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Keys to Maximizing ESOP Potential: A Study on Determinants of a Strong ESOP

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Keys to Maximizing ESOP Potential

A Study on Determinants of a Strong ESOP

Chris King

5/3/2013

An Honors Thesis Written for the 2012-2013 Academic Year

Advised by Yong Jin Park

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Abstract

Studies on employee-ownership have generally focused on:

- Efficiency gains,
- Survival rate increases,
- Employee attitude benefits, and
- Measures of structural performance.

However, the study of the longevity of the benefits and the mechanisms by which employee-owned companies have found themselves thriving for longer periods of time have remained largely untouched by rigorous analysis. This study examines both of these areas using employee attitude survey data collected through the National Center for Employee-Ownership (NCEO). The study reveals no significant correlation through regression analysis between the age of the company and the attitude benefits resulting from an Employee Stock Ownership Plan (ESOP), but it does find some evidence that a link may exist. The study also provides evidence that education and engagement of the labor force significantly impacts employee attitudes. Given recent published research stating that employee attitudes and well-being are critical factors for the productivity in the workforce, this study suggests these two very significant determinants of employee attitudes that have been overlooked by researchers and policy makers who have evaluated the costs and benefits of ESOPs to our economy.

Introduction

“Shared Capitalism” in the workplace has been studied because of its perceived bounty versus actual benefits to both workers and owners in the United States. Based on Gallup polls summarized by Douglas Kruse and Joseph Blasi in 1994, employees were more likely to prefer a share in the company over immediate cash in their paychecks now, and 80% believe that employers should be allowed to contribute company stock to retirement plans.¹ Others have argued that shared capitalism is a fundamental principle on which the United States was founded and on which it functions politically and economically.

¹ Kruse, Douglas. "Research Evidence on Prevalence and Effects of Employee Ownership." *www.nceo.org*. NCEO, n.d. Web.

ESOPs are tax qualified plans in which tax breaks are given to companies by the government in return for companies giving employees an ownership stake in their company. An ESOP company creates an employee stock ownership trust through which owners use profits to facilitate the sale of the company to employees over time in one of three ways by:

- Contributing company shares to the “trust,”
- Contributing cash to purchase shares on behalf of the employees, or
- Creating a Trust that can borrow money and make payments to the ESOPs employee trust to pay the owner for his/her shares. ²

Shares of the company are then allocated to employees based on company specified criteria such as salary and seniority. Any employee over the age of 21 is allowed to participate in the ESOP, but there is generally a vesting period of up to six years at which time the employee can receive the full value of his or her shares of the ESOP. ESOPs can have anywhere from 5% to 100% of their total capitalization owned by the employee trust.

Creating an ESOP shelters from taxation the capital gains of the company’s previous owners and in some cases eliminates any capital gains tax. An ESOP also reduces the taxes payable by the company on an ongoing basis, for example by permitting the company to deduct from its taxable income not only the interest paid on money borrowed to set up the trust, but also the principal repayments.

ESOP growth has been strong since they were officially sanctioned in 1974 with the introduction of the ERISA (Employee Retirement Income Security Act of

² Rodrick, Scott S. *An Introduction to ESOPs*. Oakland, CA: National Center for Employee Ownership, 2010. Print.

1974). ESOPs, very seldom known at the time, were not included in the original version of ERISA. However after oversight of ESOPs were brought to the attention of Senator Russell B. Long he invited one of the early advocates of employee ownership to discuss the inclusion of them in the bill. After the meeting, long felt that ESOPs could be a revitalizing force for the economy.³ Based on the potential for ESOPs to benefit employees and their ability to create an outlet for small business owners to sell their companies, ESOPs were granted tax reductions. ⁴ The most recent Department of Labor data report that between 17 and 20 million employees are registered in defined contribution plans. Of that total, approximately 13 million employees are participating in ESOPs.⁵ The sheer magnitude of the U.S. labor force involved in employee-ownership plans, and the reduction in U. S. taxes paid to such employee-owned companies warrants close study on the topic.

The most comprehensive study of ESOPs examines an ESOP's ability to yield a positive effect on the productivity and efficiency of a workforce. In general, a driving force behind productivity and efficiency from any company results from positive employee attitudes towards the company in an ESOP. As a reasonable extension to that accepted productivity maxim, it was theorized that in the case of an ESOP, if employees identify themselves as owners and believe that they have a direct impact on the future success of the company and hence their personal wealth,

³ Menke, John D. "The Origin and History of the ESOP and Its Future Role as a Business Succession Tool." *The Menke Group The Nations Premier ESOP Advisors and Administrators*. N.p., n.d, Web. 03 May 2013.

⁴ *Ibid*

⁵ Rodrick 2010

they will put more effort in their work.⁶ As a result of this alignment of worker and company incentives, the company will realize significant productivity gains to the joint benefit of the company and its employee-owners.

A review of multiple studies examining well-being in the workplace and its relationship to business outcomes has concluded that

“The well-being perspective is quite applicable to business and that, as managers and employees focus on satisfying basic human needs in the workplace – clarifying desired outcomes and increasing opportunity for individual fulfillment and growth—they may increase the opportunity for the success of their organization”⁷

The concept that employee productivity will increase if employee attitudes and sense of well-being are nourished is a concept that ESOP strives to accomplish. While traditional shareholder-owned companies align shareholder wealth with company success, ESOPs align employee wealth with company success by making employees the company’s partial or entire shareholders. This alignment of incentives provides a multitude of potential benefits that can help solve problems modern firms face.

All firms in the modern day face an asymmetrical information problem when drafting a contract between an employee and an employer. The employee offers his/her time and agrees to an inherently unenforceable level of effort on behalf of the firm in exchange for receiving a wage. Because of the immeasurability of the level of effort the employer must create ways to monitor, incent, and discipline his or her workforce.

⁶ Pendleton, Andrew, Nicholas Wilson, and Mike Wright. "The Perception and Effects of Share Ownership: Empirical Evidence from Employee Buy-Outs." *British Journal of Industrial Relations* 36.1 (1998): 99-123. Print.

⁷ Harter J, Schmidt F, Keyes C. Well-being in the workplace and its relationship to business outcomes A review of the gallup studies. *Flourishing: The Positive Person and the Good Life*. 2002:205.

Samuel Bowles and Herbert Gintis coin the term *contested exchange* to describe the nature of this contract. They define an exchange as contested when “some aspect of the good exchanged possesses an attribute that is valuable to the buyer, is costly to provide, and is at the same time difficult to measure or otherwise subject to determinate contractual specification.”⁸

A capitalistic firm will incur costs that an employee-owned firm might be able to avoid. In a traditional firm, the incentive driver is simply the threat of contract termination (i.e. firing the employee). However, this is only a threat if the employee is being paid more than his next best alternative which, theoretically, drives up wages. Capitalistic firms have costs associated with employee supervision whereas ESOP employee-owners are expected to require less direct supervision and hence lower costs of incentive enforcement.

The labor market poses another unique problem that an ESOP could potentially solve. The story of the “hold up problem” is one that describes a situation that arises when two parties (owner and employee) can work together most efficiently by cooperating, but cooperating may give the other party bargaining power.⁹ This problem emerges in firms because of a divergence of interests between how the firm wants the employees to be trained and how the employees prefer to be trained. Future productivity comes at a cost to both the employee and the employer. In the firm’s case, the firm prefers that employee skill training is

⁸ Bowles, Samuel, and Herbert Gintis. "A Political and Economic Case for the Democratic Enterprise." *Economics and Philosophy* 9.01 (1993): 75. Print.

⁹ Holmstrom, Bengt, and John Roberts. "Boundaries of the Firm Revisited." *Journal of Economic Perspectives* 12.4 (Fall 1998): 73-94. Print.

specific to the firm because that will increase the firm's market value while making the employee no more valuable to other firms. By contrast, the employee benefits from acquiring a general skill that is valuable to many different firms. A general skill is more marketable than a specific skill and can increase the employee's market value and force the company to increase his or her wage.

An employee can threaten to quit and thereby bargain for a larger share of the surplus generated by the firm-specific training. However, the employer may act strategically by threatening to dismiss the employee. In anticipation of this, employees and employers may choose to avoid any skill-specific training which can result in sub-optimal investment in human capital to the detriment of both worker and employer. The fear of opportunistic behavior on both sides leads to wage rigidity and a less productive workforce where specific human capital is present. If an ESOP succeeds in strongly aligning the incentives between the firm and the employee's well-being, then an ESOP may have the unique ability to solve the hold-up problem.

It is important to realize that the ESOP organizational structure is a tool and not an immediate solution to motivational and incentive problems in the workplace. All the problems and the ESOP solution will boil down to the basics of how employees feel about their companies because, ultimately, the individual puts forth the effort. One employee-owned company, NewAge industries, serves as a fluid model of an exemplary employee-owned firm.

*NewAge Industries: Exemplary Model of an ESOP Company*¹⁰

While some ESOP companies simply view the ESOP structure as a way for the original owner to collect on the beneficial tax breaks given by the government, others will put forth the effort to unleash the power to improve efficiency and profitability that the ESOP structure permits. It is the responsibility of the managers to not sit back and wait for the ESOP to work magic, but to be proactive in showing employees how they are doing. An active effort can come in the form of ESOP focused educational programs, personal wealth management programs for employees, programs to help employees understand how their behavior influences bottom line growth, events to highlight the benefits employees have, and lastly how the direct involvement of every employee-owner increases the market value of both the company and their own future shares.

I hypothesize that because of the way the ESOP is organized, employees involved in an ESOP will, over time, start to act more like owners and less like workers coming in every day looking only for their paycheck at the end of the week. This would show itself most strongly, and perhaps only, if employees understand the ESOP and become involved in the ESOP.

NewAge Industries is an example of a company that goes above and beyond to encourage positive attitudes in its employees and sees the benefits firsthand. The owner of the company feels that an owner should not sit back and wait for the employees to get it, but be proactive in showing employees how they're doing by

¹⁰ All information in this section was collected through an interview with Ken Baker on April 5th 2013, and through the Winning Workplaces article on NewAge Industries

creating events, communicating finances, and cross training employees. The use of education and engagement in this ESOP result in exemplary benefits.

Founded in 1954, the company now touts \$31 million¹¹ in revenues and has been recognized as a top ten finalist for top small company workplaces by Winning Workplaces & Inc. Magazine. The company now has a 40% ESOP as of December 2013¹² and is owned by over 100 employees who have an average tenure of 8 years.

The company has used a gain sharing program where employees are given a share of the profits, but to get employees more involved, NewAge adopted an ESOP in 2006. The owner of NewAge invests heavily in educating employees about the ESOP and this investment in employee education has seemed to pay off. Hour-long seminars are provided to educate all new employees about their own and their company finances. Some of the things taught are:

- Personal employee profit and loss statements
- Business profit and loss statements
- Retirement planning for the future
- ESOP and NewAge history
- How the ESOP is valued

These tools provide employees with the incentive as well as the ability help the company succeed, and the information showing how that success affects them personally as owners. In contrast to a conventional company in which employees only vaguely see how their efforts might help the company and, possibly, themselves.

¹¹ Updated June 12 2013

¹² Updated June 12 2013

The ESOP started in 2006 has gained over 400 percent¹³ in value since then. Last year was the 8th record breaking year in the last nine years for income and orders, including the deep recession years of 2008 and 2009. During the recession, instead of laying off workers, NewAge saw it fit to continue to work to increase inventories of finished product and train employees in other areas of the organization that enabled the company to attract new customers.

Employees in the NewAge ESOP demonstrate commitment and understanding of the account values and their shares resulting in strong self-monitoring (one of the problems identified in the contested exchange model). One of the programs in place is the offering of a \$1,000 bonus awarded to an employee who refers another employee that, after a six-month trial period, is a good asset. This takes care of a lot of the bad risk associated with new hires, something that a similar firm may have trouble avoiding without the employee commitment. There have been cases at NewAge in which an employee was be asked if he/she knows anyone who would be a good fit for the company, and employees, concerned about maintaining the economic health of the company, have answered that none of their job-seeking friends would benefit the company.

The employees from across all salary ranges have a stronger understanding of NewAge than would employees at a similar, non-employee-owned company. In one case reported to me, a warehouse shipping manager approached a sales employee after a record breaking shipment day questioning the margins of the

¹³ Updated June 12 2013

products being sold. In other words, the entire company is looking at things the original owner would look at to increase the value of the company.

NewAge Industries has shown how the investment in employee's ownership identity through education and engagement results in company-wide benefits. This ESOP has used its employee-ownership status to its full potential and has flourished because of it. This study hopes to draw some conclusions on the general effect that education and engagement have on the commitment and belief employees have in the company.

Theory Opposing ESOPs

There are two main arguments that criticize employee-ownership:

- The prisoner's dilemma problem (also known as the $1/n$ problem); and
- The potential lack of diversification for employees' retirement funds

Prisoners Dilemma

The prisoner's dilemma problem describes a game in which every player can reach the optimal outcome for the group by cooperating but can, individually, gain more by not cooperating. Ultimately, individuals can optimize their personal result by not cooperating; thereby achieving the least optimal outcome for the group. In the context of employee-ownership, every employee benefits from the retirement plan and the hard work of others. However, assuming effort is costly, employees gain from "free loading" off other employee's hard work while not working. This, critics argue, renders employee-ownership a negative force on productivity.

Advocates of employee-ownership, such as Martin Weitzman and Douglas Kruse, argue that this is not necessarily the case in employee-owned companies.¹⁴ Depending on the situation, they argue that when the game is repeated (which mimics long-term relationships between employees and employers) employers will punish and ostracize employees for not cooperating reaching the best outcome of the collective action problem.

Lack of Diversification

The second cited problem is lack of diversification of employee's retirement portfolios. This is a valid concern because, if the company fails completely, the employees (as equity owners of the company) will not be taken care of and they will lose their retirement funds at the very same time as they lose their jobs (as is the United Airlines, Polaroid, and Enron cases).¹⁵ Kruse suggests that even taking into account the lack of diversification employee owners have superior retirement provisions.¹⁶ This situation can be avoided by ensuring that employee's investment portfolios are diversified by having retirement accounts in a number of companies. More importantly, as a condition for ESOP formation, after a defined amount of time invested in the ESOP employees over age 55 are allowed to take a percentage of money out of the ESOP and put it in Blue Chip investments. This helps mitigate the cited diversification problem.

¹⁴ Weitzman M, Kruse D., A. Blinder Profit sharing and productivity. *Paying for Productivity*. 1990:95.

¹⁵ Freeman S. Effects of ESOP adoption and employee ownership: Thirty years of research and experience. *Organizational Dynamics Working Papers*. 2007.

¹⁶ *Ibid*

Theory Supporting ESOPs

Theory supporting employee-ownership revolves around the idea that the existence of a monetary incentive to align employee efforts with the interest of the company will result in a cooperative workplace. While economic theory predicts that this form of group rewards will result in low productivity some argue this can be overcome through cooperation among participants. A perfect alignment of interests would result in a very fluid environment in which neither employee nor employer is able to gain at the expense of the other.

In a perfect ESOP model, rational employees are doing everything they can to increase the future value of the company, while the company is offering all the resources that employee-owners may need to accomplish this goal. Employees would have the incentive to monitor other employees' behavior by reporting or "out-casting" those who are "free riders" on the efforts of others. This would not only reduce company monitoring costs because managers could more productively use their time rather than spending it monitoring others but it would also improve employee management relations.

If an ESOP succeed in goal of aligning the interests of all parties it will not face the training problem that conventionally organized firms potentially face. Perfectly run employee-owned firms may have the unique quality of an extremely happy and satisfied workforce. Through strong employee retention and manager-employee relations, the employee-owner is more likely to learn skills that benefit

the company rather than aiming to develop only transferrable skills. Furthermore, a firm that is confident that an employee will not leave their employment for a different opportunity will more willingly offer general training that is valuable to both the employer and the employee.

All said, it is unknown how many ESOP firms exhibit the perfect characteristics presented above. Without a proactive effort from management to realize the benefits of the ESOP, the theoretical benefits will not materialize automatically. Specifically, rather than assuming employees will understand the benefits of an ESOP, the owner must proactively provide the tools to employees that will instill trust in the employee-management team and enable employees to understand their identities as owners of the company. This education is required to enable an ESOP to realize its potential.

Previous Literature

Literature on the subject of employee-ownership can be divided studies that focus on one of four categories: (I) firm performance; (II) employment stability, growth, and firm survival; (III) employee wealth and wages; and (IV) employee attitudes. The majority of studies use public company datasets because the privately owned company datasets are limited and costly.

(I) Productivity

Productivity in employee-owned companies is touted as a benefit that results from the democratic structure of ESOPs. Essentially, by giving employees a stake in

their company they will be assumed to work harder to increase the market value (and profitability) of the company. The channels through which they would add value would be most likely are through their own productivity and quality control that enhances the value of the product.

Many studies have found no significant correlation between adoption of an ESOP and increased productivity. The strongest evidence found comes from a study conducted by Kruse and Blasi. The two researchers conducted a “meta-analysis” of available studies hoping to link improved productivity with employee-ownership.¹⁷ They concluded that the disproportionate number of positive to negative links, shows that there seems to be a small but positive link between employee-ownership and productivity. Other studies have attempted to dismantle the conclusion that employee-ownership has productive effects, however few have statistically significant results.

(II) Employment Growth, Stability, Firm Survival

Employee-owned firms, according to a 2002 study conducted by Park, Kruse, and Sesil, survive longer (on average) than matched traditional firms.¹⁸ Such enhanced firm survival, along with employment growth and stability, and firm survival will have a profound effect on employment attitudes in employee-owned companies. The benefits of these three aspects of employee-ownership are far

¹⁷ *Ibid*

¹⁸ Park, Rhokeyun, Douglas Kruse, and James Sesil. "Does Employee Ownership Enhance Firm Survival?" *Advances in the Economic Analysis of Participatory and Labor-Managed Firms* 8 (2004): 3-33. Print.

reaching. Because of employment stability, both firms and its employee-owners will be more willing to learn industry and firm specific skills rather than general skills.

Studies conducted by Blair et al. (2000) and Craig and Pencavel (1992,93,95) found that along with survival of firms, employee tenure is longer in employee owned firms. Craig and Pencavel found evidence that in U.S plywood cooperatives (an alternate form of profit sharing) in the Pacific Northwest companies tended to adjust wage rates and refrain from layoffs.¹⁹ Blair found that firms holding at least 17% of company stock during the period from 1983-1985 had significantly longer average employee tenure than similar non-ESOP firms. ²⁰

(III) Employee Wealth and Wages

Employee compensation is a hotly debated topic among ESOP researchers because of strong arguments on both sides. Those arguing against ESOPs assert that employee-ownership plans contribute to a lack of diversification of retirement assets as employees retirement assets may be placed predominantly in their employer's stock. However, findings on employee wealth and wages suggest otherwise.

Based on study by Steven Freeman, the strongest evidence supports the conclusion that ESOPs enhance employee wealth and wages. Between ESOP firms and comparable non-employee-owned firms, compensation in the ESOP firms are at least as high, if not higher, than their matched counterparts. Studies conducted in Massachusetts and Washington State revealed that ownership wealth coming from

¹⁹ Freeman (2007)

²⁰ *Ibid.*

ESOPs is not simply a substitute for current income, but serves as an additional source of wealth for employees. Freeman asserts that the higher compensation may reflect increased productivity, the use of high wages to motivate workers, the influence of employee-owners setting higher wages for themselves, or benevolence on the part of the management. Whatever the cause, Freeman demonstrates that employee-ownership results in higher average employee compensation.²¹

(IV) Employee Attitudes

Employee attitudes play an important role in determining how well ESOPs function. The productivity benefits described before hinge on whether or not employees believe in their ESOP and believe it will benefit them. Kruse and Blasi note, "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 work lives, dislike the extra risk to their income and wealth, or have raised expectations that are not fulfilled."²²

There have been approximately two dozen studies completed on employee attitudes that offer cross-sectional comparisons between owners and non-owners, longitudinal analysis of pre-ESOP and post-ESOP adoption, and studies looking at how the different plan features affect employee attitudes.

Studies conducted on employee attitudes have yielded mixed results. Despite those mixed results, few studies show employee-ownership having a

²¹ *Ibid.*

²² Kruse (2002)

negative effect on employee attitudes while many more show that employee-ownership has a positive effect on attitudes.²³ However when examined more closely, there do seem to be ways to influence the benefit to an employee-owned firm.

A study on employee attitudes found that while employee-ownership is not intrinsically rewarding, it does appear to have a positive effect on attitudes when coupled with financial rewards and participative management practices.²⁴ A second study shows communicating the financial results of the ESOP and the benefits accruing to employee-owners results in increased satisfaction of the ESOP participants.²⁵

Hypotheses

This paper asks the questions:

- 1) As employee-owned companies mature, do employees better understand the plan and do they have increasing feelings of identification with the company?
- 2) Do employees understand the ESOP structure and do they, therefore, identify with and believe in the company?
- 3) Are CEO's of ESOP companies able to capture the productivity and other "theoretical" gains touted by ESOP advocates?

²³ Kruse (2002)

²⁴ Klein, Katherine J. "Employee Stock Ownership and Employee Attitudes: A Test of Three Models." *Journal of Applied Psychology* 72.2 (1987): 319-32. Print.

²⁵ Klein, Katherine J., and Rosalie J. Hall. "Correlates of Employee Satisfaction with Stock Ownership: Who Likes an ESOP Most?" *Journal of Applied Psychology* 73.4 (1988): 630-38. Print.

Company owners who choose to adopt an ESOP will have done so for one of many reasons. They could be looking to defend the firm from a hostile takeover, to capture performance benefits, to negotiate wage concessions, or obtain the tax benefits to prior and current owners. Regardless of the reason behind adoption, in a perfectly rational world, the management of the companies, looking after the company's best interest should attempt to best align the employee-owner's interests with the company's interest in pursuit of efficiency and quality benefits.

Employee-ownership may have a stronger effect on productive effects if its employees perceive the ESOP as a good thing for both themselves and the company. In other words, the attitude of employees has a strong bearing on how the ESOP performs.

The task of aligning the incentives is a tricky one, and as a number of studies find there is no automatic improvement in attitudes just from being an employee-owner. According to Kruse most studies find there is a positive relationship between employee-ownership and organizational commitment and identification.²⁶ What these studies do not look for is the time effect that time involved in the ESOP have on employee attitudes. This brings me to my first hypothesis:

Hypothesis 1: As companies grow older employee-owners feel a stronger sense of identification and better attitudes toward the ESOP.

²⁶ Kruse (2002)

Over time, employees should realize that on average their retirement accounts are gaining value, and they should probably identify more and more with being an employee-owner as compared to a company that just adopted an ESOP.

One caveat of this is if employees are being provided information about their ESOP and their retirement account they will be more likely to work to increase that value. Furthermore, if they are educated on how they can increase this value, they will have the tools and the motive to do so. If they aren't provided this information one would expect the employees to continue with their natural level of effort. This brings me to my second hypothesis:

Hypothesis 2: When employee-owners feel more knowledgeable about the ESOP the beneficial attitude effects will be stronger positive.

My third hypothesis ties the first two together. If a company has been educating its workforce concerning their ESOP since the beginning, knowledge about the company should accumulate and result in an increase in beneficial attitude towards the company. Second, if the workforce sees a demonstrated commitment by the management to involve, educate, and identify with the workforce through continued ESOP education employees will be more likely to show those extra performance effects that the ESOP aims to accomplish.

Hypothesis 3: When companies engage the employees more the effect on attitude over time will be stronger.

Employees in an ESOP company will not simply react in a favorable way just because a company chooses to adopt an ESOP. (Kruse, 2002) If an employee is suddenly in an employee-ownership plan, his or her future compensation has increased but at no immediate cost to the employee. I hypothesize that it will take a sense of engagement in the direction of the company for employees to feel like a direct owner of the company.

Hypothesis 4: The result of better ESOP engagement will have a stronger effect on belief than more education.

I hypothesize that of the three factors: education, engagement, and age of the company, employee attitudes will be affected the most by stronger efforts by the company to make the employees active in influential company decisions. I believe that this will have the most strength in predicting belief because by including employees in these decisions they may perceive themselves more as owners of the company, thereby becoming more inclined to increase the market value of the company. Figure 1 helps depict the relationship between these variables. Education and engagement, enhanced over time, are hypothesized to provide a stronger feeling of identification that will together foster belief in the ESOP. This commitment toward the future value of the company will turn into benefits to the ESOP.

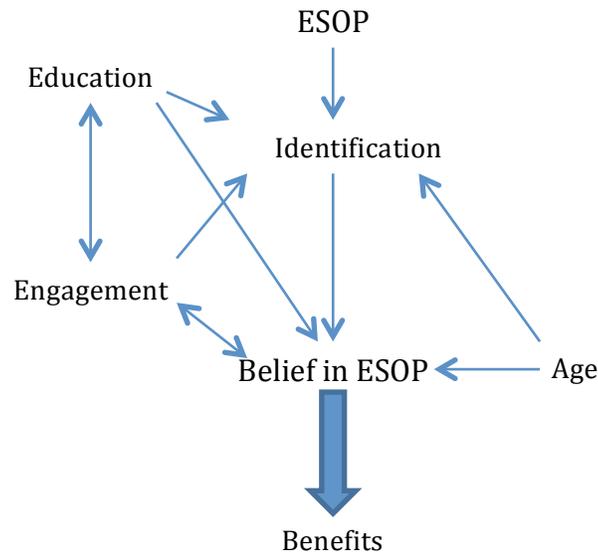


Figure 1 : Flow Chart Depicting Relationship Between ESOP Benefits

Data and Method

Data

This study examines the above hypotheses in an effort to shed light on the mechanisms by which companies can improve employee attitudes. The data being used is survey data collected over the last twenty years by the NCEO (National Center for Employee-Ownership). The data set contains around seventy unique companies, covering around 15,000 employee respondents. Several of the companies have elected to take the survey multiple times. The survey tracks 150 questions covering areas of interest to NCEO's members. The survey is administered online in order to get the highest response rate possible.

The organization of the survey presents some statistical problems when using the responses as data.

Non-Response Bias / Voluntary Response Bias

The data may also suffer from the existence of voluntary response bias because of the way in which the survey data was collected. The ownership culture survey is responded to by ESOPs who wish evaluate the attitudes of their employees and compare them to benchmark statistics of other companies that have answered the survey. This creates two problems with the make-up of companies that look to take the survey. First, companies having an interest in measuring their ESOP performance versus that of other companies are also likely to be the companies that are invested in the benefits of ESOPs. ESOP companies that have little interest in realizing the theoretical benefits of an ESOP will have little interest in measuring their performance versus other ESOPs and they are, theoretically, likely to be the poorest performing ESOPs. Therefore, companies that have performed poorly after adopting an ESOP may be underrepresented. Second, because the ownership culture survey is provided by the NCEO for a fee, companies that are not as invested in the idea of the ESOP may not respond and will be omitted from the dataset. Because of this we must take note that while the least organized of the ESOPs are left out, we believe that our dataset can still represent a spectrum of companies which may be more invested in the ESOP idea than a random selection of ESOPs.

The data also suffers on another level because not all companies respond to every question. This limited the amount of usable data in the dataset when creating indices for questions measuring the different aspects of employee attitude.

Age of companies

The original dataset provided by the NCEO did not include a variable measuring how long the company had been an ESOP at the time of the report date. However, the dataset did include a variable for report date. To capture the amount of time the company has been an ESOP, I used the form 5500s publically available on the department of labor website²⁷ and merged it with the NCEO dataset by the company name. I extracted the date of plan inception from the 5500's and computed the time that elapsed from inception to the date the company took the survey.

Figure 2 shows the distribution of the ages of the companies used in the dataset. The majority of the companies lie in the range from zero to ten years, there is still a good amount from 10 to 20 years old, and then there a few outliers older than 25 years. This skewed distribution could be a result of a few things. First, companies could be dropping out of the dataset as they get older. Second, the majority of companies that adopted ESOPS adopted them in the 1990's and 2000's, since the data has been collected over the past 20 years the majority of companies that did the survey were probably from zero to ten years old.

²⁷"Form 5500 Series." *Annual Return/Report 5500 Series Forms and Instructions*. N.p., n.d. Web. 03 May 2013.

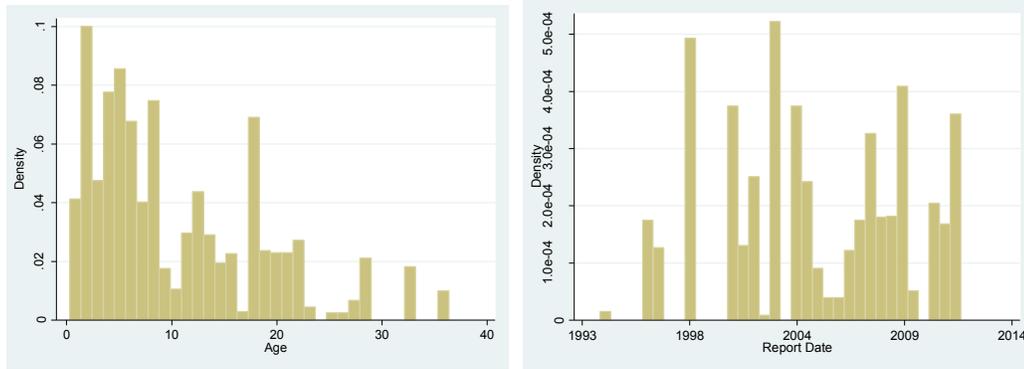


Figure 2, 3: Age of employee-owned companies in dataset (Left); distribution of report date in dataset (Right)

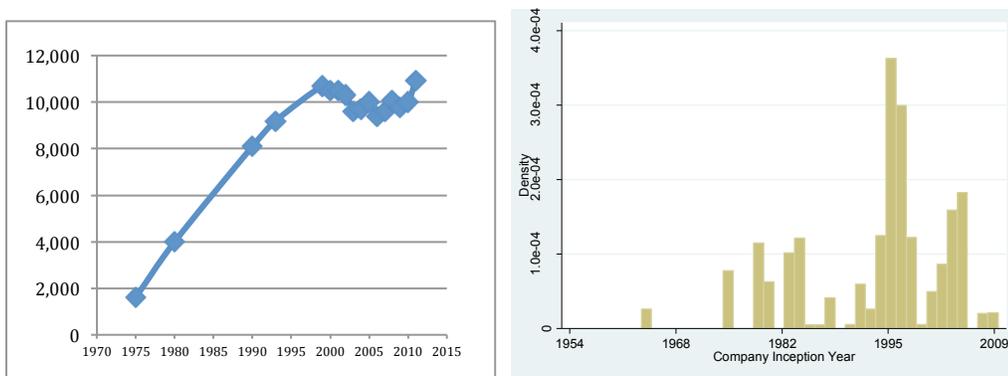


Figure 4, 5: Number of total employee-owned companies by year (Left)²⁸; dataset density of the inception years of companies in dataset.

To explain the skewedness of the timespan variable we look at the number of ESOP companies by year and the distribution of ESOP adoption date in the dataset. The combination of these shows that it is not unnatural to have a large density of data on plans starting from 1993 to 2007 because of a combination of two factors, growth of employee-ownership plans at that time and the existence of the survey. The survey's first respondent was in 1993, and in the timespan from 1993 to 2012 the largest period of growth of ESOPs was from 1993 to 2000. As seen in Figure 5, the highest density of ESOP adoptions occurred during the time largest period of

²⁸ Figure 4 generated based on statistical information given by www.nceo.org

growth of adoptions was observed while the survey was available. This would mean that accounting for the limited existence of the survey, the skewedness of the timespan variable is not unnatural.

Method

Timespan Variable

The logarithmic function of the timespan variable seemed to have a better fit than the original timespan variable. It makes sense that the logarithmic function would be more appropriate for the data because increases in employee attitudes are

not likely to be constant between early and late years. Between its first and second years of being an ESOP a company might be expected to show a larger effect increase in attitudes than a company

surveyed between its nineteenth and twentieth year. This is seen most clearly

when looking at a scatter plot between the education proxy and the age of companies shown in Figure 6. In the first couple years you would probably have more variability, where it may take companies longer to bring out the benefits of the ESOP, however in the later years there shouldn't be much year to year difference.

Also since the survey data is upper-bound, the existence of an asymptotic relationship is extremely likely.

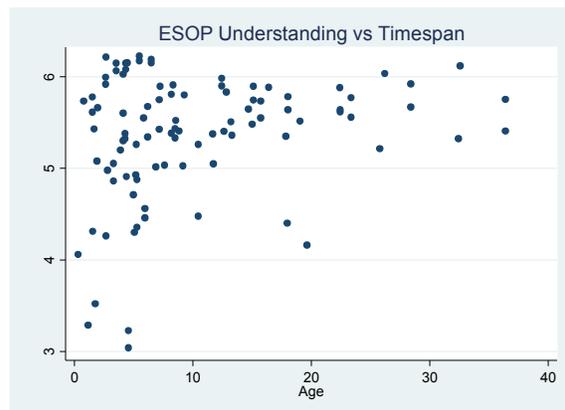


Figure 6: Effect of the age of the company on all questions under topic ESOP Understanding

Category Groupings

To create a proxy for each of the attitude test variables, an index was created to generate an average for the level of identification, belief, education, and engagement felt within the sample. Four questions were chosen from each category and the scores of each were added together to create a composite score for the index. Companies that did not answer all four of the questions could not be included in the index because if a company had not answered all the questions the composite score would be undervalued. This problem limited the number of questions that could comprise each proxy because of the pigeon-hole effect.

Sample size is therefore driven down because the size of each index sample cannot exceed the number of respondents for the least answered question. Figure 7 shows the four indices and the questions that make up each index.

Each of the indices was created to best represent a different aspect of employee attitudes in ESOP companies. The Identification and Belief variables serve to measure the employees view of the company and employee attitudes; while the Education and Engagement variables which try to capture the effort given by the company to encourage the ESOP.

The questions making up the index for employee identification were chosen based on employees' personal feelings about their ties to the company and the importance of employee-ownership to the employees. The questions comprising the index for belief were chosen based on based on employees' general investment in the company and more generally questions that could represent attitudes most easily leading to a more productive and profitable workplace. The education index

was made up of questions that aimed to capture how well the employees understood the ESOP and how well the company shares information with the employees. Lastly, the engagement index aimed to capture employee involvement in company decisions. The creation of these four indices gives us the ability to look at the effect that each aspect of employee-ownership has on employee attitudes.

Category	Survey Question
Identification	How much do you feel like an owner of the company
	How much do other people here feel like owners
	How important is ownership to you?
	OurCo employees feel it is important to know how [their workgroup] affects the bottom line.
Belief	People at [OurCo] care about meeting our customers' needs
	Employees at [OurCo] are very committed to the company and its future
	People recognize the future value of their ESOP account depends on the success of the company
	People at [OurCo] work hard
Education	The company makes a sincere effort to share information with employees
	People at OurCo are given enough information about their performance to do their jobs well
	I get sufficient feedback about my work to improve my performance
	Generally speaking, I understand the ESOP idea and how it works at this company
Engagement	This company encourages people to participate in decisions that affect their day-to-day work
	Employees at [OurCo] have real influence over the direction of the company
	I actively contribute to group problem-solving efforts in my work area
	The person I report to actively seeks my input

Figure 7: Questions making up each of the four indices Identification, Belief, Education, and Engagement Independent variables are highlighted

Industry Normality

After making the four composite question groups, it was necessary to verify that the industry makeup of the four proxy groups was approximately the same as the full data set. The form 5500 provided us with a variable for the NAICS (North American Industry Classification System), using this, the companies in the dataset were grouped into industry classes:

21-23: Mining, Quarrying, and Oil and Gas Extraction / Utilities/ Construction
31-33: Manufacturing
42: Wholesale Trade
44-45: Retail Trade
48-49: Transportation and Warehousing
51: Information
52: Finance and Insurance
53: Real Estate and Rental and Leasing
54: Professional and Technical Services²⁹

A paired t-test (Appendix 2.2) was performed comparing the distribution of industries between the various indices and the original dataset. It revealed there was no significant evidence that the make-up of the industries was any different before and after the proxies were created.

Within Company Tests

Seven of the companies in the dataset have responded to the survey more than once at different times. To visualize the effect age has on each of the determinants of employee-ownership I've created four plots and trend lines mapping each of the companies average scores for the indices over time. Though the sample size is small, the evidence may prove to be illuminating when looking at the effect of time on employee attitudes in ESOP companies.

Regression Equations

In the first regression, we test the first hypothesis that the age of a company has a significant effect on the belief employees have in the company and identification they feel toward the company. The Number of employees is also

²⁹ Industry codes taken from NAICS database

included in the regression because findings in previous literature indicate that the number of employees has a significant effect on attitudes. (Appendix 1.1,1.2)

$$(1) \text{ Belief} = B_0 + B_1 [\ln(\text{timespan})] + B_2(\text{Employment}) + \varepsilon$$

$$(2) \text{ Identification} = B_0 + B_1 [\ln(\text{timespan})] + B_2(\text{Employment}) + \varepsilon$$

The second hypothesis aims to find a link between the information transfer about the ESOP between management and employees (education variable) and the belief the employees have in the company. Regression (4) (Appendix 1.4) is run to see if employees, as the company gets older, will feel like they know more about the ESOP. Regression (3) (Appendix 1.3) runs education, timespan, and population against belief.

$$(3) \text{ Education} = B_0 + B_1 [\ln(\text{timespan})] + B_2(\text{Employment}) + \varepsilon$$

$$(4) \text{ Belief} = B_0 + B_1 \text{Education} + B_2 [\ln(\text{timespan})] + B_3(\text{Employment}) + \varepsilon$$

The third hypothesis looks at the effect engagement has on employees' belief in the ESOP. Regression (5) (Appendix 1.5) runs engagement, timespan, and employment against belief.

$$(5) \text{ Belief} = B_0 + B_1 \text{Engagement} + B_2 [\ln(\text{timespan})] + B_3(\text{Employment}) + \varepsilon$$

The last hypothesis is tested by examining the effect on belief when both variables are included in the regression. Regression (6) (Appendix 1.6) runs engagement, education, timespan, and employment against belief.

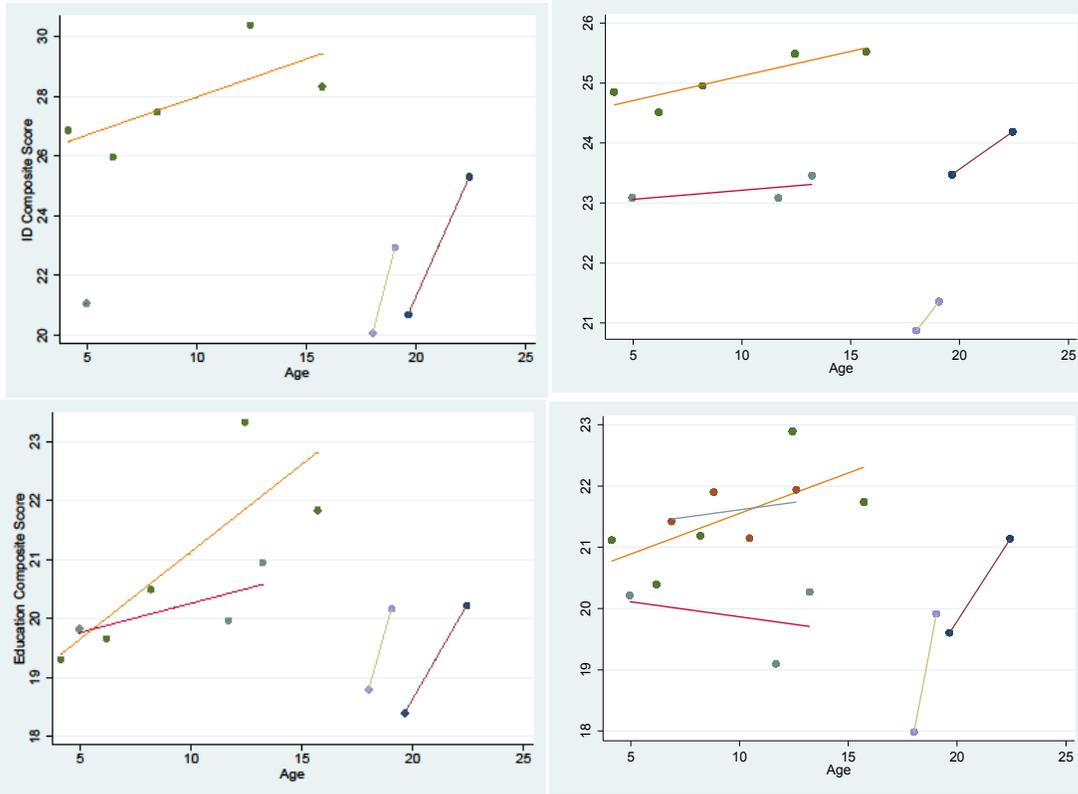
$$(6) \text{ Belief} = B_0 + B_1 \text{Education} + B_2 \text{Engagement} + B_3 [\ln(\text{timespan})] + B_4(\text{Employment}) + \varepsilon$$

Results

The first two regressions (Appendix 1.1, 1.2) aim to find a link between the age of companies and employee attitudes. These two regressions failed some

regression assumptions. The residuals failed the assumption of homoscedasticity and the distribution of the errors failed normality. The regression showed that the age of the company had no significant effect on either identification or belief alone. But the second variable, employment, had a statistically significant negative effect on the identification index. The third regression looked for a link between timespan and education, testing if as a company gets older the employees feel they know more about the ESOP. The timespan variable was significant but only at the 10% level of significance. That being said, the model significant at the 5% level of significance.

To dive further into the data we used the scores from companies who had answered multiple times to look at the effect age might have on individual companies. Figures 8 through 11 show the how some different companies' ages affected their employee survey scores.



Figures 8 - 11: Age Effect on ID(Top Left, 8), Belief (Top Right, 9), Education (Bottom Left, 10), Engagement(Bottom Right, 11)

The fourth regression run did not fail any of the regression assumptions. It maintained linearity, had relatively normally distributed errors, and the errors passed the test for homoscedasticity. With an R^2 of .5569, the fit was good. Figure 12 shows the

model's fit on the data. Based on this we see a pretty strong linear

relationship. From this we are able to conclude that the index for ESOP education has a stastically significant effect on belief of the workers in the company at the 5% level of significance.

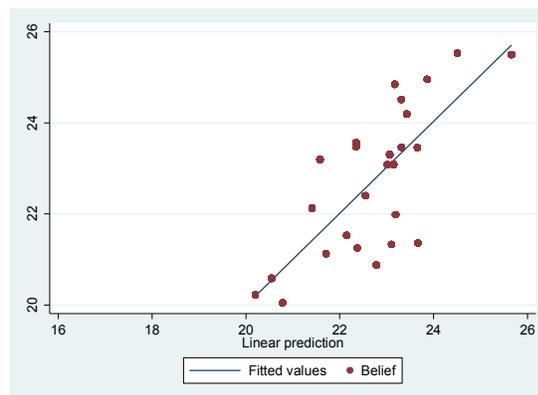


Figure 12: Linear prediction of model (4) Education on the dependent variable belief

The fifth regression examined the relationship between the employee's belief in the company and the employee's engagement in the firm. Of the previous four regressions this had the strongest fit.

The R^2 value revealed that the fit covered around 77% of the data and the variables for all engagement, timespan, and employment all were statistically significant. The coefficient for engagement from the regression was .922 implying that a one unit change in the

composite score of engagement would result in a 1 point increase in the employees belief in the company. Timespan also played a role where a one percent increase in the timespan variable would lead to a .39 point increase in employee belief. While statistically significant, the coefficient for employment was extremely small, where even a one thousand person change in employment would have only yielded a .9 point decrease in employee's belief in the company.

The last regression (Appendix (1.6) sought to distinguish the effects of the education variable and the engagement variable. We found that when run together, education was not a significant predictor of belief, while engagement was. Though

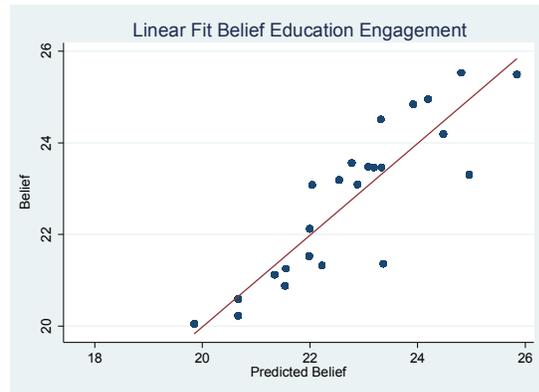


Figure 13: Linear prediction of Engagement model (5) on the dependent variable belief

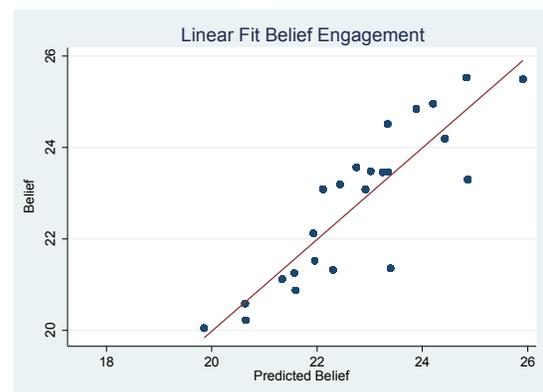


Figure 14: Linear prediction of Engagement and Education model(6) on Belief

the engagement variable lost some significance due to multi-collinearity, it still was significant at the 1% level. The model had an R^2 of .7755 and was significant compared to a null hypothesis of no relationship. Figure 9 shows the fit of the model on the actual variable belief, as it shows the linearity assumption holds.

Discussion & Conclusion

The available dataset had some inevitable flaws due to the way in which it was collected. These flaws made it difficult to draw significant conclusions. Despite the voluntary response bias that results from the fact that the dataset contains data only for companies that choose to participate, the data contained a good distribution of scores to draw conclusions. The dataset also suffered from a combination of a relatively small sample size and a further reduction in sample size coming from the creation of category indices thus limiting the significance we could capture from the regressions and taking away the opportunity to do analysis between different industries. Lastly, since we were comparing the survey to itself the indices taken together suffered from multi-collinearity (Appendix 2.1) because all of the categories were and should be interconnected to result in a highly functioning ESOP. This made it difficult to compare the different indices to find the effect of each while controlling for the others.

Age Effect

Despite the shortfalls of the data, some of the results proved to be interesting. According to the regressions, the age of an ESOP does not seem to

automatically strengthen attitudes in the workforce. This is consistent with previous research saying that an ESOP is not a source of automatic improvement in employee attitudes. It makes sense that the age of the company does not alone have a significant effect on employee attitudes because if the employees have not personally seen a demonstrated effort by management toward the ESOP they may not feel like owners thus have no emotional investment in the firm.

Even though the regressions show no significant effect of age, when looking at individual companies there seems to be an overwhelming positive trend in composite scores as companies get older. Only one company in one of the plots (engagement) yielded a negative relationship between age and the composite score for engagement; otherwise every drawn relationship between age and score was positive.

A few things jumped out looking at the plots in figures 8 – 11 (p. 29). First, it helps understand why the regressions as a whole were not significant. Looking back at figure 8 which shows the relationship between ID and Age, we see two companies (starting between ages 18 and 20) having lower scores at their first data point than the top company (starting at age 1) but still show increasing trends. All three of the companies showed increasing scores after taking the survey. This says a few things, abstracting from the fact the companies voluntarily take the survey. By taking the survey, a company demonstrates a voluntary effort to evaluate the employee attitudes in its company. A second action to take the survey demonstrates a company's continuing investment in efforts. Since we see increasing scores, we can draw a strong hypothesis that companies age in conjunction with company

dedication to the ESOP results in increasing scores. Findings by Pendleton et. al (1998) support the idea that employee participation is critical in increasing employee efforts.³⁰ It also shows that taking all the companies together will most likely yield insignificant results because they will all most likely have different starting values. These plots reveal that there could in fact be a relationship between the age of a company and the levels of engagement, identification, belief, and education. A more exhaustive panel data set would be required to truly determine this.

Number of Employees

Across all of the regressions run was a common negative impact in employee attitudes as the number of employees in the company increased. This makes sense in the context of this study because as a company gets bigger each person will have less influence and probably identify less as an owner of the company of the company. For a bigger company it would also be more difficult to educate all of the employees about the nature of the ESOP. These findings are consistent with other studies finding number of employees being a significant negative factor in employee-owned companies. The larger is a company, the less able it is to capture the benefits of employee-ownership.

³⁰ Pendleton, Andrew, Nicholas Wilson, and Mike Wright. "The Perception and Effects of Share Ownership: Empirical Evidence from Employee Buy-Outs." *British Journal of Industrial Relations* 36.1 (1998): 99-123. Print.

Education Effect

The second hypothesis aimed to draw a connection between the companies' effort to educate and inform employees about the ESOP and beneficial attitudes resulting from it. Based on our results, education seemed to have a significant effect on the employee's belief in the company.

Engagement Effect

The third hypothesis looked to draw a connection between the engagement of employees and the employees' belief in the company. This hypothesis was strongly supported by the evidence. The data exhibited close to a 1-to-1 relationship between engagement and belief from which we conclude that employee engagement is an integral part of the strengthening of a workforce. Once again, the regression still suffered the same problem the regression between belief and education suffered from.

Full Regression

In the full regression the education variable became insignificant. Interestingly, an F-test reveals that at any level of significance, the inclusion of the education variable does not significantly affect the regression, but the engagement variable is vital. From this we believe it is reasonable to conclude that the engagement of employee-owners is a very critical part in affecting the attitudes of the workforce and thereby, as an assumption, their given effort and productivity.

I conclude this study by asserting that the most important determinants of the effectiveness of employee-ownership come from the demonstrated effort of the

company to the ESOP. We see from the example of NewAge Industries the amount of effort and resources the company uses to encourage the workforce in the ESOP. Through the different programs and established workforce community the company has surpassed its industry competitors. Though it is one example, it is a telling story of the potential benefits of shared capitalism.

From the culmination of the study and research into NewAge Industries we can draw two conclusions. First, if employees feel engaged in decisions, engaged in the company, and have the perception that they are in fact influencing the direction of the company they will in turn give more effort to the company. Second, employees will respond to a demonstrated effort to the ESOP by the management. The plots tracking companies that responded more than once all show that after the company demonstrates an initial effort, represented by the willingness to evaluate employee efforts, an increase in employee attitudes on average is observed. Though the sample size is small and difficult to quantify, the plots reveal an undeniable upward trend in efforts following the participation in the survey.

Overall, we see employee-ownership while not a fix all solution to every companies' problems can be used as a tool to expand the capacities of human capital.

Further Study

The available data for employee attitudes used in this study was not perfect for conducting this kind of study. Because of the collection method, meant as a

service offered to employee-owned companies rather than a randomly sampled dataset, the dataset suffered from a number of unavoidable statistical problems. That being said, I do believe this study provides insight that would warrant future research on the ways employee-owned companies can capture the bountiful set of beneficial aspects made available by employee-ownership.

Two main components of the data set limited the potential for the dataset. First, the sample size of about 90 companies was smaller than would be ideal but still big enough to draw conclusions from. Second, because not all companies responded to every question, the process of creating the component proxies eliminated about one third of the dataset. This caused a few problems: it limited my ability to choose questions that most accurately reflected the proxy, it limited the companies in the proxies to the ones that answered all four proxy questions, and it made comparisons between industries impossible.

A further problem I ran into when attempting to find data with which to analyze my hypotheses was the impossibility of gathering a group of matched firms some of which are ESOPs and others of which are not. An interesting extension of this study, were such ideal data to be available, would be to compare how similar engagement and education parameters affect employees' perception of the company in ESOP and non-ESOP companies. This would also provide us with a list of control group companies. The index used for belief, with the exception of the question surrounding employees' belief in employee-ownership, would be able to be used in non-ESOP companies. With this we could start to examine some of the fundamental differences between ESOP and non-ESOP firms.

Lastly, the inclusion of financial data could add a new dimension with the ability to translate employees' perception into productivity and growth. This would provide us with the ability to find the driving mechanisms behind productivity instead of the assumption that if an employee believes that people work hard such belief would translate into productivity.

This study provides some framework for future study in the field of employee-ownership. Though more exhaustive and expensive data collection is needed, it could provide some insight into the ways ESOP companies can unleash their potential, and where ESOP companies thrive.

Appendix 1

$$1.1 - \text{Belief} = B_0 + B_1 [\ln(\text{timespan})] + B_2(\text{Employment}) + \varepsilon$$

Source	SS	df	MS			
Model	82.63367	2	41.316835	Number of obs =	38	
Residual	338.488861	35	9.6711103	F(2, 35) =	4.27	
Total	421.122531	37	11.38169	Prob > F =	0.0219	
				R-squared =	0.1962	
				Adj R-squared =	0.1503	
				Root MSE =	3.1098	

ID	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lntimespan	-.4415338	.4921767	-0.90	0.376	-1.440706	.5576381
employment	-.0026191	.000911	-2.88	0.007	-.0044685	-.0007697
_cons	26.11533	1.125124	23.21	0.000	23.83121	28.39946

$$1.2 - \text{Identification} = B_0 + B_1 [\ln(\text{timespan})] + B_2(\text{Employment}) + \varepsilon$$

Source	SS	df	MS			
Model	11.9217874	2	5.96089371	Number of obs =	26	
Residual	53.9690228	23	2.34647925	F(2, 23) =	2.54	
Total	65.8908102	25	2.63563241	Prob > F =	0.1007	
				R-squared =	0.1809	
				Adj R-squared =	0.1097	
				Root MSE =	1.5318	

Belief	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lntimespan	.3708594	.2982181	1.24	0.226	-.2460519	.9877706
employment	-.001235	.0007496	-1.65	0.113	-.0027856	.0003156
_cons	22.39032	.7444313	30.08	0.000	20.85035	23.93029

$$1.3 - \text{Education} = B_0 + B_1 [\ln(\text{timespan})] + B_2(\text{Employment}) + \varepsilon$$

Source	SS	df	MS			
Model	19.2086666	2	9.60433329	Number of obs =	29	
Residual	73.3645337	26	2.82171284	F(2, 26) =	3.40	
Total	92.5732003	28	3.30618573	Prob > F =	0.0486	
				R-squared =	0.2075	
				Adj R-squared =	0.1465	
				Root MSE =	1.6798	

Education	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lntimespan	.5447454	.303415	1.80	0.084	-.0789331	1.168424
employment	-.0007838	.0005089	-1.54	0.136	-.0018298	.0002622
_cons	18.38866	.7432224	24.74	0.000	16.86095	19.91638

$$1.4 - \text{Belief} = B_0 + B_1 \text{Education} + B_2 [\ln(\text{timespan})] + B_3(\text{Employment}) + \varepsilon$$

Source	SS	df	MS			
Model	73.3895588	3	24.4631863	Number of obs =	52	
Residual	58.3920616	48	1.21650128	F(3, 48) =	20.11	
Total	131.78162	51	2.58395334	Prob > F =	0.0000	
				R-squared =	0.5569	
				Adj R-squared =	0.5292	
				Root MSE =	1.103	

Belief	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Education	.6531999	.1023524	6.38	0.000	.4474066	.8589933
lntimespan	-.0634014	.1663839	-0.38	0.705	-.3979387	.2711358
employment	-.0014855	.0003837	-3.87	0.000	-.0022569	-.0007141
_cons	10.81993	1.852203	5.84	0.000	7.095829	14.54404

$$1.5 - \text{Belief} = B_0 + B_1 \text{Engagement} + B_2 [\ln(\text{timespan})] + B_3(\text{Employment}) + \varepsilon$$

Source	SS	df	MS			
Model	100.966431	3	33.6554768	Number of obs =	48	
Residual	29.3870259	44	.667886953	F(3, 44) =	50.39	
Total	130.353456	47	2.7734778	Prob > F =	0.0000	
				R-squared =	0.7746	
				Adj R-squared =	0.7592	
				Root MSE =	.81724	

Belief	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Engagement	.9215391	.0859209	10.73	0.000	.7483769	1.094701
lntimespan	.390695	.1134611	3.44	0.001	.1620292	.6193609
employment	-.0009168	.0002869	-3.20	0.003	-.0014949	-.0003387
_cons	3.978447	1.740044	2.29	0.027	.4716187	7.485276

$$1.6 - \text{Belief} = B_0 + B_1 \text{Education} + B_2 \text{Engagement} + B_3 [\ln(\text{timespan})] + B_4(\text{Employment}) + \varepsilon$$

Source	SS	df	MS	Number of obs = 72		
Model	151.629643	4	37.9074108	F(4, 67)	=	57.85
Residual	43.9005413	67	.65523196	Prob > F	=	0.0000
Total	195.530185	71	2.75394626	R-squared	=	0.7755
				Adj R-squared	=	0.7621
				Root MSE	=	.80946

Belief	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Education	-.0592826	.1131076	-0.52	0.602	-.2850464	.1664811
Engagement	.9772428	.1269788	7.70	0.000	.7237921	1.230693
lntimespan	.4289893	.117294	3.66	0.001	.1948695	.6631092
employment	-.0008805	.0002421	-3.64	0.001	-.0013637	-.0003973
_cons	3.918434	1.411866	2.78	0.007	1.100336	6.736531

Appendix 2

2.1 Multi-Collinearity between Coefficients

	Engage~t	Belief	Educat~n	ID	lntime~n	employ~t
Engagement	1.0000					
Belief	0.8076	1.0000				
Education	0.8052	0.6755	1.0000			
ID	0.7181	0.8208	0.6934	1.0000		
lntimespan	0.0073	0.2846	0.3353	0.2392	1.0000	
employment	-0.0980	-0.3726	-0.0303	-0.2194	-0.2149	1.0000

2.2 Paired T-Tests of Total vs. Index Industry Distributions

Paired T-Test of Industry	Mean of Differences	T-Value	Degrees of Freedom	P-Value
Between Total and ID	0	0.00E+00	8	1
Between Total and Belief	0	0.00E+00	8	1
Between Total and Education	-0.00111	-9.00E-04	8	0.9993
Between Total and Engagement	0.00111	-8.00E-04	8	0.9994

Works Cited

Baker, Ken, Personal Interview, April 4th 2013

Blair M, Kruse D, Blasi J. Employee ownership: An unstable form or a stabilizing force? *Business, Economics and Regulatory Policy*. 2000.

Blasi J, Conte M, Kruse D. Employee stock ownership and corporate performance among public companies. *Industrial and Labor Relations Review*. 1996;50(1):60-79.
<http://www.jstor.org/stable/2524389>.

Bowles, Samuel, and Herbert Gintis. "A Political and Economic Case for the Democratic Enterprise." *Economics and Philosophy* 9.01 (1993): 75. Print.

De Geest, Gerrit, Jacques Siegers and Ann-Sophie Vandenberghe(2001), 'The Expectation Measure, Labor Contracts, and the Incentive to Work Hard', *International Review of Law and Economics*' 541-560

Freeman S. Effects of ESOP adoption and employee ownership: Thirty years of research and experience. *Organizational Dynamics Working Papers*. 2007.

"Form 5500 Series." *Annual Return/Report 5500 Series Forms and Instructions*. N.p., n.d. Web. 03 May 2013.

Harter J, Schmidt F, Keyes C. Well-being in the workplace and its relationship to business outcomes A review of the gallup studies. *Flourishing: The Positive Person and the Good Life*. 2002:205.

Holmstrom, Bengt, and John Roberts. "Boundaries of the Firm Revisited." *Journal of Economic Perspectives* 12.4 (Fall 1998): 73-94. Print.

- Klein, Katherine J., and Rosalie J. Hall. "Correlates of Employee Satisfaction with Stock Ownership: Who Likes an ESOP Most?" *Journal of Applied Psychology* 73.4 (1988): 630-38. Print.
- Klein, Katherine J. "Employee Stock Ownership and Employee Attitudes: A Test of Three Models." *Journal of Applied Psychology* 72.2 (1987): 319-32. Print.
- Kruse, Douglas. "Research Evidence on Prevalence and Effects of Employee Ownership." *www.nceo.org*. NCEO, n.d. Web.
- Menke, John D. "The Origin and History of the ESOP and Its Future Role as a Business Succession Tool." *The Menke Group The Nations Premier ESOP Advisors and Administrators*. N.p., n.d. Web. 03 May 2013.
- NCEO. A statistical profile of employee ownership. <http://www.nceo.org/articles/statistical-profile-employee-ownership>. Updated 2012. Accessed 12/19, 2012.
- Park, Rhokeun, Douglas Kruse, and James Sesil. "Does Employee Ownership Enhance Firm Survival?" *Advances in the Economic Analysis of Participatory and Labor-Managed Firms* 8 (2004): 3-33. Print.
- Pendleton, Andrew, Nicholas Wilson, and Mike Wright. "The Perception and Effects of Share Ownership: Empirical Evidence from Employee Buy-Outs." *British Journal of Industrial Relations* 36.1 (1998): 99-123. Print.
- "Research Evidence on Prevalence and Effects of Employee Ownership: 2002 Report by Douglas Kruse, Rutgers University." *Research Evidence on Prevalence and Effects of Employee Ownership: 2002 Report by Douglas Kruse, Rutgers University*. N.p., n.d. Web. 03 May 2013.
- Rodrick, Scott S. *An Introduction to ESOPs*. Oakland, CA: National Center for Employee Ownership, 2010. Print.

Weitzman M, Kruse D., Blinder A. Profit sharing and productivity. *Paying for Productivity*.
1990:95.

Stoneman, Diane “NewAge Industries: Celebrating a Half Century of Wealth Creation and
Employee Engagement”, 2010