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EMPLOYEE OWNERSHIP, EMPLOYEE
ATTITUDES, AND FIRM PERFORMANCE

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ABSTRACT

Employee ownership in U.S. companies has grown substantially in the past 20 years. This paper reviews and provides some meta-analyses on the accumulated evidence concerning the prevalence, causes, and effects of employee ownership, covering 25 studies of employee attitudes and behaviors, and 27 studies of productivity and profitability (with both cross-sectional and pre/post comparisons).

Attitudinal and behavioral studies tend to find higher employee commitment among employee-owners but mixed results on satisfaction, motivation, and other measures. Perceived participation in decisions is not in itself automatically increased through employee ownership, but may interact positively with employee ownership in affecting attitudes.

While few studies individually find clear links between employee ownership and firm performance, meta-analyses favor an overall positive association with performance for ESOPs and for several cooperative features. The dispersed results among attitudinal and performance studies indicate the importance of firm-level employee relations, human resource policies, and other circumstances.

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I. Introduction

Employee ownership of companies has attracted considerable attention in the business, labor, public policy, and academic communities over the past two decades. There has been substantial growth in employee ownership over this time. Much of the growth in employee-owned stock in the U.S. has come through Employee Stock Ownership Plans (ESOPs, first given recognition and special tax treatment as a form of pension plan by ERISA--the Employee Retirement Incomes Security Act of 1974), but there has also been considerable growth through other types of plans (Conte and Lawrence, 1992; Blasi and Kruse, 1991). In addition, there has been strong interest overseas in employee ownership as one form of employee financial participation scheme, and a component of privatization programs as in the case of the Russian Federation (Poole and Jenkins, 1990; Uvalic, 1992; Blasi, 1994; Boycko, Shleifer, and Vishny, 1995).

Interest in employee ownership has centered on its potential to broaden the distribution of wealth, and to improve economic performance through increased workplace cooperation and information flow. Experience makes it clear that employee ownership, by itself, does not magically create a harmonious workplace (exemplified especially by the occasional strike at firms with majority employee ownership, although there is no general evidence of greater unrest in such firms)(Kruse, 1984; Whyte et al., 1987). Rather, the relationship of employee ownership to economic performance depends upon the circumstances in which employee ownership is implemented, the history of employee relations in the company, and other company policies that may support or work against positive effects of employee ownership.

This study will first address the types and recent trends in employee ownership, followed by evidence on the factors influencing growth and adoption.

Next, it will review available research, both from U.S. and international sources, on employee attitudes and behavior under different forms of employee ownership (from a total of 25 published and unpublished studies). This evidence uses three types of comparisons:

- 1) between-groups cross-sectional comparisons of employee-owners and non-owners (who may be in the same firm or in other firms);
- 2) longitudinal comparisons before and after the adoption or termination of employee ownership.
- 3) within-groups cross-sectional comparisons of employee-owners with different plan or employee characteristics.

Finally, it will review available research on the productivity and performance effects of employee ownership, looking at cross-sectional and longitudinal evidence on the presence of employee ownership, and at the effects of different features of employee ownership plans and companies (from a total of 27 published and unpublished studies). The last section contains a brief summary and discussion of implications.

II. Types and Prevalence

There is a variety of ways in which employees may share in the ownership of their company. Employee ownership is not a simple, unidimensional concept that permits an easy classification of a firm as "employee-owned," or of an employee as an "employee-owner." A company may be, for example, 100% owned by only 25% of employees, or only 25% owned by all employees (with the rest held outside the firm), or 100% 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 cooperative), and in part by the voting rights and other forms of participation accompanying the ownership.

We define significant employee ownership as ownership of common stock or partnership stakes (as in a cooperative) exceeding 5% of the total market value of this equity, held by a group that includes substantially more employees than the senior executive team and key middle managers. This does not, however, mean that such companies should be called "employee owned." We reserve the term "employee owned" for a corporation or legal entity that is more than 51% owned by its employees, including most of its employees broadly represented (see Blasi and Kruse, 1991: 7).

Two fundamental forms of employee ownership in the U.S. are the cooperative and the ESOP. In a cooperative, ownership is held collectively by the members, and ultimate decision-making power is wielded by the membership typically on a one person-one vote basis. Not all employees must be members, and it is very possible that individual ownership stakes will vary among members based on the capital provided by each member. Cooperatives are concentrated among small- and medium-sized firms (with no more than several hundred members), and have existed in the U.S. since the 1800's in a variety of industries (Jones, 1979). (For a thorough review of theory and evidence on cooperatives, see Bonin, Jones, and Putterman, 1993.)

ESOPs, as noted, were first given recognition and special tax treatment

as a form of pension plan by ERISA in 1974. In an ESOP, a pension trust is set up that must invest its assets "primarily" in employer securities. The sponsoring employer makes contributions to the trust in the form of company stock or cash to buy stock, and the trust assets are allocated to employee accounts. As with other forms of "defined contribution" pension plans, the employer's financial obligation is satisfied once the contribution is made, and the employee bears the subsequent financial risk associated with changes in the value of assets. The employee is entitled to the value of the account upon retirement or departure from the firm (subject to having met the vesting requirements for the plan, based upon the number of years spent working for the employer). Unlike other pension plans, ESOPs may be "leveraged": they may take out loans for the sponsoring company. The number of companies with ESOPs doubled over the 1980's, from 4,367 with 3.1 million participants in 1980 to 8,558 with 6.4 million participants in 1991 (Conte and Lawrence, 1992: 143; U.S. DOL, 1994: 44).¹

Apart from cooperatives and ESOPs, there is a variety of other ways in which employees can share in ownership of their company. One route is direct ownership through stock purchase plans: an estimated 8.9% of U.S. employees directly owned company stock in 1983 (19.7% for management and 7.0% for non-management employees)(Brickley and Hevert, 1991). Another route is through other types of broad-based retirement plans. Conventional defined-benefit pension plans are not allowed to invest more than 10% of their assets in employer securities, in order to ensure diversification of assets to minimize financial risk. Defined contribution plans may, however, be structured to avoid this limit, so that a substantial amount of assets can be invested in employer stock. Two popular kinds of plans that may do this are deferred profit-sharing plans

(with 15.5% of large plan net assets in employer securities) and 401(k) plans (with 18% in employer securities)(Papke, 1992: 468; U.S. DOL, 1994: 36). Overall, large defined contribution plans had \$106.5 billion (17.4%) of plan assets invested in employer securities in 1991 (U.S. DOL, 1994: 8). An estimated 32.1% of all adult shareowners in the U.S. got their start in share ownership through an employee plan (NYSE, 1990: 20).

Of U.S. companies with more than 10 employees, approximately 2000 have a majority of stock owned by their employees (Rosen, 1994). The number of companies and employees with minority employee ownership, however, is far larger. An estimated 10,000 companies have employee-owned stock exceeding 4% of company holdings (Blasi and Kruse, 1991: 13). There are almost 11 million participating employees in such companies, representing 12.5% of the private sector workforce. Among companies with public stock, where the SEC defines a 5% stockholder as a major stakeholder, almost 1000 companies have more than 4% of stock held broadly by employees, with average employee holdings of 12%. Of the total assets held by employee-owners in public companies where employee ownership represents more than 4% of the company's equity, a little more than half (53%) is held through ESOPs, with the remainder held in the other forms discussed above (Blasi and Kruse, 1991: 13).

III. Factors Influencing Adoption

What accounts for the growth in employee ownership over the past two decades? There has not been a large amount of work on this topic. Favorable tax treatment of certain forms of employee ownership (particularly ESOPs) is one factor; for example, retiring owners are able to avoid capital gains taxes by selling stock to an ESOP (under the Economic Recovery Tax Act of 1981). In

a 1986 survey of why companies formed ESOPs, 74% of respondents cite tax advantages as a reason, while 38% cited the buyout of a major owner (U.S. GAO, 1986: 20). The most popular reason was to provide an employee benefit (91%), while other major reasons were to improve productivity (70%), reduce turnover (36%), transfer majority ownership to employees (32%), and raise capital for investment (24%). A more recent study on public companies' announced transactions involving employee ownership were classified in three areas in the following order of incidence: as an added employee benefit that involves employees in a corporate financial transaction; as part of wage and benefit restructuring; or as a takeover defense (Blasi and Kruse, 1991).

One might expect that small companies would be more likely to adopt employee ownership plans, where the connection between employee and firm performance is more direct; however, an analysis of public companies in the 1975-88 period found that larger companies were more likely to adopt ESOPs (although recent growth in company size did not affect the adoption probability)(Kruse, 1994). In addition, much popular attention was paid in the 1980's to cases in which unions accepted ESOPs or profit sharing in exchange for wage and benefit concessions (Bell and Neumark, 1993). Employee ownership plans were involved in 40 situations of wage reductions or pension plan terminations reported in the news during this time (Blasi and Kruse, 1991: 325-329). Only 3% of the growth in ESOP participants in this time, however, occurred in firms terminating defined benefit pensions, while 75% occurred in firms adopting or maintaining defined benefit pensions (Kruse, 1995). ESOPs were equally likely to be adopted in union and nonunion companies (Kruse, 1994). The growth appears highest in the Northeast and industrial Midwest (Smela, 1995).

The use of ESOPs in concessions led to a perception that ESOPs were

primarily adopted by companies undergoing economic stress or variable fortunes; however, recent changes in profitability and stock price had no significant effect on the probability of ESOP adoption among public companies, while high variance in profitability had a positive but very small effect on this probability (Kruse, 1994). The relative unimportance of concessions is further reflected in the GAO survey, which found that only 3% of ESOP companies cited wage concessions as an reason for forming an ESOP, while 4% said that the ESOP was to save a failing company (1986: 20). Also, a stock price performance index for public companies with more than 10% employee ownership has beat most market averages from 1991 to 1994, which is inconsistent with the idea that employee ownership plans are mainly adopted by companies undergoing economic distress (American Capital Strategies, 1994). Chaplinsky et al. (1994) find, however, then when a buyout of a public company occurs, poor stock performance and high employee earnings growth predict an employee buyout rather than a management buyout.

An additional factor in employee ownership in public companies has been its use to ward off hostile takeover threats. Such threats led to the adoption or use of employee ownership plans in 96 reported cases in the 1980's, although the case law now makes it clear that such plans must be for the exclusive benefit of the employees (Blasi and Kruse, 1991). Only 5% of ESOP companies in the GAO survey said that hostile takeovers were a reason for ESOP formation (U.S. GAO, 1986: 20); however, many employee ownership plans installed in public companies in the late 80's and early 90's may have functioned as potential takeover defenses. Finally, employee ownership has used to help change a workplace culture in a few companies such as Avis, and most recently United Airlines and TWA, where employee ownership is part of a much larger effort to make the company more

competitive with greater employee involvement and more flexible work rules and compensation (Blasi and Kruse, 1991: 211-241).

Therefore ESOPs appear to be adopted in the U.S. for a wide range of reasons, with no simple set of clear predictors; this suggests a large role for managerial discretion or special company circumstances. Several studies have tried to predict the use of employee ownership outside of the U.S., but have reached no consensus of findings. Gregg and Machin (1988) and Poole (1989) find that employee ownership is more common in unionized and large companies in Great Britain, while Jones and Pliskin (1988) find that unionized firms in Canada are less likely to have employee ownership. Capital-intensive firms were more likely to have employee ownership in Poole (1989), but less likely in the Japanese firms studied by Jones and Kato (1993a). Finally, poor company performance was a predictor of employee ownership adoption by Jones and Kato (1993b), but Poole and Jenkins (1990) found exactly the opposite for their sample of British firms. In sum, there are no easily-generalizable findings from other countries about the types of firms that find employee ownership most attractive.

IV. Employee Ownership and Other Firm Policies

Clearly a large amount of the interest in employee ownership is tied to its potential for improving workplace cooperation and performance. As noted, it is apparent that simple implementation of employee ownership has no automatic connection to changes in workplace operations, attitudes, and performance. In what contexts might employee ownership be expected to have beneficial effects?

One of the often-cited drawbacks of group incentive schemes such as employee ownership is that the connection between individual performance and reward grows weaker as the number of employees in the group 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 cooperative 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 obvious. 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 cooperation, encourages social enforcement mechanisms. and so forth. (Weitzman and Kruse, 1990: 100).

The managerial approach to employee ownership, and the other human resource policies maintained by the firm, 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. Such skills and information may become available if there are programs 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 ownership" with higher employee commitment and motivation.

How employee ownership should be combined with other human resource policies to create complementarities cannot be answered by current theory.²

Careful employee selection and orientation may be combined with team-oriented work activities to reinforce peer pressure, mutual monitoring, and a high-effort norm, thereby establishing a cooperative solution to the 1/N problem.

Positive effects of employee ownership or involvement may require employment security so that workers need not fear that higher productivity will result in layoffs. Unionized firms are generally characterized by set work rules, compensation arrangements, and grievance procedures as a result of collective bargaining agreements. Union protections against arbitrary dismissal may enhance the potential of employee involvement plans (Levine, 1995; Cooke, 1994), and employee ownership may be a complementary way to share the fruits of higher performance. Also, social sanctions against shirkers may work better in union settings (Cooke, 1994). Rigid work rules, however, may act against cooperative arrangements, and human resource policies that establish a clear reward for union members to participate in more flexible rules might be appropriate. Nonunion firms are typically characterized by less formal grievance resolution policies and delineations of employee rights. It will probably be difficult to motivate nonunion workers in cooperative solutions without some alternative means of resolving individual employee grievances and a written employee handbook on rights and responsibilities of the employer.

With these initiatives as a basis, some of the following efforts might plausibly help to establish a sound connection between employee stock ownership and performance outcomes: reduction of middle-management and supervisory personnel to create a greater role for employees monitoring each other; elimination of certain restrictive work rule practices and introduction of work teams so that employees are more flexible and versatile in doing necessary work at any time; redesign of the work task itself to draw more fully upon worker

knowledge and skills; training in both the additional technical skills for such versatility and in group and individual problem-solving techniques; sharing of information on the firm's competitive position and the productivity and profitability of the firm and the employee's work area; input into management's strategic and tactical discussions that try to discern opportunities for improving firm performance; and some form of immediate financial reward, such as cash profit sharing or gainsharing bonuses, allowing employees to share periodically in near-term achievements.

As will be seen, the review of evidence on employee attitudes and behavior under employee ownership suggests that management must establish complementary mechanisms to connect the employee's initial identification with the firm through stock ownership with his or her attitudes, readiness to change, behaviors, and judgments about the work task.

V. Employee Attitudes and Behavior Under Employee Ownership

How does employee ownership affect employee attitudes and behavior? There is no clear a priori answer to this question. 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. Published studies on employee attitudes and behavior under employee ownership are summarized in Tables 1 to 5. Each table separates the studies into three types:

- 1) between-groups cross-sectional comparisons of employee-owners and non-owners (who may be in the same firm or in different firms);

- 2) longitudinal comparisons of employees before and after the adoption or termination of employee ownership.
- 3) within-groups cross-sectional comparisons of employee-owners with different plan or employee characteristics.

For each study there is a brief reference to the source of the data, the explanatory variables used, and the main results. These 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 (all results reported in these tables are based upon statistically significant findings at the 95% level of confidence, except where noted). Many but not all of these studies used multivariate analysis to hold constant the effect of other salient variables on employee attitudes.

It should be noted that these studies cover very different types of employee ownership, including highly democratic cooperatives and conventional ESOPs with little or no change in workers' roles, and companies saved from shutdown by employee buyouts as opposed to companies where employees had little or no role in implementing employee ownership. Therefore the tables and discussion attempt to note some of these features that could lead to very different effects on employee attitudes.

(a) Employee Satisfaction

Does employee ownership affect employee work satisfaction? The nine studies of satisfaction under employee ownership (Table 1) illustrate the lack of an automatic connection with employee attitudes.

INSERT TABLE 1

One striking finding is that no study finds a link between the size of one's

ownership stake and one's satisfaction levels (studies 2, 6, 8, and 9). A second striking finding is that several studies found greater satisfaction only for those employee-owners who perceived greater influence or participation in workplace decisions (studies 6, 8, and 9, while study 1 found greater satisfaction for those participating in cooperative functions). Whether the higher satisfaction is an effect of actual higher participation/influence, or the two simply reflect similar orientations to the job or company, is not certain; it is nonetheless noteworthy that the two are strongly related in employees' minds. Several studies show higher satisfaction with work or a greater willingness to take the same job again (1, 2, 5, 7), but there are several samples with no relationship between satisfaction and ownership (in studies 2, 3, 4, and 5), and one with lower satisfaction among employee-owners (study 4) where the union had lost a bitter strike the year before (where 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).

(b) Organizational Commitment and Identification

Does employee ownership increase organizational commitment and identification? The eleven studies of organizational commitment under employee ownership, summarized in Table 2, are somewhat more favorable than for satisfaction.

INSERT TABLE 2

As with the findings on satisfaction, the size of one's ownership stake had no effect on commitment in two studies (7 and 10), but had either a direct or

indirect positive influence in two others (1 and 9). Again, the role of perceived influence/participation in decisions appears strong, having a positive effect on commitment in four studies (5, 7, 9, and 10)--suggesting that worker participation may complement employee ownership. Employee owners have higher commitment in some samples (studies 1, 2, 3, 4, and 7, with one supportive finding in 6), but not all (study 1, and 7 for those not perceiving increased participation). One study of a longstanding employee-owned firm found that employees with "participatory" values (putting a premium on the opportunity to participate in workplace decisions, and on good relations with co-workers and managers) had higher commitment, while those with "instrumental" values (focusing on size and fairness of income, job security, and work conditions) had lower commitment (study 11).

(c) Employee Motivation

Does employee ownership increase employee motivation, by tying employee incentives more directly to firm performance? Table 3 summarizes the six studies that directly measured employee motivation.

INSERT TABLE 3

Simply being in an ESOP is not associated with higher motivation (study 2), while cooperative members have been found to have higher performance-reward contingencies (study 4) and quality of work (study 5). Motivation may be linked to size of stakeholding (study 1) or to perceived participation in decisions (studies 3 and 6).

(d) ESOP Satisfaction

While the foregoing studies have attempted to measure employee attitudes

and relate them to employee ownership, two studies have looked within ESOP companies and tried to determine what makes employees satisfied with the ESOP itself. Looking at one company, Buchko (1992) found that both the value of one's ESOP account, and the employee's perceived influence from the ESOP, are significant predictors of ESOP satisfaction (although the latter result may simply reflect a generally favorable disposition toward the ESOP). Using a much larger sample of 37 ESOP companies, Klein and Hall (1988) find that general organizational commitment is the most powerful predictor of ESOP satisfaction; other significant predictors were the size of the company's ESOP contribution, the extent of the company's employee communications strategies, and the degree to which managers perceived the ESOP as central to management philosophy.³

(e) Perceived and Desired Decision-Making

How does employee ownership affect employee views of how workplace decisions are, and should be, made? Several of the preceding results indicate that employee attitudes are better under employee ownership only if perceived worker influence or participation in decisions is higher. Table 3 summarizes three studies on the role of the union under employee ownership, while Table 4 summarizes 10 studies on perceived and desired employee participation or influence on workplace decisions.

The studies on role of the union are summarized quite simply: There was no decrease in the perceived need for the union in any study, and in fact a perceived increase in two studies. In addition, there was little change in employee commitment to union activities or the perceived role of the union, although both owners and non-owners had increasingly favorable views of union-management cooperation in one study (9).

While employee participation may be important in how employees view

employee ownership, there is no automatic connection between employee ownership and the levels of perceived and desired influence and participation in decision-making, as the ten studies of Table 4 make clear.

INSERT TABLE 4

Some of the employee ownership cases involve formal employee participation in decisions (particularly in cooperatives), while others involve no change in workplace decision-making. Just as the size of the ownership stake seems to make very little difference in employee satisfaction and commitment, it is not important in either perceived or desired participation or influence (studies 1, 2, 7, 9, 10). Looking at ownership status, actual participation levels were perceived to be higher for employee-owners in three studies (1, 5 and 6, the latter two of cooperatives), and for certain groups of workers in two studies (2, 3), but there were no significant differences in two others (4 and 8).

Whether or not employee ownership results in changes in workplace decision-making, it may be the case that employee ownership raises employee desires and expectations for increased participation in decisions as one of the perquisites of ownership. While this idea is borne out in some case studies and interviews, it does not receive much support in the attitude studies. Ownership status made little or no difference in desired participation or allocation of power in two studies (3 and 10), and there was a decline in desired worker participation after an employee buyout in one study (8). To explain this latter result, Long speculates that company growth made employees wary about worker participation given the uncertainty about commitment levels of new employees, and that employee ownership may have made employees put more trust in managers to make decisions

maximizing firm value.

(f) Employee Behavior

Employee attitudes may be reflected in behavioral measures such as turnover and absenteeism. Table 5 summarizes five studies that provide some behavioral measures.

INSERT TABLE 5

Once again, simple existence of employee ownership appears to have no automatic effect on behavior, but may have an effect combined with worker participation or influence. Turnover and grievances did not decline in an ESOP firm that was sold without worker vote or input (study 3), but were lower in a cooperative (study 4); also, perceived influence due to the ESOP decreased turnover in an ESOP company (study 1). Two studies on injury levels came to mixed conclusions (studies 4 and 5) as did two studies on absenteeism (studies 2 and 4).

VI. Productivity, Profitability, and Employee Ownership

Given the wide variety of forms of employee ownership and circumstances in which it is implemented, and the dispersion of findings relating employee attitudes to employee ownership, it is to be expected that there is no simple direct connection between employee ownership and firm performance. This section summarizes the research literature on company performance and employee ownership.

Three types of studies will be reviewed and discussed, comprising:

- 1) studies of U.S. ESOPs, comparing ESOP and non-ESOP firms either cross-sectionally, or before and after the adoption of an ESOP (Table 6);
- 2) studies of worker cooperatives, most attempting to measure the effects

of different cooperative features (Table 7); and

- 3) studies of other forms of employee ownership (sometimes including ESOPs), using comparisons with non-employee-owned firms and/or comparisons based on employee ownership features within firms (Table 8).

As with the employee attitude studies, those reviewed here were selected based upon the criteria that they 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 (all results reported in these tables are based upon statistically significant findings at the 95% level of confidence, except where noted). Note that the reviewed studies are of company productivity and profitability (with specific measures listed in the tables), and do not include other firm behavior such as employment and sales growth and changes (see Craig and Pencavel, 1992; Quarrey and Rosen, 1993; Chaplinsky et al., 1994).⁴

Each table provides a brief description of the data source, dependent variable(s), type of comparison or employee ownership measure used, number of coefficients reported, percentage of coefficients that are positive, and percentage of all coefficients that are positive with T-statistics greater than 2. Under the null hypothesis of no relationship between employee ownership and economic performance, 50% of the coefficients will (randomly) be positive, and only 2.5% of the T-statistics will (randomly) be greater than 2 (assuming that this is an unbiased sample of estimates made by researchers).⁵ While these figures provide a picture of whether employee ownership is likely to be associated with higher performance, the column titled "Major findings" provides an indication of the magnitude of the employee ownership effect.

(a) U.S. ESOPs

First, what is the record for ESOPs in the United States? They have attracted particular attention because of their special tax treatment. Table 6 summarizes nine studies that have compared ESOP to non-ESOP firms, using cross-sectional comparisons at one point in time, comparisons before and after the adoption of ESOPs (controlling for any fixed features of the firms that choose to adopt ESOPs, such as market placement or management quality), and/or comparisons of post-adoption growth.

INSERT TABLE 6

As can be seen in Table 6, only two studies (6 and 7) in themselves clearly support positive effects, both finding significantly higher post-adoption performance growth for ESOPs. The other ESOP studies almost uniformly find positive but mostly statistically insignificant estimates, so that sampling error cannot be ruled out within each study. Of the cross-sectional comparisons of productivity levels, 85% are favorable toward ESOPs (bottom, Table 6), with one-fifth of the coefficients positive and large enough to rule out sampling error at the 95% level. The average estimated productivity difference between ESOP and non-ESOP companies is 6.2%. While this clearly points toward higher productivity in ESOP companies, the high productivity may have existed even before the ESOPs were adopted. The pre- and post-adoption comparisons, though, indicate that over 80% of the estimated changes in productivity were positive, with one-sixth positive and strong enough to rule out sampling error. The average estimated productivity gain accompanying the adoption of an ESOP is 4.4%. The post-adoption comparisons of productivity growth show less of a difference

with non-ESOP companies: 65% of the estimates are positive and one-sixth have T-statistics greater than two, but the average effect is very close to zero.

While only two studies find significant positive effects of ESOPs, the pattern of signs and significance levels favor an overall positive relationship between ESOPs and performance. This is borne out by meta-analytic tests of signs and significance levels, employing the eight tests used in assessing profit-sharing studies in Weitzman and Kruse (1990). The tests were done separately for cross-sectional, adoption, and post-adoption estimates of the relationship between ESOPs and productivity. Most of the tests strongly reject, for each of the three types of comparisons, the null hypothesis of a zero relationship at the 99% level, with only one test failing to reject at the 95% level.⁶

While this evidence indicates that the overall association between ESOPs and performance is positive, there is very little information on the mechanisms through which ESOPs may affect performance. Two studies interacted productivity growth with measures of employee participation in decisions. Quarrey and Rosen (1986) found significantly higher post-adoption growth for ESOP companies that had participation groups (compared to similar non-ESOP companies) and for ESOP companies with higher management-perceived worker influence (compared to pre-adoption growth), while the U.S. GAO (1987) study found significant increases in productivity where the companies reported high levels of worker influence, but not where not the companies reported employee voting rights or an increase in worker influence after adoption.

(b) Worker Cooperatives

Table 7 summarizes eight studies of cooperatives, another well-defined group of employee ownership firms. In only one study are cooperatives compared to non-cooperative firms, while in seven the authors did cross-sectional

comparisons within samples of cooperatives to gauge the effects of various cooperative features on productivity (the percent of a firm's employees who are members, average individual capital stakes, collective reserves, worker loan capital, and bonus per worker). Table 7 separates these different features for each study, and provides (as in Table 6) a count of total coefficients, percentage positive, and percentage with T-statistics greater than 2.

INSERT TABLE 7

The one study comparing cooperatives to non-cooperatives (1) found 6-14% higher productivity for cooperatives, but the differences did not reach conventional significance levels. Three cooperative features have particularly strong connections to increased productivity: the percent of employees in the cooperative (77% positive, with 48% of T-statistics greater than 2), individual capital stakes per worker (66% positive, with 34% of T-statistics greater than 2), and the employee bonus (93% positive, with 52% of T-statistics greater than 2). The employee bonus is one measure of profit sharing, and these results closely match the findings from a survey of all other studies on profit sharing (Kruse, 1993: Table 3.1). While there are lower proportions of positive and significant coefficients for the collective reserves and loan capital measures, there are still more than would be expected under the null hypothesis of no relation to productivity, and meta-analytic tests of significance levels clearly reject this null hypothesis for each of these five features.⁷ It is noteworthy that bonus and individual capital stakes have a more direct connection to worker income and wealth than do collective reserves or loan capital, which may help explain their apparent stronger relation to productivity (although the direction

of causation may be questioned).

(c) Other Forms and Combinations of Employee Ownership

Finally, Table 8 covers the ten remaining studies of other forms of employee ownership (including studies combining ESOP and non-ESOP ownership), with both between- and within-group comparisons.

INSERT TABLE 8

An overall summary of these ten studies is greatly complicated by the variety in types of ownership studied (including stock options, stock purchase plans, direct ownership, and undefined plans), and the variety in types of measures and interactions. The only study to reach an overall negative conclusion is of companies with old stock purchase plans (study 9), while several studies find positive links with performance (1, 2, and 7). One of the studies finds a positive interaction between employee ownership and employee participation (study 3), while one does not (study 4).

This review has cumulated and meta-analyzed results only when the measures are equivalent across studies (ESOPs in Table 6 and cooperative features in Table 7, with very few common measures in Table 8), and has focused on significance levels rather than effect sizes (with the exception that average effect sizes are presented for the ESOP studies, where the calculations are straightforward). Doucinaliagos (1995) presents a meta-analysis of partial correlations derived from published studies on employee ownership, separating studies of cooperatives from all other forms of employee ownership in conventional firms.⁸ Among studies of cooperatives he finds a significant average partial correlation of .10 between individual capital stakes and performance, but an insignificant negative

correlation of $-.01$ between collective reserves and performance.⁹ For studies of other forms of employee ownership (combining ESOP and non-ESOP forms) the average partial correlation is $.02$ ($.05$ if the large-sample Kruse studies are excluded) which just borders on statistical significance.¹⁰ He finds that the dispersion of findings suggests the existence of important moderators that may be "conducive or nonconducive to productivity" (1995: 72); as discussed earlier, such moderators may include type and characteristics of ownership, and complementary practices and policies within the firm.

VII. Summary and Conclusions

Employee ownership has attracted attention for its potential both to broaden the distribution of ownership and to improve workplace cooperation and performance. In the U.S. there has been substantial growth in ESOPs and other forms of employee-owned stock over the past two decades. The limited evidence indicates that the primary reasons for adoption of employee ownership plans are to provide an extra employee benefit, improve productivity, and gain tax advantages, while it may have functioned as a potential takeover defense in many public companies. There have been several publicized cases of such plans adopted in exchange for wage and benefit concessions or otherwise to save failing companies, but such cases represent a tiny portion of the overall growth; most employee ownership plans are adopted and maintained in successful companies.

How does employee ownership affect a workplace? This paper has reviewed 25 studies on employee attitudes, behavior, and firm performance under various types of employee ownership plans (including cross-sectional comparisons between employee-owners and non-owners, longitudinal comparisons before and after employee ownership, or comparisons within groups of employee owners).

Generalizing about the attitudinal and behavioral evidence is made difficult by the great variety in types of measures, ownership forms, and circumstances in which employee ownership was implemented. Taking a simple tabulation of key results, most studies found a positive relationship between employee ownership and organizational commitment/identification (Table 2), while the studies are split between favorable and neutral findings on satisfaction (Table 1), motivation (Table 4), and behavioral measures (Table 5). The clearest overall conclusions are that:

- 1) Employee ownership does not magically and automatically improve employee attitudes and behavior whenever it is implemented; and
- 2) While there are a number of findings that employee attitudes and behavior are either improved or unaffected by employee ownership, it is rare to find worse attitudes or behavior under employee ownership.

Several other conclusions are strongly suggested by the attitudinal and behavioral studies:

- 3) Where there were differences in attitudes or behavior linked to employee ownership, they were almost always linked to the status of being an employee-owner, and not to the size of one's ownership stake;
- 4) Perceived participation in decisions, either by itself or interacting with employee ownership, was often found to have positive effects on employee attitudes;
- 5) Despite the possible benefits from increased employee participation in decisions, there was no automatic connection between employee ownership and either perceived or desired employee participation; and
- 6) There is no evidence of decreased need or desire for union representation in employee ownership firms.

Given that positive effects of employee ownership on workplace performance are predicated chiefly upon greater employee motivation and cooperation, it is

no surprise that results of firm performance studies are as disparate as those of the attitudinal and behavioral studies. This paper reviewed 27 studies of productivity and profitability, separating the studies into those examining U.S. ESOPs alone (Table 6), cooperatives (Table 7), and all other forms and combinations (Table 8).

Only two of the nine U.S. ESOP studies individually found positive associations between ESOPs and productivity growth; however, meta-analyses of these studies indicate positive and significant coefficients much more often than would be expected if there were no true relation between ESOPs and productivity (with positive coefficients on 85% of cross-sectional comparisons and 82% of longitudinal comparisons). The average estimated productivity difference between ESOP and non-ESOP firms is 6.2%, while the average estimated pre/post-adoption difference is 4.4%. While these results are noteworthy, it should be kept in mind that the high standard errors keep most individual estimates from being statistically significant, reflecting in part a high dispersion in the performance of ESOP firms relative to non-ESOP firms and pre-ESOP performance.

Of the studies of cooperatives, one found higher productivity compared to similar non-cooperative firms, while the studies of cooperative features found three--membership, individual capital stakes, and bonus per worker--with particularly strong links to higher firm performance. Finally, the remaining performance studies examine a variety of forms of employee ownership in the U.S. and other countries, including direct stock ownership, other pension-based forms, and ESOPs in combination with these. The dispersion in types of ownership and measures is matched by the dispersion in outcomes, with positive findings for Japanese ESOPs and small U.S. public companies, negative findings for old stock

purchase plans, and neutral or mixed findings across other studies.

As with the attitudinal and behavioral studies, the key findings that emerge from performance studies are:

- 7) There is no automatic connection between employee ownership and firm productivity or profitability; and
- 8) While several studies indicate better or unchanged performance under employee ownership, almost no studies find worse performance.

The finding that, on balance, employee ownership is associated with unchanged or better performance flies in the face of theoretical predictions that employee ownership will lead to deteriorating workplace relations, decisions, and performance.¹¹ While there is no evidence that existing levels of employee ownership have systematically led to negative outcomes, there is little evidence on the optimal extent of employee ownership, or what extent may in fact be dysfunctional for a corporation and its employees.

There has been little study of the salient organizational mechanisms that might help explain the actual connection between employee ownership and performance. A few studies have linked positive performance of employee ownership firms to employee participation in decisions, but the level, extent, and range of issues in such participation has not been sufficiently explored. Research has only scratched the surface on the range of other human resource policies that might produce positive complementarities with employee ownership. Also, will employees be more likely to engage in workplace transformation if they receive stock? Does employee ownership offer a better or simply an alternative path to gaining worker interest in such changes? These difficult questions need to be addressed by further research.

What will be the effects of the growth of employee ownership on the

industrial relations system and corporate governance? Unions may begin using stock ownership as the basis for organizing campaigns on corporate governance and performance (as has already happened with the Teamsters). With a growing number of significant employee ownership stakes in both public and private companies, there is a potential for these equity stakes to be the basis for a different kind of employee organization in nonunion firms--representing employees as investors (for example, both Polaroid and United have board representatives for nonunion employees). Small institutional investor stakes (sometimes less than 5%) have increasingly been the basis for demanding a board seat or role in corporate governance; the often-greater employee ownership stakes create the potential basis of an employee shareholder move for employee board representatives.

Employee ownership has long been subject to competing views that it "cannot work" and leads to worse performance, or that it magically leads to better performance. Neither view is correct--the substantial growth in employee stock ownership over the 1980's indicates that it has become a mainstream business practice (illustrated by the fact that just as many Americans entered the stock market through company stock plans as entered through the entire broker/dealer system)(NYSE, 1990). Future debates and research should not be limited by the perspective that employee ownership must have superior performance in order to explain and justify its existence and growth. The implications for employees and firms, and the ways in which employee ownership may interact with other firm policies and characteristics, are clearly worthy of further attention and research.

Notes

1. This excludes TRASOPs/PAYSOPs, which were a special type of ESOP was created by the Tax Reduction Act of 1978 in which companies were given additional investment tax credits for contributions to an ESOP. These ESOPs resulted in expensive tax expenditures for the federal government, and the incentives were terminated in 1986. The amount of employee ownership created was typically very small, and these plans will be treated only incidentally here.
2. For discussions and evidence on human resource policy complementarity, see Ichniowski et al. (1994), Huselid (1995), Milgrom and Roberts (1995), and Levine (1995).
3. Evidence from this sample is laid out and discussed in Rosen et al. (1986).
4. We also exclude studies of stock price effects of ESOP announcements, which are reviewed in Blasi and Kruse (1991), with a more recent study in Chaplinsky et al. (1994).
5. This assumption may be violated by publication bias and the stopping rules of researchers (Leamer, 1978; Berlin et al., 1989).
6. To ensure independence of estimates, the meta-analytic tests were based on one representative estimate (alternatively the median or mean T-statistic) from each of the 14 independent samples (9 with cross-sectional comparisons, 6 with pre/post-adoption comparisons, and 11 with post-adoption growth comparisons). The methods of adding logarithms and adding probabilities produced overall p-values close to .001 for each type of comparison, while the binomial sign test and methods of adding T's, adding Z's, and testing the mean p and mean Z generally produced overall p-values less than .01 (tests described in Rosenthal, 1978). The one method that failed to reject the null hypothesis at $p < .05$ was the weighted Z method, where degrees of freedom were used as weights; this reflects the fact that several of the lower t-statistics came from studies with larger sample sizes. When the large-sample Bloom and Kruse studies are eliminated, the cross-sectional and post-adoption results are significant at $p < .05$ under each method. Similarly, when all the Kruse studies are eliminated (to remove any question of bias from authorship), the cross-sectional and post-adoption results still strongly reject the null hypothesis. With both of these restrictions, no more than three samples remain with adoption effects, which is insufficient for meta-analysis. This procedure of combining tests of significance with estimates of mean effect sizes has been labeled the Combined Probability Method (Hunter and Schmidt, 1995: 471).
Standard criticisms of meta-analysis--that T-statistics are inflated due to publication bias or researcher stopping rules--can be discounted here, since only two studies by themselves had consistently high T-statistics, and ESOPs were not the focus of several of the studies.
7. There is clear overlap of samples among the studies in Table 7. Following the procedures of the last footnote, 17 independent samples were identified among studies 2-8, and representative estimates for each of the features

were taken. Almost all tests rejected the null hypothesis of no relationship to productivity at $p < .01$.

8. His meta-analysis of cooperatives includes studies 2-8 from Table 7, while the meta-analysis of other forms of employee ownership combines studies 4-7 of Table 6 with studies 3-7 and 10 of Table 8 (both meta-analyses exclude unpublished studies).
9. The 95% confidence interval for individual capital stakes in cooperatives is .03 to .18, and for collective reserves is -.13 to .10.
10. The 95% confidence interval for all studies is .00 to .04, and for the studies excluding Kruse is .00 to .11.
11. For example, some theories predict underinvestment and inefficient decision-making, while others predict inadequate supervision (see Bonin, Jones, and Putterman, 1993, for a review).
While employee ownership is often associated with better performance, it is clearly possible that other firm characteristics may account for the findings. Most of the performance studies carefully control for the influence of company size, capital intensity, industry levels/trends, and other variables, but it remains possible that other variables (managerial quality, company policies, etc.) may account for any performance differences. These points were developed in an earlier analysis of the research (Blasi, 1988: 221-238, 267-286).

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TABLE 1: Employee Satisfaction Under Employee Ownership

Authors of the studies	Source of data	Explanatory variables	Main results
Comparisons between employee-owners and non-owners			
1. Greenberg 1980	Surveys of 550 employees in 4 U.S. plywood cooperatives and large non-employee-owned firm	Co-op membership	Higher work satisfaction for co-op members, and greater participation in cooperative functions associated with higher satisfaction.
2. Hammer, Stern, and Gurdon 1982	Surveys of 233 employees in 2 firms save by employee buyouts, 1-2 years after buyouts, 1976-77	Ownership status Ownership stake	Ownership stake not linked to satisfaction; satisfaction similar for owners and non-owners in one firm, while higher for owners in other firm (but no difference for prdn. workers in later survey) Lower alienation from work among owners in both firms.
3. Long 1978b, 1980	Survey of 87 employees 6 mos. after 70% bought trucking co., and at knitting mill w/30% owners	Ownership status	Higher satisfaction for owners, but due to perceived participation rather than simple ownership status
4. Kruse 1984	Surveys of 325 employees in two ESOP cos., 1981, compared to 548 employees in national random sample	ESOP membership	ESOP members had similar satisfaction to national sample in retail company, lower satisfaction in manufacturing company, the latter due in part to bitter strike one year before study.
5. Russell et al. 1979	Surveys of 165 employee-owners in 6 U.S. refuse collecting firms, compared to 541 non-owners, 1977	Ownership status	Owners had similar satisfaction levels as comparable non-owning employees, but were more likely to say they would take the same job again
Pre/post comparisons			
6. Long 1982	Three surveys of 147, 184, and 248 employees, first one prior to employee purchase of Canadian electronics firm, 1979	Employee buyout after first survey Ownership stake	Satisfaction up for those perceiving increased participation, but down for those perceiving no change in participation. No relation to ownership stake.
7. Tucker et al. 1989	Two surveys of 38 and 39 employees at fast-growing small U.S. firm, 1982-84	ESOP adoption after first survey	Satisfaction up (but sample too small for significant results)
Comparisons within groups of employee-owners			
8. Buchko 1993	Survey of 218 employees in an ESOP company, 1987	ESOP account value Perceived influence from ESOP	Perceived influence had positive effect on satisfaction, while ESOP account value had no significant effect.
9. French and Rosenstein 1984	Survey of 560 employees in firm with direct ownership	Ownership stake Perceived influence in job and co.	Perceived influence had positive effect on satisfaction, while ownership stake had no significant effect.

TABLE 2: Organizational Commitment/Identification Under Employee Ownership

Authors of the studies	Source of data	Explanatory variables	Main results
Comparisons between employee-owners and non-owners			
1. Hammer, Stern, and Gurdon 1982	Surveys of 233 employees in 2 firms save by employee buyouts, 1-2 years after buyouts, 1976-77	Ownership status Ownership stake	Ownership stake positively linked to commitment; owners had higher commitment than non-owners for prdn. workers in one firm and non-prdn. workers in other firm, but similar levels among other workers.
2. Keef 1994	Survey of 105 middle managers in New Zealand financial institution, 1988	Ownership of stock Sale of stock	Those who purchased and held onto public stock, and those who had purchased but later sold it, had higher commitment than non-owners.
2. Long 1978b, 1980	Survey of 87 employees 6 mos. after 70% bought trucking co., and at knitting mill w/30% owners	Ownership status	Higher integration, involvement, commitment for owners, but no interaction with perceived participation
3. Oliver 1984	Survey of 40 employees in 6 Scottish co-ops, compared to population norms, 1981	Co-op membership	Commitment significantly higher than population norms on all three measures, even though wages below average. Workers cited cooperative structure as important in choice of workplace.
4. Rhodes and Steers 1981	Surveys of 141 employees in one U.S. plywood co-op and one conventional firm	Co-op membership	Higher commitment in co-op firm; commitment positively predicted by perceived participation in decisions and better group norms.
5. Russell et al. 1979	Surveys of 165 employee-owners in 6 U.S. refuse collecting firms, compared to 541 non-owners, 1977	Ownership status	Owners had higher organizational commitment on one measure, but similar commitment on another measure.
Pre/post comparisons			
6. Long 1982	Three surveys of 147, 184, and 248 employees, first one prior to employee purchase of Canadian electronics firm, 1979	Employee buyout after first survey Ownership stake	Commitment and trust up for those perceiving increased participation, but unchanged for those perceiving no change in participation. No relation to ownership stake.
7. Tucker et al. 1989	Two surveys of 38 and 39 employees at fast-growing small U.S. firm, 1982-84	ESOP adoption after first survey	Commitment up (but sample too small for significant results)
Comparisons within groups of employee-owners			
8. Buchko 1993	Survey of 218 employees in an ESOP company, 1987	ESOP account value Perceived influence from ESOP ESOP satisfaction Job satisfaction	Perceived influence, ESOP satisfaction, and job satisfaction had positive effects on commitment, while ESOP account value had no direct effect (but did have indirect effect through ESOP satisfaction--see Table 6)
9. French and Rosenstein 1984	Survey of 560 employees in firm with direct ownership	Ownership stake Perceived influence in job and co.	Perceived influence had positive effect on org. identification, while ownership stake had no significant effect
10. Oliver 1990	Survey of 120 employees in long-time employee-owned UK petrochemical firm	Employee work values: participatory, instrumental, task-oriented	Participatory work values positively predict commitment and identification, while instrumental values have negative effect and task-oriented values no effect.

TABLE 3: Employee Motivation, ESOP Satisfaction, and Union Attitudes Under Employee Ownership

Authors of the studies	Source of data	Explanatory variables	Main results
Motivation			
Comparisons between employee-owners and non-owners			
1. Goldstein 1978	Survey of 66 shareholders at Australian firm saved by employee buyout, compared to 117 non-owners	Ownership status Size of shareholding	Shareholders expressed greater motivation than non-shareholders, and expressed motivation increased with shareholding size.
2. Kruse 1984	Surveys of 325 employees in two ESOP cos., 1981, compared to 548 employees in national random sample	ESOP membership	No difference in reported motivation between ESOP members and comparable employees from national sample.
3. Long 1978b, 1980	Survey of 87 employees 6 mos. after 70% bought trucking co., and at knitting mill w/30% owners	Ownership status	Motivation related to perceived participation, but not to ownership status
4. Rhodes and Steers 1981	Surveys of 141 employees in one U.S. plywood co-op and one conventional firm	Co-op membership	Perceived performance-reward contingencies significantly higher, while favorable group norms insignificantly higher, in co-op firm.
5. Russell et al. 1979	Surveys of 165 employee-owners in 6 U.S. refuse collecting firms, compared to 541 non-owners, 1977	Ownership status	Owners appeared to have higher quality work (with fewer customer complaints) but similar quantity of work.
Pre/post comparisons			
6. Long 1982	Three surveys of 147, 184, and 248 employees, first one prior to employee purchase of Canadian electronics firm, 1979	Employee buyout after first survey Ownership stake	Motivation up for those perceiving increased participation, but unchanged for those perceiving no change in participation. No relation to ownership stake.
ESOP satisfaction			
Comparisons within groups of employee-owners			
7. Buchko 1992, 1993	Survey of 218 employees in an ESOP company, 1987	ESOP account value Perceived influence from ESOP	Perceived influence and ESOP account value had positive effects on satisfaction with ESOP.
8. Klein and Hall 1988, Rosen et al. 1986	Surveys of 2084 employees in 37 ESOP cos., 1982-84	ESOP contribution, age, stock performance, communication, voting rights, mgt. philosophy, age also positive predictors desired influence, org. commitment	Org. commitment best predictor of ESOP satisfaction, but contribution, communications, mgt. philosophy, and ESOP age also positive predictors.
Attitudes toward union			
9. Long 1978c	Survey of 65 and 56 employees, 6 and 18 mos. after 70% of employees purchased Canadian trucking co.	Shareholder status	Majorities of union and non-union employees viewed union as necessary; no relation with share ownership. Slight increases for both owners and non-owners in perceived need for union, and in feasibility of union-mgt. cooperation.
10. Kruse 1984	Survey of 35 union employees in an ESOP co., 1981, compared to 142 employees in national random sample	ESOP membership	Reported need for union increased since ESOP adopted; strong desire for union efforts but disappointment in achievements, due in part to strike lost by union in year before survey; older workers desired greater union effort for worker say in jobs.
11. Sockell 1985	Surveys of 3 firms in 1980 saved by employee buyouts in 1976-77	Shareholder status Ownership stake	Perceived need for union unaffected by ownership; few differences in union activity or strike willingness.

TABLE 4: Perceived and Desired Employee Participation/Influence Under Employee Ownership

Authors of the studies	Source of data	Explanatory variables	Main results
Comparisons between employee-owners and non-owners			
1. Goldstein 1978	Survey of 66 shareholders at Australian firm saved by employee buyout, compared to 117 non-owners	Shareholder status Size of shareholding	Shareholders perceived greater participation in decision-making, but no significant difference by size of shareholding
2. Hammer, Stern, and Gurdon 1982	Surveys of 233 employees in 2 firms save by employee buyouts, 1-2 years after buyouts, 1976-77	Ownership status Ownership stake	Ownership stake not linked to sense of control; no difference by ownership status except higher among non-production owners at one firm.
3. Kruse 1984	Surveys of 325 employees in two ESOP cos., 1981, compared to 548 employees in national random sample	ESOP membership	ESOP members had similar perceived and desired participation as national sample in both companies, except older manufacturing workers perceived greater say on job decisions.
4. Long 1979	Survey of 87 and 82 employees, 6 and 18 mos. after 70% of employees purchased Canadian trucking co.	Shareholder status	About 1/2 thought worker influence had increased since the worker buyout, but no difference between owners and non-owners, and no change in perceived or desired influence between the two post-buyout surveys.
5. Rhodes and Steers 1981	Surveys of 141 employees at 1 plywood co-op, 1 other company	Co-op membership	Perceived participation higher among co-op members than in similar conventional firm.
6. Russell et al. 1979	Surveys of 165 employee-owners in 6 U.S. refuse collecting firms, compared to 541 non-owners, 1977	Ownership status	Owners had higher levels of influence than non-owners, both by self-reported data and data from non-owners.
7. Sockell 1985	Surveys of 3 firms in 1980 saved by employee buyouts in 1976-77	Shareholder status Ownership stake	No effect of ownership on gap between perceived and desired influence over decisions.
Pre/post comparisons			
8. Long 1981, 1982	Three surveys of 147, 184, and 248 employees, first one prior to employee purchase of Canadian electronics firm, 1979	Employee buyout after first survey	Perceived personal and worker participation in job, dep't., and org. decisions slightly up after purchase, down in third survey, but no significant differences. Desired participation down, and decline in perceived value of formal mechanisms.
Comparisons within groups of employee-owners			
9. French and Rosenstein 1984	Survey of 560 employees in firm with direct ownership	Ownership stake Perceived influence in job and co.	Perceived influence had positive effect on desire for influence, while ownership stake had no significant effect.
10. Hammer and Stern 1980	Survey of 163 employees, 8 mos. after employee purchase of small U.S. manufacturer	Ownership stake	Desired allocation of power between management, union, and employees as a group is determined by position in company, not by shareholding status or ownership stake.

TABLE 5: Employee Behavior and Other Research on Employee Ownership

Authors of the studies	Source of data	Dependent variables	Explanatory variables	Main results
Employee Behavior				
1. Buchko 1992, 1993	Survey of 218 employees in an ESOP company, 1987	Turnover Turnover intention	Financial value of ESOP account Perceived influence from ESOP	Perceived influence decreased both turnover intention and subsequent turnover. ESOP account value had no direct effect, but indirect effect by increasing ESOP satisfaction.
2. Hammer et al. 1981	Attendance data from 112 employees in furniture co., before and after buyout in 1976	Absenteeism	Employee purchase of co. Ownership stake	No significant change in overall absenteeism after employee buyout, but decrease in "voluntary" absenteeism, especially where large capital stake.
3. Kruse 1984	Manufacturing co. with ESOP owning 52% of stock, 1981	Turnover Union grievances	ESOP termination	Turnover and grievance rates unchanged after company was sold (without worker vote or input).
4. Rhodes and Steers 1981	Surveys of 141 employees in 1 plywood co-op, 1 other company	Turnover Grievances Absenteeism Tardiness Injuries	Co-op membership	Lower turnover and grievances in co-op, no difference in accidents, but higher absenteeism and tardiness.
5. Rooney 1992	275 U.S. firms, 206 majority employee-owned through ESOP or cooperative	OSHA injury in 1985	Percent of stock held by employees, alone and with participation measures	Employee ownership with worker participation had lower injuries, but mixed results for measures individually
Other research				
6. Hochner and Granrose 1985	Survey of 943 supermarket employees facing shutdown	Pledge of \$5000 for employee buyout of stores	Worker attitudes and characteristics	Entrepreneurial ideals (risk-taking, importance of ownership) and collective/participative ideals predicted willingness to pledge for employee buyout
7. Onaran 1992	3 small employee-owned firms, 7 other firms, all in Ohio	Inequality of income, wealth, decision-making, privileges, prestige, social interaction	Membership in employee-owned firm	Intra-firm inequality lower in employee-owned firms on most measures

TABLE 6: Productivity and Profitability Studies of U.S. ESOPs

Authors of the studies	Source of data	Dependent variable	Type of comparison*	Number of coeffs. reported	Percent > 0	Percent of t-stats. > +2	Avg. effect size**	Major findings
1. Bell and Kruse 1995	129 U.S. airline high-tech public firms, 43% with ESOP	Sales/employee Return on assets Tobin's Q	Cross-sectional	32	68.8%	3.1%	11.9%	Positive but mostly insignificant effects of ESOPs
			Adoption	5	100.0%	0.0%	4.6%	
			Post-adoption growth	36	47.2%	2.8%	-2.0%	
2. Bloom 1985	3235 U.S. public firms over 1971-81, 610 with ESOP at end	Sales/employees	Cross-sectional	45	100.0%	24.4%	4.3%	Positive but mostly insignificant effects of ESOPs
			Adoption	56	87.5%	25.0%	6.2%	
			Post-adoption growth	11	100.0%	0.0%	1.0%	
3. Dunbar and Kumbhakar 1992	213 U.S. public firms with ESOPs, 1981-85	Sales	Cross-sectional	6	100.0%	50.0%	22.9%	Positive but mostly insignificant effects of ESOPs
			Adoption	6	100.0%	0.0%	3.2%	
4. Kruse 1988, 1992	2,976 U.S. public firms over 1971-85, 923 with ESOP at end	Sales/employees	Cross-sectional	36	75.0%	22.2%	3.5%	Mostly positive but insignificant effects of ESOP adoption
			Adoption	32	81.3%	15.6%	4.2%	
			Post-adoption growth	20	70.0%	15.0%	0.6%	
5. Kruse 1993	500 U.S. public firms over 1975-91, 190 with ESOP at end	Sales/employees Value added	Adoption	12	83.3%	0.0%	1.1%	Mostly positive but insignificant effects of ESOP adoption
			Post-adoption growth	12	50.0%	0.0%	0.0%	
6. Kumbhakar and Dunbar 1993	123 public firms adopting ESOPs or profit-sharing plans, 1982-87	Sales	Post-adoption growth	4	100.0%	100.0%	2.2%	Positive, significant effects of ESOP of 1.8-2.7% per year that ESOP has been in existence
7. Mitchell et al. 1990	495 U.S. business units in public firms, 1983-86	Profitability Sales/employees	Cross-sectional	6	100.0%	16.7%	5.4%	Positive significant effects of ESOPs on performance growth
			Post-adoption growth	6	100.0%	100.0%	0.4%	
8. Quarrey and Rosen 1986	45 ESOP and 292 non-ESOP firms, 1975-86	Sales/employees	Adoption Post-adoption growth	***				ESOP companies had faster growth of sales, employment after adoption, but higher sales/employee growth only where employee participation was high
9. U.S. GAO 1986	111 firms adopting ESOPs in 1976-79, paired with non-ESOP firms	Profitability Value-added/labor expense	Adoption	8	25.0%	12.5%	-1.0%	Positive significant effect on performance only for adopters w/high participation in decs.
Overall				333	78.7%	17.4%		
* Type of comparison:								
Cross-sectional (comparing ESOP and non-ESOP firms at one point in time)				125	84.8%	19.2%	6.2%	
Adoption (pre/post comparison of ESOP adoption, relative to non-ESOP firms)				119	82.4%	16.8%	4.4%	
Post-adoption growth (comparing ESOP and non-ESOP productivity growth after adoption)				89	65.2%	15.7%	-0.1%	

** Effect sizes represent average estimated percent difference in productivity between ESOP and non-ESOP firms for cross-sectional comparisons, and between pre- and post-adoption for ESOP adopters. For post-adoption growth comparisons, the effect size represents the percentage point difference in the yearly growth rate (e.g., 0.6% would indicate a 1.6% compared to a 1.0% growth rate).

*** Results on sales/employee comparisons summarized in text.

TABLE 7: Productivity Studies on Worker Cooperatives

Authors of the studies	Source of data	Dependent variable	Employee ownership measures	Number of coefficients reported	Percent of coeffs. > 0	Percent of t-stats. > +2	Major findings
1. Craig and Pencavel 1995	7 U.S. plywood cooperatives and 27 other plywood firms, 1968-86	Physical output per labor-hour	Comparison of cooperatives to other firms	8	8	0	Cooperatives had 6-14% higher productivity than comparable firms, but differences not significant*
2. Defourney, Estrin, and Jones 1985	French cooperatives in 1978 (440) and 1979 (520)	Value added	Membership/L	14	64.3%	35.7%	
			Indiv. capital stakes/L	14	57.1%	7.1%	
			Worker loan capital/L	14	35.7%	0.0%	
			Bonus/L	14	92.9%	64.3%	
3. Estrin, Jones, and Svejnar 1987	Cooperatives from UK (24), France (496), Italy (134), Spain (70), and U.S. (34)	Value added	Membership/L	17	88.2%	58.8%	Mostly positive effects, esp. for membership and indiv. capital stake
			Indiv. capital stakes/L	17	76.5%	47.1%	
			Collective reserves/L	17	58.8%	5.9%	
			Worker loan capital/L	17	70.6%	11.8%	
			Bonus/L	17	94.1%	58.8%	
4. Estrin and Jones 1995	French cooperatives in 1978-79 (from study #2)	Value added	Membership/L	2	50.0%	50.0%	Worker investment in the firm raises output in both years, while greater membership raises it only in 1978.
			Indiv. capital stakes plus loan capital/L	2	100.0%	100.0%	
5. Jones 1982	From 46 to 30 British cooperatives, 1948-68	Value Added	Worker capital/L	52	46.2%	0.0%	
			Bonus/L	52	94.2%	40.4%	
6. Jones 1987	50 British retail cooperatives, 1978	Value Added	Indiv. capital stakes/L	2	0.0%	0.0%	Insignificant effects of ownership ship measures, but strong positive effect of workers on board
			Collective reserves/L	2	0.0%	0.0%	
			Worker loan capital/L	2	0.0%	0.0%	
			Bonus/L	2	100.0%	0.0%	
7. Jones 1993	181 Polish cooperatives clothing, printing, construction, 1976-78	Value Added	Membership/L	5	100.0%	60.0%	Positive effects of most variables, especially membership, bonus, and collective reserves, but results varied by industry sector
			Indiv. capital stakes/L	5	60.0%	40.0%	
			Collective reserves/L	6	100.0%	83.3%	
			Worker % of board	5	60.0%	20.0%	
			Workers on committees/L	6	66.7%	50.0%	
			Bonus/L	6	100.0%	66.7%	
8. Jones and Svejnar 1985	134 Italian co-ops in manufacturing and construction, 1975-80	Value added	Membership/L	6	66.7%	33.3%	Significant positive effects of membership in manufacturing. not construction; individual ownership mostly positive and significant
			Indiv. capital stakes/L	6	83.3%	66.7%	
			Collective reserves/L	6	16.7%	0.0%	
			Worker loan capital/L	6	83.3%	33.3%	
			Profits/L	6	100.0%	100.0%	
			Overall	320	70.3%	31.9%	
* Craig and Pencavel report two coefficients on cooperatives, and six comparisons based on predicted productivity if cooperatives had the same inputs as other unionized or nonunion plywood firms. In each comparison the predicted productivity was higher than for			Membership/L	44	77.3%	47.7%	
			Indiv. capital stakes/L	44	65.9%	34.1%	
			Collective reserves/L	31	54.8%	19.4%	
			Worker loan capital/L	30	56.7%	10.3%	

TABLE 8: Other Productivity and Profitability Studies of Employee Ownership (excluding cooperatives, and ESOPs alone*)

Authors of the studies	Source of data	Dependent variable	Employee ownership measures	Number of coeffs. reported	Percent > 0	Percent of t-stats. > +2	Major findings
1. American Capital Strategies 1994	300 U.S. public firms with >10% employee ownership	Total returns on co. stock	Presence of employee-owned stock > 10%				Employee ownership index has exceeded most market averages in 1991-94 period
2. Blasi et al. Forthcoming	6671 U.S. public firms, 621 w/employee-owned stock exceeding 5% of co. market value in 1990	Profitability levels (1990), change (1980-90)	Presence of employee-owned stock > 5% Percent owned by employees	78 13	65.4% 61.5%	21.8% 0.0%	Few significant relations of plans to performance levels and growth, except positive profitability growth for small companies
3. Cable and Fitzroy 1980	42 German firms with employee ownership or profit sharing, 1972-76	Value added	Workers' capital Total profits to workers	4 4	25.0% 75.0%	25.0% 25.0%	Positive significant effect in "high-participation" firms, but negative and significant in "low-participation" firms
4. Conte and Tannenbaum 1978	30 U.S. cos. with ESOPs or direct ownership, compared to industry averages	Profitability	Percent owned by employees Pct. employees in plan	2 2	100.0% 0.0%	50.0% 0.0%	Positive significant relation with percent owned by employees, but not with other measures
5. Conte and Svejnar 1988, 1990	40 U.S. firms, 23 with employee ownership	Value added	Presence of employee ownership Pct. owned by employees	10 20	100.0% 0.0%	70.0% 0.0%	Positive effect of employee ownership, but negative effect for pct. owned by employees
6. Fitzroy and Kraft 1986, 1987	62 German firms, 1977-79	Value added Return on capital	Workers' capital/ total capital	4	100.0%	100.0%	Mean value of ownership measure doubles the mean return on capital
7. Jones and Kato 1995	109 Japanese firms over 1973-80, majority with an ESOP at some point	Sales/employee	Adoption, presence of ESOP Interacted with bonus	65 20	76.9% 85.0%	36.9% 20.0%	ESOP adoption linked to 4-5% increase in productivity 3-4 yrs. after adoption; interacts positively with cash bonus
8. Lee 1989	50 Swedish employee-owned firms plus 51 conventional firms, 1983-85	Total factor productivity Value added	Presence of ee. ownership Membership/L Profit sharing Workers' capital/L Interactions w/L	4 21 20 20 45	25.0% 38.1% 100.0% 10.0% 51.1%	0.0% 0.0% 35.0% 0.0% 0.0%	No general differences for employee-owned firms or features, either directly or through interactions with labor stock
9. Livingston and Henry, 1980; Brooks et al. 1982	51 U.S. cos. with stock purchase plans begun 1916-66, plus 51 other cos.	Profitability	Presence of stock purchase plan	90	0.0%	0.0%	Companies with stock purchase plans for at least 10 years had lower average profitability ratios
10. Mitchell et al. 1990	495 U.S. business units in public firms, 1983-86	Profitability Sales/employees	Presence of stock option plan	12	100.0%	8.3%	Positive but insignificant relation of stock option plans to performance

* Studies of ESOPs alone are in Table 6, and of cooperatives are in Table 7.

TABLE 1: Employee Satisfaction Under Employee Ownership

Authors of the studies	Source of data	Explanatory variables	Main results
Comparisons between employee-owners and non-owners			
1. Greenberg 1980	Surveys of 550 employees in 4 U.S. plywood cooperatives and large non-employee-owned firm	Co-op membership	Higher work satisfaction for co-op members, and greater participation in cooperative functions associated with higher satisfaction.
2. Hammer, Stern, and Gurdon 1982	Surveys of 233 employees in 2 firms save by employee buyouts, 1-2 years after buyouts, 1976-77	Ownership status Ownership stake	Ownership stake not linked to satisfaction; satisfaction similar for owners and non-owners in one firm, while higher for owners in other firm (but no difference for prdn. workers in later survey) Lower alienation from work among owners in both firms.
3. Long 1978b, 1980	Survey of 87 employees 6 mos. after 70% bought trucking co., and at knitting mill w/30% owners	Ownership status	Higher satisfaction for owners, but due to perceived participation rather than simple ownership status
4. Kruse 1984	Surveys of 325 employees in two ESOP cos., 1981, compared to 548 employees in national random sample	ESOP membership	ESOP members had similar satisfaction to national sample in retail company, lower satisfaction in manufacturing company, the latter due in part to bitter strike one year before study.
5. Russell et al. 1979	Surveys of 165 employee-owners in 6 U.S. refuse collecting firms, compared to 541 non-owners, 1977	Ownership status	Owners had similar satisfaction levels as comparable non-owning employees, but were more likely to say they would take the same job again
Pre/post comparisons			
6. Long 1982	Three surveys of 147, 184, and 248 employees, first one prior to employee purchase of Canadian electronics firm, 1979	Employee buyout after first survey Ownership stake	Satisfaction up for those perceiving increased participation, but down for those perceiving no change in participation. No relation to ownership stake.
7. Tucker et al. 1989	Two surveys of 38 and 39 employees at fast-growing small U.S. firm, 1982-84	ESOP adoption after first survey	Satisfaction up (but sample too small for significant results)
Comparisons within groups of employee-owners			
8. Buchko 1993	Survey of 218 employees in an ESOP company, 1987	ESOP account value Perceived influence from ESOP	Perceived influence had positive effect on satisfaction, while ESOP account value had no significant effect.
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2. Keef 1994	Survey of 105 middle managers in New Zealand financial institution, 1988	Ownership of stock Sale of stock	Those who purchased and held onto public stock, and those who had purchased but later sold it, had higher commitment than non-owners.
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Attitudes toward union			
9. Long 1978c	Survey of 65 and 56 employees, 6 and 18 mos. after 70% of employees purchased Canadian trucking co.	Shareholder status	Majorities of union and non-union employees viewed union as necessary; no relation with share ownership. Slight increases for both owners and non-owners in perceived need for union, and in feasibility of union-mgt. cooperation.
10. Kruse 1984	Survey of 35 union employees in an ESOP co., 1981, compared to 142 employees in national random sample	ESOP membership	Reported need for union increased since ESOP adopted; strong desire for union efforts but disappointment in achievements, due in part to strike lost by union in year before survey; older workers desired greater union effort for worker say in jobs.
11. Sockell 1985	Surveys of 3 firms in 1980 saved by employee buyouts in 1976-77	Shareholder status Ownership stake	Perceived need for union unaffected by ownership; few differences in union activity or strike willingness.

TABLE 4: Perceived and Desired Employee Participation/Influence Under Employee Ownership

Authors of the studies	Source of data	Explanatory variables	Main results
Comparisons between employee-owners and non-owners			
1. Goldstein 1978	Survey of 66 shareholders at Australian firm saved by employee buyout, compared to 117 non-owners	Shareholder status Size of shareholding	Shareholders perceived greater participation in decision-making, but no significant difference by size of shareholding
2. Hammer, Stern, and Gurdon 1982	Surveys of 233 employees in 2 firms save by employee buyouts, 1-2 years after buyouts, 1976-77	Ownership status Ownership stake	Ownership stake not linked to sense of control; no difference by ownership status except higher among non-production owners at one firm.
3. Kruse 1984	Surveys of 325 employees in two ESOP cos., 1981, compared to 548 employees in national random sample	ESOP membership	ESOP members had similar perceived and desired participation as national sample in both companies, except older manufacturing workers perceived greater say on job decisions.
4. Long 1979	Survey of 87 and 82 employees, 6 and 18 mos. after 70% of employees purchased Canadian trucking co.	Shareholder status	About 1/2 thought worker influence had increased since the worker buyout, but no difference between owners and non-owners, and no change in perceived or desired influence between the two post-buyout surveys.
5. Rhodes and Steers 1981	Surveys of 141 employees at 1 plywood co-op, 1 other company	Co-op membership	Perceived participation higher among co-op members than in similar conventional firm.
6. Russell et al. 1979	Surveys of 165 employee-owners in 6 U.S. refuse collecting firms, compared to 541 non-owners, 1977	Ownership status	Owners had higher levels of influence than non-owners, both by self-reported data and data from non-owners.
7. Sockell 1985	Surveys of 3 firms in 1980 saved by employee buyouts in 1976-77	Shareholder status Ownership stake	No effect of ownership on gap between perceived and desired influence over decisions.
Pre/post comparisons			
8. Long 1981, 1982	Three surveys of 147, 184, and 248 employees, first one prior to employee purchase of Canadian electronics firm, 1979	Employee buyout after first survey	Perceived personal and worker participation in job, dep't., and org. decisions slightly up after purchase, down in third survey, but no significant differences. Desired participation down, and decline in perceived value of formal mechanisms.
Comparisons within groups of employee-owners			
9. French and Rosenstein 1984	Survey of 560 employees in firm with direct ownership	Ownership stake Perceived influence in job and co.	Perceived influence had positive effect on desire for influence, while ownership stake had no significant effect.
10. Hammer and Stern 1980	Survey of 163 employees, 8 mos. after employee purchase of small U.S. manufacturer	Ownership stake	Desired allocation of power between management, union, and employees as a group is determined by position in company, not by shareholding status or ownership stake.

TABLE 5: Employee Behavior and Other Research on Employee Ownership

Authors of the studies	Source of data	Dependent variables	Explanatory variables	Main results
Employee Behavior				
1. Buchko 1992, 1993	Survey of 218 employees in an ESOP company, 1987	Turnover Turnover intention	Financial value of ESOP account Perceived influence from ESOP	Perceived influence decreased both turnover intention and subsequent turnover. ESOP account value had no direct effect, but indirect effect by increasing ESOP satisfaction.
2. Hammer et al. 1981	Attendance data from 112 employees in furniture co., before and after buyout in 1976	Absenteeism	Employee purchase of co. Ownership stake	No significant change in overall absenteeism after employee buyout, but decrease in "voluntary" absenteeism, especially where large capital stake.
3. Kruse 1984	Manufacturing co. with ESOP owning 52% of stock, 1981	Turnover Union grievances	ESOP termination	Turnover and grievance rates unchanged after company was sold (without worker vote or input).
4. Rhodes and Steers 1981	Surveys of 141 employees in 1 plywood co-op, 1 other company	Turnover Grievances Absenteeism Tardiness Injuries	Co-op membership	Lower turnover and grievances in co-op, no difference in accidents, but higher absenteeism and tardiness.
5. Rooney 1992	275 U.S. firms, 206 majority employee-owned through ESOP or cooperative	OSHA injury in 1985	Percent of stock held by employees, alone and with participation measures	Employee ownership with worker participation had lower injuries, but mixed results for measures individually
Other research				
6. Hochner and Granrose 1985	Survey of 943 supermarket employees facing shutdown	Pledge of \$5000 for employee buyout of stores	Worker attitudes and characteristics	Entrepreneurial ideals (risk-taking, importance of ownership) and collective/participative ideals predicted willingness to pledge for employee buyout
7. Onaran 1992	3 small employee-owned firms, 7 other firms, all in Ohio	Inequality of income, wealth, decision-making, privileges, prestige, social interaction	Membership in employee-owned firm	Intra-firm inequality lower in employee-owned firms on most measures

TABLE 6: Productivity and Profitability Studies of U.S. ESOPs

Authors of the studies	Source of data	Dependent variable	Type of comparison*	Number of coeffs. reported	Percent > 0	Percent of t-stats. > +2	Avg. effect size**	Major findings
1. Bell and Kruse 1995	129 U.S. airline high-tech public firms, 43% with ESOP	Sales/employee Return on assets Tobin's Q	Cross-sectional Adoption Post-adoption growth	32	68.8%	3.1%	11.9%	Positive but mostly insignificant effects of ESOPs
				5	100.0%	0.0%	4.6%	
				36	47.2%	2.8%	-2.0%	
2. Bloom 1985	3235 U.S. public firms over 1971-81, 610 with ESOP at end	Sales/employees	Cross-sectional Adoption Post-adoption growth	45	100.0%	24.4%	4.3%	Positive but mostly insignificant effects of ESOPs
				56	87.5%	25.0%	6.2%	
				11	100.0%	0.0%	1.0%	
3. Dunbar and Kumbhakar 1992	213 U.S. public firms with ESOPs, 1981-85	Sales	Cross-sectional Adoption	6 6	100.0% 100.0%	50.0% 0.0%	22.9% 3.2%	Positive but mostly insignificant effects of ESOPs
4. Kruse 1988, 1992	2,976 U.S. public firms over 1971-85, 923 with ESOP at end	Sales/employees	Cross-sectional Adoption Post-adoption growth	36	75.0%	22.2%	3.5%	Mostly positive but insignificant effects of ESOP adoption
				32	81.3%	15.6%	4.2%	
				20	70.0%	15.0%	0.6%	
5. Kruse 1993	500 U.S. public firms over 1975-91, 190 with ESOP at end	Sales/employees Value added	Adoption Post-adoption growth	12	83.3%	0.0%	1.1%	Mostly positive but insignificant effects of ESOP adoption
				12	50.0%	0.0%	0.0%	
6. Kumbhakar and Dunbar 1993	123 public firms adopting ESOPs or profit-sharing plans, 1982-87	Sales	Post-adoption growth	4	100.0%	100.0%	2.2%	Positive, significant effects of ESOP of 1.8-2.7% per year that ESOP has been in existence
7. Mitchell et al. 1990	495 U.S. business units in public firms, 1983-86	Profitability Sales/employees	Cross-sectional Post-adoption growth	6	100.0%	16.7%	5.4%	Positive significant effects of ESOPs on performance growth
				6	100.0%	100.0%	0.4%	
8. Quarrey and Rosen 1986	45 ESOP and 292 non-ESOP firms, 1975-86	Sales/employees	Adoption Post-adoption growth	***				ESOP companies had faster growth of sales, employment after adoption, but higher sales/employee growth only where employee participation was high
9. U.S. GAO 1986	111 firms adopting ESOPs in 1976-79, paired with non-ESOP firms	Profitability Value-added/ labor expense	Adoption	8	25.0%	12.5%	-1.0%	Positive significant effect on performance only for adopters w/high participation in decs.
Overall				333	78.7%	17.4%		
* Type of comparison:								
Cross-sectional (comparing ESOP and non-ESOP firms at one point in time)				125	84.8%	19.2%	6.2%	
Adoption (pre/post comparison of ESOP adoption, relative to non-ESOP firms)				119	82.4%	16.8%	4.4%	
Post-adoption growth (comparing ESOP and non-ESOP productivity growth after adoption)				89	65.2%	15.7%	-0.1%	

** Effect sizes represent average estimated percent difference in productivity between ESOP and non-ESOP firms for cross-sectional comparisons, and between pre- and post-adoption for ESOP adopters. For post-adoption growth comparisons, the effect size represents the percentage point difference in the yearly growth rate (e.g., 0.6% would indicate a 1.6% compared to a 1.0% growth rate).

*** Results on sales/employee comparisons summarized in text.

TABLE 7: Productivity Studies on Worker Cooperatives

Authors of the studies	Source of data	Dependent variable	Employee ownership measures	Number of coefficients reported	Percent of coeffs. > 0	Percent of t-stats. > +2	Major findings
1. Craig and Pencavel 1995	7 U.S. plywood cooperatives and 27 other plywood firms, 1968-86	Physical output per labor-hour	Comparison of cooperatives to other firms	8	8	0	Cooperatives had 6-14% higher productivity than comparable firms, but differences not significant*
2. Defourney, Estrin, and Jones 1985	French cooperatives in 1978 (440) and 1979 (520)	Value added	Membership/L	14	64.3%	35.7%	
			Indiv. capital stakes/L	14	57.1%	7.1%	
			Worker loan capital/L	14	35.7%	0.0%	
			Bonus/L	14	92.9%	64.3%	
3. Estrin, Jones, and Svejnar 1987	Cooperatives from UK (24), France (496), Italy (134), Spain (70), and U.S. (34)	Value added	Membership/L	17	88.2%	58.8%	Mostly positive effects, esp. for membership and indiv. capital stake
			Indiv. capital stakes/L	17	76.5%	47.1%	
			Collective reserves/L	17	58.8%	5.9%	
			Worker loan capital/L	17	70.6%	11.8%	
			Bonus/L	17	94.1%	58.8%	
4. Estrin and Jones 1995	French cooperatives in 1978-79 (from study #2)	Value added	Membership/L	2	50.0%	50.0%	Worker investment in the firm raises output in both years, while greater membership raises it only in 1978.
			Indiv. capital stakes plus loan capital/L	2	100.0%	100.0%	
5. Jones 1982	From 46 to 30 British cooperatives, 1948-68	Value Added	Worker capital/L	52	46.2%	0.0%	
			Bonus/L	52	94.2%	40.4%	
6. Jones 1987	50 British retail cooperatives, 1978	Value Added	Indiv. capital stakes/L	2	0.0%	0.0%	Insignificant effects of ownership ship measures, but strong positive effect of workers on board
			Collective reserves/L	2	0.0%	0.0%	
			Worker loan capital/L	2	0.0%	0.0%	
			Bonus/L	2	100.0%	0.0%	
7. Jones 1993	181 Polish cooperatives clothing, printing, construction, 1976-78	Value Added	Membership/L	5	100.0%	60.0%	Positive effects of most variables, especially membership, bonus, and collective reserves, but results varied by industry sector
			Indiv. capital stakes/L	5	60.0%	40.0%	
			Collective reserves/L	6	100.0%	83.3%	
			Worker % of board	5	60.0%	20.0%	
			Workers on committees/L	6	66.7%	50.0%	
			Bonus/L	6	100.0%	66.7%	
8. Jones and Svejnar 1985	134 Italian co-ops in manufacturing and construction, 1975-80	Value added	Membership/L	6	66.7%	33.3%	Significant positive effects of membership in manufacturing. not construction; individual ownership mostly positive and significant
			Indiv. capital stakes/L	6	83.3%	66.7%	
			Collective reserves/L	6	16.7%	0.0%	
			Worker loan capital/L	6	83.3%	33.3%	
			Profits/L	6	100.0%	100.0%	
Overall				320	70.3%	31.9%	
* Craig and Pencavel report two coefficients on cooperatives, and six comparisons based on predicted productivity if cooperatives had the same inputs as other unionized or nonunion plywood firms. In each comparison the predicted productivity was higher than for unionized or nonunion firms.			Membership/L	44	77.3%	47.7%	
			Indiv. capital stakes/L	44	65.9%	34.1%	
			Collective reserves/L	31	54.8%	19.4%	
			Worker loan capital/L	39	56.4%	10.3%	
			Bonus or profits/L	97	92.8%	51.5%	

TABLE 8: Other Productivity and Profitability Studies of Employee Ownership (excluding cooperatives, and ESOPs alone*)

Authors of the studies	Source of data	Dependent variable	Employee ownership measures	Number of coeffs. reported	Percent > 0	Percent of t-stats. > +2	Major findings
1. American Capital Strategies 1994	300 U.S. public firms with >10% employee ownership	Total returns on co. stock	Presence of employee-owned stock > 10%				Employee ownership index has exceeded most market averages in 1991-94 period
2. Blasi et al. Forthcoming	6671 U.S. public firms, 621 w/employee-owned stock exceeding 5% of co. market value in 1990	Profitability levels (1990), change (1980-90)	Presence of employee-owned stock > 5% Percent owned by employees	78 13	65.4% 61.5%	21.8% 0.0%	Few significant relations of plans to performance levels and growth, except positive profitability growth for small companies
3. Cable and Fitzroy 1980	42 German firms with employee ownership or profit sharing, 1972-76	Value added	Workers' capital Total profits to workers	4 4	25.0% 75.0%	25.0% 25.0%	Positive significant effect in "high-participation" firms, but negative and significant in "low-participation" firms
4. Conte and Tannenbaum 1978	30 U.S. cos. with ESOPs or direct ownership, compared to industry averages	Profitability	Percent owned by employees Pct. employees in plan	2 2	100.0% 0.0%	50.0% 0.0%	Positive significant relation with percent owned by employees, but not with other measures
5. Conte and Svejnar 1988, 1990	40 U.S. firms, 23 with employee ownership	Value added	Presence of employee ownership Pct. owned by employees	10 20	100.0% 0.0%	70.0% 0.0%	Positive effect of employee ownership, but negative effect for pct. owned by employees
6. Fitzroy and Kraft 1986, 1987	62 German firms, 1977-79	Value added Return on capital	Workers' capital/ total capital	4	100.0%	100.0%	Mean value of ownership measure doubles the mean return on capital
7. Jones and Kato 1995	109 Japanese firms over 1973-80, majority with an ESOP at some point	Sales/employee	Adoption, presence of ESOP Interacted with bonus	65 20	76.9% 85.0%	36.9% 20.0%	ESOP adoption linked to 4-5% increase in productivity 3-4 yrs. after adoption; interacts positively with cash bonus
8. Lee 1989	50 Swedish employee-owned firms plus 51 conventional firms, 1983-85	Total factor productivity Value added	Presence of ee. ownership Membership/L Profit sharing Workers' capital/L Interactions w/L	4 21 20 20 45	25.0% 38.1% 100.0% 10.0% 51.1%	0.0% 0.0% 35.0% 0.0% 0.0%	No general differences for employee-owned firms or features, either directly or through interactions with labor stock
9. Livingston and Henry, 1980; Brooks et al. 1982	51 U.S. cos. with stock purchase plans begun 1916-66, plus 51 other cos.	Profitability	Presence of stock purchase plan	90	0.0%	0.0%	Companies with stock purchase plans for at least 10 years had lower average profitability ratios
10. Mitchell et al. 1990	495 U.S. business units in public firms, 1983-86	Profitability Sales/employees	Presence of stock option plan	12	100.0%	8.3%	Positive but insignificant relation of stock option plans to performance

* Studies of ESOPs alone are in Table 6, and of cooperatives are in Table 7.