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Discussion Paper No. 2001/25

Sharing Ownership via Employee Stock Ownership

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Abstract

Increased equity participation by employees has attracted substantial interest for its potential to affect both economic outcomes (e.g., worker and firm performance) and social outcomes (e.g., wealth and income inequality). This paper summarizes the findings from over 50 large-sample empirical studies that have been done on employee ownership and broad-based stock option plans in the past 25 years, covering studies on plan adoption, employee attitudes and behaviours, firm performance, and employee wages and wealth. The results from these studies indicate employee ownership is linked to better outcomes on average but employee ownership clearly does not automatically improve worker and firm outcomes given that there are both positive and neutral findings. Additional research is needed to determine the conditions under which employee ownership improves economic outcomes, to examine worker and employer concerns and the trade-offs they are willing to make, and to explore the further potential of these systems.

Keywords: broad-based stock options, employee ownership, incentive compensation

JEL classification: D23, J32, J3

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1. Introduction

There is considerable focus at the moment on equity ownership. According to a recent article in *The Economist*¹ currently, over 50 per cent of the adult population in the USA own equity. This is a 100 per cent increase since the time of the market correction in 1987. Equity ownership is not only a growing phenomenon in the USA but is also occurring worldwide. Greater than 50 per cent of Australian's own shares, 20 per cent of Germans and equity ownership is growing in virtually every major western country.²

Equity ownership, either in the form of stocks or property, plant, and equipment, has always been an important element of the wealth of the upper income populations of Western societies. However, the recent developments in the rise of equity ownership appear in the context of four major developments. First, equity markets have grown as a way of raising funds and have prospered in this period as a result of general business expansion, the rise of world capital markets, and the wide diffusion of information technology in financial markets.

Second, among western nations, and this has been very clear-cut in the USA, there has been a decline in the ability of the average worker to increase their standard of living solely through wage increases adjusted for inflation. These increases have been generally flat or within conservative ranges since 1980, while increases in pension benefits and social security benefits have been very modest. Companies have increasingly offered the average worker equities partly as a response to this reality. Sometimes companies simply supplement wages with equity compensation; other times companies reduce fixed wages and benefits and trade these reductions for equity. As a result of the fact that fixed state pension schemes can no longer deliver retirement income security, some governments have created various pension savings schemes that private companies can offer and many of these—such as the widely imitated US 401k plan—hold employer stock.

Third, governments, in Western Europe, Latin America, and transitional economies, have used privatization of state assets as a way to jump-start their public stock markets. Virtually all of these cases have included some form of broad worker equity. While this has led to wide variations in terms of success, it has popularized the stock market in some of these countries. Fourth, the rise of high technology companies, in an atmosphere of tight labour markets for skilled labour, has led to a move to expand equity incentives for these knowledge workers.

In the last few years, public policy discussions in the European Union, Latin America, and Asia, have included soul searching discussions about whether conservatism in their property sharing and equity participation regimes has served as a moderating influence on their ability to nurture high technology sectors. Certainly, one of the problems associated with any examination of shared property ownership by employees and any objective

¹ *The Economist*, March 10th, 2001: 17.

² Given the variation in the form and function of employee ownership between countries and a corresponding quantity of research in each country our focus will largely be on the USA.

assessment of the research literature is that so many different manifestations of employee ownership have emerged in the two decades. While there has been substantial expansion of employee ownership in the past several decades, the past decade has also seen growth in the use of broad-based stock option plans. While employees do not directly own shares as with employee ownership plans, broad-based stock option plans are similar in that they represent an employee equity stake in the company, where employee compensation is tied to the firm's stock price and employees are likely to develop greater interest in firm performance.

What are the lessons from the accumulated evidence on employee equity stakes in companies? Do they improve outcomes for workers and firms, or does the evidence confirm the views of detractors who point to excessive worker risk and other possible dangers? While no economies have been fundamentally structured around employee ownership, many western industrialized economies have a substantial share of firms embodying these concepts in some form, and a number of transition economies are experimenting with employee ownership. This has provided the basis for over 50 empirical studies on the causes and consequences of employee ownership. This paper provides an overview of evidence on employee ownership and broad-based stock options, and a discussion of further research needs. Following an overview of relevant economic theory in Section 2, the incidence, company characteristics, and determinants are reviewed in Section 3. Section 4 covers evidence on firm performance (profitability, productivity, firm survival, and employment stability), Section 5 covers evidence on employee attitudes and behaviour, and Section 6 provides conclusions.

As will be seen, one broad generalization from the many studies is that employee ownership and broad-based stock options do not automatically improve outcomes for workers or firms. A second generalization, though, is that these policies are more often associated with better outcomes than with worse outcomes. This broadly supports a case that there may be benefits—and are unlikely to be adverse consequences—from the expansion of employee equity stakes in companies, although clearly the results cannot be pre-ordained and depend on a variety of factors. In addition, the findings create a strong case for further research in this area, to provide better insights into the conditions underlying positive and negative outcomes when employees have significant equity stakes in their companies.

2. Theoretical overview

2.1 Principal-agent theory

Many advocates of employee ownership have focused on how they can serve as collective incentives to improve workplace co-operation and performance. This is founded most basically on the idea that worker motivation is improved by giving workers a direct stake in outcomes, through tying compensation and/or wealth more closely to worker performance. While there are a variety of ways in which employers can try to ensure optimum performance of workers (e.g., close supervision, piece rates, deferred compensation, efficiency wages), collective incentives can complement or substitute for these methods under certain conditions. Piece rates, for example, may be difficult to implement and discourage innovation and co-operation, and centralized monitoring may be

more costly and less effective than ‘horizontal monitoring’ done by co-workers (Nalbantian, 1987). This may be especially true in current modular team production settings (Applebaum and Berg, 2000).

A theoretical objection to the positive productivity effects of employee ownership concerns managerial incentives to supervise workers. The objection is that, by decreasing the share of economic surplus going to owners, the owners (and their agents, the managers) will have weaker incentives for effective monitoring of workers, leading to lower performance (Alchian and Demsetz, 1972). This argument relies on several assumptions, including that there are no principal-agent problems between owners and managers, and that the decrease in monitoring by management will not be accompanied by an increase in workers monitoring each other. Putterman and Skillman (1988) note that the argument is based on ‘incentives to monitor but not on the ability to observe accurately’, and such decreased ability can offset the theorized higher incentives for management monitoring. Nalbantian points out that

Employees engaged in the routine day-to-day fulfillment of a task are usually in a position to detect inefficiencies in operations that diminish productivity. They are also likely to acquire important information concerning the actual productive contributions of their co-workers... The information derived from such activity...is potentially very valuable to the firm as an input to production. Yet such information transfers will not be induced under an individual performance-based rewards system since it does not affect his own performance measures...

But under the group system, the appropriate incentives are much more likely to be present. If there are indeed positive externalities associated with these information inputs and all the relevant group members are subject to the same incentives, then there is reason for the employee to identify his own interests with those of the firm and to furnish the inputs requisite to the firm's success (1987: 26).

In analyzing the theory that optimal monitoring requires concentrated residual rights, Putterman and Skillman conclude that ‘closing the story which says that a particular assignment of residual rights will best elicit the desired monitoring effort remains a difficult challenge, especially if monitoring is itself difficult to observe and there are reasons why the monitor or monitors might want to misrepresent their information’ (1988: 118). It is possible for management monitoring costs to be lower in employee owned or firms with shared ownership if employees have a consensus to monitor each other and are more willing to share information with the company.

The efficiency of employee ownership arrangements is also questioned by Hansmann (1996). He argues that collective action problems arise in any enterprise that is jointly owned by multiple individuals, and governance arrangements will be more efficient if control rights are limited to a single class of individuals with fairly homogeneous interests. This generally favours ownership by financial investors, since they have a common interest in the highest profits, but he notes that ‘in practice it appears that, when the employees involved are highly homogeneous, employee ownership is more efficient than investor ownership.’ With a heterogeneous workforce, however, he says that ‘direct employee control of the firm brings substantial costs—costs that are generally large enough to outweigh the benefits that employee ownership otherwise offers’ (1996: 119).

One of the often cited drawbacks of group incentive schemes is that the connection between individual performance and reward grows weaker as the number of covered employees grows larger. This is commonly referred to as the '1/N problem': with N employees in a company, each employee will get on average only 1/N of any extra surplus generated by his or her better performance. This problem may be theoretically solved by the establishment and enforcement of a co-operative solution, in which each employee agrees to higher work norms (rather than being a 'free rider' off the efforts of others) and all benefit as a result of better performance. What it takes in practice, however, to establish such a solution and convince employees to participate is not specified by theory, however. In such a situation, to get higher performance through group incentive schemes 'something more may be needed—something akin to developing a corporate culture that emphasizes company spirit, promotes group co-operation, encourages social enforcement mechanisms, and so forth' (Weitzman and Kruse, 1990: 100).

The firm's decision making structure, other human resource policies, and managerial approach to workers may be large elements in the 'something more' that is needed for employee ownership to produce better performance. In particular, it is often suggested that group incentive schemes need to be structured to draw upon additional worker *skills* and *information* about the work process (Applebaum and Berg, 2000). Such skills and information may become available if there are programmes to encourage employee involvement in workplace decisions, open new channels both to provide employees with more information and solicit ideas from employees, and assure workers that any productivity improvements will not result in layoffs or reduced job security. Such changes in a workplace may combine with employee-owned stock to help create a sense of partnership/ownership with higher employee commitment and motivation. There is some speculation that transferring property rights in the form of residual return rights (Applebaum and Berg, 2000) and control rights may go some way towards addressing finding a 'co-operative' solution.

2.2 Incentive contract theory and transferring property rights to non-owner employees

The question asked by incentive contract theory is: why do employees work hard when their work can not be perfectly monitored, and how can they be motivated to provide productivity enhancing ideas when they have knowledge of the production process which management does not have? (Lazear, 1986). There are an infinite number of different forms and types of incentive contracts which employers can choose from and some have more efficient outcomes than others. One of the primary reasons these incentive contracts are necessary is because employees have access to productivity enhancing information. These questions of how to most effectively monitor and motivate employees are especially pertinent now because of the greater levels of private information which reside with employees (Levine and Tyson, 1990). It has long been recognized that information asymmetries exist in organizations and employees have private information from which management could benefit. Given the increasing educational attainment, more company training and information technology, monitoring may be increasingly difficult which argues for the efficacy of goal aligning incentive systems.

Milgrom and Roberts (1992) indicate that the concept of ownership, combined with statutory property rights are the fundamental means to provide an incentive to create and

develop an asset. The two fundamental aspects of ownership include; firstly, the rights of 'residual rights of control', which is the right to make decisions concerning the use of an asset; secondly, the right to 'residual returns' which is the right to revenues left over after all obligations have been met. According to Milgrom and Roberts, it is the combination of these two rights which provides the individual incentive effects of ownership. The combination is seen to be the most powerful incentive due to the fact that the person making the decision bears the financial results of their decision. Milgrom and Roberts also state that these effects are most efficient when these property rights are 'transferable', or are able to be assigned to the person who is best suited to be in charge. Further developing the notion of sharing the rights of ownership are Ben-Ner and Jones (1995). Ben-Ner and Jones develop a theoretical framework which combines these two aspects of ownership, control and return, and suggest possible firm performance outcomes associated with transferring these rights from owners to non-owner employees.³ They contend that the greatest efficiency outcomes exist when *both* these rights are transferred from owners to non-owners.

As discussed earlier there are, however, arguments against any productivity effects associated with group incentive schemes. One of the strongest charges against the productivity-enhancing effects of group-based incentive schemes is the free rider or 1/n problem. In addition to the free rider problem there is also the fact that many employees may be averse to increasing the amount of compensation which they have at risk. The firm may be in a better position to absorb any risk associated with outside factors affecting remuneration. The free rider problem has been dealt with largely by relying on arguments taken from game theory (Weitzman and Kruse, 1990). The argument states that there is a co-operative and non-co-operative solution associated with group interactions. As people engage in a repeated game they have a choice to free ride on the efforts of others or to work together. In the matter of group-based incentives it is the case that when everyone works together everyone will be better off. Consequently, as the game is repeated those involved may eventually move towards a co-operative solution.

In their theoretical work Drago and Turnbull (1988) determine that group incentives are more efficient than individual incentives in team production settings, provided a climate of 'trust' and co-operation is developed. It may be that broadly granting equity compensation such as in the form of broad-based stock options, may signal that 'we are all in this together', which may in turn help develop this culture of co-operation.

There are a number of fundamental changes in the workplace which may be making it increasingly advantageous for firms to use equity compensation. There is additional speculation that in settings where monitoring costs are especially high, it may be especially cost effective to find substitutes for formal monitors. There is some speculation that this may be especially true in high technology firms where inputs from human capital are especially important for new product innovations (Core and Qian, 2000). Additionally, according to Applebaum and Berg (2000) new manufacturing practices are making it increasingly advantageous to put in place equity compensation.

³ For a more complete explanation regarding the hypothesised productivity effects of control and return rights see Ben-Ner and Jones (1995).

3. Incidence, company characteristics, and determinants of share ownership

3.1 Share ownership: incidence

There are a variety of forms that employee ownership can take. Employee ownership is not a simple, one dimensional concept that permits an easy classification of a firm as ‘employee-owned’ or of an employee as an ‘employee owner.’⁴ A company may be, for example, 100 per cent owned by only 25 per cent of employees, or only 25 per cent owned by all employees (with the rest held outside the firm), or 100 per cent owned by all employees but one person holds a majority of the stock. Four important dimensions of employee ownership are:

- 1) the percentage of employees who participate in ownership;
- 2) the percentage of ownership held within the company by employees;
- 3) the inequality of ownership stakes among employee owners; and
- 4) the prerogatives and rights that ownership confers upon employees.

The prerogatives and rights conferred by employee ownership are determined in part by whether ownership is direct (where employees can freely buy and sell company stock) or indirect (where stock is held through an employee trust or co-operative), and in part by the voting rights and other forms of participation accompanying the ownership.

In the United States, the main vehicle for employee ownership is the Employee Stock Ownership Plan (ESOP), which was first given recognition and special tax treatment as a form of pension plan in the 1974 ERISA law. There are currently about 6.5 million participants, representing 6.4 per cent of the private sector workforce, in over 8,700 ESOPs with combined assets of \$223 billion (USA DoL, 1998: 55).

In recent years, the USA, like in many European countries, has established pension saving schemes that allow employees to invest their money with tax incentives in a basket of mutual funds for use in their retirement. Oddly enough, these plans, which do not even have the employee ownership label in their names, are the fastest growing form of direct employee ownership in the USA today. Apart from ESOPs, there are just over 8 million participants in non-ESOP defined contribution pension plans that hold employer stock, which hold a total of \$91 billion of employer stock (over 80 per cent in 401(k) plans).⁵ According to recent data by the National Center for Employee Ownership, 401k plans cover about 2 million employees and have upwards of \$100 billion in employee ownership assets. Federal tax laws allow workers to contribute pre-tax salary dollars to these plans up to about \$10,000 a year adjusted upwards for inflation (they are not usually set up using leverage although a combination of the leveraged ESOP and the 401k plan called the KSOP does exist). It is important to realize that unlike ESOPs, 401k plans are mostly made up of voluntary worker contributions with some employer matching contributions to give

⁴ While there is a rich literature associated with other forms of employee ownership such as leveraged management buy-outs and worker co-operatives our review and analysis is focussed on broad forms of employee equity ownership associated with shared capitalism.

⁵ These and the other figures in this paragraph are based on calculations from the Pension and Welfare Benefits Administration’s Form 5500 data for fiscal year 1994, which are the most recent complete data available.

workers an incentive to contribute; these 401k plans are established by employers but usually managed by workers themselves on the internet through major online brokerages such as Fidelity, Charles Schwab, Solomon Smith Barney and Merrill Lynch. Employers typically provide a choice of different investment options that are usually stock, bond, money market and real estate trust mutual funds offered by the financial services firm that manages the internet site and the benefit plan. Workers themselves choose between various kinds of investments and can switch funds back and forth among the investment options. Employee ownership comes to play a role in 401k plans because one of the investment options that employees are free to choose or not choose is typically an employer stock fund. Also, employer matching contributions are often in company stock. About 2000 of these plans in mainly large publicly-traded companies in 2001 involve employee ownership of company stock in 2001. For example, a recent study at Rutgers University found that 40 per cent of 401k plans with more than 5000 workers had the employee ownership feature with 15 per cent of the savings plans assets invested in employer stock. Regarding smaller public companies, 20 per cent of 401k plans with 500-1000 workers had the employee ownership feature with about 6 per cent of the savings plan assets invested in company stock. About a third of all participating employees in the US were in plans with the employee ownership feature.

Employees may own stock directly in their companies through stock purchase (or stock option programmes), which was done by 8.9 per cent of employees in 1983 (Brickley and Hevert, 1991), or they may own their companies as members of worker co-operatives (Jones, 1979; Bonin, Jones, and Putterman, 1993). Combining the various methods of owning employer stock, and roughly adjusting for the fact that in the US many employees and companies offer multiple plans, about one-fifth of American adults report holding stock in the company in which they work.⁶

While a large number of USA employees own employer stock, almost all of this stock is in firms that are only minority employee-owned. Of USA companies with more than 10 employees, approximately 2000 have a majority of stock owned by their employees.⁷ Among large public companies, only a few are majority employee-owned (United Airlines most prominently), but among public companies generally (where the SEC defines a 5 per cent stockholder as a major stakeholder) almost 1000 have more than 4 per cent of stock held broadly by employees, with average employee holdings of 12 per cent (Blasi and Kruse, 1991). There has been substantial growth of public firms with more than 20 per cent of broad employee ownership (Blair *et al.*, 2000).

Employee ownership has been a developing feature of a number of socialist countries in transition to greater private ownership. Researchers have investigated the role of various forms of employee ownership in China (Tseo, 1996), Russia (Blasi, Kroumova and Kruse, 1997), and the countries in central and Eastern Europe (Uvalic and Vaughan-Whitehead, 1997; Smith *et al.*, 1997). Apart from these another 12 countries⁸ have some form of

⁶ This is based on a December 1993 Gallup survey and January 1997 Princeton Survey Research Associates survey, summarized in Kruse and Blasi (1999).

⁷ Estimate made by Corey Rosen of the National Center for Employee Ownership, Oakland, CA.

⁸ The countries are Bolivia, Brazil, Chile, Columbia, Ecuador, India, Mexico, Nigeria, Pakistan, Panama, Peru, and Venezuela.

constitutional or statutory mandate for profit sharing, although enforcement is unclear and there are no data on how many workers are covered (Florkowski, 1991).⁹

3.2 Share ownership: company characteristics

What types of firms adopt employee ownership (where it is not mandated)? At least 16 studies have been done on this question, most of them using cross-sectional data to predict plan presence but a few using panel data to predict plan adoption (summarized in Kruse, 1993, 1996; also see Blasi and Kruse, 1991; Blair, Kruse and Blasi, 2000; Patibandla and Chandra, 1998; and del Boca and Cupaiuolo, 1998). Most of the adoption studies however have been done on samples of firms that had direct forms of employee ownership versus broad employee stock option plans, so the results may not hold for all forms of ownership participation in general. Overall, the studies do not support any one dominant explanation for the adoption of these plans. But these studies do come to one very clear cut conclusion: the dominant public impression among many scholars and members of the press that failing firms adopt employee ownership is proven to be without any solid evidence. The source of this impression apparently has been the substantial media coverage given to high profile rescues of a handful of weak steel, airline, trucking, and other firms in the USA in the eighties and early nineties. Employee ownership may be used to substitute for supervision, which is supported by the results in Patibandla and Chandra (1998); however, studies are split on whether they are more or less common in capital intensive firms where employee malfeasance can be more costly. Two studies of ESOPs in public companies in the USA found wide dispersion among various industries and contradict the assertions of Hansmann (1996) about the expected diffusion of such plans. (Blasi and Kruse, 1991; Blair, Kruse, and Blasi, 2000). Both types of plans are more likely to be adopted in large companies, going against the idea that collective incentives will be more attractive where there is less of a free rider problem, and suggesting the existence of fixed costs in establishing these plans.

Concerning a motivation for greater compensation flexibility, two studies found the adoption and presence employee ownership to be linked to higher variability of company profits. A desire for flexibility may also be manifested when firms adopt profit sharing or employee ownership following changes in performance, since these plans may assist firms in raising or lowering compensation without changing fixed wage levels. Four studies have found that worse firm performance, and two have found that better firm performance, predicts the adoption of these plans. Some employers may adopt employee ownership plans to discourage unionization, hoping that such plans encourage employees to focus on company performance and identify with employers (accounting in part for unionists' longstanding uneasy relationship with employee ownership and profit sharing). Studies are, however, split on whether unionization is higher or lower in firms with employee ownership. Finally, there may be tax, legal, or other financial concerns that motivate the adoption of employee ownership. Two advantages of employee ownership plans in the USA is that they can provide a ready source of accessible capital for firms and help ward

⁹ The National Center for Employee Ownership has prepared an extensive report on Employee Ownership Legislation Around The World that is available at <http://www.nceo.org/library/aroundtheworld.html>; it includes both an explanation and overview of the legislation itself and a closer look at the situation in each country—their main website is www.nceo.org.

off hostile takeovers, although it is not apparent that these are major factors in their adoption (Kruse, 1996).

In sum, substantial minorities of workers are covered by employee ownership arrangements in industrialized countries, but disparate findings from prior studies have not provided clear answers on what factors predict the use of profit sharing and employee ownership. There have been contradictory findings on even basic variables such as unionization and capital intensity. One interpretation is that decisions to implement these plans are largely idiosyncratic, reflecting a large role played by employer discretion and/or specific workplace cultures and characteristics that are not easily measured. A case can clearly be made, however, for more research with better measures of factors likely to influence adoption. In particular, there is a need for more studies using panel data to predict the adoption decision, which can greatly help sort out heterogeneity and causality issues. One conclusion is clear, however, the facile assumption many economists and members of the press and public that failing firms mainly use employee share schemes is grossly overstated and represents mainly a reaction to popular newspaper and TV coverage, not research.

3.3 Broad-based stock options plans: incidence

Broad-based stock option plans have been on the rise over the last decade. There is little detailed case study and econometric research of their impact on company performance. This review focuses mainly on data about options that were actually granted because there is a significant gap between this and company reports about how many employees are theoretically eligible for options. Studies are contained in Weeden, Carberry, and Rodrick (1998) unless they are separately. Nevertheless, four of these studies, however, sample important populations of companies and find an increasing use of such plans. First, the William M. Mercer studies of the proxies of the 350 largest public companies find an increase in the percent of companies actually granting stock options to all employees from 5.7 per cent in 1993 to 10.3 per cent in 1997. (Mercer 1997; Weeden, Carberry, and Rodrick 1998: 199) Second, the Center for Effective Organizations of the University of Southern California did studies of Fortune 1000 firms (279 in 1993 and 212 firms in 1996) and found that the percentage offering such plans to 100 employees remained at 10 per cent, but the percentage offering broad plans to more than 20 per cent of employees went up from 30 per cent to 51 per cent (Lawler, Mohrman, and Ledford 1998: 34). Third, the Arthur Anderson survey of the largest 1250 global corporations found 33 per cent offered such programmes to all employees and 11 per cent planned to add them in the future. Finally and fourth, in 1998, the USA Federal Reserve Board economists in 12 regions surveyed 415 companies in varied industries and found that about a third had broad-based programmes and 37 per cent had broadened the participation in the last 2 years. Sixty-seven per cent of companies offered stock options to employees of lower occupational levels such as managers and professionals.

Other studies offer additional insight on the diffusion of this new form of equity participation. The Hewitt Associates study of 1200-2000 companies from 1991-7 is the largest study but does not discriminate between plans that make all or most employees eligible versus those that actually make grants and it may include some employee share purchase plans (although it does exclude retirement plans). This is a key distinction since many corporations actually make most or all of their workers eligible for stock options

without ever actually giving them to most or all employees year after year. It can be the source of great inaccuracy. The Share Data study found a four-fold increase in the number of larger companies that made stock options available to all employees. (Share Data, 1997) Analyses of the size of firms involved however yield inconsistent results with hi-tech samples showing a preponderance of smaller firms and more diverse industry samples, such as the Federal Reserve Board 1998 sample, showing a preponderance of larger corporations.

While it is tempting to ascribe the rising incidence of these plans to economic performance, a recent USA Federal Reserve Board study underlines the widely held view that such plans may be popular because currently generally accepted accounting principles allow firms to record the expense for these options as zero. This is because they measure the value of an option by its intrinsic value, that is, the difference between the market price on the grant date and the exercise price. When firms grant options with a fixed exercise price equal to or greater than the market price of the grant date (so-called fixed plan options), the intrinsic value of the option, and thus the recorded expense, is zero (See Lebow, Sheiner, Slifman, and McCluer, 1999: 4-5). While this extremely favourable method of accounting has been controversial with the Financial Accounting Standards Board, institutional investors, and some shareholders, corporations have engaged in repeated successful struggles with these groups in the 1990s to retain the favourable practice. As a compromise, since 1997 the Financial Accounting Standard Board Statement Number 123 required that companies now report the pro forma effect on net income and earnings per share had they been required to take an accounting charge for the fair market value of all stock options on the date of grant. A 1998 survey of the largest 200 industrial and service corporations found that the pro forma negative impact on net income was 3.8 per cent at the mean for 181 of the companies, but the figure was greater than 6 per cent for 13 per cent of the companies and greater than 10 per cent for 13 per cent of the companies (Pearl Meyer, 1998). We should caution that this is not clearly a study of broad-based plans and probably focuses mainly on executive or executive and management plans and simply provides some insight into how the pro forma adjustment affects large corporations with stock option plans for any category of employee participating.

3.4 Broad-based stock option organizations: company characteristics

In our recent research we find there to be a number of company characteristics which differ from other similar 'non-stock option firms' (Sesil, Kroumova, Blasi and Kruse, 2000a). We find stock option companies tend to be larger and have higher employment levels than otherwise similar firms. These firms also have greater levels of sales and capital intensity. Also they are more likely to be found in manufacturing (includes high-technology firms) and the service sector. Additionally, in a second paper (Sesil, Kroumova, Blasi and Kruse, 2000b) we compare high technology firms which offer broad-based stock options to high technology firms which do not in order to evaluate the performance effects. We find essentially the same company characteristics including the fact that there are significantly greater R&D expenditures per employee. Within high-technology firms we find that broad-based stock options are more common in semiconductor and software companies than in pharmaceutical or high technology manufacturing. Furthermore, we also compare the usage of these stock options in union and non-union firms (Kroumova, Sesil, Kruse and Blasi, 2000). Here we found that Unionized firms were 9.4 per cent less likely to have a stock option plan in 1997. Nevertheless, it should be noted that broad-based stock option

plans were not uncommon among unionized firms in the USA and have been adopted by a modest number of such firms. Again, Unionized stock option firms were larger in terms of both sales and employment levels in 1997.

4. Performance effects

4.1 Share ownership: impact on performance

At least 32 studies in the past 20 years have tackled the question of whether and how employee ownership affects firm performance. This section briefly summarizes the main conclusions from a review of 29 of these studies in Kruse and Blasi (1997), plus three more recent studies (Smith *et al.*, 1997; Ohkusa and Ohtake, 1997; McNabb and Whitfield, 1998).¹⁰ Some of these studies are of USA ESOPs only (comparing ESOP and non-ESOP firms either cross-sectionally, or before and after the adoption of an ESOP), while other studies look within groups of worker co-operatives attempting to measure the effects of different co-operative features. The remainder are of other forms or combinations of employee ownership, using comparisons with non-employee-owned firms and/or comparisons based on employee ownership features within firms.

As with the evidence on employee attitudes and behaviour under employee ownership, the studies on firm performance are split between neutral and favourable findings. While the majority of studies could not reject the null hypothesis of no significant relationship between employee ownership and performance, our meta-analysis of the ESOP studies found that we could reject this null hypothesis overall based on the disproportionate number of positive and significant estimates (79 per cent of the 333 reported coefficients were positive, and 17 per cent had T-statistics greater than 2). The average estimated productivity difference between ESOP and non-ESOP firms is 6.2 per cent, and the average estimated increase in productivity following adoption is 4.4 per cent.

Concerning worker co-operatives, an analysis of the Pacific northwest plywood co-operatives indicated that they had higher productivity, while the studies analyzing co-operative features found that three—membership, individual capital stakes, and bonus per worker—were linked to better firm performance. While most of these studies are of firms in western industrialized countries, it is worth noting that two studies of employee ownership in transition economies (Poland and Slovenia) found that firms with employee ownership had higher productivity (Jones, 1993; Smith *et al.*, 1997).

An important research issue in performance studies is selection bias in the types of firms and workers that choose employee ownership. Good performance may be a cause, rather than an effect, of employee ownership, or both may be dependent on other factors within the firm. The panel studies address the most basic form of selection bias, by controlling for pre-adoption performance levels. A number of studies have otherwise attempted to adjust for the potential endogeneity of employee ownership, with little substantive difference in the results. There are few data on what types of workers choose to work in employee

¹⁰ As with the employee attitude studies surveyed above, these studies used systematic data collection across a large sample of firms (excluding individual case studies), and statistical techniques to control for other influences upon performance and rule out sampling error.

ownership companies, but an analysis of workers who became enrolled in a group incentive scheme found that initially high and low performers were most likely to drop out, and average worker quality did not change (Weiss, 1987). The estimates appear unlikely to be biased, therefore, by firm or worker selection issues.

Other important aspects of firm performance are firm survival, growth, and stability. The theoretical literature on labour management gives no reason to expect that employee ownership will have positive effects on employment behaviour, and in fact tends to predict perverse responses to positive demand shocks. It should be noted that the institutional and decision making structure of most firms with employee ownership is far from that assumed in the labour-managed firm literature—it is extremely rare to have all employees participate both in ownership and in company decisions on a one person/one vote basis. Nonetheless it is possible that employee owners will exert formal or informal pressure on managers to make employment decisions as predicted by the labour-managed firm literature.

Several studies have looked at employment behaviour and survival of employee ownership firms. The one study focusing on the predictions of the labour-managed firm literature examined USA plywood co-operatives, comparing their employment behaviour to that of conventional plywood firms (Craig and Pencavel, 1992, 1993). There was no perverse employment response to demand shocks among the co-operatives; rather, co-operatives appeared to be inclined to put a large weight on employment, adjusting pay rather than employment as demand changes.

Another study analyzed USA public companies with broad-based employee ownership plans holding more than 17 per cent of company stock as of 1983 (Blair *et al.*, 2000). These companies also appeared to put a greater weight on employment than conventional companies, given that they were more likely than comparable public companies to survive until 1995, and had significantly lower variability of employment (both among the survivors and non-survivors). The employment stability did not, however, appear to come at the expense of firm efficiency, given that the stock market performance of the employee ownership firms was slightly better than that of other firms.

The employee ownership companies in this study did not, however, have faster employment growth than other public companies, in contrast to the results of two other studies comparing employment growth before and after the adoption of ESOPs (Quarrey and Rosen, 1993; Winther and Marens, 1997). These studies found that employment growth was faster after ESOP adoption, particularly among firms that had greater levels of employee participation in decision making.

Finally, the survival of French worker co-operatives was examined in Estrin and Jones (1992). Contrary to predictions that co-operatives will either fail or degenerate into capitalist firms as workers are hired, they found a high rate of survival and no evidence of degeneration, although the financial structures may have become increasingly inefficient over time.

4.2 Broad-based stock options: impact on performance

The financial impact of these plans has been mainly evaluated in relation to their impact on outside shareholders. Four studies have estimated the percent of market value represented by all outstanding options. In the late nineties, the percent of dilution ranges from 5.5 per cent at the median to 17.4 per cent with the higher estimates consistently coming from high technology company surveys, although a recent 1998 National Center for Employee Ownership study found the average dilution to be 12.6 per cent with a third of the companies above 15 per cent. Another 1998 study of the 200 largest industrial and service corporations put the average at about 13.2 per cent for all options outstanding for all equity programmes except stock purchase plans and ESOPs although it is unclear if this study includes only broad-based stock option plans (Pearl Meyer, 1998). The largest study available deals with the top 1500 Standard & Poors corporations but it considers both stock option and other stock plans. One analysis of this data found that overhang (i.e. potential dilution from all options outstanding) dramatically increased from 5 per cent to 13 per cent from 1988 to 1997. This study concludes that companies with an overhang of 10.6 per cent (close to the ceiling of 10 per cent publicly announced by many institutional investors) have median total shareholder return that is significantly greater than the highest third of companies with overhang of 18.7 per cent. However, high technology companies have higher overhang than other industries, they have faster five year sales growth, and they can tolerate a higher overhang (16 per cent) without hurting total shareholder return (Watson Wyatt Worldwide 1998 ; Investor Responsibility Research Center 1997). Given that most institutional investors object to dilution potential above 10 per cent, it is clear that broad-based stock options could potentially represent a significant drain on total shareholder return. Indeed, there appears to be a brewing conflict with outside shareholders over options in general. According to Watson Wyatt Worldwide, the average overhang among major companies hit 13 per cent in 1997, up from 5 per cent in 1988.

Moreover, four studies have examined repricing of options where corporations change the option strike price after it becomes clear to them that their employees will not reap any financial benefit because the share price is not increasing as rapidly as they originally had hoped. These studies show that 15-36 per cent of companies reprice their options with 36 per cent engaging in repricing in the latest 1998 study. Repricing is yet another area where government regulators are changing their views about equity compensation trends. The USA Securities and Exchange Commission changed its long standing position in 1998 and required General DataComm Industries Inc. to include a resolution by an institutional investor (the State of Wisconsin Investment Board) for a binding shareholder vote for prior shareholder approval of repricing. In the past the SEC viewed such practices as matters of ordinary business operations to be governed by boards and not open to shareholder decision making. (Pearl Meyer, 1998: 15). Among 20 very large companies with broad-based plans, their average commitment of common shares outstanding is 3.4 per cent. Three of these companies have adopted an evergreen provision for stock option share authorization whereby 1 per cent of their shares is automatically added to the stock option pool annually (Hewitt Associates 1997: 24). The key question about the dilution issue is whether broad-based stock option plan's dilution effect is greater than their incentive effect on total shareholder return or not.

In our three papers we evaluate the impact of broad-based stock options on the performance of firms. As discussed earlier, we conduct this analysis broadly across the

economy, in high-technology firms and in union and non-union firms. We discovered, in general, in all these settings, firms which granted BBSO to its employees had better performance outcomes than otherwise similar firms which did not grant options broadly to its employees.

We also find firms which broadly grant stock options to all employees are performing better in a given year. In 1997, we find that in the full sample (Sesil, *et al.*, 2000a) BBSO firms have higher levels of labour productivity, return on assets, Tobin's q, and total shareholder returns. Both restricted samples of high-technology (Sesil, *et al.*, 2000b) and union BBSO firms (Kroumova, *et al.*, 2000) exhibit the same better performance in 1997. Additionally, during 1992-7 these firms were also faster growing in terms of employment, sales and in many of the performance outcomes. We also find that firms which broadly grant stock options exhibited total shareholder returns which were considerably better than the market as a whole.¹¹

While we evaluated a number of market- accounting- and output based measures, we found consistent evidence that productivity was higher in firms which offered broad-based stock options. We also found that after the introduction of broad-based stock options the market responded by significantly increasing the perceived value of the firm's intangible assets. These results continue to hold up in before-and-after comparisons and within-company performance when looking at labour productivity.

We found essentially the same performance outcomes when we look at high technology firms. However, in addition to better labour productivity we also find some evidence of greater levels of new idea generation as measured by patent applications. While there is also evidence that 'non' BBSO firms also have a high level of new product innovation, we cannot be entirely sure that these firms we determine to be non-BBSO firms are actually in this category. BBSO have become the norm in so many high-technology firms that it is likely that there is some measurement error associated with our 'non' stock option pair. Consequently, there may be a downward bias in our coefficients.

Additionally, we find in unionized firms that there to be considerably higher labour productivity and performance in firms where there are broadly dispersed stock options. We find unionized stock option firms have approximately 30 per cent higher labour productivity than non-union non-stock option companies. We find that when a before-and-after analysis is conducted we see significantly higher labour productivity and market value over replacement costs in unionized stock option firms.

5. Impact on employee attitudes and wages

How does employee ownership affect employee attitudes and behaviour? While this section will review mainly research studies, there is no question that the most relevant conclusion from surveys in the US is that employees feel quite positive about employee ownership. Recently, a review of over two decades of public opinion polls and surveys on this issue, Public Opinion Polls on Employee Ownership and Profit Sharing (Kruse and

¹¹ These descriptive statistics do not control for either omitted variable bias or reverse causality. These issues are addressed in the performance effects section of this paper.

Blasi, 1999) indicates strong public support for the ideas and the practices. Employee ownership may have positive effects if employees value ownership in itself or perceive that it brings greater income, job security, or control over jobs and the workplace. On the other hand, it may have negligible or even negative effects if employees perceive no difference in their worklives, dislike the extra risk to their income or wealth, or have raised expectations that are not fulfilled.

There have been over two dozen published studies on employee attitudes and behaviour under employee ownership in the past two decades.¹² This section summarizes the key conclusions from a review of 26 of these studies (Kruse and Blasi, 1997), along with the results from three other studies (Grunberg *et al.*, 1996; Keef, 1998; Pendleton *et al.*, 1998). Most of the studies have made cross sectional comparisons between employee owners and non-owners (who may be in the same firm or in different firms), while a few have made longitudinal comparisons before and after the adoption or termination of employee ownership, and others have looked within groups of employee owners to see how attitudes are related to different plan features or employee characteristics. The studies surveyed here each addressed a number of topics, including: employee satisfaction (analyzed in 10 studies); organizational commitment/identification (12 studies); employee motivation (6 studies); attitudes toward union (3 studies); perceived and desired employee participation/influence in decisions (11 studies); satisfaction with an ESOP (2 studies); and behavioural measures such as turnover, absenteeism, grievances, tardiness, and injuries (6 studies).

The first conclusion from reviewing these studies is that there is no *automatic* improvement of attitudes and behaviour associated with being simply an employee owner. Some studies find higher satisfaction, commitment, and motivation among employee owners, but others find no significant differences between owners and non-owners, or before and after an employee buyout.

Second, where there are significant differences associated with employee ownership, they almost always show better attitudes and behaviour under employee ownership. Most of the studies of organizational commitment and identification find that they are higher under employee ownership, while the studies are mixed between favourable and neutral findings on job satisfaction, motivation, and behavioural measures.¹³ It is rare to find worse attitudes and behaviour under employee ownership; only one study found lower satisfaction among employee owners compared to a nationwide sample, but this was in an ESOP company where the union had lost a bitter strike the year before.¹⁴

¹² The studies were selected based upon the criteria that they used systematic data collection from representative samples of employees, and that they used statistical techniques to rule out sampling error. Many but not all of the studies used multivariate analysis to hold constant the effect of other salient variables on employee attitudes or behaviour.

¹³ The behaviours studied include turnover, absenteeism, grievances, tardiness, and injuries.

¹⁴ Reminders by management that the strike would hurt ESOP account values brought the response 'We don't vote; we don't control the company; we don't care' (Kruse, 1984).

Third, while several studies find improved attitudes under employee ownership, this is almost always due to the status of being an employee owner, rather than to the size of one's ownership stake.

Fourth, a number of studies find that attitudes and behaviour are positively linked to greater perceived or actual participation/influence in decisions. Increasing employee participation and influence makes greater use of employee skills and knowledge, and may be an important complement of employee ownership that can improve attitudes and performance. It should be noted, however, that these studies could not definitely establish causality: better attitudes and behaviour may lead to higher perceived or actual participation, or the two may reflect similar orientations to the company. The importance of participation is indicated by the finding of Pendleton *et al.* (1998) that opportunities for participation in decision making were more important than ownership *per se* in generating feelings of ownership.

Fifth, despite the possible benefits from increased participation in decisions, there is no automatic connection between employee ownership and either perceived or desired employee participation. The decision making in a large number of employee ownership firms is no different than in conventional firms. This suggests that many firms with employee ownership are not doing enough to develop a corporate culture and employee empowerment mechanisms that can positively complement employee ownership.

Finally, while some unions have resisted employee ownership out of concern that it may divide worker loyalties or make the union appear obsolete, there is no evidence of decreased need or desire for union representation in employee ownership firms (shown in part by strikes that have occurred at employee-owned firms).

Do employees sacrifice other pay and benefits for a share in ownership, or do these purely add to worker income and wealth? In contrast to the employee attitude and firm performance literatures, there have been few studies here.

There were a number of cases in the early 1980's in which unionized employees accepted employee ownership or profit-sharing in exchange for concessions in pay or benefits (Bell and Neumark, 1993). In addition, some employees have taken lower wages as part of employee buy-outs, such as occurred in the United Airlines case. Generally, however, workers in employee ownership plans do not appear to have lower average wages or compensation. In Blasi *et al.* (1996) we examined public companies in which broad-based employee ownership plans held at least 5 per cent of company stock as of 1990, making those major stakeholders according to SEC definitions. The companies with such an employee ownership stake had 8 per cent higher average compensation levels than other comparable public companies, and compensation increased with the percentage of stock held by employees. Compensation growth from 1980 to 1990, however, was no different between the two types of companies. A closer examination of pay and benefits in ESOP and non-ESOP firms was made by Kardas *et al.* (1998), who found that ESOPs appear to add to worker pay—coming on top of (rather than at the expense of) regular pay and other benefits. ESOPs also appear to add to pension wealth, coming on top of other pension assets, but do not appear to affect the distribution of pay within firms.

In sum, while some employees have accepted lower compensation in exchange for employee ownership and/or profit sharing in some situations (such as in concessionary situations), the overall average pay of workers in these plans appears to be at least as high as, and is probably higher than, that of other workers. However, we underline one more time that trading existing pay and benefits for stock is not the main mechanism explaining the receipt of employee ownership or broad based options in the USA today or over the last two decades. The findings on the larger overall average pay of workers in such plans may partly reflect higher average productivity levels in employee ownership and profit sharing companies (representing a compensating differential for greater expected effort) or the use of efficiency wages in combination with employee ownership and profit sharing to motivate workers. While limited data indicates that ESOPs add to pension wealth, there has been no research on how employee ownership and profit sharing relate to overall wealth of individuals.

There is very little research currently associated with employee attitudes and the use of broad-based stock options. In one of our papers we evaluate the compensation levels and growth in broad-based stock option companies; we find that these firms pay higher prior to the introduction of stock options and continue to pay better after their introduction (Sesil *et al.*, 2000a). This is counter to the notion that the firm may use stock options as a substitute for fixed wages. This is similar to the finding associated with profit-sharing firms which also pay higher prior to introduction of profit-sharing plans and continue to do so after their introduction (Kruse, 1993).

6. Conclusion

Several broad conclusions from this review are that:

- Employee equity stakes do not magically and automatically improve employee attitudes, behaviour, and firm performance whenever they are implemented.
- While there are a number of findings that employee attitudes, behaviour, and firm performance are either improved or unaffected by employee ownership, it is rare to find worse attitudes or performance under employee ownership.
- Employee ownership is linked to 4-5 per cent higher productivity on average, although the dispersion of performance outcomes is just as great as among other firms.
- Employment stability and firm survival may be enhanced by employee ownership.
- Pay is higher among employee owners.

These conclusions fly in the face of both very rosy views and very unfavourable views of employee ownership. While the numerous studies have yielded important insights, they do not permit an easy answer to the question of whether employee ownership and broad-based stock option plans are fundamentally good or bad for workers and firms. Based on the accumulated evidence, it is very likely that employee ownership has improved the workplace environment and performance in many firms, and many workers have benefited from greater pay, firm survival, and employment stability. It is also clear that employee

ownership makes little difference in many workplaces, and in a few cases have undoubtedly exposed workers to significant financial risk.

Why does employee ownership appear to sometimes have a good effect, but often have no effect? Some studies have tried to track the organizational mechanisms that may lead to better outcomes under employee ownership, such as by examining the role of employee participation in decisions that can create a greater sense of partnership and ownership. A few studies do show positive interactions with worker participation in decisions—particularly with improved employee attitudes and employment growth under employee ownership—although others do not find a connection.

At a minimum, the results indicate that substantial expansion of employee ownership and broad-based stock options is very unlikely to hurt, and may well enhance, economic outcomes for workers, firms, and economies. Given that existing studies show that employee ownership may have significant potential to improve economic well being, what new research should be done? The few studies on employment stability, growth, and firm survival have provided tantalizing indications that employee ownership may add to job security without sacrificing firm performance. There clearly should be more research in this area, given growing concerns about economic insecurity due to international trade, technological change, and capital mobility.

A valuable complement to the above research would be more study of pay levels and trends among workers in employee ownership and broad-based stock option companies, to examine why pay levels appear to be higher in such companies, and the extent to which worker pay and wealth may trade off against employment security and other outcomes.

Regarding employee attitudes, behaviours, and firm performance, new data and measures are needed to make sense of previous dispersed findings by identifying the organizational mechanisms through which employee ownership has an effect. The disparate measures of employee participation that have been used have not produced a clear answer, indicating measurement problems and/or the importance of other workplace policies and characteristics. Intensive case studies may be a valuable prelude to development of better measures. In addition (apart from such case studies), the era of cross-sectional studies on these topics is basically past: new studies should be based on panel data from samples that are as representative as possible, in order to be more certain of causality, examine trends, and be more confident about generalizing. Such research can provide insights into whether employee equity stakes will necessarily cover only a minority of firms and workers, or alternatively, have significant potential to become more widespread.

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