed effects, so that it gives information on workers within firms. By combining analyses of the small national sample that lives on cross-company variation and the larger non-random sample of workers from participating companies that lives on within-company variation, we hopefully surmount these weaknesses and can reach conclusions that have general validity.

The innovation of our study is the new questions about workers' ability to detect the performance of other workers at their workplace and their actions if they observed shirking. We

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<sup>2</sup> The survey included core questions common across all companies, and some questions of special interest or relevance to that company. Six company surveys were conducted over the web, seven company surveys were done on paper, and one survey was done using both the web and paper surveys. Two firms that agreed to participate were bought out by other firms, who did not want to cooperate with the study.



asked about the ability of workers to observe their peers' effort because that is a necessary precondition for acting against shirking.

Our question about the perceived performance of other workers was:

*In your job how easy is it for you to see whether your co-workers are working well or poorly? On a scale of 0 to 10 please describe with 0 meaning not at all easy to see and 10 meaning very easy to see*

Figure 1A displays the frequency distribution of answers from the GSS. The distribution is concentrated at the upper end, with 49% of workers giving the highest possible answer (10) about the ease of detecting how co-workers are doing, and another 28% giving answers in the 7-9 categories. Responses are also bunched at the 0 category as well, with 8% of workers giving the lowest score for being able to tell how others are doing, but otherwise there is a paucity of responses at the low end. The overall pattern shows that the vast majority of workers think they have a good idea of how hard their fellow employees are working. Looking at which employees report being able to observe co-workers shows a priori sensible variation among employees. Workers who answered with a 7 or more to the question reported disproportionately that they work in a team as opposed to by themselves, and that they rely on coworkers and supervisors for help, compared to workers who answered 3 or less on seeing how coworkers perform (data not shown but available). In addition, 13% who answered 7 or higher reported that they are managers compared to 7% of those answered 3 or less.

Figure 1B displays the frequency distribution of answers from the NBER survey. The largest single group of respondents gave the maximum answer to their ability to observe their fellow employees, but the distribution is much less concentrated than the distribution in the GSS,

with proportionately half as many workers giving the 10 response. Still, 62% of respondents gave a response of 7 or more to the observability question.

Given that most workers say that they can observe the effort of co-workers, what do they do if they catch someone shirking?

Our question about how workers respond to seeing another employee shirk was:

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

- A. Talk directly to the employee;*
- B. Speak to your supervisor or manager;*
- C. Do nothing*
- D. (added later) Talk about it in a work group or team<sup>3</sup>;*

The responses use a four-point scale: not at all likely, not very likely, somewhat likely, and very likely. As a simple way to display the responses to these questions, we formed an anti-shirking index reflecting the likelihood of intervention against shirkers (Bartholemew et al, 2002), using a 1 to 4 scale, where 1 measures the lowest intervention and 4 the greatest intervention. The anti-shirking index ranges from 3 to 12 for the observations based on the A to C responses and from 4 to 16 for the smaller sample for which we asked part D as well. In this ordering a 12 means that the worker reported that it was very likely they would talk to the shirking employee and very likely that they would talk to the supervisor and not at all likely that they would do nothing. A 3 means that they said it was very unlikely they would talk to the shirking employee, very unlikely they would talk to the supervisor, and very likely they would do nothing.

Figure 2A summarizes the responses from the GSS. It shows that the summary statistic differentiates people along the relevant dimension in a relatively continuous way. If we organize

the data into five bins, grouping the 3 and 4 responses, and the 5 and 6 responses, and so on, the distribution looks roughly uniform. The anti-shirking index has a mean of 7.81 and a standard deviation of 2.94. Figure 2B gives the anti-shirking index for the NBER survey data. With a much larger sample, the distribution has proportionately more persons in the middle of the distribution, which gives it a rough normal look. But again, there is wide variation. Some people are likely to take action against a shirker and some are likely to do little. Our goal is to find out what differentiates workers in this form of behavior.

Table 1 gives the responses that underlie the anti-shirking index variables. It shows for both the GSS and NBER data sets the proportions of workers who said it was likely or not likely that they would take one of the actions in response to shirking behavior by a fellow employee. Both data sets show a wide dispersion in responses. The table shows that the greater concentration of responses at the upper end of the distribution in the GSS is due to the greater proportion who say they would talk to the shirking employee: 32.4% in the GSS versus 16.7% in the NBER dataset. In the GSS proportionately more workers say that it is very likely that they would talk to an employee than would talk to a supervisor or manager, whereas in the NBER data set about the same proportion say it is very likely they would talk to the shirker as to a manager.<sup>4</sup>

Are these responses valid? Might employees simply be saying they are likely to do something, but it remains hypothetical? To check this, in the later company surveys we added a

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3 This option was not included in the 2002 GSS and the early NBER surveys.

4 Since some respondents said that they did not have a supervisor or manager the sample size of answers to that question is smaller than the sample size for the other questions. One possible objection to the anti-shirking index is that it combines disparate behaviors that may substitute for each other—for example, a worker may choose between talking to the shirker or supervisor but not want to do both. We find, however, that the responses are highly correlated (the alpha for the index is .80 in the GSS data and .69 in the NBER data). We also present results for each response separately in Table 4a and find results consistent with those using the anti-shirking index.

question, "Have you ever seen one of your fellow employees not working as hard or well as he or she should over an extended time period?" Over half, 59%, of the respondents said yes.<sup>5</sup> We then asked what they did in response, and what was the outcome. As seen in Table 2, one third (34%) of the employees talked to the shirker, almost half (46%) talked to a supervisor or manager, one-fifth (20%) talked about it in a work group or team, 5% did something else, and 29% did nothing (row 1). These answers correlate highly with the respondents' reported likelihood of taking this action, as shown in rows 2 to 5: for example, 82% of those who said they were very likely to talk to the shirker actually did so, while only 6% of those who said it was not at all likely they would talk to the shirker actually did so.

From the tabulations in Figures 1a, 1b, 2a, and 2b, and Tables 1 and 2, we conclude that while most workers can tell when a fellow employee is shirking or not, there is wide variation in what they will do when faced with a situation in which someone shirks.

### **Shared Capitalist Arrangements: Group Incentives and Labor Policies**

We have a wide set of measures of the group incentives and labor policies that we expect to affect worker responses to shirking behavior. As far as we know, ours is the most comprehensive measure of group incentive policies practiced in the United States used in survey research. The overall prevalence of shared capitalist compensation is presented in Appendix Table A-1, with fuller presentation in a companion paper (Kruse, Blasi, and Park 2007). For our purposes here the most important result is that 45% of the for-profit private sector employees in the GSS sample report participating in some kind of shared capitalism program (36% in profit

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<sup>5</sup> The mean of the anti-shirking index for the 41% of workers who said they have not seen a co-worker shirking is not significantly different from the mean for the 59%, suggesting that there is no systematic difference in

sharing, 25% in gainsharing, 19% in employee ownership, and 11% 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. Regarding other work policies, the 2002 and 2006 GSS asked whether employees normally work as part of a team and how often they participate with others in determining how things are done at their job. Over half (58%) of private sector workers report working in a team setting, and 44% report that they often participate with others in helping set the way things are done on a job. The figures for shared capitalist incentives are naturally higher in the NBER sample, since these companies were selected on the basis of having one or more shared capitalism programs. About two-thirds report profit sharing (71%) and owning company stock (64%), while about one-fifth report gainsharing (21%) and holding stock options (22%). The figure for working as part of a team (59%) is similar to that for the GSS, and about one-third (35%) report being part of an employee involvement team.

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 is described in Appendix B. We also present results breaking out the different forms of shared capitalism types and intensities.

### **Shared Capitalist Incentives and Shirking**

To examine the determinants of anti-shirking behavior, we first regressed the anti-shirking index on organizational/company policy variables and job and demographic factors. As

seen in Table 3, the shared capitalism index is linked to greater anti-shirking activity in both the GSS and NBER datasets. Among the controls, the ease of observing co-workers has a strong positive effect on the anti-shirking index, consistent with the idea that workers will be more likely to take action when they are more certain that it will help. The participation variables have a substantial positive impact on the anti-shirking index in both datasets, as does job security in the NBER dataset. Job task variety also has a strong positive effect (consistent with Drago and Garvey, 1998), probably indicating that knowledge of how to help is greater, and the costs of helping are lower, when the worker has a broader base of skills and overlap of tasks with the shirking co-worker. Those who are supervised more closely are less likely to engage in anti-shirking behavior in the NBER dataset, perhaps reflecting a belief among closely-supervised workers that dealing with shirking is the supervisor's responsibility (to be addressed in Table 8). Finally, a result relevant to free-riding behavior is that workers in establishments with few employees (1-9) are more likely to intervene when they see shirking than workers at larger workplaces. Although standard economic analysis provides no clean way to resolve the free rider problem, almost any theory of behavior predicts that free riding tendencies will be lower with fewer workers, and thus that workers would intervene more to stop shirking in a smaller workplace if shirking harms their economic position than in a larger workplace.

The specific behaviors making up the anti-shirking index are analyzed separately in Tables 4a and 4b. The shared capitalism index is a positive predictor of each type of anti-shirking behavior in both the GSS and NBER data, except for the likelihood of talking in a work group in the GSS data. Our interpretation of this latter finding is that many workers with shared capitalism in the general population do not wish to talk about the shirker to the group in the

shirker's presence as they might find this embarrassing (consistent with concerns by workers that the shirker might resent them or other employees would react poorly, as presented in Table 8.)

### *Types of shared capitalism*

Which shared capitalism policies are responsible? Table 6 uses different types and intensities of shared capitalism to predict taking action against shirking. In the GSS data, the presence of profit sharing and gainsharing is most strongly related to anti-shirking activity (col. 1). A different story is told, however, by the NBER data when a similar specification is run, where it is the intensity rather than the presence of profit sharing and gainsharing that seems to matter. The NBER results in column 2 show a very strong effect of the profit/gainsharing bonus size (not eligibility), along with strong positive effects of stock option holding and owning any company stock.

When the richer NBER data are used for a more detailed breakdown of shared capitalism in column 3 (along with more extensive controls, mirroring the specification in Table 3), anti-shirking activity is strongly related to both profit sharing bonus size and gainsharing bonus size. The form of the relationship is of interest: if the profit share is very small, those eligible for profit sharing may actually be less likely than non-eligible employees to take action, as indicated by the negative coefficient on eligibility combined with the positive coefficient on bonus size. As will be seen in Table 8, shared capitalism appears to increase the fear that co-workers will resent any anti-shirking action, so that very low levels of profit sharing may have a negative effect on anti-shirking activity, but this reluctance is apparently overcome as the bonus grows larger. This same pattern does not exist for gainsharing, where simple eligibility is associated with a positive coefficient.

Consistent with the results of Drago and Garvey (1998), the effect of greater individual bonuses is negative and significant (column 3), indicating that bigger individual bonuses focus workers on their own work and may lead them to see co-workers as competitors (or at least not cooperators).

Receiving a stock option grant last year is associated with taking action against shirkers, although the size of the grant, and of one's holdings, do not seem to make a difference (col. 3). Owning company stock is no longer a significant predictor in column 3, although in supplementary regressions (not reported here) we break this down further and find positive associations with ESPP participation, holding stock after exercising options, holding stock purchased on the open market, and ESOP membership (this latter result only when company fixed effects are not used<sup>6</sup>). It is intriguing that any ownership effect appears to operate through simply owning stock and not the size of one's stake (consistent with findings from several studies that having employer stock, but not the size of the stake, is linked to higher organizational commitment)(reviewed in Kruse and Blasi, 1997). Since eight out of ten of the workers reporting employee ownership in the 2002 GSS report they also have some form of shorter-term performance sharing through profit/gain sharing or stock options, this may be an indication that some managers have already internalized the reasons for combining short-term rewards and long-term equity (Blasi, Kruse, and Freeman 2006: 7) We plan to explore the effects of different types of employee ownership more fully in future work.

### *Quasi-experiment on Profit Sharing*

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6 Company fixed effects are probably inappropriate to use in analyzing the effects of ESOP membership, since ERISA rules provide strict guidelines to ensure broad coverage. The small number of non-ESOP members are likely to be very different from the ESOP members within a firm, and the effects of ESOP membership may be better judged by comparing ESOP members to otherwise-similar workers in other firms.



The data presented so far are consistent with the theory that shared capitalism can play a role in responses to shirking co-workers, but with cross-sectional data it is always possible that there are missing variables or other statistical processes leading to alternative interpretations of the results. We do have one company in the NBER dataset where the survey was administered twice, six months apart.<sup>7</sup> A profit-sharing plan was being introduced during the first administration, and was in place during the second administration, which enables a quasi-experiment to examine the effects of profit.

As shown in Table 6, the introduction of the profit-sharing plan led to a substantial jump in the percent of employees saying they are eligible for profit sharing, from 59% at the first survey to 88% at the second survey. Apart from this, only two variables in the entire survey showed significant changes between the surveys: the percent who say they were very likely to talk to a shirking co-worker (increase from 42% to 55%), and the percent who say that they would do something about a shirker because poor performance would hurt the bonus or stock value (from 39% to 56%). The fact that these are the only three variables that changed between the surveys indicates that there were not compositional changes or other policy changes that affected the results. These results lend support to the prior findings, pointing toward a positive effect of profit sharing in attempts to combat co-worker shirking.

### *Complementarities*

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<sup>7</sup> The analyses presented so far use only the responses to the second survey at this company, to avoid having more than one survey from some employees. The surveys did not have individual identifiers so respondents could not be tracked across the two surveys. The higher response rate in the second survey is due in part to the provision of a \$5 bill accompanying this survey, but the surveys appear equally representative since the means on all variables (apart from those highlighted in Table 8) were not significantly different between the two surveys.

While we have examined different functional forms, we have thus far made no effort to specifically model interactions among the major organizational variables. Analysis of the basic decision equation for workers to intervene against shirking suggests, however, that there should be some interactive effects. The worker decides to intervene against a shirker when the expected benefits of intervening exceed the costs:  $p(G) - C$ , where  $p$  is the probability that the intervention will succeed,  $G$  is the gain to the worker and  $C$  is the cost. The financial incentive would affect  $G$ ; participation should affect  $p$  and the cost. Labor-management relations L-M might affect both  $G$  and  $p$ . More complicated analyses, in which the worker is assumed to take account of the possible behavior of other employees, lead to even more complexity, which we will ignore. Instead, we have looked for potential interactions of key variables in our data.

Using the nationally representative GSS data, Table 7a examines how shared capitalism interacts with company size, and Table 7b examines how it interacts with other company policies. Shared capitalism is most strongly associated with taking action against shirkers in the smallest workplaces, as shown in column 1 of Table 7a. This supports the idea that the 1/N problem will be lower in smaller workplaces (note that the base estimates continue to show more anti-shirking activity among workers in small companies without profit/gainsharing, indicating that shirking may be perceived as more of an economic threat in small enterprises generally). The shared capitalist index effect is also significant in the next two larger size classes, and positive although not significant in the two largest classes. An equally or even more important factor, however, appears to be the quality of the relationship with management. As shown in column 2, shared capitalism is associated with anti-shirking activity most strongly when combined with a high level of trust in management. While this could simply reflect column 1's

finding of a more positive effect in small companies, the results in column 2 are maintained when the smallest companies are deleted (not shown here). Similar results are obtained when shared capitalism is interacted with view of employee-management relations.<sup>8</sup> These results make sense: employees are likely to take action to increase productivity only when they are confident that any gains will in fact be shared with workers—not withheld or frittered away by managers believed to be inefficient or ornery. This suggests that large companies can use improved employee-management relations to counteract the 1/N problem.<sup>9</sup>

This result does not, however, carry over neatly to within-company comparisons in the NBER data. The most positive effect of shared capitalism on anti-shirking activity still occurs among employees with the most trust in management, but the shared capitalism index has a positive effect even when the NBER employees disagree that management is trustworthy. We do not have a ready explanation for the difference between the two datasets (which is replicated when doing interactions with view of employee-management relations). Almost all employees in the GSS sample work in different companies, so any results could reflect both company and individual differences—e.g., we do not know if the positive interaction between shared

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8 The correlation between trust in management and view of employee management relations is .60, indicating they appear to represent a common attitude.

9 We examined other ways in which shared capitalism arrangements may interact with workplace policies. The positive shared capitalism effect on the likelihood of taking action against shirkers is lower among those who plan to look for a new job in the next year (presumably because they will not be around to receive the profit share), and in companies with high injury rates (which could worsen management employee relations and decrease expected tenure). While some models predict that financial participation will have a positive interaction with participation in decision-making in affecting worker motivation and performance (e.g., Ben-Ner and Jones, 1995), we do not find significant interactions using the GSS participation measures (which are subjective and may mediate the effects of shared capitalism). Further, we did not find that employee stock ownership or holding stock options alone were related to anti-shirking behavior. This is consistent with the research literature and our findings in this and related papers in the NBER project that employee ownership and stock options generally interact with company culture in impacting performance, although there is evidence that employee ownership directly improves commitment. Also, as noted, it is possible that some managers combine profit sharing and equity participation in order to get synergy between them.

capitalism and employee-management relations reflects the effect of companies with good employee-management relations in general, or of individuals who perceive good relations within a company (even if their co-workers do not). We did some exploration of company and individual differences in the NBER data, finding that the company effect appears to dominate—i.e., anti-shirking behavior is generally strong in companies with higher average grades of employee-management relations and trust in management, no matter the individual employee's grades of these items. This suggests the importance of company culture in fostering an environment encouraging peer pressure. Since the NBER dataset has over 300 worksites we plan to further explore the differences between the two datasets by focusing on the worksite rather than the company level.

The role of complementary company policies is explored with the NBER data in Table 7b. Column 1 essentially replicates the specification from Table 3, adding a control for the worker's perception that his or her fixed pay is at or above market level. The strong positive effect of this new variable is consistent with efficiency wage theories which posit that worker behavior can be improved when they are better paid. The shared capitalism index remains a positive predictor as this control is introduced. The effect appears to be contingent, however, on other workplace policies. The shared capitalist index has a strong positive interaction with a high performance policy index (col. 2), supporting the idea of complementarities among these policies in affecting worker behavior.<sup>10</sup> The shared capitalist index also has a strong negative interaction with closeness of supervision, and a positive interaction with having fixed pay at or above market level. The negative supervision interaction may reflect a negative reaction to the

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<sup>10</sup> These results showing the value of embedding such participation in a system of high performance work policies are consistent with the analysis of Appelbaum, Bailey, Berg, and Kalleberg (2000) and Huselid (1995).

mixed message received by workers: we want you to work harder due to company-based pay, but we're nonetheless going to watch you very closely. In this case the shared capitalism might be perceived by workers as primarily risk-sharing. The positive interaction with having fixed pay at or above the market level may reflect a more positive response by workers when the company seems to be truly sharing, and not asking the worker to sacrifice pay levels in exchange for shared capitalist incentives. Forms of employee ownership that are combined with below-market pay might not be optimal for anti-shirking behavior because the incentive is diluted through what workers perceive as wage substitution.

These interaction results for supervision and high-performance policies are illustrated in Figure 3. This figure shows how there is a positive relation between shared capitalism and the anti-shirking index only when there are high-performance policies and average or low levels of supervision. Otherwise the relationship is negative.

Thus, incentive intensity is strongly related to anti-shirking activity, but appears to work best as part of a high-performance work system where workers are paid well and not supervised too closely. These results are consistent with the findings of Ichniowski et al. that workplace productivity is improved by combining several high-performance HR policies, and show that worker response to shirkers is likely an important mechanism in the higher productivity.

### *Reasons For and Against Taking Action Against Shirkers*

The dynamics underlying taking action against shirkers are explored more fully in Table 8, reporting on employees in the later NBER surveys who were asked why they might or might not do something about a shirking co-worker. Over half of workers said they would be likely to

do something because the employee's performance could affect their own jobs (56%), reflecting interdependent work where cooperation can be especially productive. Almost half of workers said they would do something because they would want to keep work standards high (47%), which can be seen as reflecting a cooperative solution to reinforce high work norms. Almost as many workers expressed a financial incentive, saying the poor performance would lead to lower bonus or stock value (43%), while 45% said they simply like helping others and 31% said the employee might help them in the future.

These responses are related to level of participation in shared capitalism. For example, the percent saying that poor performance would lead to lower bonus or stock value is almost twice as high among those with a high value on the shared capitalism index (58%, in col. 4) relative to those with a low value on the index (32% in col. 2). Similarly, the former group is more likely to say they would do it to keep work standard high (59% compared to 42%). Column 5 shows that the shared capitalism index is a strong predictor of five of the reasons for taking action.<sup>11</sup>

The predominant reason for not taking action against shirkers is that it's seen as the supervisor's job (45%) followed closely by the fear that the shirking employee would resent it (41%). About one-fourth (23%) feared that other employees would react poorly, while less than one-tenth (8%) directly expressed free ridership by saying that some other employee would probably take action. The shared capitalism index is a strong predictor of the fear that the

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<sup>11</sup> One possible objection to our focus on shared capitalism is that there are many reasons workers take action against shirkers, as shown in this table. Of course, workers report and probably have a variety of reasons -- which may also include simply noticing incompetence, as noted by Erik Maskin in discussing our paper -- and we do not pretend that workers have the simple motive of "anti-shirking" in their minds, or that shared capitalism is the only motivator. These results show that shared capitalism is not related to two of the key reasons for taking action ("I like helping others" and "Employee may help me in the future"), but is clearly related to several reasons that reflect a concern with site performance efficiency.

shirking employee would resent the action, perhaps because the intervener would be seen as acting out of a financial concern rather than out of concern for the worker. As noted earlier, this may help explain why very low levels of profit sharing appear to be associated with reduced likelihood of taking action against shirkers—an effect that is more than counterbalanced by other reasons as the bonus size grows. The shared capitalist index also, not surprisingly, predicts a lower likelihood that the employee will say there's no financial benefit or "nothing in it for me personally" (col. 5). Therefore these data are consistent with the idea that shared capitalism can affect worker behavior.

#### *Outcomes of Anti-shirking Activity*

What happened as a result of the action? The data in Table 9 point up one of the dangers of taking action, as one-third (35%) of the workers said that the employee who was not working well resented it. The most likely outcome, however, was that other employees appreciated the action (45%), while almost as many said the supervisor appreciated it (40%), and just over one-third said that the employee's performance improved (36%).

Does it help economic performance? Only a minority of workers report that the employee's performance improved, but this may still be enough to make a difference in workplace performance. Also, apart from actual anti-shirking actions, people may work harder simply knowing that their co-workers are likely to do something if they see signs of shirking. We do not have hard performance data, but we do have several survey measures of co-worker and facility performance that show a strong relationship with our anti-shirking measures. Table 10 shows that those who report a higher likelihood of talking to a shirker, and a lower likelihood

of doing nothing, rate their co-workers' effort higher on a 0-10 scale. The anti-shirking index is very strongly related not just to this measure, but also to a perception that workers tend to encourage each other, and to ratings of the facility on five specific measures of performance. Since several of these measures involve workers reporting on the behavior of others, it lessens the probability that that the interveners are putting a good spin on their behavior by reporting higher performance, as one reviewer has cautioned. To check the possibility that this simply reflects individual characteristics (e.g., greater optimism about company performance among those who say they would take action against shirkers), we also calculated these relationships at the site level and found that worksites with higher average scores on the anti-shirking index also had significantly higher average evaluations of workplace performance. This is illustrated in Figure 4 for one of our performance measures (evaluations of co-workers performance).<sup>12</sup> Therefore this does not simply reflect an individual reporting phenomenon: shared views of higher performance in a workplace are related to shared commitments to take action against shirkers. It appears that the propensity for anti-shirking activity does make a difference in performance.

One possible objection to these findings is that some production processes are difficult to supervise by managers so that work is arranged to rely on peer intervention. Shared capitalism may be used not to encourage anti-shirking behavior, but directly to deter shirking, so that peer intervention and shared capitalism are both consequences of technologies rather than causally

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<sup>12</sup> We also find that site-level averages of the anti-shirking index are strongly related to site-level averages of a worker-reported performance index (containing the five items from the bottom of Table 10) and employee loyalty to the organization, although there is no strong relationship to site-level averages of willingness to work hard and turnover intention. For one large multinational, the dataset has a number of hard operational measures of efficiency, but they are at a very aggregated division level and the small number of divisions and lack of variation makes an analysis problematic.



related to each other. Our pre/post results in Table 6 go against this explanation. We also tested this by examining the relationship in different industries, and by controlling for detailed manufacturing technologies (in our diversified multinational firm with diverse technologies such as plastics and aerospace). The shared capitalism effect does not disappear, but in fact gets slightly stronger with more detailed controls for production technologies, making us more confident that anti-shirking intentions and behavior are a result of shared capitalism and company culture.<sup>13</sup>

### **Conclusion**

This study has examined employee responses to new questions on the 2002 and 2006 General Social Surveys and a large database of NBER employee surveys on whether workers can easily observe whether co-workers are shirking and how workers respond to shirking. The answers to the new questions provide valuable insight into the likely magnitude of mutual monitoring and peer pressure against shirking behavior. They show that most workers believe that they are able to observe the effort/activity of fellow workers, which is the first prerequisite for mutual monitoring and peer pressure against shirking to work. In addition, about half of the work force says that they would be very likely to respond to poor job performance by co-

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13 One limitation of our study is the lack of a measure of shirking per se. However, we did ask each employee in two companies covering to respond on a 1-5 scale whether “There are days when I don’t put much effort into my job.” Preliminary analysis of this variable indicates that workers reporting high effort are the ones who are more likely to intervene against shirkers. Moreover, there is no direct relationship between the shared capitalism index and increased individual effort. This reflects our earlier finding that the principal impact of shared capitalism appears to work in combination with various aspects of company culture such as trust, high performance work systems, and fixed wages at or above market. As a result of this analysis and our analysis on production technologies, we are more confident that 1) shared capitalism alone does not shirking, and 2) unique production systems dependent on technologies are not creating anti-shirking work systems, but rather that 3) shared capitalism enhances anti-shirking together with company culture, and 4) shared capitalism and positive company culture also impact the potential shirker’s level of effort. These additional analyses are available from the authors.

workers, with more saying that they would talk to the shirker rather than reporting the behavior to management. While there are some demographic correlates to responding against shirking, workplace factors are more strongly related to employee efforts to reduce shirking. This finding conflicts with the standard economic theory that broad-based incentives will be weak for everyone because of free riding.<sup>14</sup>

Employees respond more against shirking in workplaces with shared capitalism institutions, and the findings suggest important complementarities between shared capitalism and high-performance policies, supervision intensity, and being paid at least the market wage. While firms that expect workers to mutually monitor and pressure peers could try to select workers with innate propensities to engage in such activities, our analysis suggests that their most sensible strategy would be to give workers financial participation and some shared decision-making in the context of establishing good labor-management relations and high-performance work systems.

These findings may have some implications for addressing the principal-agent problem in corporate governance. Top executives frequently oppose extending the range and number of employees in their corporations who receive profit sharing, employee ownership, and broad-based stock option programs because of the free rider or 1/N problem. The typical reason given is that only individuals who can affect stock price directly should get such rewards. The result is that many executives and their compensation consultants get boards to approve incentive plans that give most of the pie to themselves and other top officials (Bebchuk and Fried 2004; Morgenson 2002: B1; Blasi and Kruse 2004). If some shared capitalist programs and certain types of corporate cultures can actually address these same objections, then there may be a

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<sup>14</sup> The standard theory does not predict no anti-shirking intervention but only that it is likely to be suboptimal. As our discussant Eric Maskin noted, there is “no way of telling what optimal intervention would be.” Our study does

conflict of interest for top executives to make most of the strategic decisions on shared capitalist programs and corporate culture essentially by themselves. Rather, in line with recent reforms implemented by both major stock exchanges and the Securities and Exchange Commission, independent members of the board of directors and compensation consultants wholly independent of top management, should take the lead in making corporate decisions about shared capitalist institutions that are based on evidence versus custom (NYSE 2003). It is our contention that in the absence of truly independent boards of directors, some top corporate executives do actually make inefficient market decisions on dividing up the profit sharing, gain sharing, employee ownership, and stock option pie (i.e. allocating shareholder capital resources toward compensation). Their desire to have more of the pie allotted to themselves may not be in their own or their companies' long-run interests, compared to a program of shared capitalism and company culture that can improve performance.<sup>15</sup> Moreover, it appears that the very participatory and fair corporate cultures that some managers have difficulty implementing, are just the HR policies that make shared capitalist incentives work.

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suggest, however, how the corporation can be structured to increase anti-shirking behavior and performance. 15 Indeed, there are pockets of executives in the American economy who have made systematic attempts to implement just this system. For a study of one pocket in Silicon Valley, see Blasi, Kruse, and Bernstein (2003). The study shows that these executives believe that their large rewards are contingent on broad-based rewards for most or all of the workers. They regularly support dilution of their ownership stakes to distribute shares and options to employees who they believe "will make the pie bigger."

## APPENDIX A: Variable definitions and descriptive statistics

### MONITORING AND RESPONDING TO SHIRKING

**Ease of seeing how well co-workers are working** (GSS and NBER): "In your job how easy is it for you to see whether your co-workers are working well or poorly?" (0-10 scale, 0=not at all easy to see and 10=very easy to see), GSS mean=7.74, s.d.=3.16, n=2192, NBER mean=6.81, s.d.=2.73, n=40971.

**Potential employee actions against shirkers** (GSS and NBER): "If you were to see a fellow employee not working as hard or well as he or she should, how likely would you be to:

- a) Talk directly to the employee
- b) Speak to your supervisor or manager
- c) Talk about it in a work group or team
- d) Do nothing"

See distribution of answers in Table 1.

**Anti-shirking index:** Answers to above questions were coded on a 1-4 scale (1=not at all likely, 4=very likely), and scales were added for "talk directly to the employee," "speak to your supervisor or manager," and "do nothing"(reverse-scored)(3-12 scale). GSS alpha=.795, mean=7.81, s.d.=2.94, n=2115, NBER alpha=.69, mean=7.57, s.d.=2.49, n=35869.

**Past employee actions against shirkers** (NBER):

"Have you ever seen one of your fellow employees not working as hard or well as he or she should over an extended time period?" (0=no, 1=yes), Mean=.586, n=32010.

If responded "yes", then "What action, if any, did you take?"

- a) Talk directly to the employee,
- b) Speak to your supervisor or manager,
- c) Talk about it in a work group or team,
- d) Do nothing"

See distribution of answers in Table 2.

"What was the outcome of your actions?"

- Employee not working well resented it
- Other employees appreciated it
- Supervisor appreciated it
- Employee not working well improved
- Other"

See distribution of answers in Table 9.

**Why people do or do not act against shirkers** (NBER):

"Why might you be *likely to do something* when a fellow employee is not working as hard or well as he or she should? (Mark all that apply)

I like helping others  
 Employee might help me in the future  
 Poor performance will cost me and other employees in bonus or stock value  
 Other employees appreciate it when someone steps forward  
 Want to keep work standards high  
 Employees poor performance could affect my own job  
 Other (What?)

Why might you be *likely to do nothing* when a fellow employee is not working as hard or well as he or she should? (Mark all that apply)

Employee not working well would resent it  
 Other employees would react poorly  
 It's the supervisor's job, not mine  
 Some other employee will probably take action  
 Some other employee could take care of it  
 There's no financial benefit for me  
 Nothing in it for me personally  
 Other (What?)"

See distribution of answers in Table 8.

## COMPENSATION

**Shared capitalism index (GSS):** 8-point index with one point each for profit sharing eligibility, gain sharing eligibility, owning any company stock, holding any stock options, receiving a profit sharing bonus in the past year, receiving a gain sharing bonus in the past year, having an above-median profit- and gain sharing bonus as a percent of pay, and having an above-median company stock holding as a percent of pay. Mean=1.48, s.d.=2.14, n=1919

**Shared capitalism index (NBER):** 10-point index with all items in GS index, plus one point each for receiving a stock option grant in the past year, and having above-median stock option holdings as a percent of pay. Mean=3.60, s.d.=2.65, n=40522

**Profit sharing (GSS and NBER):** "In your job are you eligible for any type of performance-based pay, such as individual or group bonuses, or any type of profit-sharing? What does the size of these performance-based payments depend on? Company profits or performance" (0=no, 1=yes), GSS mean=.372, n=2184, NBER mean=.713, n=41018

**Profit sharing as % of pay (GSS and NBER):** If "yes" to profit sharing, answer to "What was the approximate total dollar value of the payment(s) you received [in the most recent year of bonuses]?" divided by basepay+overtime, otherwise 0. GSS mean=.024, s.d.=.066, n=1944, NBER mean=.068, s.d.=.124, n=40485

**Gainsharing** (GSS and NBER): "In your job are you eligible for any type of performance-based pay, such as individual or group bonuses, or any type of profit-sharing? What does the size of these performance-based payments depend on? Workgroup or department performance" (0=no, 1=yes), GSS mean=.257, n=2184, NBER mean=.207, n=41023

**Gainsharing as % of pay** (GSS and NBER): If "yes" to gainsharing, answer to "What was the approximate total dollar value of the payment(s) you received [in the most recent year of bonuses]?" divided by basepay+overtime, otherwise 0. GSS mean=.017, s.d.=.061, n=2013, NBER mean=.033, s.d.=.106, n=40767

**Individual bonus** (GSS and NBER): "In your job are you eligible for any type of performance-based pay, such as individual or group bonuses, or any type of profit-sharing? What does the size of these performance-based payments depend on? Individual performance" (0=no, 1=yes). GSS mean=.290, n=2184, NBER mean=.290, n=41019

**Individual bonus as % of pay** (NBER): If "yes" to individual bonus, answer to "What was the approximate total dollar value of the payment(s) you received [in the most recent year of bonuses]?" divided by basepay+overtime, otherwise 0. Mean=.050, s.d.=.125, n=40547

**Hold employer stock** (GSS): "Do you own any shares of stock in the company where you now work, either directly or through some type of retirement or stock plan?" (0=no, 1=yes), mean=.212, n=2202

**Employer stock as % of pay** (GSS): If "yes" to "hold employer stock," answer to "Please give a general estimate of how much cash you would get if all this stock were sold today?" divided by annual earnings, otherwise 0, mean=.111, s.d.=.977, n=2186

**Hold employer stock** (NBER): Any employer stock held through ESOP, Employee Stock Purchase Plan, 401(k), exercised stock options, or open market purchases (0=no, 1=yes), mean=.640, n=41206

**Employer stock as % of pay** (NBER): If "yes" to "Hold employer stock," the sum of answers to questions about value of stock held in different plans, divided by basepay+overtime, otherwise 0. NBER mean=.398, s.d.=.808, n=40367

**Hold stock options** (GSS and NBER): "Do you currently hold any stock options in your company (vested or unvested)?" (0=no, 1=yes), GSS mean=.123, n=2188, NBER mean=.219, n=41166.

**Stock options as % of pay (NBER):** If "yes" to "Hold stock options," the sum of answers to questions about value of vested and unvested stock, divided by basepay+overtime, otherwise 0. NBER mean=.395, s.d.=1.490, n=40922

## **EMPLOYEE PARTICIPATION IN DECISIONS**

**Make decisions with others (GSS):** "In your job, how often do you take part with others in making decisions that affect you?" (1-4 scale, 1=never, 4=often), mean=3.08, s.d.=.93, n=2211

**Help set way things done on job (GSS):** "How often do you participate with others in helping set the way things are done on your job?" (1-4 scale, 1=never, 4=often), mean=3.14, s.d.=.92, n=2210

**High participation in decisions (GSS):** This measure has a score of 1 if the sum of scales of the above two items is 7 or 8, and 0 otherwise. Mean=.466, n=2226.

**Lot of participation in job decisions (NBER):** "How much involvement and direct influence do YOU have in: Deciding HOW to do your job and organize the work" (coded 1 if "a lot", 0 otherwise) mean=0.51, n=40750

**Lot of participation in department goals (NBER):** "How much involvement and direct influence do YOU have in: Setting GOALS for your work group or department" (coded 1 if "a lot", 0 otherwise) mean=0.21, n=40594

**Lot of participation in company decisions (NBER):** "How much involvement and direct influence do YOU have in: Overall company decisions" (coded 1 if "a lot", 0 otherwise) mean=0.04, n=40520

**EI team (NBER):** "Some companies have organized workplace decision-making in ways to get more employee input and involvement. Are you personally involved in any team, committee or task force that addresses issues such as product quality, cost cutting, productivity, health and safety, or other workplace issues?" (0=no, 1=yes), mean=.35, n=40122

## **OTHER VARIABLES**

**Co-worker effort (NBER):** "At your workplace, how hard would you say that people work?" (0-10 scale, 0=not at all hard, 10=very hard), mean=7.07, s.d.=2.10, n=40738.

**Fixed pay at or above mkt. (NBER):** "Do you believe your fixed annual wages are higher or lower than those of employees with similar experience and job descriptions in

other companies in your region?" (coded 0 if <3 on 1-5 scale, and 1 if 3 or greater)  
mean=.59, n=35860

**High performance policies** (NBER): Additive index of EI team, training, and job security measures. Mean=1.77, s.d.=.86, n=37125

**How closely supervised** (NBER): "Are you closely supervised, or do you work fairly independently of close supervision?" (0-10 scale, 0=independent of close supervision, 10= closely supervised), mean=3.35, s.d.=2.63, n=40845

**Job security** (NBER): "Thinking about the next twelve months, how likely do you think it is that you will lose your job or be laid off?" (coded 0 if somewhat or very likely, and 1 if not at all likely or not very likely), mean=.843, n=38510

**Task variety** (GSS): "I get to do a number of different things on my job." (1-4 scale, 1=strongly disagree, 4=strongly agree), mean=3.24, s.d.=.71, n=2210.

**Training** (NBER): "In the last 12 months have you received any formal training from your current employer, such as in classes or seminars sponsored by the employer?" (0=no, 1=yes), mean=.564, n=40460

**Mgt. is trustworthy** (GSS): "I trust the management at the place where I work." (1-4 scale, 1=strongly disagree, 4=strongly agree), mean=2.97, s.d.=0.85, n=2201

**Work as part of team** (GSS and NBER): "In your job, do you normally work as part of a team or group, or do you work mostly on your own?" (coded 1 if part of team, 0 otherwise), GSS mean=.58, n=2206, n=, NBER mean=.59, n=32301.



## **APPENDIX B: The shared capitalist thermometer index**

As a first step in assessing the relation of shared capitalism to employee outcomes, we constructed a thermometer-style index of shared capitalism. This index assigns one point each when the worker was covered by any of the shared capitalist forms of compensation about which the survey asked, with additional points for recent bonuses or grants, and for large bonuses or stock holdings. For questions with a continuous numeric answer, we gave the item a value of 1 if the respondent had a value greater than the median value. Because there is no natural ordering of shared capitalist systems in the sense that a firm first introduces profit-sharing, then adds employee ownership, and then gain-sharing, the index is not a Guttman scale. It is a simple summated rating (Bartholomew et al, 2002; Bartholomew, 1996), using dichotomous scoring.

In the GSS, there are eight variables in the index: profit sharing eligibility, gain sharing eligibility, owning any company stock, holding stock options, receiving a profit sharing bonus in the past year, receiving a gain sharing bonus in the past year, having an above-median profit- and gain sharing bonus as a percent of pay, and having an above-median company stock holding as a percent of pay. In the NBER data there are ten variables in the index: all of the above items plus one point each for receiving a stock option grant in the past year, and having above-median stock option holdings (including unvested options if they could be exercised today) as a percent of pay.

Indices of this style have both advantages and disadvantages. On the plus side, they provide a quick and ready measure of the extent of shared capitalist arrangements that makes it easy to compare results across surveys and to summarize the broad thrust of findings. Since our firm surveys covered only firms with some shared capitalist arrangements, the index allows us to differentiate workers with differing degrees of incentive to their firm's programs. On the

negative side, the index treats different programs the same even though they potentially have different effects on particular outcomes. It postulates a single scale with equal weights rather than using factor analysis or other statistical modelling to obtain weights for given factors. To deal with these problems, we estimated the relationship of the outcomes to the different types of shared capitalism, introduced as dummy or continuous variables in regressions.<sup>16</sup> Appendix B gives the results of those calculations. By comparing the results in the appendix tables with those in the text, we can assess the loss of information due to the amalgamation of the measures into a single index.

Figure B1 shows the distribution of our shared capitalism index in the GSS. This survey estimates that 40% of US workers have some form of shared capitalist program. This estimate is close to that obtained by Dube and Freeman in the WRPS. The mean score of the index is 1.48 – a figure greatly affected by the substantial number of workers without shared capitalism systems. Conditional on having a program, most workers report scores in the range of 2 to 5, with 6% reporting scores of 6 or greater. Figure B2 gives the distribution of the index in the NBER survey data. It also shows a non-normal distribution, with the most common scores as 2 to 4 but a sizeable number of workers scoring 7 or above. There is sufficient variation in the index to differentiate the extent of the shared capitalist “treatment” on workers.

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<sup>16</sup> There are statistical techniques to deal with the formation of latent variable indices from questions of the sort that we are amalgamating into a single summated rating. See Bartholomew et al. (2002) and Spector (1992).

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Figure 1a: GSS Distribution of Workers by How Well They Can See Whether Co-workers are Working Well or Poorly

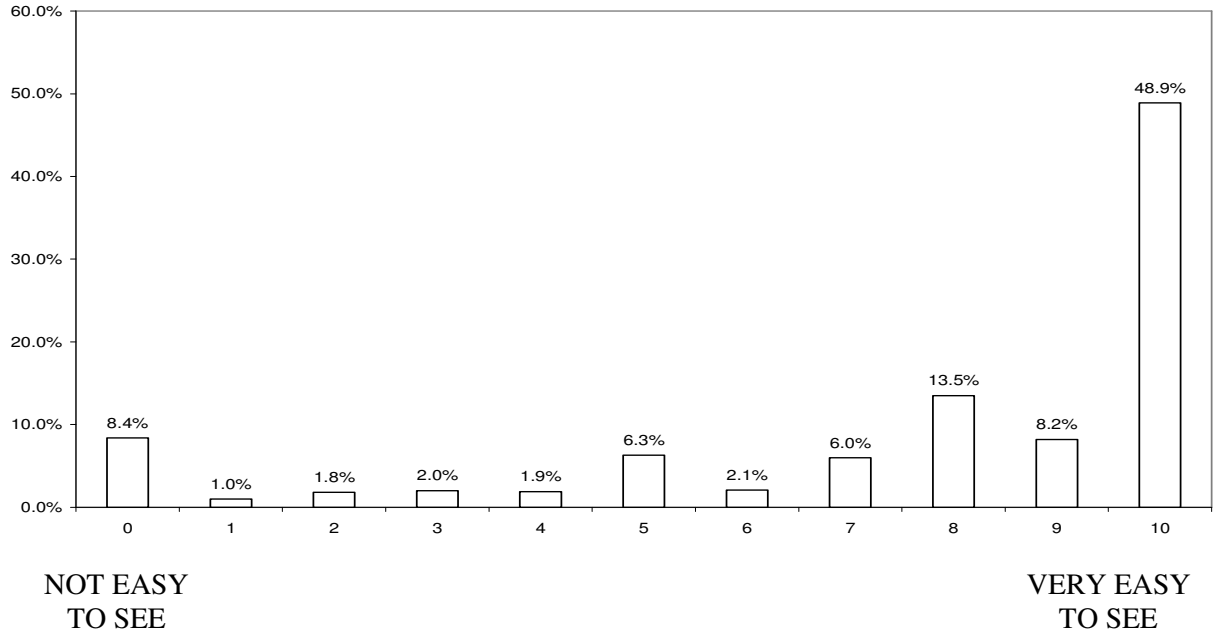


Figure 1b: NBER Distribution of Workers by How Well They Can See Whether Co-workers are Working Well or Poorly

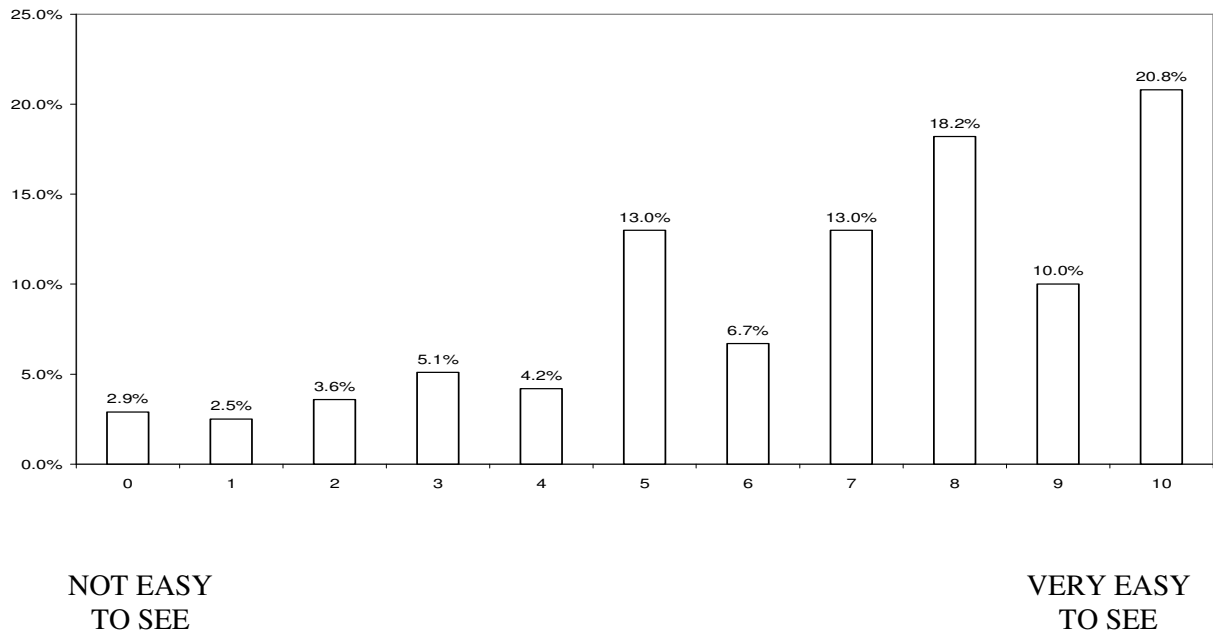


Figure 2a: GSS Distribution of Anti-shirking Index

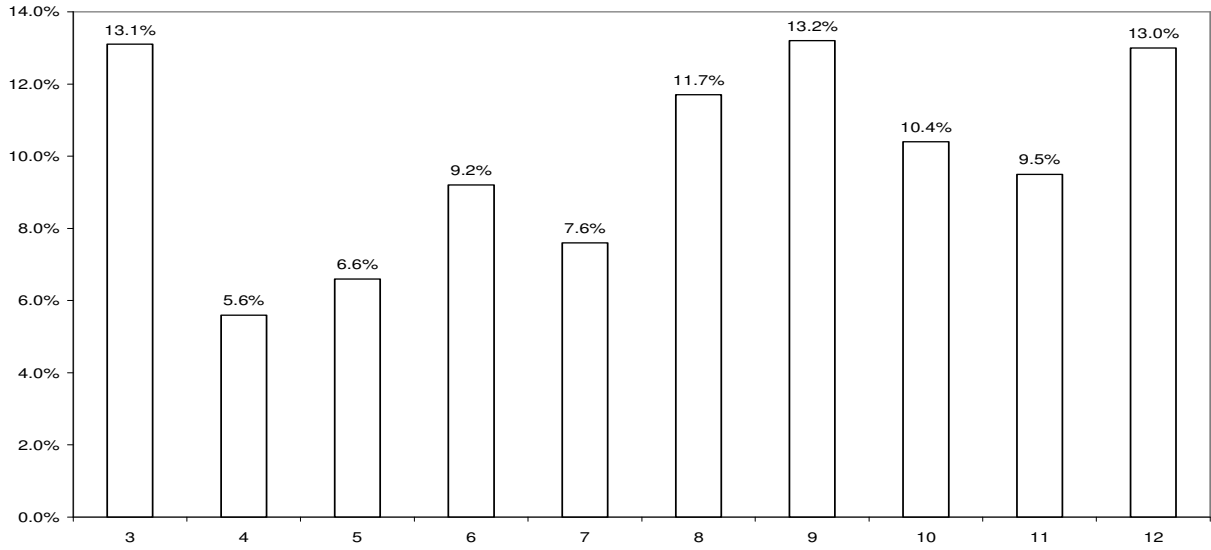


Figure 2b: NBER Frequency Distribution of Anti-shirking Index

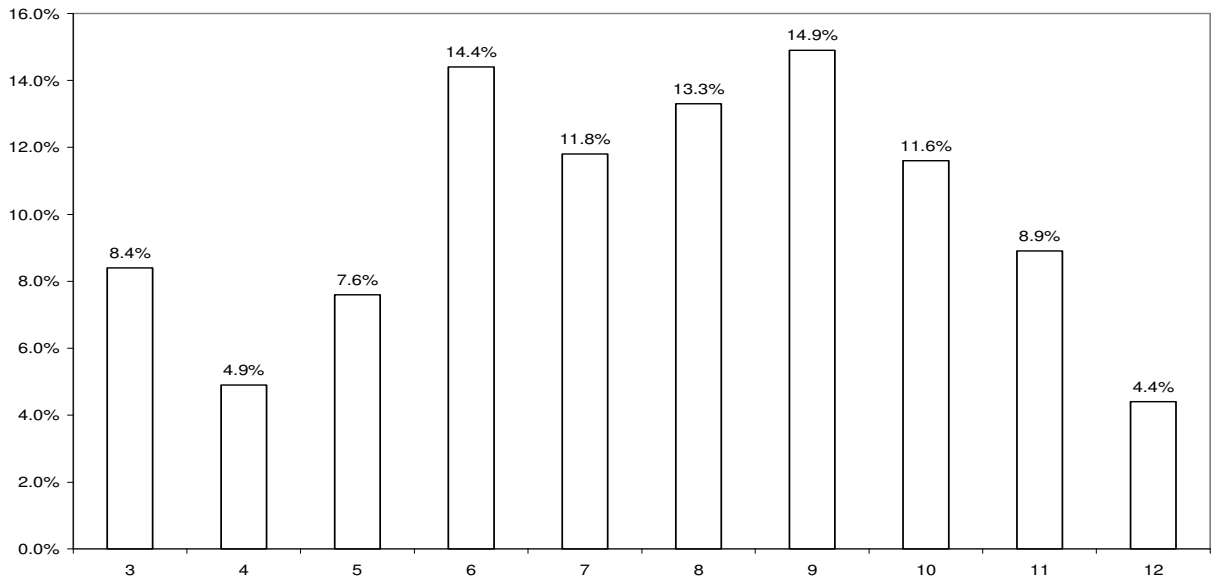
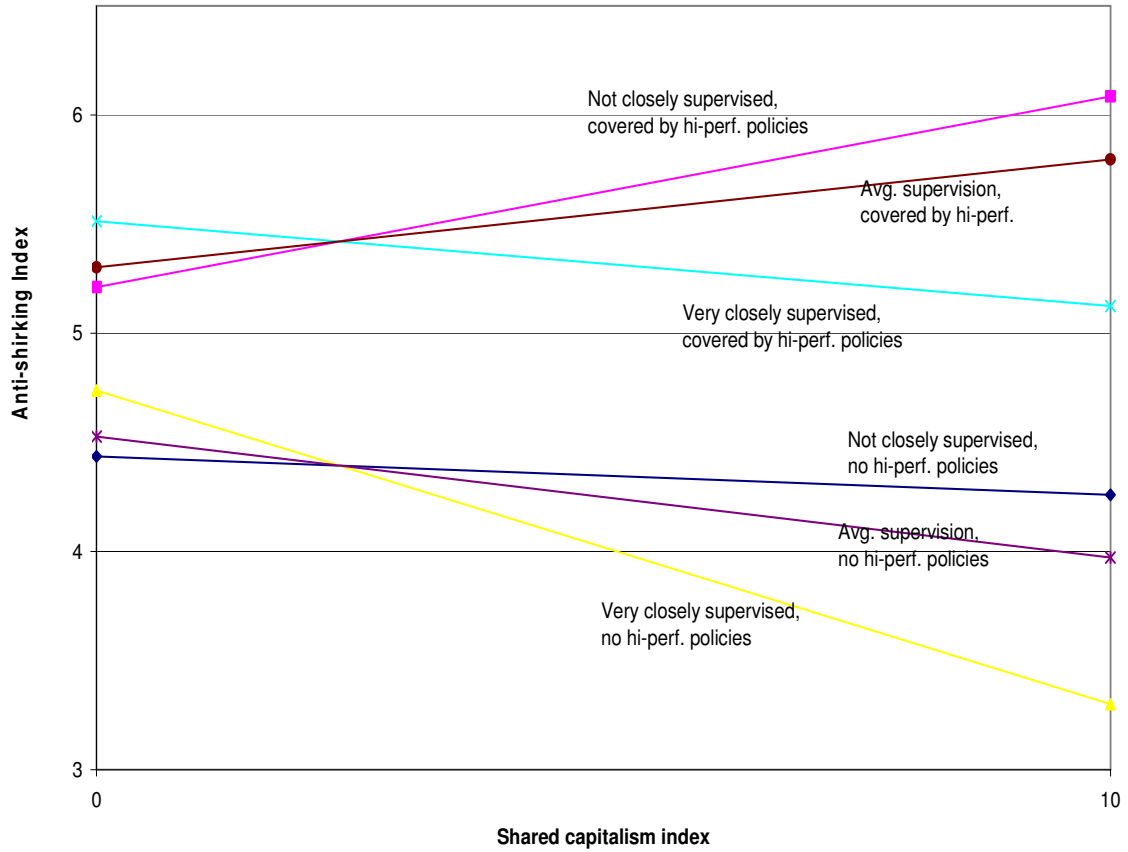
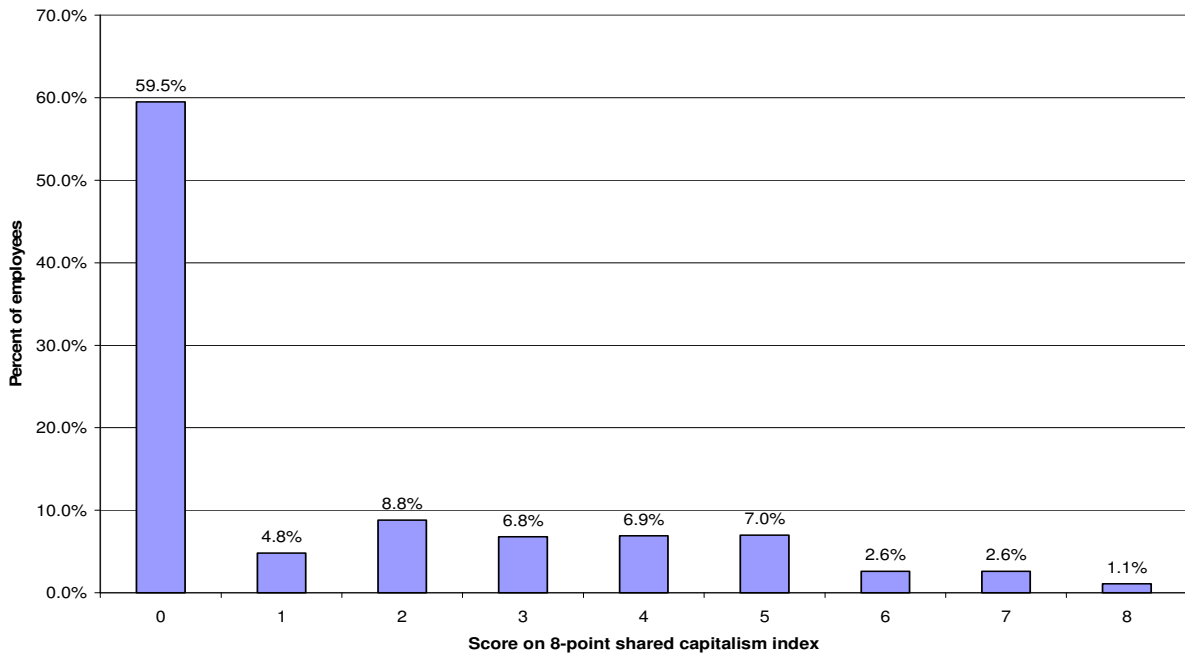




Figure 3: The Contingent Effects of Shared Capitalism on Anti-Shirking Activity



**Figure B1: Distribution of Shared Capitalism Index in GSS**



**Figure B2: Distribution of Shared Capitalism Index in NBER Companies**

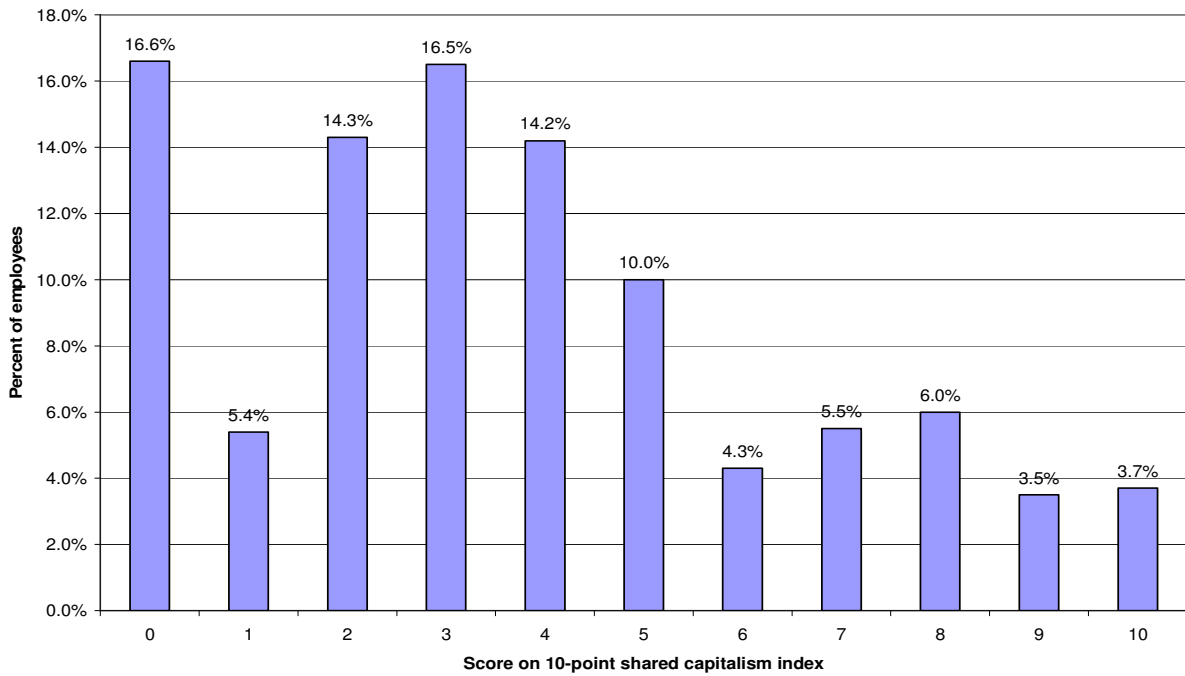
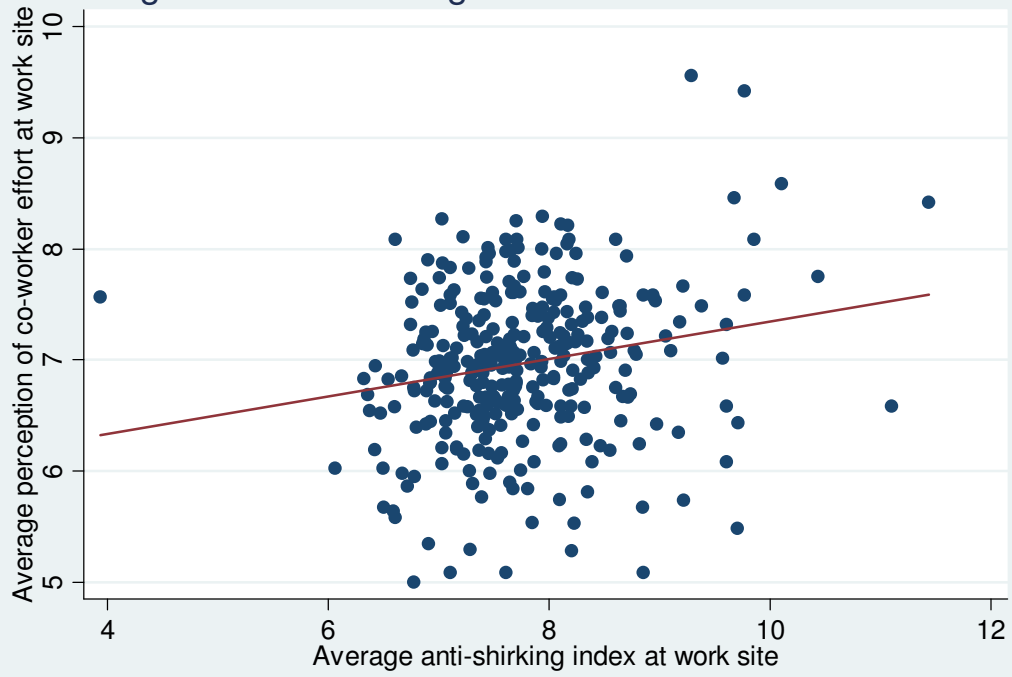


Figure 4: Anti-shirking and Worker Effort at Site Level



**Table 1: Potential Employee Actions Against Shirkers**

		Talk to employee (1)	Talk to supervisor or manager (2)	Talk about it in work group or team (3)	Do nothing (4)
<b>Response to fellow worker not working as hard or well as he or she should:</b>					
<b>GSS</b>					
	<b>Not at all likely</b>	<b>26.0%</b>	<b>28.0%</b>	<b>36.1%</b>	<b>38.8%</b>
	<b>Not very likely</b>	<b>17.2%</b>	<b>22.4%</b>	<b>20.3%</b>	<b>20.5%</b>
	<b>Somewhat likely</b>	<b>24.4%</b>	<b>25.1%</b>	<b>24.0%</b>	<b>17.6%</b>
	<b>Very likely</b>	<b>32.4%</b>	<b>24.4%</b>	<b>19.7%</b>	<b>23.0%</b>
	<b>n</b>	<b>2183</b>	<b>2137</b>	<b>1058</b>	<b>2173</b>
<b>NBER</b>					
	<b>Not at all likely</b>	<b>28.1%</b>	<b>21.5%</b>	<b>28.6%</b>	<b>36.7%</b>
	<b>Not very likely</b>	<b>25.4%</b>	<b>26.8%</b>	<b>26.5%</b>	<b>24.1%</b>
	<b>Somewhat likely</b>	<b>29.9%</b>	<b>34.8%</b>	<b>31.3%</b>	<b>22.4%</b>
	<b>Very likely</b>	<b>16.7%</b>	<b>17.0%</b>	<b>13.5%</b>	<b>16.8%</b>
	<b>n</b>	<b>38228</b>	<b>37767</b>	<b>29336</b>	<b>36979</b>

**Table 2: Past Employee Actions Against Shirkers**

<b>NBER Survey</b>				
	<b>Talk to employee (1)</b>	<b>Talk to supervisor or manager (2)</b>	<b>Talk about it in work group or team (3)</b>	<b>Do nothing (4)</b>
<b>Actions actually taken when saw fellow worker not working as hard or well as he or she should<sup>^</sup></b>	<b>33.5%</b>	<b>46.0%</b>	<b>20.3%</b>	<b>29.3%</b>
<b>If said likelihood of this action was:</b>				
<b>Not at all likely</b>	<b>6.1%</b>	<b>12.4%</b>	<b>3.9%</b>	<b>14.8%</b>
<b>Not very likely</b>	<b>13.9%</b>	<b>26.6%</b>	<b>9.1%</b>	<b>17.0%</b>
<b>Somewhat likely</b>	<b>54.6%</b>	<b>65.3%</b>	<b>34.0%</b>	<b>41.9%</b>
<b>Very likely</b>	<b>81.7%</b>	<b>84.9%</b>	<b>52.8%</b>	<b>72.4%</b>
<b>n</b>	<b>18744</b>	<b>18744</b>	<b>18744</b>	<b>18744</b>

Workers were asked "Have you ever seen one of your fellow employees not working as hard or well as he or she should over an extended time period?" The above answers are based on the 58.6% who responded "yes". They were then asked "What action, if any, did you take?" In addition to the actions listed above, 5.2% said they would do "something else".

**Table 3: Effects of Shared Capitalism on Anti-shirking Index**

	GSS data			GSS data			NBER data		
<b>Shared capitalism index</b>	<b>0.115</b>	<b>(.035)</b>	<b>***</b>	<b>0.072</b>	<b>(0.034)</b>	<b>***</b>	<b>0.027</b>	<b>(0.009)</b>	<b>***</b>
<b>Ease of seeing how well co-worker is working</b>	<b>0.086</b>	<b>(.024)</b>	<b>***</b>	<b>0.061</b>	<b>(0.024)</b>	<b>**</b>	<b>0.130</b>	<b>(0.005)</b>	<b>***</b>
<b>Work as part of team</b>	<b>1.060</b>	<b>(.059)</b>	<b>***</b>	<b>0.766</b>	<b>(0.157)</b>	<b>***</b>			
<b>High participation in decisions</b>				<b>1.207</b>	<b>(0.153)</b>	<b>***</b>			
<b>Task variety</b>				<b>0.308</b>	<b>(0.103)</b>	<b>***</b>			
<b>Any individual bonuses</b>							<b>0.199</b>	<b>(0.036)</b>	<b>***</b>
<b>Employee involvement team</b>							<b>0.571</b>	<b>(0.028)</b>	<b>***</b>
<b>Formal training</b>							<b>0.235</b>	<b>(0.028)</b>	<b>***</b>
<b>Job security</b>							<b>0.445</b>	<b>(0.037)</b>	<b>***</b>
<b>How closely supervised</b>							<b>-0.013</b>	<b>(0.006)</b>	<b>**</b>
<b>Size 1-9 ees.</b>	<b>1.255</b>	<b>(.278)</b>	<b>***</b>	<b>1.015</b>	<b>(0.271)</b>	<b>***</b>			
<b>10-49 ees.</b>	<b>1.211</b>	<b>(.259)</b>	<b>***</b>	<b>1.073</b>	<b>(0.250)</b>	<b>***</b>			
<b>59-99 ees.</b>	<b>0.933</b>	<b>(.280)</b>	<b>***</b>	<b>0.858</b>	<b>(0.269)</b>	<b>**</b>			
<b>100-999 ees.</b>	<b>0.427</b>	<b>(.244)</b>	<b>*</b>	<b>0.412</b>	<b>(0.235)</b>				
<b>1000+ ees. (excl.)</b>									
<b>n</b>	<b>1634</b>			<b>1633</b>			<b>32099</b>		
<b>R-sq.</b>	<b>0.131</b>			<b>0.176</b>			<b>0.192</b>		

The GSS regressions include controls for occupation (7 dummies), age, years of tenure, female, black, Hispanic, education (4 dummies), full-time status, ln(yearly earnings), and dummy for survey year 2006. The NBER regressions include controls for occupation (5 dummies), mgt. level (3 dummies), hourly pay status, supervisory status, years of tenure, hours worked per week, union status, country (27 dummies), age, gender, marital status (2 dummies), family size, college graduate, graduate degree, number of kids, race (4 dummies), disability status, ln(fixed pay), and company fixed effects.

**Table 4a: Specific Responses to Shirking, GSS**

Based on ordered probits

	Likelihood of talking to shirker (1)			Likelihood of talking to sup./manager (2)			Likelihood of talking in work group (3)		
Shared capitalism index	0.038	(0.015)	***	0.038	(0.014)	***	-0.011	(0.022)	
Ease of seeing how well co-worker is working	0.033	(0.010)	***	0.022	(0.010)	**	0.029	(0.016)	*
Work as part of team	0.426	(0.063)	***	0.298	(0.062)	***	0.138	(0.099)	
Size 1-9 ees.	0.469	(0.112)	***	0.448	(0.111)	***	-0.393	(0.165)	**
10-49 ees.	0.432	(0.104)	***	0.417	(0.104)	***	-0.166	(0.150)	
59-99 ees.	0.293	(0.111)	***	0.390	(0.110)	***	-0.304	(0.163)	
100-999 ees.	0.086	(0.101)		0.208	(0.100)	**	0.007	(0.143)	
1000+ ees. (excl.)									
n	1676			1641			800		
(Pseudo) R-sq.	0.058			0.034			0.019		
Cut point 1	0.886	(0.379)		-0.020	0.370		-1.365	0.562	
Cut point 2	1.407	(0.380)		0.598	0.371		-0.818	0.561	
Cut point 3	2.077	(0.382)		1.325	0.371		-0.094	0.560	

The regressions include controls for occupation (7 dummies), age, years of tenure, female, black, Hispanic, education (4 dummies), full-time status, ln(yearly earnings), and dummy for survey year 2006.

**Table 4b: Specific Responses to Shirking, NBER**

Based on ordered probits

	Likelihood of talking to shirker (1)			Likelihood of talking to sup./manager (2)			Likelihood of talking in work group (3)		
<b>Shared capitalism index</b>	<b>0.010</b>	<b>(0.004)</b>	<b>**</b>	<b>0.007</b>	<b>(0.004)</b>	<b>*</b>	<b>0.009</b>	<b>(0.005)</b>	<b>*</b>
<b>Any individual bonuses</b>	<b>0.061</b>	<b>(0.017)</b>	<b>***</b>	<b>0.084</b>	<b>(0.017)</b>	<b>***</b>	<b>0.050</b>	<b>(0.020)</b>	<b>**</b>
<b>Ease of seeing how well co-worker is working</b>	<b>0.045</b>	<b>(0.002)</b>	<b>***</b>	<b>0.057</b>	<b>(0.002)</b>	<b>***</b>	<b>0.037</b>	<b>(0.003)</b>	<b>***</b>
<b>Employee involvement team</b>	<b>0.224</b>	<b>(0.013)</b>	<b>***</b>	<b>0.192</b>	<b>(0.013)</b>	<b>***</b>	<b>0.195</b>	<b>(0.015)</b>	<b>***</b>
<b>Formal training</b>	<b>0.146</b>	<b>(0.013)</b>	<b>***</b>	<b>0.055</b>	<b>(0.013)</b>	<b>***</b>	<b>0.065</b>	<b>(0.014)</b>	<b>***</b>
<b>Job security</b>	<b>0.132</b>	<b>(0.018)</b>	<b>***</b>	<b>0.206</b>	<b>(0.018)</b>	<b>***</b>	<b>0.084</b>	<b>(0.019)</b>	<b>***</b>
<b>How closely supervised</b>	<b>0.002</b>	<b>(0.003)</b>		<b>-0.002</b>	<b>(0.003)</b>		<b>0.007</b>	<b>(0.003)</b>	<b>**</b>
<b>n</b>	<b>33807</b>			<b>33544</b>			<b>25570</b>		
<b>(Pseudo) R-sq.</b>	<b>0.071</b>			<b>0.049</b>			<b>0.022</b>		
							<b>-</b>		
<b>Cut point 1</b>	<b>0.152</b>	<b>(0.254)</b>		<b>0.198</b>	<b>(0.252)</b>		<b>0.020</b>	<b>(0.664)</b>	
<b>Cut point 2</b>	<b>0.907</b>	<b>(0.254)</b>		<b>1.012</b>	<b>(0.252)</b>		<b>0.700</b>	<b>(0.664)</b>	
<b>Cut point 3</b>	<b>1.920</b>	<b>(0.255)</b>		<b>2.104</b>	<b>(0.252)</b>		<b>1.715</b>	<b>(0.664)</b>	

The regressions include controls for occupation (5 dummies), mgt. level (3 dummies), hourly pay status, supervisory status, years of tenure, hours worked per week, union status, country (27 dummies), age, gender, marital status (2 dummies), family size, college graduate, graduate degree, number of kids, race (4 dummies), disability status, ln(fixed pay), and company fixed effects.



**Table 5: Effects of Particular Forms of Shared Capitalist Compensation on Anti-shirking Index**

	GSS (1)		NBER (2)		NBER (3)		
<b>PROFIT &amp; GAIN SHARING</b>							
Profit sharing or gain sharing eligibility	0.344	(0.183) *	0.010	(0.040)			
Profit sharing-gain sharing bonus as % of base pay	0.742	(0.887)	1.424	(0.143) ***			
Profit sharing eligibility					-0.181	(0.045)	***
Profit sharing bonus as % of base pay					0.596	(0.202)	***
Gain sharing eligibility					0.099	(0.056)	*
Gain sharing bonus as % of base pay					0.675	(0.223)	***
Individual bonus eligibility					0.250	(0.053)	***
Individual bonus as % of base pay					-0.480	(0.230)	**
<b>STOCK OPTIONS</b>							
Stock option holding	0.237	(0.293)	0.440	(0.075) ***	-0.043	(0.110)	
Stock option value as % of base pay					0.001	(0.011)	
Stock option grant last year					0.212	(0.108)	**
Stock option grant as % of avg. grant					0.014	(0.023)	
<b>EMPLOYEE OWNERSHIP</b>							
Co. stock ownership	0.020	(0.298)	0.182	(0.038) ***	0.051	(0.042)	
Co. stock as % of base pay	0.141	(0.101)	0.027	(0.018)	-0.023	(0.019)	
<b>R-squared</b>	.132		.113		.195		
<b>N</b>	1645		34379		30933		

**Based on OLS regressions**

The GSS regression includes controls for occupation (7 dummies), age, years of tenure, female, black, Hispanic, education (4 dummies), full-time status, ln(yearly earnings), co. size (4 dummies), ease of observing co-workers, and dummy for survey year 2006.

The NBER regression in column 2 contains the GSS controls from column 1 except co. size, plus company and country fixed effects.

The NBER regression in column 3 includes the controls from column 2 plus hourly pay status, supervisory status, hours worked per week, union status, marital status (2 dummies), family size, number of kids, race (4 dummies), disability status, ln(fixed pay), closeness of supervision, employee involvement team, training in past year, high job security, and company fixed effects.

**Table 6: Longitudinal Evidence: Two waves of same company**

	2004 (profit sharing announced) (1)	2005 (profit sharing in place) (2)	Change	
<b>Profit sharing</b>	58.6%	87.9%	29.2%	***
<b>VERY/SOMEWHAT LIKELY TO TAKE ACTION AGAINST SHIRKER</b>				
Talk to shirking employee	42.1%	54.5%	12.4%	***
Talk to supervisor or manager	64.3%	68.1%	3.9%	
Talk about it in workgroup	47.3%	48.8%	1.5%	
Do nothing	34.1%	33.7%	-0.4%	
<b>WHY YOU ARE LIKELY TO TAKE ACTION</b>				
I like helping others	47.4%	49.6%	2.3%	
Employee might help me in the future	30.6%	33.5%	2.9%	
Poor performance will cost me and other employees in bonus or stock value	38.8%	56.1%	17.3%	***
Other employees appreciate it when someone steps forward	34.3%	34.4%	0.1%	
Want to keep work standards high	59.3%	59.6%	0.3%	
Employee's poor performance could affect my own job	57.1%	56.3%	-0.8%	
Other (What?)	14.2%	10.0%	-4.2%	
<b>N</b>	273	428		

**Table 7a: Company Size and Employee-Management Relations as Moderators of Shared Capitalism**

Dep. variable=anti-shirking index

	GSS data				NBER data	
	(1)		(2)		(3)	
Shared cap. index * co. size of:						
1-9 ees.	0.281	(0.085) ***				
10-49 ees.	0.117	(0.068) *				
59-99 ees.	0.195	(0.085) **				
100-999 ees.	0.029	(0.057)				
2000+ ees.	0.045	(0.076)				
Shared cap. index * mgt. is trustworthy						
Strongly disagree (D or F in col. 3)			0.043	(0.165)	0.048	(0.014) ***
Disagree (C in col. 3)			0.117	(0.072)	-0.001	(0.013)
Agree (B in col. 3)			0.083	(0.048) *	0.014	(0.010)
Strongly agree (A in col. 3)			0.179	(0.064) ***	0.054	(0.013) ***
Mgt. is trustworthy:						
Strongly disagree (excl.)						
Disagree	0.057	(0.181)	-0.053	(0.414)	0.499	(0.064) ***
Agree	-0.249	(0.210)	0.122	(0.374)	0.710	(0.065) ***
Strongly agree	-0.199	(0.313)	0.208	(0.398)	0.838	(0.081) ***
Size 1-9 ees.	0.855	(0.345) **	1.179	(0.283) ***		
10-49 ees.	1.005	(0.336) ***	1.143	(0.259) ***		
59-99 ees.	0.585	(0.366)	0.885	(0.281) ***		
100-999 ees.	0.403	(0.317)	0.407	(0.244) *		
1000+ ees. (excl.)						
n	1631		1627		31770	
(Pseudo) R-sq.	0.137		0.132		0.205	

\* p<.10 \*\* p<.05 \*\*\* p<.01 (s.e. in parentheses)

The GSS regression includes controls for occupation (7 dummies), age, years of tenure, female, black, Hispanic, education (4 dummies), full-time status, ln(yearly earnings), ease of observing co-workers, work as part of team, and dummy for survey year 2006.

The NBER regressions include controls for occupation (5 dummies), mgt. level (3 dummies), hourly pay status, supervisory status, years of tenure, hours worked per week, union status, country (27 dummies), age, gender, marital status (2 dummies), family size, college graduate, graduate degree, number of kids, race (4 dummies), disability status, ln(fixed pay), employee involvement team, training in past year, job security, ease of observing co-workers, closeness of supervision, individual bonuses, and company fixed effects.

**Table 7b: Company Policies as Moderators of Shared Capitalism**

Dep. variable=anti-shirking index

	(1)			(2)		
Shared capitalism index	0.028	(0.010)	***	-0.018	(0.018)	
Employee involvement team	0.544	(0.030)	***			
Formal training	0.232	(0.029)	***			
Job security	0.431	(0.040)	***			
High perf. policy index				0.259	(0.030)	***
* shared capitalism index				0.035	(0.006)	***
How closely supervised	-0.014	(0.006)	**	0.030	(0.010)	***
* shared capitalism index				-0.013	(0.002)	***
Fixed pay at or above market	0.181	(0.028)	***	0.043	(0.050)	
* shared capitalism index				0.034	(0.010)	***
n	28424			28424		
(Pseudo) R-sq.	0.193			0.194		

\* p<.10 \*\* p<.05 \*\*\* p<.01 (s.e. in parentheses)

Based on NBER data. The regressions include controls for occupation (5 dummies), mgt. level (3 dummies), hourly pay status, supervisory status, years of tenure, hours worked per week, union status, country (27 dummies), age, gender, marital status (2 dummies), family size, college graduate, graduate degree, number of kids, race (4 dummies), disability status, ln(fixed pay), ease of observing co-workers, individual bonuses, and company fixed effects.

**Table 8: Why People Do/Do not Act against Shirkers**

	All (1)	Position in shared capitalism <sup>^</sup>			Coeff. on SC index <sup>^^</sup> (5)
		Lower (2)	Middle (3)	Upper (4)	
<b>WHY YOU MIGHT DO SOMETHING</b>					
I like helping others	44.9%	47.2%	43.2%	42.8%	0.001
Employee might help me in the future	31.0%	32.0%	30.5%	29.7%	0.003
Poor performance will cost me and other employees in bonus or stock value	42.9%	32.0%	48.5%	58.2%	0.038***
Other employees appreciate it when someone steps forward	23.9%	19.9%	24.9%	32.0%	0.008***
Want to keep work standards high	46.6%	41.6%	46.6%	58.9%	0.015***
Employee's poor performance could affect my own job	55.9%	53.2%	56.9%	61.3%	0.010***
Other (What?)	6.8%	5.7%	7.0%	8.9%	0.003***
n	32386	13991	12514	5463	
<b>WHY YOU MIGHT DO NOTHING</b>					
Employee not working well would resent it	41.3%	37.9%	43.2%	44.7%	0.015***
Other employees would react poorly	23.4%	24.3%	23.3%	21.8%	0.000
It's the supervisor's job, not mine	44.7%	45.0%	46.8%	39.7%	0.001
Some other employee will probably take action	8.4%	10.5%	7.2%	6.1%	0.000
There's no financial benefit for me	7.7%	10.2%	6.6%	4.9%	-0.003***
Nothing in it for me personally	11.0%	13.3%	10.1%	8.0%	-0.003**
Other (What?)	12.4%	8.8%	13.3%	19.0%	0.007***
<b>N</b>	<b>30363</b>	<b>12236</b>	<b>12284</b>	<b>5444</b>	

Based on NBER data

<sup>^</sup> Shared capitalism index of 5 or greater="upper", 3 to 4="middle", and 0 to 2="lower"

<sup>^^</sup> Based on linear probability models predicting whether employee checked this reason, controlling for ease of observing co-worker, closeness of supervision, 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), and company fixed effects.

**Table 9: Responses to Anti-Shirking Actions**

	<u>Yes</u>	<u>No</u>	<u>Don't know</u>	<u>n</u>
<b>What was the outcome of your actions?</b>				
<b>Employee not working well resented it</b>	<b>34.7%</b>	<b>19.1%</b>	<b>46.2%</b>	<b>14125</b>
<b>Other employees appreciated it</b>	<b>45.0%</b>	<b>11.4%</b>	<b>43.6%</b>	<b>13676</b>
<b>Supervisor appreciated it</b>	<b>40.1%</b>	<b>15.5%</b>	<b>44.4%</b>	<b>13845</b>
<b>Employee not working well improved</b>	<b>35.7%</b>	<b>38.9%</b>	<b>25.4%</b>	<b>14254</b>
<b>Other</b>	<b>28.3%</b>	<b>9.9%</b>	<b>61.8%</b>	<b>2923</b>

Based on NBER data.

Workers were asked "Have you ever seen one of your fellow employees not working as hard or well as he or she should over an extended time period?" If yes, they were then asked "What action, if any, did you take?" Those who reported taking some action (see Table 2) were then asked the above question about the outcome.

**Table 10: Relation of Anti-shirking Behavior to Co-worker Performance**

A. Average ratings of co-worker effort (0-10 scale)				
Anti-shirking action				
	Talk to shirker	Talk to sup./man.	Do nothing	
Not at all likely	6.7	6.8	7.2	
Not very likely	7.0	7.1	7.1	
Somewhat likely	7.3	7.2	7.0	
Very likely	7.5	7.1	6.6	

B. Anti-shirking index as predictor of workplace performance				
Dep. var.	Summated rating coeff.	(s.e.)	T or Z	n
Rating of co-worker effort (0-10 scale, OLS)	0.109	(0.004)	25.24	35637
Workers encourage each other (-1, 0, 1, ordered probit)	0.135	(0.005)	27.14	12659
Grade of facility performance (0-4 scale, OLS):				
A. Getting the job done that has to get done efficiently	0.050	(0.002)	21.12	22810
B. Practicing accountability	0.066	(0.003)	23.32	22705
C. Delivering customers' products on time.	0.021	(0.003)	7.68	22700
D. Delivering highest quality customer products.	0.044	(0.003)	17.69	22704
E. Being the market leader in its products.	0.032	(0.003)	13.18	22569

Based on NBER data