

# WORKER ATTITUDES TOWARD EMPLOYEE OWNERSHIP, PROFIT SHARING AND VARIABLE PAY

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## ABSTRACT

*Using the NBER Shared Capitalism Database comprised of over 40,000 employee surveys from 14 firms, we investigate worker attitudes toward employee ownership, profit sharing, and variable pay. Specifically, our study uses detailed survey questions on preferences over profit sharing, forms of employee ownership like company stock and stock option ownership, as well as preferences over variable pay in general, to explore how preferences for these different types of output-contingent pay vary with worker risk aversion, residual control, and views of co-workers and management. Our key results show that, on average, workers want at least a part of their compensation to be performance-related, with stronger preferences for output-contingent pay schemes among workers who have lower levels of risk aversion, greater residual control over the work process, and greater trust of co-workers and management.*

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## INTRODUCTION

The prevalence of employee ownership, profit sharing and other performance-based pay schemes has been growing in the past several decades in the United States and other advanced economies. According to the 2006 wave of the General Social Survey, which is a nationally representative survey of individuals conducted by the National Opinion Research Center, over a third of U.S. workers are covered by profit sharing, 18 percent own company stock, and 9 percent own company stock options. Coverage is similar in France, Great Britain, Italy and Japan (Del Boca, Kruse, & Pendelton, 1999; Jones & Kato, 1995). A large part of the previous research on shared capitalist pay schemes in which employees participate in the financial performance of their place of work has focused on the effects of such programs on worker and firm outcomes like productivity, turnover, and profits (Craig & Pencavel, 1992; Kruse, 2002; Kruse & Blasi, 1997; Park, Kruse & Sesil, 2004). But an important aspect that has not yet been explored is worker preferences for different participatory compensation programs, largely due to the dearth of available datasets that are conducive to the analysis of this subject. The current study sheds light on this topic by examining preferences over profit sharing, forms of employee ownership like company stock and stock option ownership, as well as preferences over variable pay in general, and how these preferences depend on worker risk aversion, residual control, and perceptions of co-workers and management.

Economic theory predicts that workers will be more favorable toward performance-related pay schemes when they: (i) have low levels of risk aversion, (ii) have greater control over the work process generating payouts (residual control), (iii) trust their co-workers, so that the free rider problem associated with group incentives can be overcome by a cooperative solution, and (iv) trust their managers not to exploit information asymmetries when distributing financial payouts. We investigate the role that each of these factors play in workers' preferences over employee ownership, profit sharing and variable pay using a unique set of questions asked in the NBER Shared Capitalism Survey of more than 40,000 employees from 14 firms.

This is a novel research area in the employee ownership literature and our findings help to understand how workers respond to different types of participatory compensation schemes. We consider both pay that is tied to overall company performance (profit sharing, company stock and stock option ownership), as well as individual performance-based variable pay (individual bonuses, and commissions), and we will refer to these collectively as *financial participation*.

A strength of our data is that we have individual-level measures of risk aversion, which is often discussed as an important factor in financial participation but is rarely measured. The NBER Shared Capitalism Survey additionally provides unique information on worker residual control and worker perceptions of co-workers and management which are also central to our analysis. We use this detailed information to investigate how preferences for different types of financial participation are shaped by worker risk aversion, residual control, and views of co-workers and management. Our key results show that most workers want at least a part of their compensation to be output-contingent, with stronger preferences for performance-related pay among workers who have lower levels of risk aversion, greater residual control of the work process, and greater trust of co-workers and managers.

## **THEORY AND PRIOR LITERATURE**

Our discussion focuses on the following theoretical factors central to perceptions about shared capitalism and variable pay: risk aversion, residual control, and trust in co-workers and management.

Worker preferences for employee ownership and other forms of financial participation will reflect the perceived potential costs and benefits of such plans. Risk aversion is viewed as a key factor in most theoretical models of pay-for-performance (Holmstrom, 1979; Shavell, 1979), since the variability of rewards can represent a significant cost for risk-averse workers, and has indeed been found to reduce preferences for output-contingent pay in laboratory experiments (Cadsby, Song, & Tapon, 2007). Moreover, people with lower wealth and base salary will generally be more averse to financial risk since they have less money for discretionary spending and a reduction in income or assets may force them to cut back on necessities.

Attitudes toward financial participation will also depend on the perceived potential for higher income, which will depend on worker skills and opportunities for influencing workplace performance. Workers are likely to view group-based rewards more favorably in the presence of practices such as

employee involvement in decisions (increasing opportunities to influence performance), training (increasing skills that contribute to performance), and job security (providing assurance that one will be able to receive the fruits of higher performance). This can be thought of in the context of the theory of residual returns and residual control, which argues that those who receive residual returns (financial participation) should also receive residual control (power over the work process) in order to provide proper incentives and achieve value-maximizing decisions (Holmstrom & Milgrom, 1994; Jensen & Meckling, 1992; Milgrom & Roberts, 1990; Prendergast, 2002). Several empirical studies have found support for this hypothesis (Ben-Ner, Kong & Lluís, 2010; DeVaro & Kurtulus, 2010; Foss & Laursen, 2005). Moreover, employee involvement in firm decision making may create expectations or desires for sharing in the fruits of those decisions, and workers may become dispirited without some sort of financial reward tied to the consequences of those decisions (Ben-Ner & Jones, 1995; Levine & Tyson, 1990).

Preferences for rewards based on company performance are also likely to critically depend on workers' perceptions about co-workers. The well-known free rider problem in group incentives has been modeled as a prisoners' dilemma game, in which each participant has an individual incentive to shirk. If the game is repeated in an ongoing relationship, however, several equilibria are possible, including a cooperative equilibrium in which the participants establish a collective agreement to cooperate so that the rewards are higher for all participants (Axelrod, 1984; Fudenberg & Maskin, 1986). Workers in group incentive plans may establish and maintain a commitment to high work standards through cooperation and monitoring, which can generate higher payouts for workers than in a noncooperative setting (Weitzman & Kruse, 1990). This points to co-worker relations as a key ingredient in the effectiveness of employee ownership. Preferences for employee ownership and profit sharing are likely to be low if workers think co-workers are not interested in workplace performance and there is little potential for productive cooperation under group-based rewards, and higher if they think co-workers are interested in workplace performance and can achieve the cooperative equilibrium in the prisoner's dilemma game by working well together.

Finally, preferences for financial participation are likely to be shaped by attitudes toward management. First, workers are unlikely to favor variable pay plans if they do not trust managers to manage well so that there will be rewards to distribute to workers for their hard work. The second issue stems from informational asymmetries inherent in many incentive plans: it can be difficult for workers to determine whether rewards under variable pay systems are being calculated correctly and fairly by management, whereas

this is easier under fixed wage contracts since workers know exact pay levels *ex ante*. One of the objections of unions to profit sharing, for example, is mistrust that managers will calculate profits in a way that properly rewards workers for their performance (Zalusky, 1986, 1990). If workers do not trust managers to calculate the payouts from financial participation in a competent and honest way, they will be less interested in participating.

In sum, based on theory and past research, we expect attitudes toward financial participation to be more positive among workers who are less risk averse, have more residual control, and who trust management and think co-workers are more interested in workplace performance.

There has been little published research on the topic of worker attitudes toward financial participation. Kruse and Blasi (1999) summarize 30 public polls conducted between 1975 and 1997 with questions on general perceptions about financial participation systems, finding that a majority of people expressed favorable views of employee ownership and its effects on workplaces; for instance, in one survey 75 percent said they would like to work for an employee-owned and employee-controlled company, as opposed to a company owned by outside investors or government, and in another survey 69 percent thought employee-owners work harder. A number of studies have examined the effect of variable pay on overall job satisfaction among British workers: Green and Heywood (2008) found that performance-related pay in general was associated with increased job satisfaction, Brown and Sessions (2003) showed that workers who participated in performance bonuses, share ownership, and profit sharing were more satisfied with their work environment, and McCausland, Pouliakas, and Theodossiou (2005) found that the influence of performance pay increased satisfaction for the more highly paid but lowered it for the less highly paid. Drago, Estrin and Wooden (1992) found the use of individual and group bonuses to be a positive determinant of job satisfaction in a sample of Australian workers. Cornelissen, Heywood and Jirjahn (2008) showed that among German workers who received performance pay, risk aversion was inversely correlated with overall job satisfaction.

Our study contributes to the literature by investigating worker preferences for various forms of financial participation and how these preferences depend on key worker and workplace characteristics.

## **DATA AND VARIABLES**

We use the NBER Shared Capitalism Database, which consists of detailed information collected from more than 40,000 employee surveys from 14

firms, to explore preferences for different forms of employee ownership and variable pay. The NBER data comprise one of the largest worker-level datasets on labor practices and worker sentiment ever collected. The survey was conducted during 2002–2006 using a combination of web-based and paper survey methods, and had a high response rate, averaging 53 percent over the 14 companies. The firms participating in the survey included large multinationals with employment spanning North America, South America, Europe, and Asia, as well as smaller firms with mostly US employees. The sample included eight firms in the manufacturing industry, two high-technology firms, and four in the service industry. Three of the fourteen companies exceeded 10,000 employees, 5 employed between 1,000 and 10,000 workers, and the remaining 6 employed fewer than 1,000 workers. All of the firms had employee ownership, profit sharing, and variable pay programs, though of varying forms and degrees: 13 had individual bonus plans, 9 had workgroup-based or department-based performance bonus plans, 11 had broad-based profit sharing plans, 5 had broad-based stock option plans, 8 had standard employee stock ownership plans (ESOPs), 1 had a 401(k) employee stock ownership program, 4 had employee stock purchase plans, and 3 had 401(k)'s with company stock. Most had combinations of these plans.

To investigate the role that risk aversion, residual control, and perceptions of co-workers and management play in workers' preferences for financial participation, we make use of a unique set of questions asked in the NBER Shared Capitalism Survey capturing these concepts. We now turn to a discussion of the key variables used in our empirical analyses.

### *Dependent Variables*

We examine four variables reflecting worker preferences for financial participation as dependent variables in our regression analyses. The first one captures worker preferences for variable pay broadly and is based on a question asked in the NBER Shared Capitalism Survey indicating the percentage of pay the respondent would like to receive as variable compensation (which includes all forms of output-contingent pay that is based on individual, group, and company performance). Next we examine worker preferences for various forms of employee ownership based on questions indicating the respondent's preference for being paid at least in part based on company performance (profit sharing, company stock, or stock options), preference for the extent to which the respondent's next pay increase

depends on company performance, and preference for getting a portion of compensation in the form of company stock and stock options. These four dependent variables are defined formally below.

Worker Preferences for Financial Participation:

Preference for variable pay	Proportion of pay the worker would like to receive as variable compensation (13 firms surveyed)
Preference for company-based incentives	Dummy variable equaling 1 if the worker prefers that he or she be paid in part with a variable amount dependent on company performance, through profit sharing, company stock, or stock options; 0 if all fixed wage or salary, with no profit sharing, company stock, or stock options (13 firms surveyed)
Preference for company-based incentives in next pay increase	Worker's preference that his or her next pay increase come in the form of 1 = All fixed wages, with no profit sharing, company stock, or stock options; 2 = Split between fixed wages and profit sharing, company stock, or stock options; 3 = All in the form of profit sharing, company stock, or stock options (5 firms surveyed)
Preference for stock over cash incentives	Worker's preference for getting some of his or her compensation from company stock and stock options as opposed to a cash incentive plan on a 1 (cash incentive plan) to 5 (company stock and stock options) scale (3 firms surveyed)

*Key Independent Variables*

The key independent variables in our analysis are those that capture worker risk aversion, residual control, and perceptions of co-workers and management.

One of the unique features of the NBER Survey is the presence of information on individual-level risk aversion, which plays a central role in theoretical models of the employee–employer relationship, but is rarely available in existing datasets. Our primary measure of the extent to which the worker is averse to risk is based on the NBER Survey question “Some people like to take risks and others dislike taking risks. Where would you place yourself on a scale of how much you like or dislike taking risks, where 0 is hating to take any kind of risk and 10 is loving to take risks?”, from which we define variable *Risk Averse* such that values greater than or equal to 7 on this scale correspond to “low risk aversion,” greater than 3 and less than 7 is “medium risk aversion”, and less than or equal to 3 is “high risk aversion.” As discussed earlier, people with lower wealth and base salary will generally be more averse to financial risk since pay variability that results in pay reduction is more likely to force them to cut back on necessities, so we also examine the worker’s annual base salary and family wealth under the framework of risk aversion.

Risk Aversion Variables:

Risk averse	Worker’s self-assessment of his or her risk preference, where 1 = low risk aversion; 2 = medium risk aversion; 3 = high risk aversion
Base pay	Worker’s annual base pay the previous year excluding overtime, bonuses, and commissions (in thousands)
Wealth	Assets of the worker and the worker’s spouse including the value of their house minus the mortgage, their vehicles, stocks and mutual funds, cash, checking accounts, retirement accounts including 401(k), and pension assets (in thousands)

The second key element that is likely to shape attitudes toward financial participation is residual control, or the ability to influence one’s potential for higher income, which will depend on worker skills and opportunities to influence workplace performance through employee involvement in decision making, training, and assurance that the worker can reap the rewards of higher performance through job security. These



variables, which we group under the heading residual control, are defined below.

#### Residual Control Variables:

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Decision making	Dummy variable equaling 1 if the worker is involved in organized workplace decision making through teams, committees, or task forces that address workplace issues such as product quality, cost cutting, productivity, health, and safety; 0 otherwise
Training	Dummy variable equaling 1 if the worker received any formal training from the employer in the last 12 months, such as in classes or seminars sponsored by the employer; 0 otherwise
Job security	Dummy variable equaling 1 if the worker's response to the question "Thinking about the next 12 months, how likely do you think it is that you will lose your job or be laid off?" is "not at all likely" or "not too likely"; 0 if the worker's response is "very likely," or "fairly likely".

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As discussed earlier, preferences for company performance-based rewards in particular are likely to depend on workers' perceptions about whether their co-workers are committed to workplace performance and whether they trust management to distribute payouts from workplace rewards correctly. We therefore include the below two independent variables.

#### Perceptions of Co-Workers and Management:

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Co-worker interest and involvement	Worker's perception of his or her co-workers' interest and involvement in company-wide issues on a 1–7 scale, with 1 indicating little interest and involvement and 7 indicating great interest and involvement
Management trustworthiness	Worker's perception of the trustworthiness of his or her company in keeping its promises on a 0–4 scale, with 0 indicating not trustworthy and 4 indicating highly trustworthy

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### *Control Variables*

Beyond the variables that are central to our analysis, all of our regression models include a rich array of worker and workplace characteristics as control variables. These are worker demographic variables including gender, age, and education level; and job characteristics variables including occupation, managerial level, firm tenure, whether the worker is closely supervised, and whether pay is at or above market level. We also control for the ease with which workers can observe their co-workers' effort, since this is likely to influence the extent to which perceptions about how involved co-workers are in company issues (*Co-worker interest and involvement*), one of the main independent variables we consider, affects preferences for shared capitalism. Fuller definitions and descriptive statistics of these control variables are provided in the appendix.

## **METHODOLOGY**

As a first step in our empirical analysis, we will examine unconditional means of our main dependent variables to explore preferences over financial participation broadly across all workers in our sample. Second, we will examine how preferences for financial participation vary with worker risk aversion, residual control, and perceptions of co-workers and management by estimating cross-sectional regressions of attitudes on these main independent variables, controlling for the array of worker and workplace characteristics described earlier. We will estimate least squares, probit, and multinomial probit models, depending on whether the dependent variable is a continuous, dummy, or multivalued variable, respectively.

It is important to note that these cross-sectional regression models do not capture causal relationships, but rather conditional correlations among the variables of interest. For example, it is possible that workers with a greater preference for financial participation sort themselves into firms with greater use of financial participation, greater residual control for workers, and workplace climates with high levels of trust. We investigated this possibility by also estimating regressions that included firm-fixed effects, with very similar results for the variables of interest; here we report the results without firm effects to take advantage of both within- and

between-firm variation. It also remains possible that within a firm, workers will be sorted into jobs based on personal characteristics correlated with preferences over financial participation. It may be, for example, that being in a decision-making team does not create greater interest in financial participation, but workers with greater interest in financial participation select themselves into positions that are part of decision-making teams. Even in the latter case, finding a positive relationship strongly suggests an important linkage between residual control and residual returns for workers. So while we cannot definitively determine causality (as with most nonexperimental data), our results will nonetheless shed important light on how preferences for financial participation are related to worker risk aversion, residual control and workplace climate, and the conditions under which variable pay plans are viewed positively by workers and are most likely to be effective.

## UNCONDITIONAL STATISTICS

Summary statistics for the main variables used in our empirical analyses are shown in Table 1, along with distribution charts for selected variables. Most workers desire between 0 and 30 percent of their compensation to be comprised of variable pay, though there is considerable variation in this preference across workers as illustrated in Fig. 1, with an average of 20 percent (*Preference for variable pay*). When asked whether workers prefer to be paid at least in part with variable pay that depends on company performance through profit sharing, company stock or stock options, as opposed to getting all fixed salary, a vast majority of respondents, 78 percent, say they prefer to have some company performance-dependent variable pay (*Preference for company-based incentives*). Only 27 percent of workers would like their next pay increase to come in the form of all fixed wages with no profit sharing, company stock or stock options, whereas 60 percent would like a combination of the two types, and 13 percent would like their next raise to consist entirely of profit sharing, company stock or stock options (*Preference for company-based incentives in next pay increase*). Workers' preferences in favor of company-performance-based pay is also evident in the distribution of the variable *Preference for stock over cash incentives*, where most workers picked categories 3 and 4 on a scale of 1–5 indicating their preference for getting some of their compensation from stock and stock options as opposed to a cash incentive plan.

**Table 1.** Descriptive Statistics.

<i>Panel A: Means, Standard Deviations, and Sample Sizes</i>			
Variable	Mean	Standard Deviation	Observations
<i>Dependent variables</i>			
Preference for variable pay	19.560	18.368	12,804
Preference for company-based incentives	0.783	0.412	13,543
Preference for company-based incentives in next pay increase	1.862	0.616	26,626
Preference for stock over cash incentives	3.076	1.277	7,994
<i>Risk aversion</i>			
Risk averse	1.786	0.755	41,695
Base pay	54.820	41.997	30,457
Wealth	288.327	586.784	32,466
<i>Residual control</i>			
Decision making	0.348	0.476	42,865
Training	0.562	0.496	43,067
Job security	0.843	0.364	43,807
<i>Perceptions of co-workers and management</i>			
Co-worker interest and involvement	4.217	1.599	42,809
Management trustworthiness	2.328	1.152	42,437
<i>Panel B: Distribution Tables</i>			
<i>Preference for Company-Based Incentives in Next Pay Increase:</i>		Frequency	Percent
1 (all fixed wage)		7,143	26.83
2		16,014	60.14
3 (all company-performance-based pay)		3,469	13.03
Total		26,626	100
<i>Preference for Stock Over Cash Incentives:</i>		Frequency	Percent
1 (cash incentives)		1,229	15.37
2		1,279	16
3		2,412	30.17
4		1,804	22.57
5 (stock, options)		1,270	15.89
Total		7,994	100

*Note:* Based on the NBER Shared Capitalism Survey of  $N = 46,907$  workers.

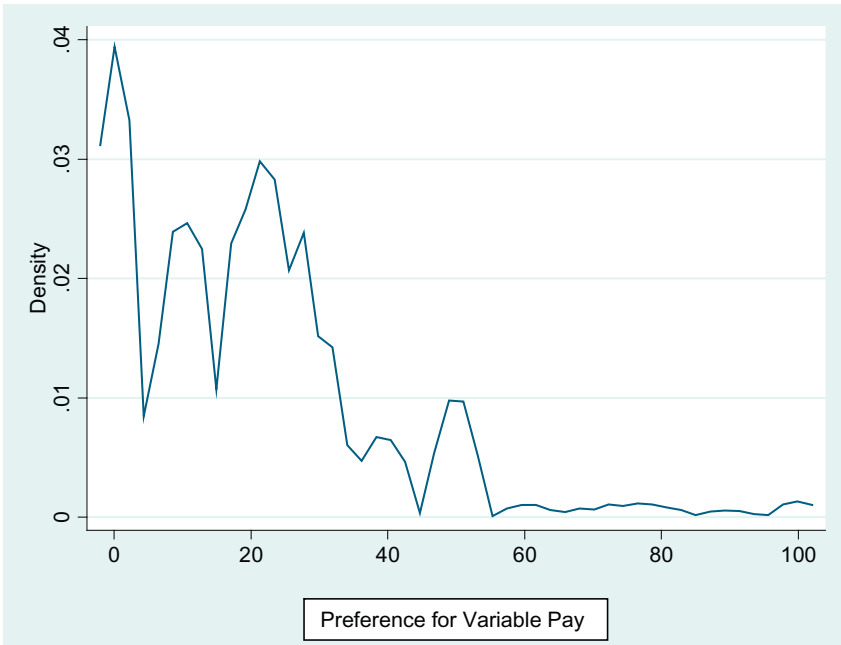


Fig. 1. Kernel Density for *Preference for Variable Pay*. Note: Based on the NBER Shared Capitalism Survey of  $N = 46,907$  Workers. We Use an Epanechnikov Kernel with Bandwidth 2.0128.

## WHICH WORKERS PREFER FINANCIAL PARTICIPATION?

The earlier discussion showed that most workers want at least a part of their compensation to be output-contingent, and prefer to be paid at least in part based on company performance. But it may well be that there is variation across these attitudes by the worker's degree of risk aversion, residual control, and perceptions of co-workers and management. We now explore what types of workers prefer variable pay, and what kinds of variable pay they prefer, by estimating regressions of our various preference measures on the main independent variables of interest, and controls.

Table 2 illustrates least squares regression results for *Preference for variable pay*, indicating the proportion of total pay the worker would like to receive as

**Table 2.** Relationship between *Preference for Variable Pay* and Risk Aversion, Residual Control, and Perceptions of Co-Workers and Management.

<i>Dependent Variable: Preference for Variable Pay</i>	
<i>Risk aversion</i>	
Risk averse	-4.173*** (0.265)
Base pay	0.051*** (0.005)
Wealth	0.002*** (0.000)
<i>Residual control</i>	
Decision making	0.974** (0.399)
Training	0.671 (0.455)
Job security	0.626 (0.734)
<i>Perceptions of co-workers and management</i>	
Co-worker interest and involvement	0.427*** (0.127)
Management trustworthiness	0.720*** (0.188)
Worker and workplace controls	YES
Constant	10.580***
Observations	(2.678)
Adjusted $R^2$	8,289 0.220

*Note:* Results are from a least squares regression model. Robust standard errors in parentheses. \*Statistically significant at the 0.10 level; \*\* at the 0.05 level; and \*\*\* at the 0.01 level. The model also includes the full set of worker and workplace controls described in the Data and Variables Section.

variable compensation, and provides strong support for our hypothesis on the relationship between risk aversion and preferences for variable pay: the proportion of compensation workers would like to receive as variable pay is negatively related with their degree of risk aversion – an increase in risk aversion from the “low” category to the “high” category is associated with a decrease in the desired proportion of pay comprised of variable compensation of over 8 percentage points, on average. Also, the proportion of compensation workers would like to receive as variable pay is statistically significantly positively related with family wealth and base salary which can insulate

workers against fluctuations in compensation created by variable pay. Second, there is some support for the hypothesis that workers have greater preference for residual rewards when they also have residual control – the proportion of pay the worker desires in his or her compensation is significantly positively related with employee involvement in workplace decision making, and is also positively related with formal job training and job security though these last two estimates are not statistically significant at conventional levels. Third, in support of our hypothesis on perceptions of co-workers and management, preference for variable pay is positively related with co-worker interest and involvement in company-wide issues and trust in management, and both of these relationships are statistically significant at the one-percent level, indicating that workers are more interested in shared capitalism when they can trust others in the workplace.<sup>1,2</sup>

Table 3 illustrates the probit marginal effects for Prob (*Preference for company-based incentives* = 1), the probability that the worker prefers that he or she be paid in part with variable pay based on company performance (such as profit sharing, company stock, and stock options) over being paid fully in the form of fixed salary. We find even stronger evidence in favor of our hypotheses here than in the previous table: preference for company-performance-contingent pay is negatively associated with risk aversion, positively associated with family wealth and base salary, positively associated with all three measures of residual control, and positively associated with confidence in co-workers and management, as predicted.

We next turn to workers' preferences over the portion of pay increases comprised of company-performance-based variable pay by focusing on the three-valued *Preference for company-based incentives in next pay increase*, which equals 1 if the worker prefers that his or her next pay increase is comprised of all fixed wages, with no profit sharing, company stock, or stock options; 2 if it is split between fixed wages and profit sharing, company stock, or stock options; and 3 if it is all in the form of profit sharing, company stock, or stock options. Table 4 illustrates marginal effects from a multinomial probit regression of *Preference for company-based incentives in next pay increase* on our risk aversion, residual control, and co-worker and management perceptions variables, and worker controls, with the three columns corresponding to the probability that a worker chooses values 1, 2, or 3, respectively. We find that workers who are more risk averse are less likely to want their next pay increase to be partly or completely comprised of company-performance-based pay, and more likely to prefer that it is entirely comprised of fixed wages, corroborating our hypothesized relationship between risk aversion and attitudes toward financial participation. On the

**Table 3.** Relationship between *Preference for Company-Based Incentives* and Risk Aversion, Residual Control, and Perceptions of Co-Workers and Management.

	Prob( <i>Preference for Company-Based Incentives</i> = 1)
<i>Risk aversion</i>	
Risk averse	-0.046*** (0.005)
Base pay	0.001*** (0.000)
Wealth	0.000*** (0.000)
<i>Residual control</i>	
Decision making	0.031*** (0.007)
Training	0.027*** (0.008)
Job security	0.034*** (0.013)
<i>Perceptions of co-workers and management</i>	
Co-worker interest and involvement	0.009*** (0.002)
Management trustworthiness	0.021*** (0.003)
Worker and workplace controls	YES
Observations	8,580
Pseudo $R^2$	0.202

*Note:* Results are probit marginal effects for Prob(*Preference for Company-Based Incentives* = 1) evaluated at the mean of the independent variable or, for binary independent variables, the change in the predicted Prob(*Preference for Company-Based Incentives* = 1) when the independent variable increases from 0 to 1 (evaluating all other covariates at their means). Robust standard errors in parentheses. \*Statistically significant at the 0.10 level; \*\* at the 0.05 level; and \*\*\* at the 0.01 level. The model also includes the full set of worker and workplace controls described in the Data and Variables Section.

contrary, wealth and salary do not exhibit statistically significant relationships with *Preference for company-based incentives in next pay increase*. Table 4 provides mixed evidence supporting the notion that residual control improves preference for residual returns: job training and job security are associated with a higher likelihood of preferring one's next pay increase to be comprised of both company performance related pay and fixed wages, though the relationship between employee involvement in decision making



**Table 4.** Relationship between Preference for Company-Based Incentives in Next Pay Increase and Risk Aversion, Residual Control, and Perceptions of Co-Workers and Management.

	Prob(Preference for Company-Based Incentives in Next Pay Increase = 1) (1)	Prob(Preference for Company-Based Incentives in Next Pay Increase = 2) (2)	Prob(Preference for Company-Based Incentives in Next Pay Increase = 3) (3)
<i>Risk aversion</i>			
Risk averse	0.052*** (0.005)	-0.032*** (0.006)	-0.020*** (0.004)
Base pay	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)
Wealth	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
<i>Residual control</i>			
Decision making	-0.012 (0.008)	0.004 (0.009)	0.008 (0.005)
Training	-0.021*** (0.008)	0.028*** (0.009)	-0.007 (0.005)
Job security	-0.006 (0.012)	0.025* (0.013)	-0.018** (0.008)
<i>Perceptions of co-workers and management</i>			
Co-worker interest and involvement	0.001 (0.003)	-0.002 (0.003)	0.001 (0.002)
Management trustworthiness	-0.026*** (0.004)	0.024*** (0.004)	0.002 (0.003)
Worker and workplace controls	YES	YES	YES
Observations	13,363	13,363	13,363

Note: Results in each column are multinomial probit marginal effects for Prob(Preference for Company-Based Incentives in Next Pay Increase = 1), Prob(Preference for Company-Based Incentives in Next Pay Increase = 2), and Prob(Preference for Company-Based Incentives in Next Pay Increase = 3), respectively, evaluated at the mean of the independent variable or, for binary independent variables, the change in the predicted probability when the independent variable increases from 0 to 1 (evaluating all other covariates at their means). Robust standard errors in parentheses. \*Statistically significant at the 0.10 level; \*\* at the 0.05 level; and \*\*\* at the 0.01 level. The models also include the full set of worker and workplace controls described in the Data and Variables Section.

and *Preference for company-based incentives in next pay increase* is not statistically significant. Finally, though trust in management is associated with wanting a portion of one's pay raise to be contingent on company performance, co-worker interest and involvement in company-wide issues does not have a statistically significant relation with *Preference for company-based incentives in next pay increase*.

Table 5 shows results from a least squares regression of preference for receiving some compensation from company stock and stock options as

**Table 5.** Relationship between *Preference for Stock Over Cash Incentives* and Risk Aversion, Residual Control, and Perceptions of Co-Workers and Management.

	<i>Dependent Variable: Preference for Stock Over Cash Incentives</i>
<i>Risk aversion</i>	
Risk averse	-0.231*** (0.022)
Base pay	0.002*** (0.000)
Wealth	0.000*** (0.000)
<i>Residual control</i>	
Decision making	0.140*** (0.031)
Training	0.102*** (0.037)
Job security	0.175*** (0.058)
<i>Perceptions of co-workers and management</i>	
Co-worker interest and involvement	0.075*** (0.010)
Management trustworthiness	0.162*** (0.015)
Worker and workplace controls	YES
Constant	1.373*** (0.248)
Observations	6,766
Adjusted $R^2$	0.151

*Note:* Results are from a least squares regression model. Robust standard errors in parentheses. \*Statistically significant at the 0.10 level; \*\* at the 0.05 level; and \*\*\* at the 0.01 level. The model also includes the full set of worker and workplace controls described in the Data and Variables Section.

opposed to a cash incentive plan on a 1 to 5 scale (*Preference for stock over cash incentives*). We can interpret this as capturing whether the respondent prefers having stock or cash in his or her pocket. The worker's self-assessment of his or her own risk aversion is strongly negatively correlated with preference for stock-based compensation as opposed to cash incentives, as expected. However, family wealth and base salary have a statistically significant positive, albeit small, correlation with preference for stock-based compensation over cash incentives. All of our residual control variables and management and co-worker trust variables are positively related to *Preference for stock over cash incentives*, in support of our hypotheses.<sup>3</sup>

## CONCLUSION

This study uses the NBER Shared Capitalism Survey to examine a relatively unexplored topic in the research on participatory pay schemes, namely worker preferences for employee ownership, profit sharing and variable pay, and how these preferences depend on three key worker and workplace characteristics: worker risk aversion, residual control, and perceptions of co-workers and management.

We find that, on average, workers desire around 20 percent of their compensation to be comprised of variable pay. Most workers prefer to be paid at least in part based on company performance, through profit sharing, company stock, or stock options, and in particular they prefer getting stock and stock options as opposed to cash incentives.

Furthermore, our regression results clearly indicate that risk aversion is a major factor reducing preferences for variable pay plans. This is supported not only by the strong coefficient estimates on the risk variable, but also by the coefficient estimates on two key employee characteristics that are expected to be related to risk preferences, namely base pay and family wealth.

An important finding, though, is that workplace policies help to improve worker perceptions of variable pay. The finding that workers are more likely to prefer performance-based pay if they have decision-making power, formal job training, and job security at their workplace supports the theory that residual control and residual returns are complementary. Future research would be valuable on the form of this relationship (e.g., linear or nonlinear, including whether there are threshold effects), and whether complementary residual control practices can help make shared capitalism more appealing to groups who are more risk-averse.

Workplace culture also is a key variable. Workers are unlikely to favor variable pay plans if they do not trust managers (either to manage well so that there will be rewards, or to calculate rewards accurately and honestly). Their attitudes are also influenced by how they perceive their co-workers: if they have little reason to expect their co-workers to perform well under a performance-based pay plan, they will not be optimistic about the prospect for rewards.

The findings on workplace policies and trust of co-worker and managers indicate that preferences over variable pay plans are not determined by any fixed mindset or personal characteristic of workers, but appear to depend on the context in which the plans are implemented. This is consistent with research on the performance effects of employee ownership and profit sharing, which shows that while these plans are associated with higher performance effects on average, there is substantial dispersion in estimated effects across and within samples (Doucouliagos, 1995; Freeman, 2007; Kaarsemaker, 2006). This dispersion is likely to be explained in part by employees' neutral or negative reactions in workplaces that do not provide supportive environments, in contrast to positive reactions with increased employee effort and cooperation when the environment is supportive. Research has begun to identify how specific workplace policies condition the effects of group incentive plans (Kruse, Blasi, & Park, 2010). Further research that delves into the role of workplace policies and cultures in financial participation would be valuable in determining how and when these plans can affect performance and worker welfare, and the likelihood that they may expand in the 21st century.

## NOTES

1. Apart from these main results on how preferences for variable pay depend on risk aversion, residual control and perceptions of co-workers and management, we also uncovered some interesting findings on the relationships between the control variables and *Preference for variable pay*. For example, women have a lower preference for variable pay, which aligns with evidence from past studies using laboratory and field experiments that women tend to be more risk averse than men (Dohmen & Falk 2011; Dohmen et al., 2011; Niederle & Vesterlund, 2007). We also find that workers in sales and customer service occupations have the strongest preference in favor of variable pay, a possible explanation for which is that output is more readily linkable to individual performance than for workers in many other occupations (e.g., number of units sold or number of customers assisted), and this reduces problems of free-riding so that such workers may view output-contingent compensation as a more fruitful reward for their effort. Among other interesting

results is that workers with longer tenure at the firm prefer a lower share of variable pay, supporting the idea that workers who are closer to retirement are often loathe to introduce risk into their compensation as they have less time remaining in the labor market to recoup potential losses. To streamline and focus our discussion around the key variables of interest (risk aversion, residual control, and perceptions of co-workers and management) we do not present these results here, but they are available from the authors.

2. Since *Preference for variable pay* has a lower bound of zero we also estimated an analogous regression using a tobit model and obtained very similar results.

3. As a robustness check we also estimated all of our regressions with firm-fixed effects, and the results were very similar to the baseline results we report here, both in magnitude and significance. These additional results are available from the authors.

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## APPENDIX

### Definitions and Descriptive Statistics of Worker and Workplace Control Variables.

Variable	Definition	Mean	Standard Deviation	Observations
Female	1 if worker is female; 0 otherwise	0.312	0.463	38,325
Age	Worker age	40.933	10.503	36,791
No high school	1 if worker does not hold a high school degree; 0 otherwise	0.037	0.189	35,758
High school	1 if worker's highest educational degree is a high school degree including GED; 0 otherwise	0.230	0.421	35,758
Some college	1 if worker has attended some college but has not received a bachelor's degree; 0 otherwise	0.217	0.412	35,758
Associate degree	1 if worker's highest educational degree is an associate's degree; 0 otherwise	0.084	0.277	35,758
College	1 if worker's highest educational degree is a bachelor's degree; 0 otherwise	0.280	0.449	35,758
Grad school	1 if worker's highest educational degree is a master's, professional or doctoral degree; 0 otherwise	0.138	0.344	39,436
Production	1 if worker's occupation is production; 0 otherwise	0.434	0.496	45,816



Administrative support	1 if worker's occupation is administrative support; 0 otherwise	0.061	0.238	45,816
Professional and technical	1 if worker's occupation is professional and technical (including engineers and scientists); 0 otherwise	0.295	0.456	45,816
Sales and customer service	1 if worker's occupation is sales and customer service; 0 otherwise	0.085	0.280	45,816
Lower management	1 if worker's occupation is lower management (including front-line supervisors); 0 otherwise	0.101	0.302	45,816
Middle management	1 if worker's occupation is middle management (including managers and directors); 0 otherwise	0.075	0.263	45,816
Upper management	1 if worker's occupation is top management (executives); 0 otherwise	0.022	0.147	45,816
At market salary	1 if the worker believes that his or her annual annual base salary at the firm is at or above the going market rate for employees in other companies with similar experience and job descriptions in the region; 0 otherwise	0.592	0.491	36,236
Tenure	Worker's tenure at the firm, in years	9.540	8.979	45,755
Hours	Worker's weekly hours worked	45.789	8.137	45,696

Close supervision	Measure of how closely the worker is supervised on a 0–10 scale, with 0 indicating that the worker works independently of close supervision and 10 indicating the worker is closely supervised	3.347	2.631	45,978
See co-workers	Worker's rating of how easy it is for him to see whether his co-workers are working well or poorly on a 1–10 scale	6.784	2.740	45,874

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*Note:* Based on the NBER Shared Capitalism Survey of  $N = 46,907$  workers.

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