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Employee Ownership and Organizational Commitment: A Meta-analysis

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ABSTRACT

A meta-analysis of thirteen studies found a small, positive relationship between employee ownership and organizational commitment. The high degree of variability in this correlation, even after controlling for artifacts, suggests that it is situation specific. The relationship between employee ownership and organizational commitment was moderated by type of ownership plan, size of the organization, unionization, measurement of employee ownership, and sampling single or multiple organizations.

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Employee ownership gained wide popularity during the 1970's and 1980's, with a resurgence occurring in today's workplace. As of 2002, there were 13,200 employee ownership plans in the United States with an estimated value of \$560 billion and 20 million participants (National Center of Employee Ownership, 2003). Employee ownership initiatives have been instituted for a variety of reasons, including employee benefits, incentive, tax advantages, philosophical commitment to ownership, and avoiding a shut-down (Rosen, Klein, & Young, 1986). Regardless of the reason for implementation, it is widely believed that employee ownership will result in a workforce that has a heightened commitment to the organization. Research on the relationship between employee ownership and organizational commitment has produced a wide range of results, some studies suggesting that there is no relationship and others suggesting the relationship is indeed positive. The variation of results suggests that the relationship between employee ownership and organizational commitment warrants meta-analytic examination to gain better understanding of this relationship and to potentially identify moderating variables that explain the range of observed correlations.

Agency theory provides a rational for the hypothesis of a positive relationship between employee ownership and organizational commitment. This theory suggests business owners and employees have goals that are at odds and as a result, decisions and actions by employees may not be consistent with the perceived best interest of the owners (Eisenhardt, 1989). The problem posed by this situation leads business managers to utilize monitoring and decision control processes to promote the interests of business owners. It has been proposed that employee ownership can also serve to reconcile the disparate goals of business owners and employees (Duncan, 2001). In essence, it is believed that the interests of stockholders and employees are

aligned through employee ownership. (Mathieu & Zajec, 1990). It is perhaps for this reason that organizational commitment has been the most frequently investigated attitudinal consequence of employee ownership.

Although the hypothesis that employee ownership and organizational commitment are positively related seems widely accepted, research on this topic has yielded mixed results. Research artifacts, such as sampling error and criterion unreliability, provide one source of explanation for these inconsistent findings. These artifacts were controlled in the present meta-analytic investigation. Beyond these artifacts, variations in the research findings may be due to moderating variables. These moderating variables include aspects of the context within each study and the research methodology employed in each study.

Three contextual moderators were examined. The form of employee ownership examined in the study was the first contextual factor examined. The two most commonly researched forms of employee ownership are cooperatives and employee stock ownership plans (ESOPs). Cooperatives are formal ownership plans where each member owns only one voting share, but may own any number of non-voting shares (Rosen & Klein, 1989). An ESOP is defined as any tax-qualified, individual account, deferred compensation plan that invests a substantial portion of funds in employer stock (Klein, 1987; Livingston & Henry, 1980). The current meta-analysis investigated whether the relationship between employee ownership and organizational commitment differs for cooperatives and ESOPs.

Another contextual variable that was examined was the size of the organization. One potential explanation for the failure to observe a stronger relationship is what Kruse and Blasi (1997) refer to as the A1/N problem. The link between employee ownership and organizational commitment may be diminished by when an individual's stake is a very small fraction of the

organization's total equity. This is what Kruse and Blasi (1997) refer to as the A1/N problem. On the other hand, larger organizations may be perceived as offering a more stable, and profitable investment. This meta-analysis compared the relationship between employee ownership and organizational commitment in small, medium, and large organizations.

The final contextual factor investigated was unionization. Klein (1987) examined the relationship of unionization on employee ownership and organization. She found that unionization was positively related to organizational commitment and satisfaction with the employee stock ownership plan. However, she also found that unionization was negatively related to ownership being a central part of the organization's culture. From the perspective of agency theory, unionization can accentuate the conflicting goals of owners and employees. Thus, we expected that the relationship between employee ownership and organizational commitment would be smaller in unionized organizations.

Aspects of research methodology were also examined as moderating variable. First, the measurement of employee ownership as a dichotomous or a continuous variable was examined. Studies dichotomizing employee ownership compared the level of commitment in employees that owned stock in the company to employees that did not own stock (e.g., Hammer, Stern, & Gurdon, 1982; Long, 1978). Other studies quantified the amount or value of the stock owned by the employee (e.g., Culpepper, Gamble, & Blubaugh, 2004; French & Rosenstein, 1984). Dichotomizing employee ownership is likely to result in range restriction and consequently attenuate its correlation with organizational commitment. However, there may be a 'mere ownership' effect of becoming more committed to the organization because the employees identify themselves as owners of the company (Heider, 1958), regardless of the number of shares they possess or their value.

Another research method factor that was examined as a moderator was whether the research was conducted in a single organization or across multiple organizations. Research utilizing using multiple organizations may fail to control for extraneous variables, which can have an impact on the overall correlation coefficient. These extraneous variables include such phenomena as organizational culture, managerial philosophy, and the reasons for creating of the formal ownership plan. Thus, this meta-analysis also investigated whether the relationship between employee ownership differs between studies focusing on one organization and those involving multiple organizations.

Method

Literature Search

Our search for studies on the relationship between employee ownership and commitment began with a search of the electronic databases in which studies are typically published. By entering the keywords *ownership* and *commitment* in the PsycINFO database (1887-2004), a total of 69 studies were identified. In addition to the electronic search, a review article written by Kruse and Blasi (1997) identified 13 studies that included data on the relationship between ownership and commitment, 8 studies of which beyond the 69 studies identified by PsycINFO. Manually searching the reference lists from a number of these primary studies lead us to identify an additional 11 studies for further consideration. Finally, we made contact with two authors with prior research efforts in this area in hopes of identifying unpublished studies to make an attempt to address the file drawer problem. Although no additional studies were identified in this step of the process, both authors provided useful information.

This initial search process yielded 93 studies, plus one unpublished thesis (Bailey, 2005) and two unpublished dissertations (Adalikwu, 1994; Peterson, 1988) which produced a total of

96 papers for our consideration. In examining these papers, the primary criteria for inclusion were that the study had some measure of commitment and examined the relationship between commitment and formal employee ownership. Although our search results identified 90 studies, not all of these measured both commitment and formal employee ownership, and therefore they were eliminated in the first examination. Studies were selected if commitment was measured by various measures of commitment, including: the Organizational Commitment Questionnaire (Mowday, Steers, & Porter, 1979); the Affective Commitment sub-scale by Meyer and Allen (1986), and a standard commitment scale, by Cook and Wall (1980), and the Porter Organizational Commitment Questionnaire (Porter, Steers, Mowday, & Boulian, 1974). In addition to the formal measures, several single-item measures on other scales that were designed to address issues of commitment in organizations were also included. This included items such as “identification with organizational goals” which was utilized in two of the earliest studies found. These measures were translated by Kruse and Blasi (1997) as indicators of commitment, and therefore were included in this meta-analysis.

Formal employee ownership was operationalized using the national Center for Employee Ownership (NCEO) definition: “a plan in which most of a company’s employees own at least some stock in their company, even if they cannot vote it, and even if they cannot sell it till they leave the company or retire” (Rosen et al., 1986, p. 14). This is a very broad definition, yet the phenomenon of formal employee ownership is greatly varied across many organizations. As a result the studies included in this meta-analysis were defined as either cooperative worker/owner employment arrangements or formal programs for stock ownership, such as an ESOP program. In some studies ownership was a dichotomous variable, comparing employee owners to employee non-owners. In other studies ownership was a continuous variable, such as the

financial value of employee ownership account or the amount that an organization contributed to the employee stock ownership account.

Another criterion that played a significant role in determining inclusion in this meta-analysis was the type of statistical information provided in each study. Statistics reporting comparisons between formal employee ownership and commitment were chosen, including Pearson's *r* correlation coefficient and t-tests of significant mean difference. Two studies could not be utilized because they only reported multivariate statistics that partialled variance out the relationship between employee ownership and organizational commitment (Keef, 1998; Pendleton, Wilson & Wright, 1998).

A few articles and studies were useful to understanding the literature and the concepts of commitment and formal employee ownership; however they did not prove to be very useful in providing empirical data to include in the meta-analysis. Several articles provided insight about either one of the variables but not both; however, these articles failed to show any relationship between the two variables in question and therefore they were excluded.

Finally, some authors wrote several articles utilizing the same data. This included Buchko's 1992 and 1993 studies, which utilized the same data from media and communications organizations. Klein and Hall (1988), Rosen, Klein, and Young (1985) and Klein's Dissertation (1985) all included data from the same research project examining ownership attitudes from 37 organizations in a variety of companies. Long (1978a, 1978b, 1980, 1982) also wrote several articles using the same data collected from a trucking company. We were careful to utilize data from a sample only once order to preserve the independence of the effect sizes.

As a result of these selection procedures, 14 primary studies were identified for inclusion in the meta-analysis, which represented $N = 5,651$. This included 11 published studies, one

unpublished conference paper, one doctoral dissertation, and one master's thesis. These studies are listed in Table 1. The studies were coded for type of formal employee ownership, size of the organization, unionization, measuring ownership dichotomously or continuously, and number of organizations included in the study. We also coded for industry in which the study was conducted and type of commitment measurement utilized. However, industry and commitment measure were not examined as moderating variables.

Type of ownership was coded as either "cooperative" ownership or ESOP based on the information provided in each study. Organizations were group into three categories of size. Small organizations had less than 200 employees. Medium organizations had more than 200 employees but less than 500. Large organizations had more than 500 employees. Raw data was available for Bailey (2005) and this study included data from small, medium, and large organizations. Therefore, separate correlations were computed for each category of organization size. Four studies did not contain information about organizational size. Unionization of the organization was described in nine of the studies examined. Studies put in the unionized category indicated that a majority of the employees belonged to a union. Only studies that clearly indicated that employees were not unionized were put in the nonunion category. Studies that grouped employees into owners vs. non-owner categories were coded as dichotomous measures of employee ownership whereas studies that measured the number of shares owned or the value of the shares owned were coded as continuous measures. There was variation in whether a primary study obtained data from multiple organizations or within a single organization, so each study was coded for "single" or "multiple" organizations. Initial efforts to code for industries were discarded when it became clear that there was a great variety of industries represented, and no common classification method would suffice. Finally, a variety of measures of commitment

were identified by the coding process, including the OCQ (Mowday, Steers, Porter, 1979); Meyer and Allen (1986); Cook and Wall (1980); and two single-item measures.

Meta-Analysis Procedures

In conducting the current meta-analysis, we followed the procedures outlined by Hunter and Schmidt (2004). We first calculated a sample-sized weighted mean correlation for the relationship between commitment and formal employee ownership. We then corrected correlations for measurement error in the criterion (i.e., organizational commitment). Estimates were not corrected for range restriction, as there is no assumption of selection bias among the respondents in these studies. Reliability data was present for most studies except for the single-item measures. An artifact distribution was utilized to estimate reliability in these studies. In addition to reporting estimates of the mean correlations, variability in the correlations was also determined. Credibility intervals at 80% were computed around the estimated population correlations. These provide an estimate of the variability of individual correlations in the population where an 80% credibility interval excluding zero indicates that more than 90% of the individual correlations in the population will exclude zero and 10% will lie above the upward limit of the interval.

Moderator analysis was also conducted, following the 75% moderator rule as the recommend criterion for searching for moderators (Hunter & Schmidt, 2004). The rule states that when less than 75% of the variation in population correlations is accounted for by statistical artifacts, a search for moderators is warranted. The moderators that were considered most relevant to this research were the type of formal employee ownership (Cooperative vs. ESOP) and whether the studies used single or multiple organizations (Single vs. Multiple) in their studies.

Results

The results of the meta-analysis are discussed in two sections. First, the overall effects of employee ownership on organizational commitment are reported. The second section reviews findings for the moderator analyses.

Overall Effects

The data illustrate that the collective relationship between all employee ownership plans and organizational commitment is somewhat substantial. The mean observed and corrected correlation coefficients of all employee ownership plans on organizational commitment across all studies were .28 and .31, respectively (see Table 2). Furthermore, the credibility interval for the corrected coefficient did not include 0.00. This suggests that formal employee ownership plans significantly impact organizational commitment. Klein (1987) had a very large sample size, accounting for half of the observations in this initial analysis. Therefore, the meta-analysis was calculated excluding Klein (1987). In this analysis, the mean observed and corrected correlations drop substantially (.16 and .17, respectively.)

Moderator Analyses

Moderator analyses were performed because more than 25% of the variance of observed score correlation coefficient of formal employee ownership on organizational commitment remained unaccounted for after observed correlation coefficients were corrected for statistical artifacts. There are three key signs that indicate the presence of a moderator variable when performing moderator analyses. First, the mean corrected correlation coefficients between the factors should be significantly different. Second, the percent of variance in the observed correlation coefficients attributable to artifacts should increase in comparison to the overall percent variance in the observed correlation coefficient of the overall meta-analysis, do to an

increase in error variance. Finally, the credibility intervals for the corrected correlations in the moderator analysis should be narrower in comparison to the credibility interval for the overall corrected correlation prior to the moderator analysis.

Contextual Moderators. A moderator analysis performed on the overall correlation coefficient found that the type of employee ownership plan (employee stock ownership plan (ESOP) vs. cooperative organization) explained a portion of the remaining variance (See Table 2). More specifically, the correlation obtained for ESOPs on organizational commitment ($\rho = .36, k = 11$) was higher than the correlation obtained for cooperative organizations ($\rho = .12, k = 3$). The relationship between employee ownership and organizational commitment was greater for large- ($\rho = .25, k = 4$) and medium-sized organizations ($\rho = .24, k = 4$) than small organizations ($\rho = .15, k = 5$). A smaller relationship between employee ownership and organizational commitment was observed in unionized organizations ($\rho = .15, k = 4$) than non-unionized organizations ($\rho = .32, k = 3$).

Research Methods Moderators. Analyses were performed to test whether measuring employee ownership as a dichotomous or continuous variable moderated the relationship between employee ownership and organizational commitment. Employee ownership had a stronger relationship with organizational commitment when it was measured as a continuous variable ($\rho = .38, k = 7$) than as a dichotomous variable (($\rho = .12, k = 7$). Analyses also found that the number of organizations used in a study explained some of the unaccounted for variability of formal employee ownership plans on organizational commitment. The correlation was smaller for single organization studies ($\rho = .23, k = 8$) than in studies that used multiple organizations ($\rho = .33, k = 6$).

Discussion

As a whole, the fourteen studies included in this meta-analysis suggest that participation in formal employee ownership plans is positively related to one's commitment to his or her organization. Despite the indication that this relationship overall is not extremely strong, it still exists, and becomes even stronger when you take potential moderating variables into account.

Interestingly, the moderator analysis indicated that employees who were involved in ESOPs had higher levels of organizational commitment than those who were part of cooperatives. This finding may be due to the disproportionate number of studies representing each type of ownership plan. It is also possible that there are factors inherent to each of these types of ownership plans that account for the differences observed in this study. Employees may see more of a direct link of ownership in their organization when they can manipulate the amount of ownership they possess. The relationship between employee ownership and organizational commitment was also stronger in larger organizations and non-unionized organizations.

Moderation based on the number of organizations included within a study, with the correlation coefficient being stronger for single organization studies compared to multi-organization studies, suggests that the relationship between formal employee ownership plans and organizational commitment is much stronger when the data comes from one organization. Perhaps with the inclusion of more single-organization studies, the correlation coefficient would increase even more to suggest an even stronger relationship between ownership and commitment. As mentioned above, this moderation is likely due to the existence of a variety of extraneous that exist within each organization. These extraneous variables include such phenomena as organizational culture, managerial philosophy and strategies, the reason for the ownership plan's existence, and the type of industry the organization exists in.

This meta-analysis included only fourteen primary studies, allowing for the opportunity for further expansion and investigation with more primary studies comparing the relationship between formal employee ownership and organizational commitment, as well as other organizational outcome variables. By expanding the literature base, researchers can also begin to meta-analytically examine other potential moderators to the relationship between formal employee ownership and organizational commitment. Also, researchers could conduct hierarchical moderator analyses to better account for correlated moderator variables (Hunter & Schmidt, 2004).

Many research findings indicate that share ownership does have beneficial effects on certain work-related attitudes; with employee participation in decision-making appearing to have even stronger effects (Buchko, 1993; Long, 1978). Klein (1987) proposes that employee ownership plans lead to increased organizational commitment if the employee finds the ownership experience to be financially rewarding. She found that the size of the company's contribution to the ESOP is significantly positively related to employee ESOP satisfaction and levels of organizational commitment, while significantly negatively related to turnover intention. Future research should investigate the differences in strength of the relationship between formal employee ownership and organizational commitment taking into account the potential moderator of participation in decision-making. This analysis should also seek to consider the relationship of organizational commitment with other forms of employee ownership plans. It is possible that different types of ownership plans differentially affect the experience of organizational commitment among employees.

Davidson and Worrell (1994) note that strongly significant short-run positive stock market reactions to the announcements of ESOP implementation, however there were no long

run significant industry-adjusted improvements in the subsequent year's operating performance. The average financial performance declined two years after the implementation of the ESOP, with large increases in their asset turnover ratios in the first year following the ESOPs creation. These findings provide indication that the increases in work-place attitudes may also decline a few years after implementation. Longitudinal research examining these relationships over time is highly warranted.

The use of meta-analysis to understand the literature regarding organizational commitment and ownership has provided some additional insight about this relationship, which was difficult to ascertain by examining any of the primary studies alone. Although the body of research in this area does not seem to be highly controversial, the effect sizes determined for this relationship varied and have offered little encouragement to researchers and theorists who hypothesize a strong impact of ownership on commitment. In reviewing the literature, it appears that many have abandoned interest in these variables, given the age of the majority of the studies (many conducted between the late 1970's and the early 1990's) and the surprisingly few studies that have been conducted recently. The results of this meta-analysis should give some renewed hope that a meaningful relationship does exist between ownership and commitment, suggesting further opportunities to explore this phenomenon are worthwhile.

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Note. * indicates that this study was included in the meta-analysis.

Table 1
Studies included in the Meta-Analyses

Study	N	r	Number of Organizations	Size of Organization(s)	Industry	Employee Owners Unionized?	Type of Ownership	Ownership Measure
Bailey (2005)	82	.060	Multiple	Multiple	Multiple	Not Indicated	ESOP	Continuous
Buchko (1992)	181	.193	1	Medium)	Media & Communication	Yes	ESOP	Continuous
Culpepper, Gamble, & Blubaugh (2004)	321	.170	3	Large	Airline	Yes	ESOP	Continuous
French & Rosenstein (1984)	470	.394	1	Large	Heating/Plumbing	No	ESOP	Continuous
Hammer, Stern, & Gurdon (1982)	162	.250	1	Medium	Furniture Manufacturing	Yes	ESOP	Dichotomous
Long (1978)	60	.350	1	Small	Trucking	Yes	ESOP	Dichotomous
Long (1980)	93	-.156	1	Small	Knitting Mill	No	ESOP	Dichotomous
Peterson (1988)	92	-.300	1	Large	Retail	Yes	ESOP	Continuous
Rhodes & Steers (1981)	144	.247	2	Small	Plywood	No	Cooperative	Dichotomous
Russell, Hochner, & Perry (1979)	706	.064	Multiple	Multiple	Refuse Collection	Yes	Cooperative	Dichotomous
Tucker, Nock, & Toscano (1989)	39	-.022	1	Small	Graphics Design	Not Indicated	ESOP	Dichotomous
Washington & Wellbourne (2000)	81	.200	1	Medium	High Technology	Not Indicated	ESOP	Continuous
Wetzel & Gallagher (1990)	416	.132	38	Various	Retail	Not Indicated	Cooperative	Dichotomous

Table Note:

Table 2*Results of Meta-Analysis*

	<i>k</i>	<i>N</i>	<i>M_r</i>	<i>SD_r</i>	<i>M_p</i>	<i>SD_p</i>	%VA	<i>10th % CV</i>	<i>90th % CV</i>
<i>All Ownership Plans</i>									
ESOPs	13	2847	.16	.14	.17	.15	18.33	-.02	.36
<i>ESOPs vs. Cooperatives</i>									
ESOPs	10	1581	.19	.18	.20	.19	16.19	-.02	.45
Cooperatives	3	1266	.11	.03	.12	.04	67.24	.07	.16
<i>Small vs. Medium vs. Large Organizations</i>									
Small	5	361	.13	.16	.15	.17	34.98	-.07	.37
Medium	4	429	.22	.00	.24	.00	100	.24	.24
Large	4	935	.23	.20	.25	.21	8.97	-.02	.52
<i>Union vs. Non-Union Organizations</i>									
Union	4	756	.14	.16	.15	.16	18.94	-.06	.35
Non-Union	3	707	.29	.17	.32	.19	10.60	.08	.57
<i>Continuous vs. Dichotomous Measure of Ownership</i>									
Continuous	6	1227	.22	.17	.23	.18	13.13	.00	.47
Dichotomous	7	1620	.11	.08	.12	.09	37.77	.01	.24
<i>Single vs. Multiple Organization Studies</i>									
Single Organization	8	1178	.22	.20	.23	.21	13.24	-.04	.51
Multiple Organizations	5	1669	.12	.02	.13	.02	86.37	.09	.16

Table Note: *k* = number of studies. *N* = total sample size. *M_r* & *SD_r* = mean and standard deviation, respectively, of observed correlation coefficient. *M_p* & *SD_p* = mean and standard deviation, respectively, of corrected correlation coefficient. %VA = percentage of observed variance accounted for by artifacts. 10th % CV = lower bound credibility interval. 90th % CV = upper bound credibility interval.