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**TO JOIN OR NOT TO JOIN?
FACTORS INFLUENCING
EMPLOYEE SHARE PLAN
MEMBERSHIP IN A
MULTINATIONAL
CORPORATION**

**To Join or Not to Join?
Factors Influencing Employee Share Plan Membership in a Multinational Corporation**

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Abstract

Many firms encourage employees to own company stock through share plans that subsidise the price at favorable rates, but even so many employees do not buy shares. Using a new survey of employees in a multinational with a share ownership plan, we find considerable variation in joining among observationally equivalent workers and explore the reasons for the variation. Participation in the plan is higher the greater the potential pay-off from joining the share plan, which indicates that rational economic calculations affect the decision to join. But there is also evidence that psychological factors affect the decision to join. Some non-members say they intend to join in the future, which means they forgo the benefits of immediate membership. The proportion of workers who purchase shares varies across workplaces beyond what we predict from worker characteristics. This suggests that co-worker behavior influences decisions. Indeed, workers say that they pay most attention to other workers and little attention to company HR management in their decision on joining.

JEL Classification: D83; H3; I22; J33; J54

Key Words: share plans; share contributions; risk aversion; peer effects; social norms

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Ownership of shares by employees in their own firm has grown substantially in the advanced world. In the past two decades it increased in Britain (Pendleton et al., 2009), the United States (Kruse et al., 2008), and in many EU countries (Pendleton et al., 2005; European Federation of Employee Share Ownership, 2009). By 2004, one-fifth of British workplaces had share ownership plans covering one-third of private sector employees (Bryson and Freeman, 2010). In the United States in 2006 an estimated 18% of workers had shares in their own firm, some held through collective employee stock ownership plans, some bought through employee stock purchase plans that give employees a discount on shares, and some through their 401k retirement savings plan money. In addition to owning shares, 9% of US employees had stock options with the firm. Taking account of the overlap, 24% had an ownership stake through shares or options (Kruse, Blasi, and Park, 2010, table 1).

Firms introduce share ownership plans in the hope that ownership will align employee and employer objectives to increase productivity and profits. Surveys show that many employees desire some form of ownership in the firm at which they work, so providing this benefit ought to increase their loyalty and willingness to work hard for the firm. When firms subsidise the purchase of shares through a share ownership plan, the financial deal is often so good that nearly all workers should join. But substantial numbers of eligible employees do not join share plans in the firms that offer them.

What motivates the decision to invest in a subsidised share plan? Opportunity to make money? The marketing of the plan? Knowledge of how the plan works? Do employees make their decision individually or are they influenced by the behaviour of others in their work group?

To see what affects the decision to join a share ownership plan, in 2007-2008 we surveyed 3,360 employees of a multi-national firm ShareCo that offers a similar plan to employees around the world. We asked employees about their knowledge of the share plan ('the Plan') and the reasons they had or had not joined it.¹ The firm distributed the survey through the internet to employees in Australia and New Zealand, South Africa, the UK and Ireland and the United States.² The response rates for the survey were 65% in the UK and Ireland, 62% in Australia and South Africa but just 35% in the USA. The data covers 19 business divisions and 39 office locations. Dividing workers into groups based on the intersection of division and location to obtain a closer fix on likely "work groups" where employees may interact regularly, we obtain 81 work units with one or more person.

For most employees the Plan ought to be financially attractive. We illustrate this with details of the Plan in Australia. In Australia all permanent employees resident for tax purposes could choose between the Exempt Plan, which seemed most suitable for lower paid employees and the Deferred Plan, which seemed more suitable for high paid employees. The *Exempt Plan* allowed employees to contribute up to AU\$500 per annum in before-tax salary to acquire shares, which ShareCo matched up to a maximum of AU\$500 per annum. The shares were free from taxation on acquisition up to AU\$1,000. An employee who held the shares for at least three years could sell or transfer them tax free. Thus a worker who bought AU\$500 shares and held them for 3 years would double their money if the share price held steady. The price would have to drop by half before the employee would lose money. The *Deferred Plan* allowed employees to contribute between AU\$1,500 and half of their before-tax annual salary to acquire shares. ShareCo matched contributions up to AU\$3,000 per

¹ The 3,360 employees who responded to the survey included 2,707 with no missing data.

² Because the Plan differs modestly across countries we used variants of the survey instrument in each country but the differences were so slight that we pool the country responses into a single firm data set.

annum. The government deferred income tax on share acquisition and did not tax employee bought shares on sale/transfer for one year and did not tax shares given to employees by ShareCo matching their purchases for two years. A worker who bought AU\$3,000 and held them for two years would double their money if the share price held steady and again break even if the price fell to one half its purchase price

The pecuniary incentive to join the Plan differs in the other countries where ShareCo operates because the firm offers different matching rates to workers and because each country gives different tax advantages for ownership. In the UK the company matches shares purchased by the employee one for one up to a limit. The scheme qualifies for tax advantages as a Share Incentive Plan (SIP), whose tax advantages are comparable to those in the Australian tax code.³ In South Africa the matching scheme resembles the Australian Deferred plan and thus seems more suited to higher wage workers. Employee contributions come from after-tax income and the employer match is subject to income taxation (which the company pays) while the gains from sale are subject to capital gains tax.⁴ All of which makes the scheme less valuable to workers than the Australian and UK schemes. In the US the company has the smallest matching incentive – a 15% discount on the market price of every purchase up to a maximum of US\$1,990, which is considerably below the 50% subsidy implicit in the matching schemes. A share price fall of 15% or more means that US members of the plan lose money.⁵

[INSERT TABLE 1 ABOUT HERE]

Table 1 shows the rate of joining the Plan by country, demographic characteristics of the worker, attitudes toward risk and sociability, and by job characteristics of workers. Fifty-six percent of all surveyed employees join the firm's plan, with considerable variation by country and employee characteristics. Australian and UK employees have higher membership rates than US employees while the lowest membership rate is in South Africa. Joining varies substantially by demographic and job related characteristics but a substantial number of employees do not join the Plan even in the groups with the highest participation rates. Consider for example rates of joining by age. Older workers are more likely to be members than younger workers. However, apart from the small number of workers aged under-25

³ Under the UK SIP scheme employees can contribute a minimum of £10 each month up to a maximum amount of £125 or 10 per cent of their monthly pre-tax earnings; whichever is the lower amount. This sum is tax-exempt. ShareCo matches each share purchased up to a value of £125 per month. All shares acquired by the employee are exempt from tax if held for five years.

⁴ The South African deferred Plan allows permanent employees to contribute at least Rand 1,800 per annum up to 50 percent of their after-tax salary to acquire shares under the Plan. The company matches each Rand contributed by the employee up to a maximum of Rand 24,000 per annum to purchase matched shares. The shares purchased by the employee vest after the first year and the matching shares from the company vest after the second year. Monthly contributions are deducted directly from the employee's after-tax monthly salary and thus are not tax privileged as the shares are acquired with after tax money at their full market value. Matching shares are subject to taxation which the employer pays upfront, so that the employee is not liable for income tax. However, when employees sell their shares they are subject to capital gains tax. A second share plan awarded employees 50 shares free of charge in 2005.

⁵ The US plan was open to all full-time employees who work at least 20 hours per week and more than five months in a calendar year. Employees may contribute between \$10 and \$800 per month of their gross salary through a payroll deduction.

years who have very low rates of participation, participation rates vary only modestly by age, peaking at 64% for 45-54 year olds. Among occupations, there are also large differences in the rates of joining but the 82% rate for the highest group, senior managers, is still far from universal joining.

It is possible that some combination of personal and job characteristics explains much of the variation among individuals in joining. To examine this possibility we estimated the effect of employees' personal and job characteristics on the probability that the employees joined the Plan using probit regressions that link joining the Plan to the demographic and job characteristics shown in Table 1. The demographic characteristics are measured by dummy variables for age (5 dummy variables); male; black; household status (3 dummies for marital and child status); degree holder; holds a professional qualification. In addition, we have two measures of the people's personality, their risk preferences and sociability (to be described shortly). We measure job characteristics by occupation (7 dummies); supervisory responsibility; contractual hours (4 dummies); months' tenure with the employer and its squared term; payment method (3 dummies); whether working in a company previously acquired by ShareCo; and by measures relating to the degree of job autonomy and the ease with which one can monitor co-workers' efforts. There are also dummy variables for the four countries surveyed.

Column 1 of Table 2 presents the probit coefficients and the t-statistics for their impact; while column 2 transforms the coefficients into their marginal effects on the probability of joining the Plan. Mirroring the means in Table 1, the probability of Plan membership rises with age until employees reach their mid-50s and then falls. Compared to an employee aged under-25, a 'like' employee who is aged 45-54 years has a 15 percentage point greater probability of being a Plan member. Interpreted as reflecting age, this suggests that many non-members will join the plan in the future as they age. But it is also possible that the coefficient reflects cohort differences, in which case joining need not rise as persons age. The probability of being a member is also significantly higher for men, for those with degree-level educational qualifications, and for married persons with children. The gender, degree and marital status effects are of a similar size, raising the probability of membership by around 6-8 percentage points.⁶ Together, demographic characteristics account for 7 percent of the variance in Plan participation.

The estimated coefficients and marginal effects of occupation and position in the firm in Table 2 show that these factors are more important in determining membership than the demographic factors.⁷ Salaried staff were more likely to join the plan than hourly paid workers while those paid salaries plus bonuses were the most likely to join. Being a Senior Manager raised the probability of plan membership by 17 percentage points compared to a member of the Operations and Delivery Staff (eg. in customer service or a communication centre worker). Supervisory status was also positively associated with Plan membership. But plan membership probabilities are not a simple reflection of occupational hierarchy: sales staff had similar Plan membership probabilities to those in Middle and Lower Management.

⁶ There are notable differences in the association between Plan membership and demographic characteristics across the four countries surveyed. For example, the possession of professional qualifications is associated with a lower probability of Plan membership in the UK and South Africa but not in the USA or Australia.

⁷ Taken together job characteristics accounted for 13% of the variance in Plan membership in ShareCo and 10% of the variance in contributions among members when entered into the model alone.

The probability of Plan membership is strongly associated with tenure but the relation is not a simple linear one; tenure squared has a negative coefficient in the probit analysis. Membership rises with tenure until a worker has 20 years of tenure and then falls. This pattern mirrors the pattern of membership in the age dummy variables. Lower membership in the Plan with age and tenure could reflect the desire of older and more senior workers to diversify their assets as they near retirement but it could also reflect the fact that some of those workers joined the firm before the Plan ever came into being and never changed their status quo position.

To drill deeper into personal factors that might be associated with joining the Plan, we asked workers about their attitude toward risk and their propensity to join organizations – what may be called sociability. For risk we asked a question that Dohmen et al.(2005) have shown correlates with risk behavior in laboratory experiments. The question is: “are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?” The responses are scaled from 1 (“Unwilling to take risks”) to 10 (“Fully prepared to take risks”). The probit estimates in Column 1 show that risk preferences are not significantly related to the person joining the Plan. For ‘sociability’, we asked: “Do you take part in the following activities, either as part of your job or outside work? Please select as many as apply to you....Belong to a trade/professional body or association; working with schools, colleges, universities; being involved in charities or voluntary bodies; being a member of a social, sports or arts club; being an active member of a political party; being an active member of a religious group; socialising with co-workers outside of work; none of these.” We counted the number of activities employees engaged in and entered it into the probit equation. This variable is not associated with membership.

We also examined whether employees who felt that they had control of their work were more likely to join than those who worked under close supervision. We developed a scale based on the question: “Are you closely supervised, or do you work fairly independently of close supervision?” We coded responses from 1 representing “working independently of close supervision” to 10 “closely supervised”. There is a strong negative correlation between close supervision and the propensity to participate in the Plan. An increase of 1 point on the close supervision scale reduces Plan participation by two percentage points, other things equal.

The last factor that substantially influences employee decisions to join the plan is the location of workers. Addition of the country dummies raises the proportion of the variance in Plan participation accounted for by the model from 15 per cent to 20 per cent. The differences among countries shown in the Table 1 are barely affected by the covariates in the multivariate analysis. To illustrate the magnitude of the country effect, consider the difference in outcomes among observationally equivalent employees in different countries. As a base case we take a 45-54 year old married man with children, with a degree, in senior management, with supervisory responsibilities, with a contract for 40 or more hours per week, with 10 years tenure, paid a salary with bonus, who is not closely supervised and has sample mean characteristics on all other variables in the model. The model in Table 2 gives this ‘base case’ person an estimated probability of Plan membership in Australia of 90 per cent, of membership in the UK, of 84 per cent, in the US, of 70 percent probability and in South Africa of 69 per cent probability.

Column 3 of table 2 uses linear regression to assess the determinants of the monthly contributions of workers to the Plan among those who made contributions. For simplicity we transformed all of the contributions data into US dollars at the then prevailing exchange rate. These estimates show that most of attributes of persons and jobs associated with a greater probability of being a plan member are also associated with greater contributions conditional

on being a member. Again, more of the variation in amounts contributed is attributable to differences in job-related characteristics than in demographic or personal characteristics.

In sum, the key finding in table 2 is that job characteristics and the location of the job are more important in determining membership in the Plan than the demographic characteristics of workers or our measures of risk preferences or sociability. It is more what you do and where you do it than who you are.

Homo Economicus and Homo Behavioricus Explanations

The economist's model of *Homo Economicus* directs attention at pecuniary factors as likely determinants of joining the Plan. *Homo Economicus* presumably assesses the size of the subsidy and tax breaks, the time required to hold the stock before those benefits kick in, and the likely trend and variability in the share price in deciding whether to join a share plan. At a big enough subsidy/tax break and expectation of staying with the firm long enough to gain the advantages, this model suggests that almost everyone would buy the shares. But with a modest subsidy/tax break and a short time horizon of staying with the firm, it predicts that many workers would reject holding assets in company stock.⁸ As noted, the cross country differences in joining are consistent with differences in the company subsidy to purchase shares and the tax break for owning shares. But there are other reasons why pecuniary considerations might lead someone to take their money in cash rather than to invest in the Plan. A person paying high interest on credit card or other debt has a pecuniary incentive to pay the debt rather than to invest in the firm. The *Economicus* model also allows for non-pecuniary factors associated with the person's preferences toward risk to affect the decision to join a share plan. Someone who finds it painful to see the share price fluctuate significantly over time and who gains little additional utility from increases in the price ought to keep their money in some safer asset. Our measure of risk-aversion did not help explain decisions but perhaps a measure of loss aversion would help explain some of those who turn down the seemingly profitable investment opportunity.

The psychology model of *Homo Behavioricus* directs attention at the imperfect way people actually make decisions. One factor that has received attention in analysis of responses to seemingly fruitful decisions is procrastination, a delay in changing a default position even when it is advantageous to make one's choice quickly, that imply large internal transaction costs (Madrian and Shea, 2000; Engelhardt and Madrian, 2004). Another *Behavioricus* factor that has also received attention in decisions are peer effects, where someone's decision depends critically on the decisions of others with whom they associate. To be sure, there can be rational reasons for peer effects – the wisdom of the crowd that often gives a better assessment of reality than individual judgment. But the traditional *Economicus* model does not treat them as a major factor in decision-making.

Finally, both models recognise that imperfect information can prevent an individual from rationally assessing the costs and benefits of investments. If you are uncertain of the consequences of an action, don't act. The *Economicus* model treats lack of information as reflecting the costs of obtaining it. Given company efforts to inform employees about the plan, it seems implausible that costs of information deter employees from learning the facts. The *Behavioricus* model raises the possibility that employees may tune out firm-provided information as just another bit of firm propaganda or sales pitch and procrastinate in addressing that information, though one could also easily see this as rational behavior.

⁸ These are frequently cited as the reasons why employees often choose not to claim in-work benefits and tax credits (see, for example, Bingley and Walker, 2001).

To find out the pecuniary factors and behavioral factors stressed by these two models that may underlie employee decisions on joining ShareCo's share plan we asked employees why they did or did not participate in the plan. Then we examine the pattern of membership across business units and locales for evidence on one of the main factors they identified as important in decisions: discussions with co-workers.

What workers say

Economists are often leery of what people say about their decisions on surveys, but it is usually better to obtain such information when possible than to speculate about why persons behaved in particular ways without any indication of what they believe affected their decision.

We asked workers who had joined the Plan: “what made you join the Plan?” and asked those who did not join: “Why have you never joined the Plan?” We allowed them to give more than one reason. Table 3 displays the percentage of responses given to each of the questions (which sum to 100%) and the percentage of respondents who gave the answers (which can sum to over 100% because respondents could give multiple answers).

[INSERT TABLE 3 ABOUT HERE]

The responses in Panel A show that the employees who joined the Plan deliberated over the decision. Just 10% of responses and 13% of respondents gave the response that the employee had joined automatically without thinking much about it. The most common reason for joining was that it had been a “good investment” given by 73% of Plan members. Country data (not shown in the table) reveal that the percentage motivated by good investment varied by country. Eighty-seven percent of UK Plan members cited ‘good investment’ as the reason for joining whereas 73% of US Plan members cited good investment. This presumably reflects the fact that joining the Plan was a better investment in the UK than in the US because the company sharing rate was much lower in the US. In the total sample 39% of respondents reported that their joining was because they felt good about the company, which implies that the decision was influenced by factors beyond the expectation of future financial rewards. Those in the US (again data not given in the table) were significantly more likely to cite feeling good about the company as a reason for joining: one half did so compared to around one-third in the other three countries.

The responses in Panel B show that the employees who did not join also paid attention to perceived pecuniary returns. Thirty-seven percent of non-members said their contribution would take too much out of their salary.⁹ Six per cent of respondents thought it made sense to invest outside the firm in which they worked. Approximately twice as many non-joiners gave that answer in the United States, where many employees invest substantial sums in their own businesses through 401k retirement plans. Nine percent of non-members didn't want the risk of investing in shares *per se*.

One-quarter of employees said they were ‘about to join’ the plan, which fits with the behavioral proposition that individuals often procrastinate in making a decision beneficial to

⁹ Financial constraints and opportunities dominated other aspects of Plan investment too: the need for money was the chief reason given for selling shares and the availability of more money was given as the primary reason for increasing monthly contributions. The need for money was also the chief reason for leaving the Plan, though very few employees had actually left (4% of all employees and 6% of those who had ever been a member).

them (Rabin, 1998). These non-members had lower tenure than other non-members – 28 per cent had been with the company for six months or less compared to 18 per cent of other non-members – suggesting that they had insufficient time to make their decision since joining the company. Seven per cent of non-members said they chose not to join because they “Don’t intend to be with the company very long”. Almost two-thirds of these non-members expected to be working at ShareCo for under a year, compared with 7 per cent of other non-members, which means they would gain less from the investment. Finally, 3 per cent of non-members cited features of the Plan they did not like as a reason to avoid investing in it. A larger proportion (14 per cent) said that one reason for not joining the Plan was that they did not understand it. Of the 20 percent who gave “other reasons” 8 per cent said they had never heard of the plan.

In a separate question we also asked employees how well they understood aspects of the Plan. Consistent with the notion the insufficient information may have deterred some from joining, twenty-seven cent of non-members answered ‘not very well’ or ‘not at all well’ while just 4 per cent of those who had joined the plan gave those answers to the information question.

The role of co-workers

We used data on the office locations and business units of the firm to estimate the proportion of employee respondents who worked in the same office and business unit. This enables us to estimate whether membership is more concentrated among employees likely to interact with each other than would happen if each employee decided to join independently of those of others in their location/unit. Greater concentration of membership than expected by independent choice would indicate that decisions were potentially subject to the influence of co-workers through some form of peer effects.

To determine the expected level of Plan membership at the different locations, we used our Table 2 probit model to predict the determinants of the probability an individual employee would join the plan. Then we averaged the probabilities for the employees at each location to get the expected level of joining in the location. Since the probabilities for individuals come from the same model, the predicted levels of joining vary across locations because of differences in the observable characteristics of workers across the locations. In offices with senior upper level managers, for instance, our model predicts higher membership than in workplaces with many less highly paid and skilled workers.

Graph 1 is a scatter graph that plots the actual mean membership against the predicted rate of joining the Plan for each of the 88 location/business unit categories for which we have data on more than a single person. The predicted and actual distributions are positively correlated at 0.60.

[INSERT GRAPH 1 ABOUT HERE]

If the decisions of workers at a particular office-business unit are influenced by the decisions of others the dispersion of the rate of actual membership should be greater than the dispersion of the predicted rates, since the latter are based on a model that did not allow for peer or contagion type effects. Most models of peer or contagion effects predict greater dispersion in measures of behavior across groups than would occur based on the demographic characteristics of people because interactions in the group produce similar behavior (Glaeser, Sacerdote, Scheinkman, 2006). The models allow the interactions to produce both more and less of the behavior. To see if this was true in our data, we calculated the dispersion of actual and predicted membership in the Plan across the sites. In fact the standard deviation of the distribution of actual rates of joining across the 88 location/business units was 0.24 compared

to a standard deviation of just 0.17 for the predicted rates across the same location/business units. A variance ratio test for the equality of standard deviations confirms that the distributions are significantly different from one another.¹⁰

There is, however, a difficulty with this analysis. Some of our location/business units have many employees and survey respondents while others have few employees and survey respondents. The range of responses was from 383 in the largest unit to less than five in 30 units. Consistent with a peer effect or contagion model, much of the greater variation in actual rates occurs in workplaces with few workers.¹¹ But such a pattern could arise for reasons of sampling variability as well as for interactions. The smaller the number of observations the more dispersed will any distribution be around its mean. One way of dealing with this problem is to compute the standard deviations from variances weighted by the number of persons in the location/business unit. Weighted by the number of persons in each office, the standard deviation for the actual distribution is 0.19 while the standard deviation for the predicted distribution is 0.15 – a smaller but still noticeable difference.¹²

The standard deviation is, however, a crude measure of the way peer effects or interactions would produce a different shape of the distribution of actual outcomes than the distribution that would result absent peer effects. Graph 2 displays the histogram for the distribution of observed rates of joining the Plan among locations/business units, weighted by the number of employees and the histogram for the rates predicted by our model and the demographic distribution of the workplaces. The continuous curve shows the normal curve fit. It shows a more bifurcated distribution for the actual (left-hand panel) than for the predicted (right-hand panel) rates, which is what one would expect if peer effects induce more workers to join at some sites and fewer workers to join at others than would happen from choices that were not influenced by fellow workers.

[INSERT GRAPH 2 ABOUT HERE]

As a final test of the relation between location/business unit and joining the Plan, we added dummy variables for business unit/location to our Table 2 probit analysis. The addition of dummies raises the pseudo-R square that summarises the fit of the model from 0.19 to 0.22, which is significant by a chi-square test. Thus, we are better able to predict which workers join the plan and which do not upon addition of the information on business unit/location data. Note, however, that this tells us only that units/locations differ in rates of joining from what one would expect on the basis of the characteristics of employees. It does not tell us at which locations the peer effects are likely to produce higher or lower rates of joining. Nor does it tell us whether in fact the observed patterns are truly attributable to the influence of co-workers on decisions or some other aspect of the workplace.

To get more direct evidence on whether co-workers influence persons to join the Plan compared we asked employees about the influence of fellow workers, management and other persons on their decision regarding the plan. We asked: “Have you/did you ever talk to any of the following people about membership of the Plan?...Fellow workers; My Supervisor; HR

¹⁰ This F-test for the homogeneity of variances is performed using STATA’s `sdtest`. $F(2.83, df 117, F > f 0.0000$.

¹¹ Thus, among all 118 office-business units the standard deviation for membership was 0.32 compared to 0.19 for the predicted rates across the same location/business units.

¹² A chi-squared test of variance confirms this difference is statistically significant.

Manager/Department; Family or Friends Outside the Company; A Financial or Legal Adviser Outside the Company”. If they answered yes, we asked if the people were important in the decision that the worker made.

Table 4 summarises responses to these questions, Fifty-two percent of employees cited none of the five sources of information as important, but members reported speaking to more people than non-members and ascribed more importance to those discussions in their membership decision than did non-members. *Employees were most likely to discuss Plan membership with fellow employees – 59 percent had done so – than with anyone else.* In addition, more employees viewed these discussions as important in deciding whether or not to join than discussions with anyone else. By contrast, only 14 per cent reported that they had discussed membership with HR staff and only 7 per cent viewed discussions with HR staff as important. The influence at the workplace that leads some locations to join the Plan more than others thus appears to rest with co-workers rather than with management.

[INSERT TABLE 4 ABOUT HERE]

As a further test of the potential influence of co-workers on decisions, we introduced a set of dummy variables for whether an employee had talked to a particular group about Plan membership into the Table 2 model of individual decision regarding the Plan. Table 5 gives the estimated coefficients on these variables from the new estimated model. The estimates show that talking to fellow employees was associated with an 8 percentage point increase in joining the plan while talking to supervisors was associated with a 6 percentage point increase. But it also shows that talking to family and friends increased the probability of Plan membership by 13 percentage points relative to not talking to them. Since proportionately fewer workers said they had talked with family members than said they had talked with fellow employees, the larger coefficient on talking with family members does not mean that the family was more important than the workplace. The two routes of impact add roughly similar explanatory power in the augmented regression model.¹³

Finally, we asked employees another question that casts light on potential peer influences in decisions to join the Plan. This question related to workers perceptions’ of whether other workers are joining the plan: “What percentage of workers in your business unit do you think are members of the Plan?” If workers are following some perceived norm at their workplace we would expect those who believe many others are members would also join. In fact, the probability of an individual being a Plan member rises steeply with the perception of the Plan membership rate among co-workers.¹⁴ The correlation coefficient for the employees’ perception of the Plan participation rate in the business unit and the actual Plan membership rate in business units as derived in our data was 0.23, which shows that the measure of perception does not simply reflect the actual rate of membership, which makes it hard to interpret in any causal manner (Manski, 1993).

Taken together the evidence on the concentration of membership by office, employees reporting that co-workers were important sources of information, and on their perceptions of

¹³ The only communication channel associated with a significant increase in monthly investments was talking to family and friends, perhaps reflecting discussions regarding the ability of the family to find the money to invest in the Plan. We also found that the HR effect differed in country-level regressions. It was large and positive for South Africa but negative effect in the USA.

¹⁴ Adding this perception measure to the table 2 regression model, the effect of perceived membership among co-workers being around half (40-59%) raised the probability of an individual’s membership by 35 percentage points relative to a case in which the employee believed no co-workers were members.

the participation of other workers on their joining the Plan directs attention at peer influences on joining decisions above and beyond those that influence individual decisions in isolation.

Conclusion

Many firms encourage employees to own company stock through share plans that subsidise the price at favorable rates, which should make the decision to participate in the plan a “no brainer”. Even so, many employees do not buy shares. Our analysis of a survey of employees in a multinational with a share ownership plan finds considerable variation in joining for observationally equivalent workers within the firm. Workers’ probability of joining the share Plan are higher the greater the potential pay-off, pointing to an important role for rational economic calculations. But some non-members say they intend to join in the future, which forgoes the benefits of immediate membership. And the behavior of co-workers influences the purchase of shares while company HR information does not affect the decision. The evidence thus indicates that participation reflects a mixture of economic responses to incentives and behavioral economics responses to what others do.

References

Akerlof, G. A. and Kranton, R. E. (2005) 'Identity and the Economics of Organizations', *Journal of Economic Perspectives*, 19, 1: 9-32

Bingley, P. and Walker, I. (2001) 'Housing Subsidies and Work Incentives in Great Britain', *The Economic Journal*, Vol. 111(471), C86-103

Bryson, A. and Freeman, R. (2010) 'How does shared capitalism affect economic performance in the UK?', Chapter 6 in D. Kruse, R. Freeman and J. Blasi (eds.) *Shared Capitalism at Work: Employee Ownership, Profit and Gain Sharing, and Broad-based Stock Options*, pp. 201-224, University of Chicago Press

Bryson, A. and Gomez, R. (2003) 'Buying Into Union Membership', in Gospel, H. and Wood, S. (eds.), *Representing Workers: Union Recognition and membership in Britain*, Routledge, London

Budd, J. (2008) *Does Employee Ignorance Undermine Shared Capitalism?*, NBER Working Paper #14236

Dohmen, T., Falk, A., Huffman, D., Sunde, U., Schupp, J. and Wagner G. G. (2005) *Individual Risk Attitudes: New Evidence from a Large, Representative, Experimentally-validated Survey*, IZA Discussion Paper 1730

Duflo, E. and Saez, E. (2002) "Participation and investment decisions in a retirement plan: the influence of colleagues' choices", *Journal of Public Economics*, 85: 121-148

Engelhardt, G. V. and Madrian, B. C. (2004) *Employee Stock Purchase Plans*, NBER Working Paper #10421

European Federation of Employee Share Ownership (2009) 'A Political Roadmap for Employee Ownership in Europe'

<http://www.efesonline.org/ROADMAP/A%20political%20roadmap%20for%20employee%20owners%20in%20Europe.pdf>

Glaeser, E. E., Sacerdote, B. and Scheinkman, J. A. (1996) "Crime and Social Interactions," *Quarterly Journal of Economics*, 111, 2, 507-548

Kane, T. J. and Staiger, D. O. (2008) *Estimating Teacher Impacts on Student Achievement*, NBER Working Paper #14607

Kruse, D. L., Blasi, J. R., and Park, R. (2010) 'Shared Capitalism in the US Economy: Prevalence, Characteristics and Employee Views of Financial Participation in Enterprises', Chapter 1 in D. Kruse, R. Freeman and J. Blasi (eds.) *Shared Capitalism at Work: Employee Ownership, Profit and Gain Sharing, and Broad-based Stock Options*, pp. 41-76, University of Chicago Press

Kruse, D. L., Freeman, R. B. and Blasi, J. R. (2010) *Shared Capitalism at Work: Employee Ownership, Profit and Gain Sharing and Broad-based Stock Options*, University of Chicago Press (<http://www.nber.org/books/krus08-1>).

Manski, C., (1993) 'Identification of exogenous social effects: the reflection problem', *Review of Economic Studies*, 60: 531–542

Madrian, B. C. and Shea, D. F. (2000) *The Power of Suggestion: Inertia in 401(k) Participation and Savings Behaviour*, NBER Working Paper #7682

Oyer, P. and Schaefer, S. (2005) "Why Do some Firms Give Stock Options to All Employees? An Empirical Examination of Alternative Theories," *Journal of Financial Economics*, 76: 99-133

Pendleton, A., Whitfield, K. and Bryson, A. (2009) "The Changing Use of Contingent Pay at the Modern British Workplace", Chapter 11 in W. Brown, A. Bryson, J. Forth and K. Whitfield (eds.) *The Evolution of the Modern Workplace*, Cambridge: Cambridge University Press

Pendleton, A., Poutsma, E., van Ommeren, J. and Brewster, C. (2005) *Employee Share Ownership and Profit Sharing in the European Union*, European Foundation for the Improvement of Living and Working Conditions

Rabin, M. (1998), 'Psychology and Economics', *Journal of Economic Literature*, Vol. 36,

No. 1 (March), pp. 11-46

Table 1: Rates of Joining Share Plan by Demographic and Personal Factors and by Job-related Factors

	Mean membership	Monthly contributions (US\$), members only
Whole sample	56	153
Country:		
UK	56	152
USA	45	155
South Africa	34	71
Australia	75	169
<i>Demographic Factors:</i>		
Age (years):		
<25	28	101
25-34	56	134
35-44	63	179
45-54	64	161
55+	58	159
Sex:		
Male	61	179
Female	51	121
Ethnicity:		
Black	32	64
Not black	60	160
Qualifications:		
Degree	63	182
No degree	51	130
Professional Qualifications:		
Yes	58	180
No	56	147
Household circumstances:		
Not married/living as married	47	136
Married, no children living at home	62	150
Married, children living at home	62	174
<i>Personal factors:</i>		
Risk scale (1,10):		
1	54	96
5	55	137
10	43	195
Sociability scale (0 to 7):		
0	51	131
3	57	183
7	50	257
<i>Job-related factors:</i>		
Occupation:		
Senior Manager	82	254
Middle manager	65	187
Lower manager	47	129
Operational/delivery	46	106
Support	58	137
Technical	72	191
Sales	77	181
Payment method:		
Hourly	35	99
Salary only	57	147
Salary plus bonus/commission	78	210
Supervisory responsibilities:		
Yes	68	183

No	50	132
Contracted weekly hours of work:		
<35	56	127
35	56	149
>35<40	59	160
40+	53	155
Company tenure \geq 4 years:		
Yes	68	156
No	44	147
Close supervision scale (1,10):		
1	65	168
5	50	130
10	28	93
How easy to monitor others scale (1,10):		
1	48	106
5	54	148
10	49	157
% family income from ShareCo earnings:		
<80%	55	151
80%+	57	156
Worked for company acquired by ShareCo:		
Yes	60	158
No	54	149

Note: N varies from 2725 to 2783. Contributions are converted to \$US using exchange rates at the time of the survey. Monthly contributions are the mid-point in banded data.

Table 2: Estimates of the effect of Characteristics, Risk Aversion, and Sociability on Plan Membership and Monthly Contributions (\$US)

	(1a) Membership probit	(2) Membership marginal effects	(3) Monthly contributions (only for those who contribute)
<i>Age (ref.: <25 years)</i>			
25-34 years	0.209**	0.081**	12.302
	(2.193)	(2.211)	(1.119)
35-44 years	0.243**	0.094**	44.908***
	(2.212)	(2.253)	(3.428)
45-54 years	0.387***	0.146***	52.846***
	(3.307)	(3.474)	(3.849)
55+ years	0.313**	0.118**	63.535***
	(2.229)	(2.343)	(3.971)
<i>Male</i>	0.151***	0.059***	27.315***
	(2.642)	(2.647)	(4.304)
<i>Black</i>	-0.043	-0.017	-39.309***
	(-0.419)	(-0.417)	(-3.068)
<i>Degree</i>	0.206***	0.080***	12.867*
	(3.167)	(3.192)	(1.797)
<i>Professional qualification</i>	-0.087	-0.034	1.852
	(-1.182)	(-1.177)	(0.170)
<i>Household status (ref.: not married/living as married)</i>			
Married/living as married, no children at home	0.039	0.015	-4.515
	(0.567)	(0.569)	(-0.578)
Married/living as married, children at home	0.147**	0.057**	11.278
	(2.112)	(2.129)	(1.276)
<i>Sociability scale</i>	0.003	0.001	6.637*
	(0.135)	(0.135)	(1.851)
<i>Risk scale</i>	0.033	0.013	-12.458*
	(0.572)	(0.572)	(-1.719)
<i>Risk scale squared</i>	-0.004	-0.001	1.319**
	(-0.770)	(-0.770)	(2.124)
<i>Occupation (ref.: operational/delivery)</i>			
Senior manager	0.414**	0.153***	62.596***
	(2.487)	(2.709)	(3.285)
Middle manager	0.315**	0.119***	28.400*
	(2.526)	(2.648)	(1.744)
Lower manager	0.229**	0.089**	2.254
	(2.068)	(2.110)	(0.157)
Support	0.128	0.05	22.137**

	(1.440)	(1.458)	(2.431)
Technical	0.199*	0.077**	42.163***
	(1.922)	(1.968)	(3.806)
Sales	0.284*	0.108**	31.746**
	(1.933)	(2.027)	(2.310)
Supervisory responsibilities	0.122*	0.048*	16.844*
	(1.821)	(1.831)	(1.868)
<i>Contractual weekly hours (ref.: 40+ hours)</i>			
<35 hours	-0.149	-0.059	-13.387
	(-1.320)	(-1.312)	(-1.159)
35 hours	-0.101	-0.040	-3.907
	(-0.904)	(-0.900)	(-0.379)
>35 hours<40 hours	-0.228***	-0.090***	-2.342
	(-2.909)	(-2.902)	(-0.300)
<i>Tenure (months with company)</i>	0.013***	0.005***	-0.09
	(10.715)	(10.730)	(-0.603)
<i>Tenure squared</i>	-0.000***	-0.000***	0.000
	(-8.093)	(-8.094)	(0.037)
<i>Payment method (ref.: Salary only)</i>			
Hourly	-0.240***	-0.095***	-21.847**
	(-3.076)	(-3.064)	(-2.280)
Salary plus bonus/commission	0.288***	0.110***	21.98*
	(2.932)	(3.049)	(1.793)
<i>Close supervision scale</i>	-0.046***	-0.018***	-0.311
	(-4.493)	(-4.491)	(-0.211)
<i>How easy to monitor others' efforts scale</i>	-0.009	-0.004	1.815
	(-0.804)	(-0.804)	(1.289)
<i>Worked in company acquired by ShareCo</i>	-0.015	-0.006	6.368
	(-0.231)	(-0.231)	(0.799)
<i>Country (ref.: UK)</i>			
USA	-0.574***	-0.226***	-23.062
	(-4.152)	(-4.242)	(-1.246)
South Africa	-0.504***	-0.199***	-69.953***
	(-4.005)	(-4.085)	(-5.255)
Australia	0.640***	0.240***	-0.685
	(7.085)	(7.616)	(-0.082)
Constant	-0.672***		83.529
	(-2.928)		(2.997)
r2	0.20	0.20	p>chi2=0.0000
N	2706	2706	1506

Notes: (1) Model 1 is a probit for membership. The marginal effects are in 1(b). Model 2 uses interval regression for contributions per month for current members where the dependent variable is banded contributions data converted into US\$ using exchange rates at the time of the survey. The interval regression Insignia 4.83 t=82.66. Model based on 0 left-censored observations 284 uncensored observations 39 right-censored observations and 1183 interval observations. (2) Robust estimator used. (3) T-statistics are presented

in parentheses. *=significant at 10% level, **=significant at 95% confidence interval; ***=significant at 99% confidence interval.

Table 3: Reasons for Joining and Not Joining the Plan

<i>Panel A: Reason for Joining</i>	<i>% of responses</i>	<i>% of joiners (can answer more than one category)</i>
<i>Good investment</i>	56	73
<i>Joined automatically without thinking much about it</i>	10	13
<i>Felt good about the company</i>	30	39
<i>Other reasons</i>	5	7

Note: Unweighted N=1,776 employees and 2,320 responses

<i>Panel B: Reason for Not joining</i>	<i>% of responses</i>	<i>% of nonjoiners (can answer more than one category)</i>
<i>Would take too much out of my salary/can't afford it</i>	31	37
<i>Financial sense to invest outside the firm where you work</i>	5	6
<i>Don't want risk of investing in shares</i>	7	9
<i>Don't intend to be with the company very long</i>	6	7
<i>I am about to join/will join shortly</i>	20	25
<i>Features of the Plan I don't like</i>	3	3
<i>I don't really understand the Plan</i>	12	14
<i>Other reasons</i>	16	20

Note: Unweighted N=1,076 employees and 1,300 responses

Table 4: Importance of Discussions with Others in Membership Decision

	<i>Non-member</i>	<i>Member</i>	<i>All</i>
<i>Fellow workers</i>			
<i>Yes, important</i>	23	38	32
<i>Yes, not important</i>	26	28	27
<i>No</i>	51	34	42
<i>Supervisor</i>			
<i>Yes, important</i>	13	19	16
<i>Yes, not important</i>	12	14	13
<i>No</i>	76	68	71
<i>HR manager/department</i>			
<i>Yes, important</i>	7	7	7
<i>Yes, not important</i>	7	6	7
<i>No</i>	85	87	86
<i>Family/friends outside the company</i>			
<i>Yes, important</i>	17	29	24
<i>Yes, not important</i>	30	19	16
<i>No</i>	70	52	60
<i>Financial/legal adviser outside the company</i>			
<i>Yes, important</i>	6	10	8
<i>Yes, not important</i>	5	7	6
<i>No</i>	89	83	86

Notes: (1) Employees were asked: “Have you/did you ever talk to any of the following people about membership of the Plan? If yes were they important in the decision you made?” (2) Table presents column percentages.

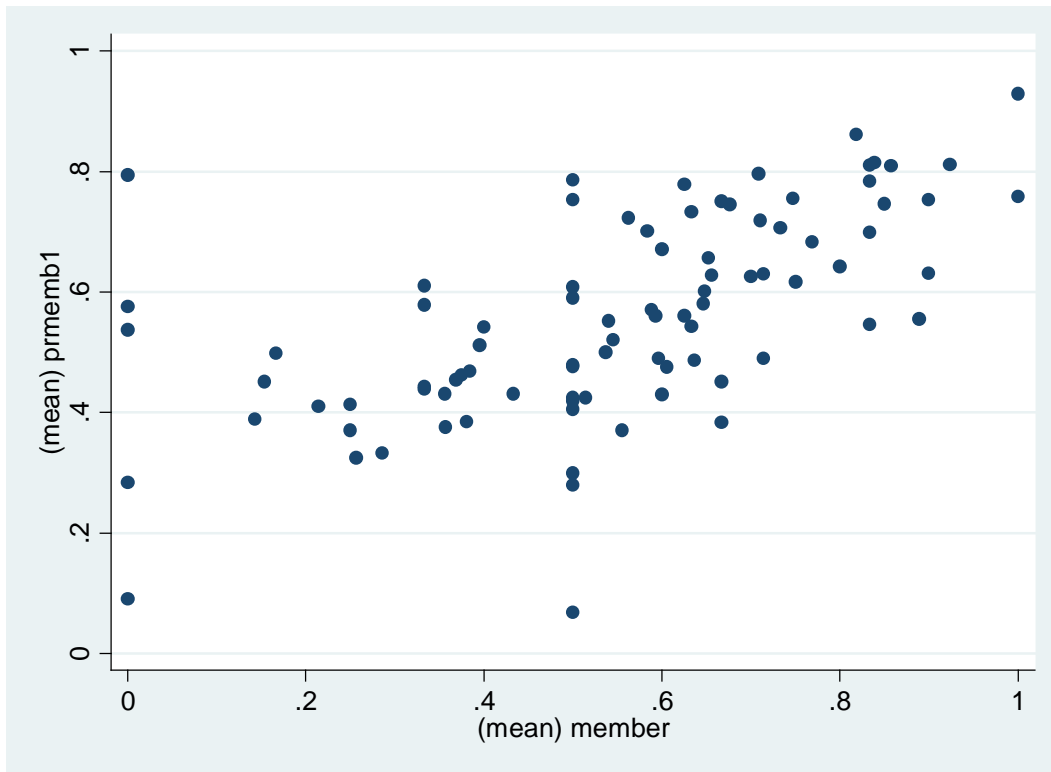
Table 5: Estimates of the effect of talking to other persons on whether the employee joined the plan

<i>Who talked to about Plan membership:</i>	<i>Probit coefficients</i>	<i>Marginal effects</i>
Fellow workers	0.208***	0.082
	(3.30)	
Supervisor	0.152**	0.059
	(2.20)	
HR manager/department	-0.127	-0.050
	(1.41)	
Family or friends	0.332***	0.129
	(5.30)	
Financial or legal adviser	0.042	0.016
	(0.46)	

Notes: (1) T-statistics in parentheses with asterisk signifying significance where *=0.10 **=0.05 ***=0.01. (2)

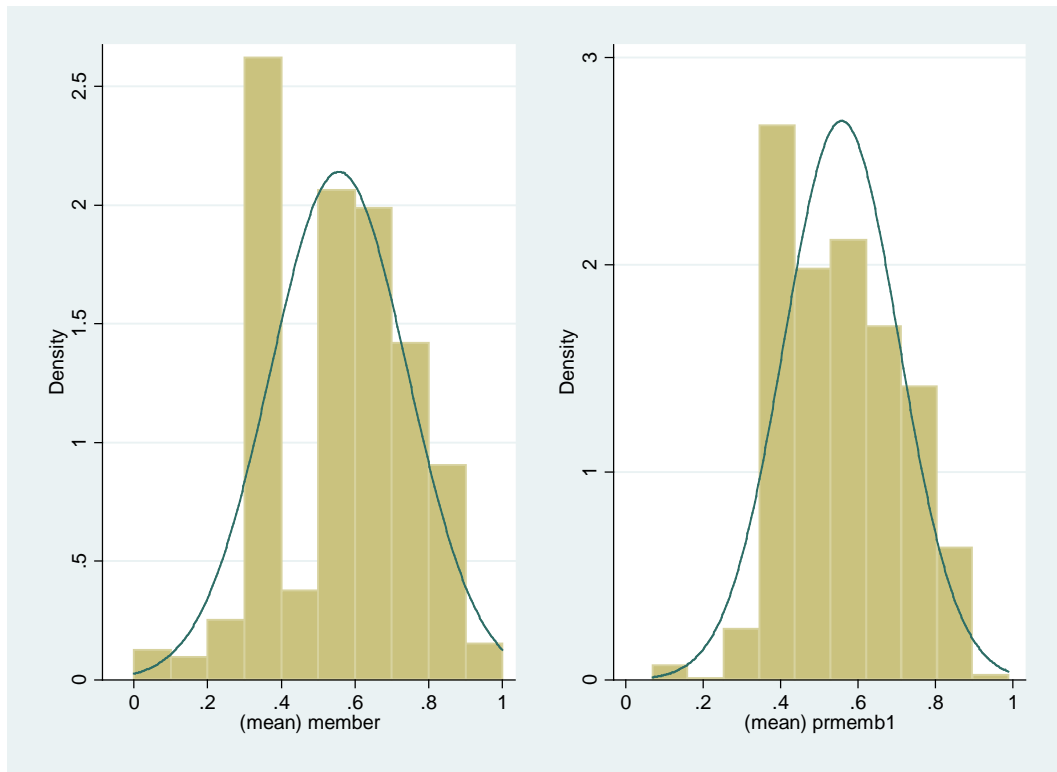
Controls are as per Table 2. (3) Predicted membership mean under the model is 0.572.

Graph 1: The Percentage of Workers by office who Join the Plan in our Sample compared to the Percentage Predicted by Worker Characteristics at Each Office



Note: each dot represents an office/business unit location. Locations with only a single respondent have been removed. N=88. Correlation of the actual rate of membership vs predicted rate across offices of **0.60**

Graph 2: Mean Membership Per Office/Business Unit and Predicted Mean Membership Per Office/Business Unit Weighted by Number of Unit Respondents (continuous line is the normal curve fit)



curve fit)