


1-1-2012

An examination of the impact of early retirement incentives on school district financial health

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**AN EXAMINATION OF THE IMPACT OF EARLY RETIRMENT INCENTIVES ON SCHOOL
DISTRICT FINANCIAL HEALTH**

by

M. JON DEAN

DISSERTATION

Submitted to the Graduate School

of Wayne State University,

Detroit, Michigan

in partial fulfillment of the requirements

for the degree of

DOCTOR OF EDUCATION

2012

MAJOR: EDUCATION POLICY STUDIES

Approved by:

Advisor

Date

DEDICATION

I dedicate this dissertation to my wonderful family. Especially to my supportive and loving wife, Sally, who has been patient with all of my late class nights and 'dissertation' talk. I want to thank my wonderful children Alex and Noah who always make me smile. I also want to thank my mom who has supported my education from the outset. I learned from her the value of life-long learning. This wouldn't have been completed without my sisters, Kristina, Bridget and Liza for their regular support and encouragement. Also, this was made possible by the support of Margaret and George who are always there for my family when we need them. Finally, I'd like to thank my dad who continues to inspire me.

ACKNOWLEDGEMENTS

First, I would like to thank my advisor Dr. Michael Addonizio for his guidance, insight and patience. I have been lucky to be a student of Dr. Addonizio's for over fifteen years. I also want to thank the other members of my committee Dr. James Martin and Dr. Michael Owens. I have been fortunate to have an outstanding committee to work with and learn from. Additionally, I would like to thank Sacip Toker who provided statistical support to me throughout this journey.

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Chapter 1

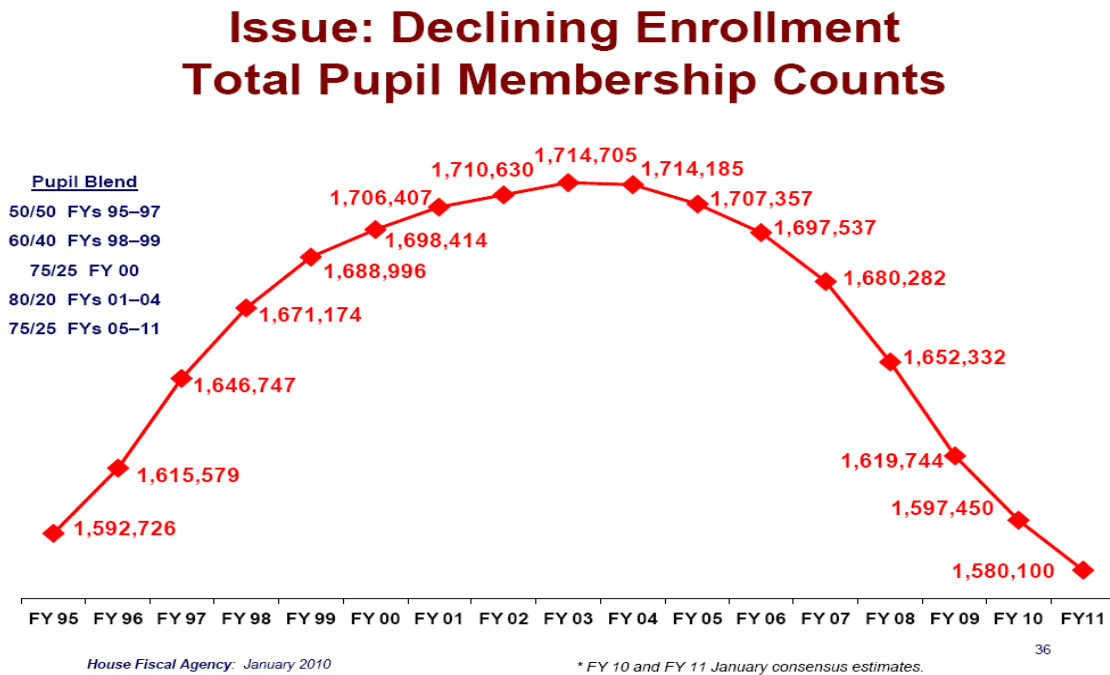
Statement of the Problem

Introduction

For the past eight schools years Michigan school districts have been experiencing a worsening financial situation. With the funding model for schools in Michigan directly tied to student count, decreasing enrollments during the past six school years have significantly impacted schools. The following graph depicts the total student count for all public schools in Michigan for the past fifteen years.

Figure 1.1

Declining Michigan Enrollment

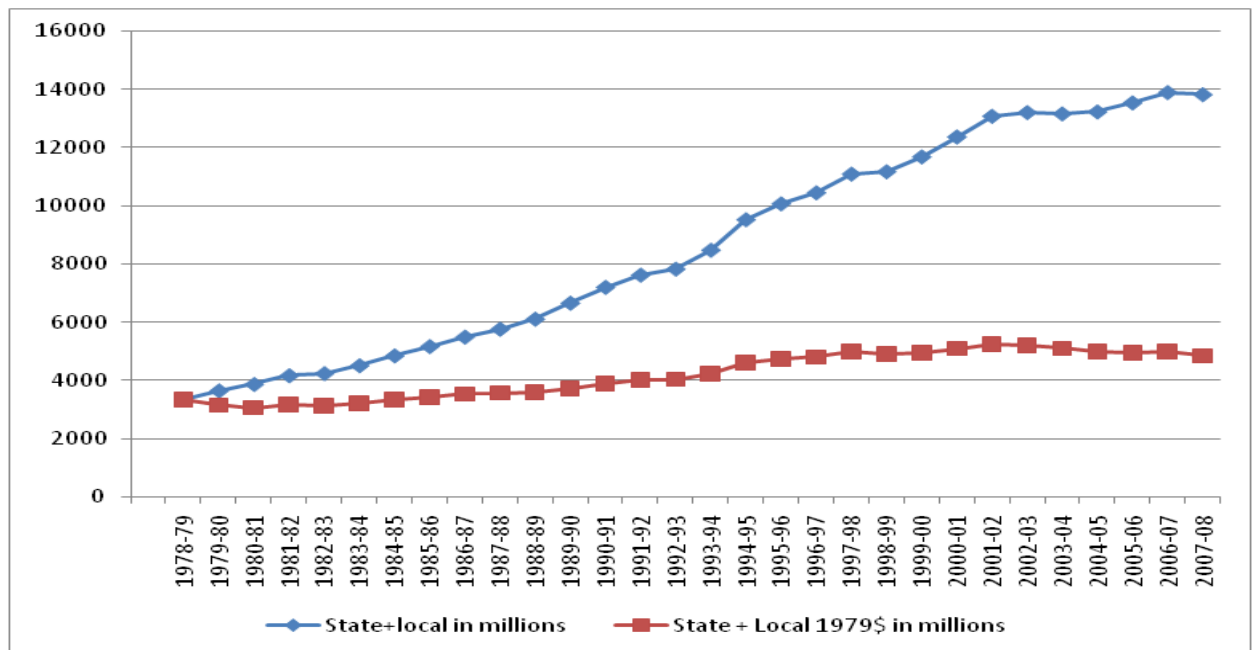


1. Pupil Blend – The State of Michigan uses a weighted average of the fall and winter student count to determine a school districts blended pupil count used for funding.

Note that the anticipated student count for fiscal year 2011 is actually lower than the total student count in fiscal year 1995. (Addonizio, 2010) This real loss of student count has been coupled with diminishing real dollar revenue (the purchasing power of money after accounting for inflation) from the State of Michigan. The following graph notes the trend in total state and local funding per pupil since 1979 adjusted in both real (i.e. inflation-adjusted) and nominal terms for public elementary and secondary schools in Michigan.

Figure 1.2

State and Local Revenue for School Operations, 1978-79 through 2007-08



Source: Addonizio, 2010

After an uptick in school funding post-1994, inflation adjusted school funding was basically flat through 2001-2 and has seen a slow decrease over the past eight years. (Addonizio, 2010) This combination of reduced student count and flat to decreasing

school revenue measured in real dollar value has resulted in districts electing to pursue a wide variety of financial strategies to manage their fiscal reality (MSBO, 2009). Due to the constraints of the Proposal A funding reform enacted in 1994, schools are prohibited from generating additional general fund revenue on an individual district basis (Kearney & Addonizio, 2002). Most districts are being forced to address their financial distress with expenditure targeted schemes such as reducing programming for students, privatizing cost centers such as food service and custodial support or increasing class size.

Many districts elected to use Early Retirement Incentive (ERI) Plans as a budgetary strategy to reduce both their long and short-term employee costs and improve the overall school district financial health. Due to all districts in the State of Michigan being required to participate and abide by the rules surrounding the Michigan Public School Employee Retirement System (MPERS), nearly all ERI's in Michigan are structured in a similar manner. These plans typically involve a school district providing a defined group of employees a cash incentive to retire. Conceptually, these relatively expensive employees who retire early will be replaced by either less expensive new employees or not replaced at all.

Statement of the Problem

When addressing financial challenges school districts typically have a myriad of financial tools at their disposal. These tools can generally be categorized as either revenue or expenditure targeted. Revenue targeted budgeting approaches focus on generating more funding for schools in an effort to address difficult financial realities.

Typical revenue enhancing methods include raising taxes either on a local or state-wide basis or generating revenue internally from the sale of district assets, the rental of school facilities or some other unique revenue generating system. However, the State of Michigan via Proposal A has removed raising local taxes to provide increased revenue as an option for schools. Expenditure reducing approaches include a wide variety of strategies including reducing employee costs through employing fewer workers or obtaining reduced labor costs through lowering wages and benefits. Additional expenditure reduction methods include increasing efficiencies (e.g. automating purchasing functions), closing school buildings, reducing programming, reducing administrative costs and privatizing various services such as transportation and cafeteria services (Levin & McEwan, 2001). With the revenue generating limitations inherent under Proposal A, school districts in Michigan are most often implementing numerous expenditure targeted financial reductions simultaneously. Most of these expenditure reduction schemes are easily quantifiable due to the fact that they basically involve a specific cost reduction. For example, if a school district elects to eliminate the junior varsity basketball team, determining the amount of dollars saved is easily projected and realized.

ERI's however are not so easily quantified. ERI's are intended to incentivize a behavior of a set group of employees. Estimating the precise savings of an ERI, in advance of the ERI being offered, is not possible since an ERI is a broad stroke tool that is intended to impact a wide swath of employees. This study quantified the actual impact of already implemented ERI's with the anticipated value of this study being that

school districts in the future will better be able to predict the impact an ERI may have on their individual school district.

Acknowledging that school finance is a complicated topic and that each state has a distinct school funding mechanism as well as an independent retirement system, this study focused on school districts located in the State of Michigan. A sample of school districts that implemented an ERI were compared with a sample of districts that did not implement an ERI during the five year period from 2003-04 to 2007-08.

Research Question

Within the seven most populated counties in Michigan including Wayne, Oakland, Macomb, Washtenaw, Kent, Genesee and Ingham counties, what was the impact of ERI's on the overall school district financial health of traditional school districts? The analysis excluded charter schools due to their significantly different operating conditions including the lack of a state mandated retirement system and limited unionization. Furthermore, contractual relationships between charter schools and their management companies often obscure the interpretation of traditional K-12 school financial reports.

The following sub-questions assisted in answering the main research question:

1. What was the relationship between implementing an ERI and overall school district financial health as measured by fund equity percentage (i.e., fund balance expressed as a percent of district annual operating expenditures)?
2. What was the relationship between implementing an ERI and overall school district financial health as measured by bond rating?

3. What was the relationship between implementing an ERI and overall school district financial health as measured by rate of change in general fund expenditure from the year prior to the year after the implementation of the ERI?
4. To what extent did particular characteristics of an ERI (i.e. amount of ERI provided by the schools, total number of teachers participating in the ERI, and the percentage of replaced teaching positions) impact school district financial health?

In this study the dependant variable was the financial health of school districts as measured by fund equity and bond rating. Both of these measures were obtained from existing administrative data bases. Each school district in the State of Michigan must file a variety of financial reports with the Center for Educational Performance and Information (CEPI). CEPI is a governmental agency that monitors various school data streams including enrollment, student demographics and school district financial statements. Bond ratings was obtained from the various online reporting websites provided from various third party bond rating agencies such as Moody's and Standard and Poor's.

The independent variables of the study were student enrollment, state foundation allowance (the amount of non categorical funding provided to the school district by the state on a per pupil basis), a dummy variable indicating if the school district offered an ERI, and for districts offering an ERI, the amount of the ERI, the percentage of the teaching staff that elected to accept the ERI (the actual cash amount provided to the departing employee) and the percentage of teaching positions replaced

by the district in the school year subsequent to the ERI being implemented (replacement rate). Student enrollment was defined as the district reported student full-time equivalency (FTE), readily available in CEPI. The state foundation allowance was the amount of unrestricted money provided to the district on a per-pupil basis to educate a student. This amount was determined at the state level and varies both between districts as well as annually. The amount of the ERI was the per teacher dollar value of the incentive provided the teacher to submit their resignation. The percentage of the staff that accepted the ERI is a function of the number of teachers who participated in the ERI expressed as a percentage of the entire teacher population in the district. Finally, the replacement percentage was the percentage of teachers who accepted the ERI that were replaced by the district as measured by year-to-year teacher FTE.

Potential Limitations

This study has several limitations. First, the study is generalizable only to the State of Michigan. Due to variances in state school funding mechanisms and retirement systems, extrapolating the findings of this study to other states is not valid. Second, this study is relevant only as long as Michigan continues to have the current funding mechanism established in Proposal A and the current defined benefit plan provided by MPSERS. If Michigan changes either the funding system or the retirement system, the finding of this study would no longer be applicable.

Definition of Terms

For the purpose of this study, the following terms were used:

Early Retirement Incentive (ERI) – Although the particulars are different for each ERI offered, an ERI offers a fixed amount of payment (at times termed a buy-out) to a teacher in exchange for the teacher’s agreement to retire at some set point.

Proposal A – In 1994 Michigan voters approved a constitutional change to the method for funding public schools. This ballot proposal, referred to as Proposal A, upon being passed shifted the method for funding public schools in Michigan. Under Proposal A and implementing legislation schools are primarily funded with an increased state-wide sales tax and a fixed rate residential and commercial property tax. Each school district is guaranteed some minimum amount of funding. Based on the district’s previous funding level, a school district could potentially tax residents or receive an increased amount of funding from the state to restore the district to the pre-Proposal A funding level. During the first year of implementation under the Proposal A system, all school districts were guaranteed a level of funding greater than their funding in the previous year; however, no such guarantee existed for years after the first year of implementation. Under Proposal A, local districts are prohibited from generating increased general fund dollars from levying taxes upon residents. All increases in per-pupil funding are set by the state (Kearney & Addonizio, 2002).

State Foundation Allowance – The amount of general revenue per pupil provided to a school district in a school fiscal year (Kearney & Addonizio, 2002).

Student Enrollment – The number of full-time equivalent students enrolled in a school district. The State of Michigan uses a blended-count formula to determine student enrollment. Each school district counts students in both the spring and fall. The state then uses a weighted average formula to determine actual student enrollment for the purposes of providing districts revenue. Due to the blended count method and some students enrolling for less than a full day, student enrollment is often different than actual student headcount (MDE, 2010).

General Fund Revenue – The amount of unrestricted dollars that a school district can spend on the operation of a school district. Under Proposal A, general fund revenue is a function of student enrollment multiplied by the foundation allowance.

Fund Equity – By law a school district must adopt an annual balanced budget. Fund equity consists of funds remaining at the end of a school fiscal year expressed as a percentage of total expenditures.

Defined Benefit Plan – In a defined benefit plan, a pension fund is maintained through employee and employer contributions. Upon retirement, an employee receives a pension payment derived from a formula based on the employee's years of service, age, and final salary. This is in contrast to the more common defined contribution plan used often in the private sector.

Defined Contribution Plan - A defined contribution plan consists of employees and employers contributing to an employee's individual retirement account. These funds are then invested and then used by the employee during retirement. A defined contribution plan does not have the long-term legacy costs for the employer that a

defined benefit plan has due to the employer having no liability for pension contributions beyond the term of employment.

Michigan Public School Employee Retirement System (MPERS) – The retirement system for all public school employees in the state of Michigan. This benefit is currently a defined benefit plan.

School bonds – Most school districts in Michigan sell bonds on the bond market to raise revenue for capital projects. These sales are usually voter approved with the revenue used by the school district for specific school district capital projects (Michigan Department of Treasury, 2010).

Bond Rating – All schools in Michigan are evaluated by third party bond rating agencies such as Moody's and Standard and Poor's. These firms review the financial situation of the school district on a regular basis in an effort to provide a letter grade bond rating that can be then used to label the outstanding bonds that exist in the bond market place and were sold by the school district. The rating provided is intended to be a reflection of the school district health so that the bond holder (or potential holders) can gauge the risk associated with purchasing the bonds. The bond rating determines the interest rate that is assigned to the bond when it is initially sold. It is in the best interest of a school district to have as high a bond rating as possible in order to minimize interest payments (Harris & Munley, 2002).

Significance of the Study

School districts in the State of Michigan continued to experience significant financial difficulties. The combination of declining student enrollments coupled with

stagnant to decreasing real dollar values of school revenue forced numerous districts to the edge of financial insolvency. Of the 833 public school districts and public school academies in Michigan, forty were operating in a financial deficit by the conclusion of the 2009-10 school year (Plante & Moran, 2010). Districts responded to this dire financial situation by increasing class size, reducing services to students, eliminating administrators, reducing or eliminating transportation and/or privatizing services.

With the backdrop of financial challenges facing schools, districts often elected to pursue an ERI to reduce cost. In addition to the financial pressure to reduce cost, districts were often convinced to offer an ERI either by a financial consulting company that stands to profit from the ERI offering or via the collective bargaining process. This study allowed school districts in the State of Michigan to better understand the potential impacts of offering an ERI to teachers and to determine if offering an ERI has a real potential to meet the financial demands facing schools in Michigan. In view of the severe and unprecedented reductions in state aid recommend by the Governor for the FY 2011-12, along with rising retirement costs, Michigan school district benefited significantly from a better understanding of the likely economic consequences of ERI's.

Chapter 2

Review of the Literature

Introduction

Economic pressures have forced school districts to carefully analyze all possible financial options. As a service industry, the primary expenditures for schools are for employee related costs such as salaries, payroll taxes, fringe benefits and retirement costs. Increasingly, schools have been faced with rising employee costs coupled with relatively stagnant revenues. The present economic downturn has only exacerbated this conflict. Another important addition to this pressure-filled situation is that millions of baby-boomer teachers are approaching the age of retirement (McNeil, 2007). Schools have increasingly turned to reviewing possible manipulations of retirement costs to attain budgetary savings.

Due to school financing choices made in the mid-1990's coupled with an increasingly bleak economic reality, many school districts in Michigan have been forced to seek savings via restructuring their workforce. This restructuring has taken several forms including layoffs, attempts to achieve concessions in collective bargaining agreements and the use of early retirement incentives (ERI). The purpose of this study is to determine if the use of ERI's has generally improved the financial condition of public school district in Michigan.

Defined Benefit Plans

Public school teachers are nearly uniformly supplied a retirement benefit designed to provide a fixed retirement income that is a combined function of income earned, the number of years of service provided and a constant multiplier. This retirement plan, often titled a defined benefit plan, differs from most current retirement pension plans in several ways. First, in a defined benefit plan the retirement benefit is a fixed monthly amount that is indexed to either the rate of inflation or the consumer's price index to provide annual increases. More importantly, the benefit provided is not directly tied to the amount of money contributed by the employee or the employer. Private sector plans which are often organized through a 401(k) and termed 'defined contribution plans' are basically savings accounts that contain both employee and employer contributions. During retirement the employee draws money from the account. In a defined benefit plan, the potential benefit for the employee is not fixed since the funds provided are not tied to the amount of money contributed by or on the behalf of the employee. A 401(k) plan is not an unlimited pool of money and in fact can hypothetically be exhausted at some future point before the recipient dies (Costrell & Podgursky, 2008).

Defined benefit plans while providing employees a fixed income, are inherently more expensive for the employer than a 401(k) plan. Costrell and Podgursky provide a detailed review of the implications on school finance that defined benefit teacher pension systems create. Specifically, a teacher who retires at the age of 55 with a fixed benefit amount of \$50,000 annually is likely to receive over \$1,000,000 during the

course of retirement even before costs for health care are included (2008, p. 24). This long term guaranteed benefit coupled with a baby boomer teacher population has made teacher retirement costs a huge factor in school district costs.

In analyzing ERI's one more important factor of defined benefit plans comes into play. Under a defined benefit plan in order to receive benefits an employee typically must work a set number of years. Prior to reaching the set number of years (typically twenty-five to thirty years of service) the pension has minimal value from the perspective of providing primary retirement income for the recipient unless it is coupled with another income source. Once the minimum number of years of service is attained however, the pension value significantly increases, and then flattens out for the remainder of the employees working career (McNeil, 2007). This creates a disincentive to work past the threshold year that indicates eligibility for pensions. The defined benefit pension plan provided teachers in most states including Michigan with a powerful economic incentive to retire in their mid-fifties assuming they began their career in their twenties.

Michigan School Finance

In order to determine if ERI's have had their intended effect of providing financial relief to school districts in the state of Michigan, a basic understanding of school finance in Michigan must be gained. Prior to 1994 schools in Michigan were funded on a local basis primarily by property taxes. While the state did provide some funding for schools, the lion's share of school funding was provided via local millages levied by individual school districts. In 1994 for a variety of political reasons coupled

with the national school finance reform movement focusing on funding equity, the voters in the state of Michigan passed a ballot proposal commonly referred to as Proposal A. Proposal A had a variety of intentions. Included in those intentions were to create more equity in the per-pupil spending on students by placing nearly the entire burden for school funding on the state. The state would fund schools through a combination of increased sales taxes, property tax transfer taxes, and property taxes that were equalized across the state. This new scheme provided significant property tax relief for both homeowners and businesses and provided equity in terms of school property tax rates for the entire state. In order to not reduce the per-pupil allocation for districts that had been relatively large spenders due to either a high local millage rate or much more often the presence of local property wealth, 52 historically high revenue local districts were allowed to generate additional local property taxes via a hold-harmless millage. Other than this hold harmless millage and two very focused county-based millages school funding for general operating revenue was limited to the funds provided via the state (Chaudhary, 2009, Izraeli & Murphy, 2007, and Kearney & Addonizio, 2002).

Proposal A was an attempt to create a level of funding equity while simultaneously increasing per-pupil funding for students. With the elimination of local homestead property taxes as a revenue source, school revenues in Michigan are almost completely tied to the foundation grant provided by the state (Izraeli & Murphy, 2007). During the first two years of Proposal A aggregate school spending in Michigan rose 6.6% in 1994-95 and 4% in 1995-96 (Kearney & Addonizio, 2002). This relatively healthy

increase though was followed by a leveling off of smaller increases that resulted in mean real expenditure per pupil increase from the inception of Proposal A through the 2002-03 school year of only 2.6% annually (Izraeli & Murphy, 2007). Due to the cyclical nature of sales tax revenue, Kearney and Addonizio predicted that in a severe economic downturn, school funding would flatten or even dip (2002). This predicted lack of revenue enhancement has in fact occurred during the past five years as Michigan schools have seen an annual increase in per-pupil expenditure of only 0.95% annually over this period.

One of the chief impacts of Proposal A has been that school district revenue enhancement has been largely eliminated. Under Proposal A schools cannot levy local millages for general fund expenditures. Local counties can by a vote of the majority of the residents of the county pass a regional enhancement millage which would levy up to three mills on all property in the county (Kearney & Addonizio, 2002). The regional enhancement millage has only been used in two counties and is not a politically viable option in most counties. The only two district targeted revenue enhancement schemes available to schools are an increase in funding from the state, which has not been a reality for nearly ten years, or an increase in student enrollment. As Michigan school districts review their budget situation, nearly all adjustments must come from the expenditure side of the financial equation since Proposal A severely limits the ability to generate increased revenue or completely new streams of revenue for school district use.

Determining School District Financial Health

In order to determine if ERI's have an impact on the overall health of school districts, various metrics and indicators must be identified that quantify a school district's financial position. As public institutions, the financial health of school districts is on public display via various public documents and official state reports. Fiscal health is typically measured from two perspectives; first, fiscal capacity, that is the ability raise revenue via local taxes and second, expenditure needs, which measure expenses of the school district (Ammar, Duncombe, Jump & Wright, 2005). Considering that new local tax revenue generation is prohibited via Proposal A, school district health for Michigan school districts must solely rest on the expense side from a comparative perspective. While increases in revenue provided by the state are a reality under Proposal A, they are either applied equally to all districts or with a slight bias towards districts with less funding (Chaudhary, 2007). Since this increase in funding is applied to all districts in the state, it does not particularly inform an analysis of individual school district health in Michigan since the application of the revenue is constant across all school districts.

School districts use the term 'general fund' to describe the fund that provides for most school expenses. The general fund is the recipient of general school revenue provided either by other governmental entities such as states or regional school districts or provided by local tax revenue. General fund expenditures include personnel, purchased services, utility costs, and supply costs. Of general fund expenditures, typically 85% are personnel related costs including salaries, benefits, FICA and retirement costs (Edsource, 2005). General fund balance is the term used to describe

unspent and undesignated monies that remain in the general fund at the close of the fiscal year. Deluca (2006) describes the amount of general fund balance or liquidity as a major factor in determining the overall financial health of a school district.

A national standard for a percentage of general fund balance that is appropriate does not exist since laws and funding mechanisms differ across states. Michigan uses a fiscal year of July 1 through June 30 for school districts. The challenge becomes though, that state aid payments from the state directly to districts occur on a monthly basis from October through August on the 20th of each month with no payment in September. This gap between the start of school and the first state aid payment made to districts forces districts to maintain sufficient liquidity to pay expenditures for more than two months without a state aid payment. The Michigan School Business Officials, a professional organization that provides guidelines to school business officials in Michigan, indicates that a minimum general fund balance of 15% is required to protect a district from having to engage in short-term borrowing in August and September (MSBO, 2009).

While general fund balance is often used to measure school district health, other indicators exist. A primary method to measure school district health is to note the credit rating provided by credit rating agencies such as Moody's or Standard & Poors (Ammar, Duncombe, Jump & Wright, 2005). Credit rating agencies rate individual school districts to establish their bond rating in the event that they choose to sell bonds to generate revenue. The credit rating agency assigns a specific rating based on a variety of factors that are intended to measure the ability and willingness of the school district to pay its debt service. (Moody's, 2007) Each credit rating agency uses a

multitude of variables to determine each district's individual rating. Specifically, Moody's uses four broad factors; economic strength, financial strength, management and governance, and debt profile. These four general areas are each individually scored based on underlying variables and then using a weighted average that values economic strength the most, an individual score is determined for each school district. (Moody's, 2009) Since these agencies measure many school districts across the country, the individual rating a district receives is of interest when determining the overall health of an individual school district.

Manca, Noonan & Matranga (1999), in a qualitative analysis of the health of three school districts in the state of California, found a wide array of factors that contribute to a financially unhealthy school district. Many of the factors they found such as shoddy accounting practices, understaffed business offices and a lack of financial planning are not quantifiable, but they did note that districts that experienced a financial crisis all had expenditures in excess of revenues and relied on short-term debt to bridge the crisis. The tracking of expenditures as a percentage of revenues provides a more sensitive indicator than just general fund balance since a large general fund balance may mask a worsening of a district's financial condition for several years until the excess expenditures erode the previously accrued general fund balance.

Henry, Bitter and Kubichan (2010) conducted a case study analysis of a school district that determined that a myriad of factors contributed to the budget deficits encountered by the specific school district studied. These factors included significant administrative turnover, poor internal financial controls, expenditure and revenue

streams not being synchronized, and finally expenses in excess of revenues. These researchers identified general fund balance (revenues over expenditures) as a key indicator of the financial health of a school district.

Dembowski (1999) identified several factors that indicate sound school district management. In the financial area, he found that effective schools have clear leadership who creates specific processes surrounding budgeting, accounting and auditing within a school district. He determined that school districts that underperformed often failed at these basic financial duties.

EdSource is a private, non-partisan organization that analyzes school issues in California. They have found fifteen significant predictors of school district financial crisis. Chief among them is general fund balance and expenditures as a percentage of revenues. Additionally, they noted that collective bargaining agreements that provide for a larger than cost-of-living wage adjustment for employees provide a significant predictor of school district financial crisis. The remaining indicators are primarily qualitative in nature including a lack of financial controls, poor enrollment projections and poor financial estimators (2005).

Porter (2010) outlines a tool to measure a school district's fiscal capacity. This tool or measure is a function of the districts revenue-raising capacity and its expenditure need. The measure is valid and has value for describing school district financial health under a school funding model that has a strong local revenue source of school funds. Unfortunately, this tool has little value in Michigan given the limitations on local revenue under the Proposal A system.

Purpose of ERI's

Two primary goals exist for implementing ERI's. The first goal is to attain improved human capital in the district. ERI's can be structured and viewed as a vehicle to encourage more senior and theoretically less productive teachers to leave the school district (Brown & Repa, 1993 & Grier, 2003). ERI's that are implemented to attain this goal assume that new, less senior staff will be more productive and better able to meet the needs of the organization. Additionally, offering an ERI for human resources reasons can provide leadership roles for newer staff members and in general rejuvenate the organization. Hanushek, Kain, O'Brien and Rivkin (2004) found that teaching experience only produces measurable improvement in students if the teacher has less than one year of experience. Their research found no statistical difference in teacher quality between teachers in their second through most experienced year. Rice (2003) produced a similar finding through a series of teacher quality studies. Her results indicated that teacher experience is only statistically significant when the teacher has less than three years experience. Interestingly, districts purport from a human resource perspective to seek to rejuvenate their teaching staffs, while the research indicates that teacher quality is not particularly related to teaching experience except for teachers new to the profession.

The second and more common reason to implement an ERI is to generate financial savings for the school district via the ERI. Singh indicates that school districts have come to rely on ERI's to control payroll costs by inducing senior teachers who are more expensive to leave the organization and be replaced by less senior staff who are

paid relatively less than the departing staff (2004). Willet additionally notes that an ERI can also provide financial savings to an organization when used instead of layoffs (2005). Using layoffs as a tool to reduce the size of the workforce can be a challenge in a school environment governed by collective bargaining agreements that dictate that the least senior, and also least expensive employees be eliminated first in a layoff. If an ERI can be used to instead induce the more expensive employee to leave and then the organization chooses to not replace the individual, a larger net savings when compared to a simple layoff can be realized. In effect, a layoff is a 'push' that forces an employee out of the organization and an ERI is a 'pull' that induces an employee to leave the organization prematurely.

ERI Structure

ERI's can be structured in a wide variety of fashions. Various options include allowing employees to retire with additional years of service credit, purchasing years of service for employees, creating a window that allows employees to retire at an earlier age or with less credit than usual or providing retiring employees cash bonus payments that do not impact the value of the pension benefit (Willett, 2005). All school employees in the state of Michigan are participants in the state organized and operated defined benefit system. In Michigan, ERI's are strictly a district based decision. Only in 2010 has the state ever elected to alter the retirement formula in an effort to induce retirements. This one-time event altered the retirement multiplier from the standard 1.5% to 1.6% for retirees who elected to retire during a window in June 2010. Since all ERI's in the state of Michigan are strictly district level endeavors, most ERI options

including altering the multiplier in the pension formula or increasing years in the formula (common practices in industries where the employer controls the retirement plan), are not an option at the individual district level in Michigan. Consequently, ERI's in the state of Michigan typically involve providing employees a cash bonus provided either in a lump sum or spread over a series of years that is coupled with the employees' pension benefit.

ERI Effectiveness

The effectiveness of an ERI must be measured from two perspectives. First, an ERI is deemed effective if it in fact elicits retirements that would not have occurred without the ERI intervention. Pencavel found that a 10% increase in retirement benefits including the severance payment realized a 7-8% increase in the likelihood an individual would retire (2001). In addition to the amount of the ERI, other factors impact the success rate of an ERI. Chief among these factors is age. Sheehy indicates that nearly 70% of the teachers who accept ERI's are age 53 and above (2002). Clearly, the age of the workforce must be considered when debating the possible acceptance rate of an ERI. The other chief attribute that impacts ERI acceptance rates is the frequency of ERI's within the organization. Repeated offers of an ERI within one organization create an expectation within the organization of future forthcoming ERI's. This expectation leads to a reality of diminishing returns. Each subsequent ERI will lead to fewer takers since many employees amiable to an ERI likely pursued the ERI the first time; moreover, subsequent ERI's lessen the perceived benefit of the current ERI. In short, an employee

comes to expect that they can pass on this ERI since another ERI will certainly be forthcoming (Kim & Feldman, 1998 and Pencavel, 2001).

The second key indicator of an ERI's effectiveness is if the district realized the intended human resources benefit or the financial savings intended by the ERI. From the human resources perspective, an effective ERI is an ERI that induces less productive workers to retire. Kim and Feldman found that less productive workers were in general more likely to accept an ERI (1998). From the financial aspect, ERI's have not necessarily provided the intended savings. Applebaum, Patton and Shapiro (2003) found that downsizing using an ERI has led to serious problems, including an organizational loss of identity and an actual decrease in profits. While this study does not address schools specifically, it found that profits and outputs in general seemed to decrease after a downsizing even after the anticipated decrease in production due to the smaller workforce was accounted for. Michigan schools do have a possible savings from an ERI since individual school districts are not responsible for retirement costs, but no specific research exists that delineates the fiscal impact of teacher ERI's. However, Grier notes that in theory, ERI's only pull forward the anticipated retirement date of a teacher. They do not change long-term behavior; they only accelerate a behavior that was already going to occur. This acceleration may yield savings after the initial lump sum payout, but they simultaneously reduce future retirements erasing future anticipated savings. ERI's have the potential to only be a shell game that provides only modest financial savings (Appelbaum, et al., 2003).

In the corporate world the announcement of an ERI is often followed by a significant increase in the stock value of the company announcing the ERI. Investors tend to view an ERI as a favorable event in terms of the company's potential financial performance (Davidson, Worrell & Fox, 1996). However, according to this same study, it is important to note that this improved outlook for the company's performance is not necessarily because of the financial impact of the ERI, but instead is a reflection of investors appreciating the company's willingness to engage in restructuring.

Summary

With the advent of Proposal A, school districts in Michigan have experienced a near complete loss of control over the revenue stream for their operations. While the state has provided increases in revenue since 1994, increases in recent years have been meager. At the same time, schools have seen a sharp increase in the costs associated with employees, in particular the costs of health care and retirement. This increase in costs coupled with stagnant revenue, has led many districts to consider alternate ways to reduce spending. Early Retirement Incentives (ERI's) are a tool that causes an unusual increase in the number of employees retiring. School districts in Michigan have attempted to use this tool to generate savings by replacing relatively expensive personnel with less costly employees. Research does exist that analyzes the rationale and possible impacts of ERI's in the public sector. However, little research on ERI's in the school sector exists and, specifically, research on the impact of ERI on the overall financial health of a school district is almost non-existent. ERI's are a widely used tool, but the impact of the tool, specifically in Michigan, has yet to be determined.

Chapter 3

Methodology

The research design was non-experimental retrospective. The first analysis included in the study determined if a relationship existed between a district offering an ERI and the financial health of the school district. The second portion of the study examined causality as it related to the impact an ERI may have had on school district financial health. The final statistical analysis analyzed only school districts that implemented an ERI in an attempt to determine causality between offering an ERI and a series of variables that measure a school district's financial condition. This study estimated the magnitudes of the ERI's impact on the schools' financial health. These three distinct research designs were used to answer the following research question:

Within the seven most populated counties in Michigan including Wayne, Oakland, Macomb, Washtenaw, Kent, Genesee and Ingham counties, what was the impact of ERIs on the overall financial health of traditional school districts? The analysis excluded charter schools due to their significantly different operating conditions including the lack of a state mandated retirement system and limited unionization.

The following sub-questions assisted in answering the main research question:

1. What was the relationship between implementing an ERI and overall school district financial health as measured by fund equity percentage (i.e., fund balance expressed as a percent of district annual operating expenditures)?
2. What was the relationship between implementing an ERI and overall school district financial health as measured by bond rating?

3. What was the relationship between implementing an ERI and overall school district financial health as measured by rate of change in general fund expenditure from the year prior to the year after the implementation of the ERI?
4. To what extent did particular characteristics of an ERI (i.e. amount of ERI provided by the schools, total number of teachers participating in the ERI, and the percentage of replaced teaching positions) impact school district financial health?

Control variables in this study included district enrollment, enrollment change and the district's state foundation allowance.

Sample

Given the wide variance in school district enrollment and the highly heterogeneous nature of school districts spread throughout Michigan, which include urban, suburban and rural districts, this study considered only districts located in the seven largest counties in Michigan measured by population size. These seven counties encompassed the Metro Detroit region, as well as the other major urban and suburban centers in Michigan including Flint, Lansing, Grand Rapids and Ann Arbor. This sample of seven counties included 146 school districts. By limiting this study to this generally urban and suburban area, the unique issues of rural schools and districts that are geographically large, but have small student populations were eliminated. Additionally, the seven counties selected for this study included only seven school districts with less than 1000 students in enrollment. (Michigan School Directory, 2010) By limiting the

study to this group of select school districts, variables associated with extremely small school budgets and small student populations were controlled.

This study also did not include charter schools, known in Michigan as “public school academies”. These “nontraditional” publicly funded schools in Michigan operated outside of many of the constraints that are placed upon traditional school districts including participation in the state retirement system, a publicly elected school board, a specific attendance area, and the teacher tenure laws. Additionally, the majority of charter schools in Michigan were managed by private firms which routinely transfer resources across schools including year-end fund balances. Eliminating these types of schools from this study helped control for a variety of potential factors that could have impacted the results of this study.

A survey was distributed to all school districts within the sample area to identify school districts that had offered an ERI between 2003-04 and 2007-08 school years.

Responses were segregated into two groups. One group, considered the treatment group, were districts that did offer an ERI during the designated time frame. The second group, considered the control group, was comprised of districts that did not offer an ERI during the designated time period. Districts that did not respond to the US Mail, electronic mail or phone call were not considered as part of this study. The survey was included in the Appendix.

Description of Research Design

The first portion of the research design compared the ERI and non-ERI schools in terms of the school’s financial health as measured by three district dependent variables.

This first set of analysis used a series of t-tests to determine whether a statistically significant difference existed between a school district offering an ERI and not offering an ERI. The second portion of research estimated a set of multiple regression models to measure the effect of a set of independent variables on the financial condition of traditional school districts in the seven most populous counties in Michigan.

The first set of three multiple regression analyses used a dummy variable coded to indicate districts that offered an ERI during the 2003-04 through 2007-08 school years using the following three formulas:

Multiple Regression Analysis Set # 1

CE = Percentage change in Enrollment from the 2003-04 to 2007-08 school years

FRL = Percentage of students eligible for Free or Reduced priced Lunch in 2007-2008

FA = Foundation Allowance in 2007-2008

DV = Dummy Variable coded to indicate if district offered an ERI

$$\text{Change Fund Equity Percentage}_{03/04-07/08} = b_0 + b_1CE_{03/04-07/08} + b_2\% \text{ FRL}_{07/08} + b_3FA_{07/08} + b_4DV$$

$$\text{Change Bond Rating}_{03/04-07/08} = b_0 + b_1CE_{03/04-07/08} + b_2\% \text{ FRL}_{07/08} + b_3FA_{07/08} + b_4DV$$

$$\text{Percentage Change in Overall District Expenditures}_{03/04-07/08} = b_0 + b_1CE_{03/04-07/08} + b_2\% \text{ FRL}_{07/08} + b_3FA_{07/08} + b_4DV$$

The second set of multiple regression analyses evaluated the impact of offering an ERI on a school district's financial condition for districts that offered the ERI. These

models specified the characteristics of district ERIs and allowed for lagged effects over intervals of time:

Multiple Regression Analysis Set # 2

CE = Percentage change in Enrollment from the 2003-04 to 2007-08 school years

FRL = Percentage of students eligible for Free or Reduced priced Lunch in 2007-2008

FA = Foundation Allowance in 2007-2008

ERI = District offered ERI in identified year (dummy variable)

TTERI = Percentage of Teachers Taking ERI

TR = Percentage of Teachers Replaced

AMTERI = Amount of ERI provided to participating teachers

$$\begin{aligned} \text{Change Fund Equity Percentage}_{03/04-07/08} = & b_0 + b_1CE_{03/04-07/08} + b_2\% \text{ FRL}_{07/08} + b_3FA_{07/08} + \\ & b_4ERI_{03/04} + b_5ERI_{04/05} + b_6ERI_{05/06} + b_7ERI_{06/07} + b_8ERI_{07/08} + b_9\text{Enrollment}_{07/08} + \\ & b_{10}\%TTERI + b_{11}\%TR + b_{12}AMTERI \end{aligned}$$

$$\begin{aligned} \text{Change Bond Rating}_{03/04-07/08} = & b_0 + b_1CE_{03/04-07/08} + b_2\% \text{ FRL}_{07/08} + b_3FA_{07/08} + b_4ERI_{03/04} + \\ & b_5ERI_{04/05} + b_6ERI_{05/06} + b_7ERI_{06/07} + b_8ERI_{07/08} + b_9\text{Enrollment}_{07/08} + b_{10}\%TTERI + \\ & b_{11}\%TR + b_{12}AMTERI \end{aligned}$$

$$\begin{aligned} \text{Percentage Change in Overall District Expenditures}_{03/04-07/08} = & b_0 + b_1CE_{03/04-07/08} + b_2\% \\ & \text{FRL}_{07/08} + b_3FA_{07/08} + b_4ERI_{03/04} + b_5ERI_{04/05} + b_6ERI_{05/06} + b_7ERI_{06/07} + b_8ERI_{07/08} + \\ & b_9\text{Enrollment}_{07/08} + b_{10}\%TTERI + b_{11}\%TR + b_{12}AMTERI \end{aligned}$$

a. Dependent variables:

- Fund equity percentage - continuous variable collected for each district each school year from 2003 - 2004 through 2007 – 2008.

- Bond rating – categorical variable collected for each district each school year from 2003 - 2004 through 2007 – 2008.
- Percentage change in overall district expenditures – continuous variable collected for each district each school year from 2003 - 2004 through 2007 – 2008.

b. Independent variables gathered per district:

- ERI districts – this was a categorical variable.
- Non-ERI districts – this was a categorical variable.
- Student enrollment – continuous variable gathered for each school year from 2003- 2004 through 2007 – 2008.
- State foundation allowance - continuous variable gathered for each school year from 2003- 2004 through 2007 – 2008.
- Amount of ERI provided – this was a continuous variable.
- Total number of teachers – this was a continuous variable.
- Total number of teachers participating in the ERI – this was a continuous variable.
- Percentage of teachers replaced by the district after implementation of the ERI – this was a continuous variable.

Data Collection Procedures and Timeline

The following data was collected from CEPI, the Michigan School Business Officials website or existing state school financial records available to the general public

via the internet. For each school district included in the sample, the following data was collected:

- Total number of teachers in 2003-04 school year
- Total enrollment in 2003-04 school year
- Fund equity percentage in 2003-04 through 2007- 08 school years
- Annual percentage change in overall district expenditures from 2003-04 school year through 2007-08 school year
- Total number of teachers in 2007-08 school year
- Total enrollment in 2007-08 school year
- The percentage of students eligible for free or reduced priced lunch 2003-04 and 2007-08

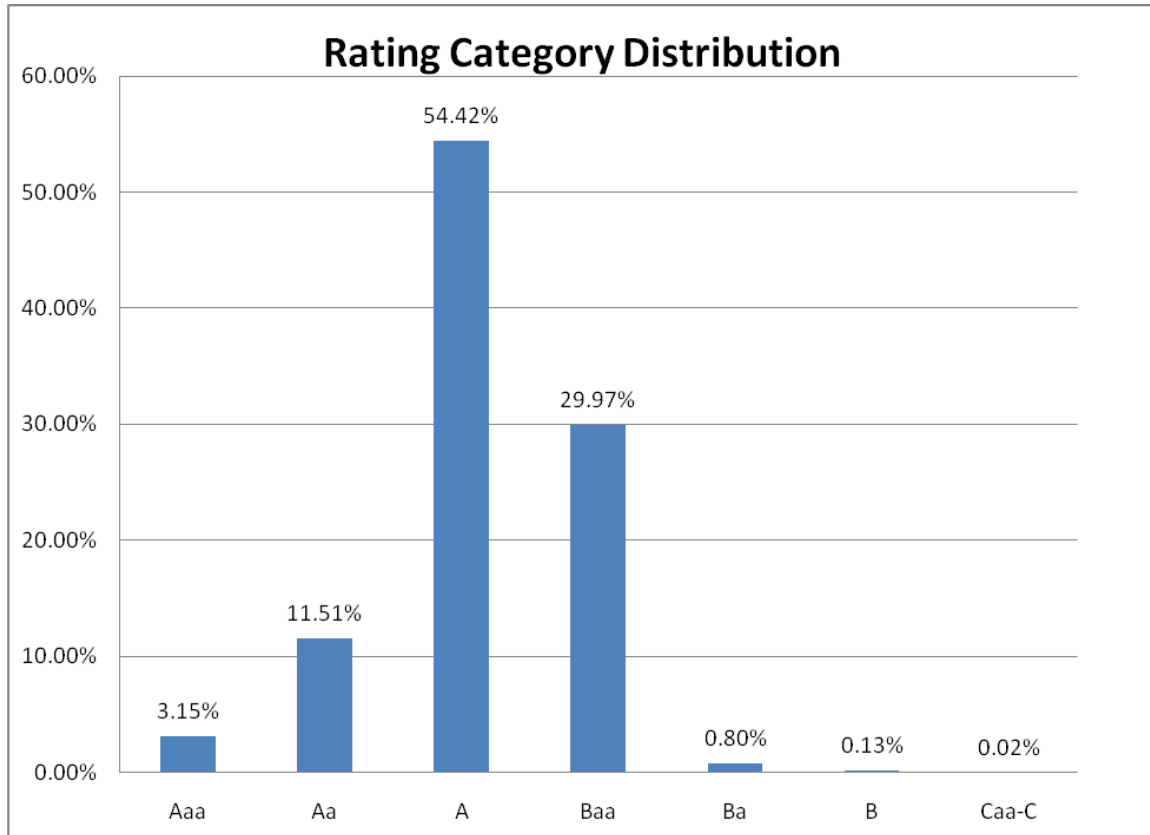
Using the internet based free Moody's Bond Rating Service the following information was gathered for each school district in the study:

- Moody's bond rating 2003-04 school year
- Moody's bond rating 2004-05 school year
- Moody's bond rating 2005-06 school year
- Moody's bond rating 2006-07 school year
- Moody's bond rating 2007-08 school year

Moody's provided municipal bond ratings using a nine category system with the highest rating being Aaa and the lowest being C. According to a detailed analysis of over 20,000 municipal issuers of bonds conducted by Moody's (2002), the following was a distribution of the bond ratings by categories:

Figure 3.1

Moody's Bond Rating Distribution



Given that 99% of the municipal bonds were categorized using only four categories, an interval scale coded one through five was used when recording Moody's bond rating data with the lowest category being a combination of Ba through Caa-C (0.95% of cases).

Moody's did not necessarily provide an updated bond rating for each school annually. By gathering the bond rating for each school year within the study, changes in the bond rating were considered even if the rating was not provided for either the initial (2003-04) school year or final (2007-08) school year. Additionally, by gathering this data

for each year in the study, the impact of offering an ERI on bond rating was tracked even if the impact was not immediate and instead was delayed for several years.

Several data points related specifically to the group that offered ERI's were derived from a simple questionnaire style survey. The survey was created specifically for this study. This survey queried the district regarding the following factors:

- Implementation of an ERI between the 2003-04 and 2007-08 school years
- If an ERI was offered during the identified time period, the total cash amount of the ERI
- If an ERI was offered during the identified time period, the school year in which the ERI was offered
- If an ERI was offered during the identified time period, the number of teachers that participated in the ERI and the number of teachers replaced

A survey was distributed to all school districts within the sample area to identify school districts that offered an ERI between 2003-04 and 2007-08 school years. The survey was directed to first the appropriate human resources official such as the personnel director or assistant superintendent for human resources. Given that each school district titled and organized their central office team in a unique manner, the survey needed to be targeted to the appropriate official. If no such official existed, the survey was directed to the superintendent. The survey was sent by both US Mail as well as via electronic mail to the various Michigan school district networks including each county's superintendent network and each county's human resources network. If no response was returned within three weeks of the survey being sent, a personal phone

call from the researcher to the appropriate school district official was placed asking them to complete the survey.

Results from both the survey as well as the online sources were organized using a series of Excel spreadsheets prior to being coded and entered into SPSS. Following the creation of the SPSS data file, the following analyses were performed:

Table 3.1

Summary of Research Performed

Research Question	Data Collection and Variables	Data Analysis Technique
What is the relationship between implementing an ERI and overall school district financial health as measured by fund equity percentage?	<u>Dependent Variable</u> Fund equity percentage <u>Independent Variable</u> ERI status Implemented ERI Did not implement ERI	t-test for two independent samples will be used to determine if there was a difference in the means of the fund equity percentage between school districts that implemented and did not implement an ERI.
What is the relationship between implementing an ERI and overall school district financial health as measured by bond rating?	<u>Dependent Variable</u> Change in Bond rating <u>Independent Variable</u> ERI status Implemented ERI Did not implement ERI	t-test for two independent samples will be used to determine if there was a difference in the means of the bond rating percentage between school districts that implemented and did not implement an ERI.
What is the relationship between implementing an ERI and overall school district financial health as measured by percentage change of general fund expenditure change from the year prior to the year after the implementation of the ERI?	<u>Dependent Variable</u> Percentage change of school district general fund expenditures <u>Independent Variable</u> ERI status Implemented ERI Did not implement ERI	t-test for two independent samples will be used to determine if there was a difference in the means of the percentage change of general fund expenditure change percentage between school districts that implemented and did not implement an ERI.

Table 3.1

Summary of Research Performed (continued)

Does offering an ERI impact a school district's financial health as measured by change in fund equity percentage?	<p><u>Dependent Variable</u> Fund equity percentage</p> <p><u>Independent Variables</u> ERI status Implemented ERI Did not implement ERI Change in enrollment Percentage of students eligible for free and reduced price lunch Foundation allowance</p>	Multiple regression analysis with dummy coding
Does offering an ERI impact a school district's financial health as measured by change in the district's bond rating?	<p><u>Dependent Variable</u> Change in Bond Rating</p> <p><u>Independent Variables</u> ERI status Implemented ERI Did not implement ERI Change in enrollment Percentage of students eligible for free and reduced price lunch Foundation allowance</p>	Multiple regression analysis with dummy coding
Does offering an ERI impact a school district's financial health as measured by change in the district's general fund expenditures?	<p><u>Dependent Variable</u> Percentage change of school district general fund expenditures</p> <p><u>Independent Variables</u> ERI status Implemented ERI Did not implement ERI Change in enrollment Percentage of students eligible for free and reduced price lunch Foundation allowance</p>	Multiple regression analysis with dummy coding

Table 3.1

Summary of Research Performed (continued)

Does amount of ERI provided by the schools, total number of teachers participating in the ERI, and the percentage of replaced teaching positions impact school district financial health?	<p><u>Dependent Variables</u></p> <p>Fund equity percentage Bond rating Percentage change of school district general fund expenditures</p> <p><u>Independent Variables</u></p> <p>Student enrollment State foundation allowance Amount of ERI provided by the district Percentage of teachers participating in the ERI Percentage of teachers replaced by the district after the ERI Percentage of students eligible for free/reduced priced lunch Change in student enrollment</p>	Multiple regression analysis with dummy coding
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Chapter Four

Results

The purpose of this study was to determine the impact offering an ERI may have on a school district's financial health. A survey designed to provide data to answer this question was sent to each school district in the most populous counties in Michigan during the summer of 2011. The survey intended to identify two groups of school districts in this sample. The first group would be districts who had not offered an ERI during the 2003-04 through 2007-08 school years. The second group would be districts that did offer an ERI during this time period.

The specific research question that this study intended to address was:

Within the seven most populated counties in Michigan including Wayne, Oakland, Macomb, Washtenaw, Kent, Genesee and Ingham counties, what was the impact of ERIs on the overall school district financial health of traditional school districts? The analysis excluded charter schools due to their significantly different operating conditions including the lack of a state mandated retirement system and limited unionization. Furthermore, contractual relationships between charter schools and their management companies often obscure the interpretation of traditional K-12 school financial reports.

The following sub-questions assisted in answering the main research question:

1. What was the relationship between implementing an ERI and overall school district financial health as measured by fund equity percentage (i.e., fund balance expressed as a percent of district annual operating expenditures)?

2. What was the relationship between implementing an ERI and overall school district financial health as measured by bond rating?
3. What was the relationship between implementing an ERI and overall school district financial health as measured by rate of change in general fund expenditure from the year prior to the year after the implementation of the ERI?
4. To what extent did particular characteristics of an ERI (i.e. amount of ERI provided by the schools, total number of teachers participating in the ERI, and the percentage of replaced teaching positions) impact school district financial health?

Response Rate

As designed, the survey was initially sent to the 146 school districts in the most populous counties in Michigan in May 2011. While the initial response rate was strong with over 50 districts responding almost immediately, after several requests for data only 76 districts had responded in total. While the overall response rate was 52%, of which over 50% indicated that they had offered an ERI, the total number of responses was lower than required for statistical purposes. The researcher conducted follow up contacts with districts that did not respond and was informed by most districts that due to administrative turnover the institutional memory of the ERI no longer existed or that the data requested via the survey was never initially gathered by the school district when the ERI was offered to employees.

A related data phenomenon was that almost half of the districts that indicated they did offer an ERI during the specified timeframe did not have the necessary data

required for this study. The districts that responded that they did offer an ERI, but that they did not have complete information of the details of the ERI appeared to be districts that were struggling with issues including administrative turnover, bleak finances and other related stressors. Many of the districts that did respond with complete information could in many ways be considered relatively affluent and financially stable. This posed a unique challenge from a statistical analysis perspective creating a situation where the responding districts fell into three categories:

1. The district did not offer an ERI during the five-year study window.
2. The district did offer an ERI during the five-year study window and was able to provide the data required to complete the survey.
3. The district did offer an ERI during the five-year study window, but was not able to provide the data required to complete the survey.

To account for this situation, all of the results presented later in this chapter include separate statistical analyses that compare the following:

- Non ERI districts vs. ERI districts that provided complete information
- Non ERI districts vs. ERI districts without complete information
- Non ERI districts vs. ERI districts (includes both districts that provided complete information as well as districts that provided incomplete information)

This creation of three groups for statistical purposes amplified the need for more districts to be included in the study.

In an effort to increase the sample size and response rate to allow for a viable statistical analysis, the number of districts included in the sample was increased. The

146 districts initially included in the sample were identified via the population size of the county. Initially, the seven most populous counties in the State of Michigan were included in the study. This sample size was increased to include the next six largest counties; Ingham, Kalamazoo, Livingston, Ottawa, Saginaw, and St. Clair for an additional 56 school districts. The same survey provided to the original districts in the study was provided to these 56 school districts in the fall of 2011.

In total 202 districts were surveyed. 101 or 50% of surveyed districts responded to the survey and are included in the study results. These 101 responses included 41 school districts that did not offer an ERI during the 2003-04 to 2007-08 school years, 33 districts that did offer an ERI during the study time period and provided complete information regarding the nature of the ERI and 27 districts that did offer an ERI during the study time period, but were not able to provide complete information regarding the nature of the ERI.

Exclusion of Bond Rating from Research Study

One of the three key measures of school district financial health being used in this survey was changes in bond rating during the 5-year study time period. Bond ratings are provided by third party firms such as Moody's and Standard & Poor's (S & P). These firms periodically provide a rating to school districts that is to be used by investors when considering purchasing bonds being sold by the school district for investment purposes.

As bond rating data was being collected for this study two key unanticipated concerns developed. First, initially this study attempted to use Moody's as the bond

rating to be considered for this study. Unfortunately, it became apparent that Moody's did not often provide a bond rating to Michigan school districts. Moody's typically only provided a public rating for school districts in this study no more than once every ten years. This was addressed by changing the third party bond rating being used in this study to the Standard & Poor's rating firm. While S&P did provide a rating for many of the school districts in this study, less than 60% of school districts received a rating from S&P during the 2003-04 through 2007-08 school years. Additionally, while 60% did receive a rating, many of these districts received only one rating during the 5 year window of this study. Furthermore, only 8 school districts in this study experienced a bond rating change during the five year window of this study.

Given the extremely small number of districts that experienced a bond rating change, bond rating as an indicator of school district financial health was excluded from the planned statistical analysis of this study. However, in an effort to generate some results from the bond rating data gathered, a brief analysis using Pearson product-moment correlation coefficients of bond rating data was included. The following table provides the Pearson product-moment correlation coefficients produced when using a school district's fund equity percentage and the bond rating provided by S & P. Only school districts that were provided a bond rating in a given year were included in this analysis:

Table 4.1**Schools District's Fund Equity and Bond Rating**

School Year	Pearson Correlation Coefficient
2003-04	$r(25)=-.0175, p>.05$
2004-05	$r(35)=-.0530, p>.05$
2005-06	$r(22)=-.0048, p>.05$
2006-07	$r(20)=-.2158, p>.05$
2007-08	$r(17)=-.4293, p>.05$

Interestingly, each of the five correlation coefficients has a negative sign. This is certainly an unintuitive finding and certainly indicates the need for additional research in this area. Given the weight that bond ratings have in both the private and public sectors a positive correlation between bond ratings and fund equity percentages was expected. At the .05 confidence level for all five years considered the null hypothesis was not rejected. No statistically significant correlation was identified between bond rating and the fund equity percentage of a school district.

Specific Research Question Results

Research question: What is the relationship between implementing an ERI and overall school district financial health as measured by fund equity percentage?

There are three different district groups:

- Districts that did not offer an ERI
- Districts that did offer an ERI and provided complete information
- Districts that did offer an ERI, but did not provide completed information

Policy makers on both the employee and employer front enter into an ERI assuming that it will produce an improvement in the financial health of the school

district. Assuming this to be true, it would be anticipated that districts that offered an ERI would have a fund equity percentage that was greater than non-ERI districts.

Q1: Comparison of fund equity percentage between districts that did not offer an ERI and districts that offered an ERI and provided complete information.

The following table provides descriptive information about the fund equity percentage of the districts which did not offer an ERI and the districts which offered an ERI and provided complete information for the 2007-08 school year:

Table 4.2

Fund Equity Comparison of Non-ERI Districts and ERI Districts with Complete Information

Districts	N	Mean	Std. Deviation	Std. Error Mean
Did not offer an ERI	41	12.94	7.79	12.16
Offered an ERI and provided complete information	33	14.85	9.05	15.75

An independent sample *t*-test was performed to examine the difference between the districts. The test results revealed that there was no significant difference, $t(1, 72) = -.9777, p = .332$. The districts which offer an ERI and provided complete information had 14.85% average fund equity percentage, which was higher than the average fund equity percentage (12.94%) of the districts which did not offer an ERI. However, this difference was not significant.

Q2: Comparison of fund equity percentage between districts that did not offer an ERI and districts that offered an ERI, but did not provide complete information.

The following table provides descriptive information about the fund equity percentage of the districts which did not offer an ERI and the districts which offered an ERI, but did not provide complete information for the 2007-08 school year:

Table 4.3

Fund Equity Comparison Non-ERI Districts and ERI Districts without Complete Information

Districts	N	Mean	Std. Deviation	Std. Error Mean
Did not offer an ERI	41	12.94	7.79	12.16
Offered an ERI but did not provide complete information	27	12.42	5.38	10.35

An independent sample *t*-test was performed to examine the difference between the districts. The test results revealed that there was no significant difference, $t(1, 65.809) = .329$, $p = .743$. The districts which offered an ERI and did not provide complete information had 12.42% average fund equity percentage, which was lower than the average fund equity percentage (12.94%) of the districts which did not offer an ERI. However, this difference was not significant.

Q3: Comparison of fund equity percentage between districts that did not offer an ERI and districts that offered an ERI.

The following table provides descriptive information about the fund equity percentage in 2007-08 of the districts which did not offer an ERI and the districts which did offer an ERI, including both districts that provided complete information and districts that did not provide complete information:

Table 4.4

Fund Equity Comparison of Non-ERI Districts and ERI Districts

Districts	N	Mean	Std. Deviation	Std. Error Mean
Did not offer an ERI	41	12.94	7.79	12.16
Offered an ERI	60	13.76	7.66	9.89

An independent sample *t*-test was performed to examine the difference between the districts. The test results revealed that there was no significant difference, $t(1, 99) = -.522$, $p = .603$. The districts which offer an ERI had 13.76% average fund equity percentage, which was higher than the average fund equity percentage (12.94%) of the districts which did not offer an ERI. However, this difference was not significant.

Research question: What is the relationship between implementing an ERI and overall school district financial health as measured by fund equity percentage change from 2003-04 to 2007-08?

Again, policymakers enter into an ERI arrangement assuming that the ERI intervention will positively impact fund equity percentage. In the following analysis fund equity percentage change over time is analyzed. If an ERI is a financial tool that positively impacts a school district's finances a relationship between offering and ERI

and an improvement in the fund equity percentage of the school district would be anticipated.

Q4: Comparison of fund equity percentage change from 2003-04 to 2007-08 between districts that did not offer an ERI and districts that did offer an ERI and provided complete information.

The following table provides descriptive information about the fund equity percentage change from 2003-04 to 2007-08 of the districts which did not offer an ERI and the districts which offered an ERI and provided complete information.

Table 4.5

Fund Equity Change Over Time Comparison of Non-ERI Districts and ERI Districts with Complete Information

Districts	N	Mean	Std. Deviation	Std. Error Mean
Did not offer an ERI	41	-1.85	5.56	0.86
Offered an ERI and provided complete information	33	1.18	11.6	2.01

An independent sample *t*-test was performed to examine the difference between the districts. The test results revealed that there was no significant difference, $t(1, 43.753) = -1.383, p = .174$. The districts which offered an ERI and provided complete information had 1.18% average fund equity percentage increase; whereas, the average fund equity percentage change of the districts which did not offer an ERI was decreased -1.85%. However, this difference was not significant. This result is not anticipated by policymakers. This analysis is limited by a small sample and the resulting lack of

statistical power increases the likelihood of a Type II error (i.e., the null hypothesis is accepted when it is false.)

Q5: Comparison of fund equity percentage change from 2003-04 to 2007-08 between districts did not offer an ERI and districts offer an ERI but did not provide complete information.

The following table provides descriptive information about the fund equity percentage change from 2003-04 to 2007-08 of the districts which did not offer an ERI and the districts which offered an ERI, but did not provide complete information:

Table 4.6

**Fund Equity Change Over Time Comparison of Non-ERI Districts and ERI Districts
without Complete Information**

Districts	N	Mean	Std. Deviation	Std. Error Mean
Did not offer an ERI	41	-1.85	5.56	0.86
Offered an ERI but did not provide complete information	27	-0.26	7.20	1.38

An independent sample *t*-test was performed to examine the difference between the districts. The test results revealed that there was no significant difference, $t(1, 66) = -1.028$, $p = .307$. The districts which offered an ERI and did not provide complete information had -0.26% average fund equity percentage decrease, which was lower

than the average fund equity percentage change (-1.85%) of the districts which did not offer an ERI. However, this difference was not significant.

Q6: Comparison of fund equity percentage change from 2003-04 to 2007-08 between districts that did not offer an ERI and all districts that offered an ERI.

The following table provides descriptive information about the fund equity percentage change from 2003-04 to 2007-08 of the districts which did not offer an ERI and all districts which offered an ERI.

Table 4.7

Fund Equity Change Over Time Comparison of Non-ERI Districts and ERI Districts

Districts	N	Mean	Std. Deviation	Std. Error Mean
Did not offer an ERI	41	-1.85	5.56	0.86
Offered an ERI	60	0.53	9.80	1.27

An independent sample *t*-test was performed to examine the difference between the districts. The test results revealed that there was no significant difference, $t(1, 96.165) = -1.555$, $p = .123$. The districts which offered an ERI had 0.53% average fund equity percentage increase; whereas, the average fund equity percentage the districts which did not offer an ERI decreased -1.85%. However, this difference was not significant. This specific analysis is comprehensive of all districts in this study. It is anticipated that if ERI's are an effective financial management tool, then this analysis would have identified a relationship between offering an ERI and an improvement in fund equity

percentage over time. Again, however, the power of the statistical analysis is limited by the small sample size.

Research Question: What is the relationship between implementing an ERI and overall school district financial health as measured by percentage change in general fund expenditures from 2003/04 to 2007/08?

Q7: Comparison of general fund expenditure percentage change between districts that did not offer an ERI and districts that did offer an ERI and provided complete information.

The following table provides descriptive information about the general fund expenditure percentage change of the districts which did not offer an ERI and the districts which did offer an ERI and provided complete information:

Table 4.8

**General Fund Expenditure Comparison of Non-ERI Districts and ERI Districts
with Complete Information**

Districts	N	Mean	Std. Deviation	Std. Error Mean
Did not offer an ERI	41	8.93	9.69	15.13
Offered an ERI and provided complete information	33	9.45	7.54	13.13

An independent sample *t*-test was performed to examine the difference between the districts. The test results revealed that there was no significant difference, $t(1, 72) = -$

.256, $p = .798$. The districts which offered an ERI and provided complete information had 9.45% average general fund expenditure percent increase over the four-year period examined, which was higher than the average general fund expenditure percentage increase (8.93%) of the districts which did not offer an ERI. However, this difference was not statistically significant.

Q8: Comparison of general fund expenditure percentage change between districts that did not offer an ERI and districts that did offer an ERI, but did not provide complete information.

The following table provides descriptive information about the general fund expenditure percentage change of the districts which did not offer an ERI and the districts which offered an ERI but did not provide complete information:

Table 4.9

General Fund Expenditure Comparison Non-ERI Districts and ERI Districts without Complete Information

Districts	N	Mean	Std. Deviation	Std. Error Mean
Did not offer an ERI	41	8.93	9.69	15.13
Offered an ERI but did not provide complete information	27	11.85	8.04	15.47

An independent sample t -test was performed to examine the difference between the districts. The test results revealed that there was no significant difference, $t(1, 66) = -1.301$, $p = .198$. The districts which offered an ERI, but did not provide complete information had 11.85% average general fund expenditure percentage change, which

was higher than the average general fund expenditure percentage change (8.93%) of the districts which did not offer an ERI. However, this difference was not significant.

Q9: Comparison of general fund expenditure percentage change between districts that did not offer an ERI and all districts that did offer an ERI.

The following table provides descriptive information about the general fund expenditure percentage change of the districts which did not offer an ERI and all districts which offered an ERI:

Table 4.10

General Fund Expenditure Comparison of Non-ERI Districts and ERI Districts

Districts	N	Mean	Std. Deviation	Std. Error Mean
Did not offer an ERI	41	8.93	9.69	15.13
Offer an ERI	60	10.53	7.80	10.06

An independent sample *t*-test was performed to examine the difference between the districts. The test results revealed that there was no significant difference, $t(1, 99) = -.921$, $p = .359$. The districts which offered an ERI had 10.53% average general fund expenditure percentage increase, which was higher than the average general fund expenditure percentage increase (8.93%) of the districts which did not offer an ERI. However, this difference was not significant.

Statistical Method Change Summary

While *t*-tests are a useful statistical tool for analysis of the potential differences between populations, they are limited by their inability to determine the influence of

intervening variables on these populations. The following questions use multiple regression analysis as a tool to interrogate the data set. By using multiple regression analysis this study is able to estimate the impact of a set of explanatory variables have on the variable of interest as well as the proportion of the total variance in the variable of interest accounted for by the explanatory variable.

Research Question: Does offering an ERI impact a school district's financial health as measured by change in fund equity percentage?

Q10: Comparison of fund equity percentage change over the study period between districts that did not offer an ERI and districts that did offer an ERI and provided complete information.

A weighted least squares multiple linear regression analysis was performed to estimate the impact of offering an ERI on the fund equity percentage change of districts. Moreover, percentage change in enrollment, percent of students eligible for FRPL, and foundation allowance of districts were added to the analysis as explanatory and control variables. All cases were weighted by the square root of 2007-08 district enrollments.¹

The analysis revealed that there was no significant model, $F(4, 57) = 1.883, p = .126$.

¹ Weighted least squares is an appropriate estimation technique when one suspects that the error terms are not of equal variance for each observation (heteroskedasticity). A common instance if heteroskedasticity is with aggregate data, such as the school district-level data examined here. The accuracy of the dependant variable will be a function of the size of the aggregate. That is, observations for the larger districts are presumably more accurate and should exhibit less variable about the true value than the data drawn from smaller districts. This leads to different values of the error term variance for each observation, the heteroskedastic problem. For discussion see, for example, Eric Hanushek and John Jackson, Statistical Methods for Social Scientists, (San Diego, CA: Academic Press, 1977), 142-153.

None of the independent variables predicted fund equity percentage change significantly. Regression results are presented below in Table 4.11:

Table 4.11

Multiple-Linear Regression Analysis Comparison Fund Equity Percentage Change of Non-ERI Districts and ERI Districts with Complete Information

Variables	Unstandardized		Standardized
	B	Std. Error	β
Constant	-7.241	12.869	-
ERI	.068	.143	.067
% Change in Enrollment	1.133	1.046	.148
% of Students Eligible for FRPL	.264	.365	.104
Foundation Allowance	.0001	.000008	.069

Note. $R = .206$, $R^2 = .043$, Adjusted $R^2 = -.015$, $N = 71$, Dash indicates no value
* $p < .05$, ** $p < .01$

Q11: Comparison of fund equity percentage change between districts that did not offer an ERI and districts that did offer an ERI, but did not provide complete information.

A multiple-linear regression analysis was performed to estimate the impact of offering an ERI on the fund equity percentage change of districts. Moreover, percent change in enrollment; percent of students eligible for FRPL, and foundation allowance of districts were added to the analysis as explanatory variables. All cases were weighted by the square root of 2007-08 district enrollments. By using this weighting system the variations in size of the districts was accounted for by the model. The analysis revealed that there was no significant model, $F(4, 67) = .741$, $p = .567$. The following table reports the regression results:

Table 4.12

**Multiple-Linear Regression Analysis Comparison Fund Equity Percentage Change of
Non-ERI Districts and ERI Districts with Incomplete Information**

Variables	Unstandardized		Standardized
	B	Std. Error	β
Constant	-4.074	14.117	-
ERI	.043	.075	.075
% Change in Enrollment	2.619*	1.105	.297
% of Students Eligible for FRPL	.776	.445	.230
Foundation Allowance	-.0001	.0003	-.054

Note. $R = .329$, $R^2 = .109$, Adjusted $R^2 = .049$, $N = 65$, Dash indicates no value

* $p < .05$, ** $p < .01$

Q12: Comparison of fund equity percentage change between districts that did not offer an ERI and all districts that did offer an ERI.

A multiple-linear regression analysis was performed to estimate the impact of offering an ERI on the fund equity percentage change of districts. Moreover, percent change in enrollment; percent of students eligible for FRPL, and foundation allowance of districts were added to the analysis as control variables. All variables were weighted by the square root of 2007-08 district enrollments. By using this weighting system the variations in size of the districts was accounted for by the model. The analysis revealed that there was no significant model, $F(4, 93) = 1.478$, $p = .215$. The following table reports the regression results:

Table 4.13

**Multiple-Linear Regression Analysis Comparison Fund Equity Percentage Change of
Non-ERI Districts and All ERI Districts**

Variables	Unstandardized		Standardized
	B	Std. Error	β
Constant	2.748	11.431	-
ERI	.079	.132	.071
% Change in Enrollment	.443*	.345	.152
% of Students Eligible for FRPL	-1.106E-5	.000	-.055
Foundation Allowance	1.948	.955	.230

Note. $R = .221$, $R^2 = .049$, Adjusted $R^2 = .008$, $N = 98$, Dash indicates no value

* $p < .05$, ** $p < .01$

Research Question: Does offering an ERI impact a school district's financial health as measured by percentage change in the district's general fund expenditures?

Q13: Comparison of general fund expenditure percentage change between districts that did not offer an ERI and districts that did offer an ERI and provided complete information.

A multiple-linear regression model was used to estimate the impact of offering an ERI on the general fund expenditure percentage change of districts. Moreover, percent change in enrollment; percent of students eligible for FRPL, and foundation allowance of districts were added to the analysis as control variables. The probability that $R=.834$ would have occurred by chance, if the null hypothesis was true, is less than .01 given that, $F(4, 69) = 39.417$, $p < .01$. The following table reports the coefficients of the variables included in the model:

Table 4.14

**Multiple-Linear Regression Analysis Comparison of General Fund Expenditure
Percentage Change of Non-ERI Districts and ERI Districts with Complete Information**

Variables	Unstandardized		Standardized
	B	Std. Error	β
Constant	-.264**	.049	-
ERI	-.021	.012	-.121
% Change in Enrollment	.863**	.085	.756
% of Students Eligible for FRPL	-.083*	.037	-.168
Foundation Allowance	.0002**	.000006	-.195

Note. $R = .834$, $R^2 = .696$, Adjusted $R^2 = .678$, $N = 74$, Dash indicates no value

* $p < .05$, ** $p < .01$

The model accounted 69.6% of total variance in general fund expenditure percentage change. The results of the regression analysis demonstrated that offering an ERI was the least impactful factor on general fund expenditure percentage change; however, this impact was not statistically significant. When districts utilized an ERI program, their general fund expenditure change decreases .021 points. The most impactful factor was percentage change in enrollment. When enrollment change increased one percent, the fund equity percentage change increased .863 points. The second most impactful factor was foundation allowance. When foundation allowance increased one dollar, fund equity percentage change increased .0002 point. The third impactful factor was percent of students eligible for FRPL. When it increased one percent, fund equity percentage change decreased .083 points. This analysis identifies the percentage change in enrollment as an almost overpowering factor when examining the percentage change of

general fund expenditures. This is likely caused by the increased expenditures associated with increased enrollment including personnel, supply and service based costs. Interestingly, while offering an ERI has no significant impact on general fund expenditures, the minimal impact it does have appears to be negative. This does appear to fit with the concept that offering an ERI has some downward pressure on general fund expenditures.

Q14: Comparison of general fund expenditure percentage change between districts that did not offer an ERI and districts that did offer an ERI, but did not provide complete information.

A multiple-linear regression analysis was performed to estimate the impact of offering an ERI on the general fund expenditure percentage change of districts. Moreover, percent change in enrollment, percent of students eligible for FRPL, and foundation allowance of districts were added to the analysis as explanatory control variables. The probability that $R=.819$ would have occurred by chance, if the null hypothesis was true, is less than .01 given that, $F(4, 62) = 31.467, p < .01$. The following table summarizes the regression results:

Table 4.15

**Multiple-Linear Regression Analysis Comparison of General Fund Expenditure
Percentage Change of Non-ERI Districts and ERI Districts with Incomplete Information**

Variables	Unstandardized		Standardized
	B	Std. Error	β
Constant	.258**	.072	-
ERI	-.004	.007	-.039
% Change in Enrollment	.805**	.093	.692
% of Students Eligible for FRPL	-.133**	.042	-.256
Foundation Allowance	-.0001	.000009	-.117

Note. $R = .819$, $R^2 = .670$, Adjusted $R^2 = .649$, $N = 67$, Dash indicates no value
* $p < .05$, ** $p < .01$

The model accounted for 67.0% of total variance in general fund expenditure percentage change. The results of the regression analysis demonstrated that offering an ERI was the least impactful factor on general fund expenditure change; however, this impact was not statistically significant. When districts utilized an ERI program, their general fund expenditure percentage change decreased .004 points. The most impactful factor was percentage change in enrollment. When it increased one percentage point, the fund equity percentage change increased .805 points. The second most impactful factor was percentage of students eligible for FRPL. When it increased one percentage point, fund equity percentage change decreased .133 points. The third most impactful factor was foundation allowance. When it increased one dollar, fund equity percentage change decreased .0001 point. Similar to previous results, this analysis identifies the percentage change in enrollment as an almost overpowering factor when examining the percentage

change of general fund expenditures. This is likely caused by the increased expenditures associated with increased enrollment including personnel, supply and service based costs. For the districts considered in this analysis, offering an ERI had almost no impact on the general fund expenditures of a school district.

Q15: Comparison of general fund expenditure percentage change between districts that did not offer an ERI and all districts that did offer an ERI.

A multiple-linear regression analysis was performed to estimate the impact of offering an ERI on the general fund expenditure percentage change of districts. Moreover, percentage change in enrollment, percent of students eligible for FRPL, and foundation allowance of districts were added to the analysis as explanatory variables. The probability that $R=.829$ would have occurred by chance, if the null hypothesis was true, is less than .01 given that, $F(4, 95) = 52.187$, $p < .01$. The following table summarizes the regression results:

Table 4.16

**Multiple-Linear Regression Analysis Comparison of General Fund Expenditure
Percentage Change of Non-ERI Districts and ERI Districts**

Variables	Unstandardized		Standardized
	B	Std. Error	β
Constant	.280**	.046	-
ERI	-.015	.010	-.087
% Change in Enrollment	.844**	.071	.742
% of Students Eligible for FRPL	-.097**	.031	-.197
Foundation Allowance	-.0002**	.000005	-.194

Note. $R = .829$, $R^2 = .687$, Adjusted $R^2 = .674$, $N = 100$, Dash indicates no value
* $p < .05$, ** $p < .01$

The model accounted for 68.7% of total variance in general fund expenditure percentage change. The results of the regression analysis demonstrated that offering an ERI was the least impactful factor on general fund expenditure percentage change; however, this impact was not significant. When districts utilized an ERI program their general fund expenditure percentage change decreased .015 points. The most impactful factor was percentage change in enrollment. When it increased one percentage point, the general fund expenditure percentage change increased .844 points. The second most impactful factor was percent of students eligible for FRPL. When it increased one percentage point, general fund expenditure percentage change decreased .097 points. The third most impactful factor was foundation allowance. When it increased one dollar, general fund expenditure percentage change decreased .0002 point. Since this analysis is a combination of the previous two analyses, the results are not surprising.

This analysis identifies the percentage change in enrollment as an almost overpowering factor when examining the percentage change of general fund expenditures. This is likely caused by the increased expenditures associated with increased enrollment. Offering an ERI did not have any meaningful impact on general fund expenditure change.

Research Question: Does the amount of an ERI provided by the schools, total number of teachers participating in the ERI, and the percentage of replaced teaching positions relate to the financial health of school districts?

A multiple-linear regression analysis was performed to reveal the impact of 2007-08 enrollment, percent change of enrollment from 2003-04 to 2007-08, foundation allowance in 2007-08, amount of ERI, percentage of teachers participating in ERI, and percentage of teachers replaced by district on the fund equity percentage change of districts. The analysis revealed that there was no significant model, $F(6, 26) = .657$, $p = .684$. The set of explanatory variable was statistically insignificant when analyzing their potential impact on general fund equity percentage change. It appears as though districts made financial changes that impacted their fund equity independent of these variables. It is important to note that this is not entirely surprising. Fund equity percentage is simply snapshot of the cash reserves of a school district on June 30th of the fiscal school year. Since this statistic is date sensitive, school districts can make decisions to adjust their fund equity percentage for political or other non-economic reasons. For example, a school district can elect to purchase and receive a large expense item such as a technology purchase and arrange for that purchase to

arrive in late June. This can have the effect that it will lower the fund equity percentage reported, but in reality the actual economic situation of the district is not changed. A district may elect to make this purchase at this time for legitimate reasons (potentially the technology is needed on July 1st) or it can be made at this time to artificially lower the fund equity percentage of the school district so that the district can report a cash shortage. In short, the timing of events can have a significant impact on fund equity percentage. Consequently, fund equity percentage may be more of a political measuring tool as opposed to a valid measure of a school district's financial health.

Another multiple-linear regression analysis was performed to estimate the impact of 2007-08 enrollment, percent change of enrollment from 2003-04 to 2007-08, foundation allowance in 2007-08, amount of ERI, percentage of teachers participating in ERI, and percentage of teachers replaced by district on the general fund expenditure percentage change of districts. The probability that $R=.906$ would have occurred by chance, if the null hypothesis was true, is less than .01 given that, $F(6, 26) = 19.913$, $p < .01$. The following table summarizes the regression results:

Table 4.17

Multiple-Linear Regression Analysis of Various ERI Factors on School District Financial Health of ERI Offering Districts as Measured by Percentage Change in General Fund Expenditures

Variables	Unstandardized		Standardized
	B	Std. Error	β
Constant	.257**	.048	-
2007-08 Enrollment	.0000006	.00002	.032
% change of enrollment from 2003-04 to 2007-08	1.039**	.109	.955
2007-2008 Foundation Allowance	-.0002**	.00006	-.269
% of teachers participating in ERI	.035	.163	.022
% of teachers replaced by district	-.007	.006	-.104
Amount of ERI	-.000006	.000005	-.136

Note. $R = .906$, $R^2 = .821$, Adjusted $R^2 = .780$, $N = 32$, Dash indicates no value

* $p < .05$, ** $p < .01$

The model accounted for 82.1% of total variance of general fund expenditure percentage change. 2007-2008 enrollment, percent of teachers participating in ERI, percent of teachers replaced by district, and amount of ERI did not impact the model significantly. Percent change of enrollment from 2003-04 to 2007-08 had a significant impact on general fund expenditure percentage change. When it increased one percentage point, general fund expenditure percentage change increased 1.039 points. Moreover, 2007-2008 foundation allowances predicted general fund expenditure percent change significantly. When it increased one dollar, general fund expenditure percentage change decreased .0002 points. The impact of percent change of enrollment

from 2003-04 to 2007-08 was higher than the impact of 2007-2008 foundation allowances. This analysis highlights that the various aspects of an ERI including the number of teachers participating, the number of teachers replaced and even the amount of the ERI did not have a significant impact on the general fund expenditure change of a school district. Likely these variables are dwarfed by the larger macro variable of changes in student enrollment. In Michigan, where school districts are funded on a per student basis, changes to enrollment cause a change in revenue that far outweighs the various descriptor variables of an ERI.

Chapter 5

Summary, Conclusions and Recommendations for Further Study

This chapter will provide conclusions derived from the findings of this study, a discussion of the implications of the conclusions from this study, and a series of recommendations for both practitioners and future researchers. The intent of this study was to analyze the financial health of a subset of school districts in Michigan and determine if offering an Early Retirement Incentive (ERI) had a significant impact on a school district's financial health. Additionally, the nature of the ERI being offered including the amount of the ERI, the participation rate of teachers in the ERI program and the percentage of teachers replaced by the school district in the year following the ERI were analyzed to determine if these factors had an impact on school district financial health.

A comprehensive literature review was conducted that determined that the three most effective measures of a school district's financial health were fund equity percentage, percentage change in general fund expenditures and bond rating. The literature review also provided research regarding the impact of ERI's in the private sector. Little research has been conducted on the impact of ERI's in public sector employment.

Over two hundred districts in the most populous counties in Michigan were surveyed regarding their ERI implementation and the nature of the ERI's offered during a specific five year period. This data was analyzed using a variety of statistical

techniques that attempted to identify the relationships present in the data. The specific findings of the data analysis were provided in the previous chapter.

Conclusions

The following are general conclusions reached as a result of this study. Each conclusion is listed with a brief explanation of the specific findings that lead to the noted conclusion.

- 1. No significant relationships exist between offering or not offering an ERI on a school district's financial health as measured by either fund equity percentage or change in general fund expenditures.**

The fund equity percentage of districts that offered an ERI was compared with the fund equity percentage of districts that did not offer an ERI during the study time period. Using a series of t-tests, the study found that no statistically significant relationship could be found between offering an ERI and not offering an ERI when comparing either fund equity percentages or changes in those percentages over time. Likewise, the same t-test was performed with the same group of districts using percentage change in general fund expenditures. Again, no significant relationship could be found.

- 2. Explanatory variables, including offering an ERI, did not statistically explain differences in fund equity percentage change.**

Using a multiple-linear regression analysis that accounted for offering an ERI, percentage change in enrollment, percentage of students eligible for free and reduced price lunch and foundation allowance was conducted comparing the fund equity

percentage change of districts that did and did not offer an ERI. After weighting all factors to account for the different student sizes of the school districts none of the variables provided an explanation for the differences in fund equity percentage change between districts.

3. Offering an ERI did not provide a significant impact on the percentage change of school district general fund expenditures.

A multiple-linear regression analysis that again accounted for offering an ERI, percentage change in enrollment, percentage of students eligible for free and reduced price lunch and foundation allowance was conducted comparing districts that did and did not offer an ERI. Using percentage change in general fund expenditures as a measure of school district financial health indicated that offering an ERI had no significant impact on school district financial health. All other identified variables had a significant impact on school district financial health with the most impactful being percentage change in enrollment.

4. The various descriptive aspects of the ERI including amount offered to teachers, percentage of teachers accepting the ERI and the percentage of positions replaced did not have an impact on school district financial health.

ERI's vary widely in terms of both scope of participation and amount of cash incentive offered to employees. This wide variance of ERI descriptors did not have a measurable impact on school district financial health as measured by either fund equity percentage or changes in general fund expenditures. In all cases, changes in student

enrollment over the course of the study dwarfed any impact the various ERI descriptive variables may have had on school district financial health.

Discussion

ERI's are often advanced by both school district management and labor unions in Michigan as a possible solution to a school district's financial woes. An ERI is viewed as a district controlled rapid response intervention that will provide both individual benefits for participating teachers as well as financial relief and improved financial prospects for districts. This study determined that while offering an ERI does appear to have some impact on school district financial health as measured by fund equity percentage, that impact pales in comparison to changes in student enrollment. Additionally, offering an ERI had no discernible impact on the percentage change in general fund expenditures in the school districts in this study. These results provide firm evidence that at least for the 100 districts that identified themselves as ERI providers they did not see a district level financial return on their investment.

While this study demonstrated that as a whole, districts do not improve their financial standing from offering an ERI, the ERI does have other potential benefits. First, certainly individual teachers receive additional compensation that prior to the ERI they likely could not have anticipated. With some of the ERI payments ranging to a maximum of \$60,000 certainly the union intent of providing benefits to their members was in many cases realized. Additionally, other benefits that are non-financial in nature such as a rejuvenation of a workforce or the avoidance of layoffs may have occurred, but were not included in the scope of this study.

Of the factors impacting school district financial health included in this study including changes in student enrollment, percentage of students eligible for free and reduced price lunch, changes in the foundation allowance and providing an ERI, an ERI is the only factor completely under internal district control. The percentage of students eligible for free and reduced price lunch is beyond the direct control of the district as is the foundation allowance increase. The first is a factor of demographics and the second is a function of state-level decision making. Increases in student enrollment are certainly related to a number of factors including demographic shifts, birth rate, housing values and gentrification of a community, however, student enrollment is at least partially impacted by school districts. With nearly unlimited schools of choice and a rampant growth of charter schools in the State of Michigan that allow parents to move between districts without changing the district of residence, schools can attract new students through a variety of quality performance, unique and appealing programming and advertisement. Given that the most significant factor identified in this study that positively impacted a school district's financial health was an increase in student enrollment, a district's decision to focus efforts on factors that would increase student enrollment appears to be wise if the improvement of a school district's financial health is the goal of the district.

One of the key conclusions of this study is that the various descriptive aspects of an ERI, particularly the amount of the ERI, did not appear to have an impact on the financial health of the school district. This can be viewed through two lenses. First, this could be used by labor unions as a rationale for providing large ERI's. This study

indicates that regardless of the amount of the ERI, the school district's financial standing did not change. From a labor perspective this is a rationale for providing large ERI amounts. Second, from a management perspective this same point can be a rationale for providing only small ERI's. Since the amount of the ERI did not appear to matter, then higher ERI amounts will have not specific effect on school district financial health. One specific factor not addressed in this study design is the inducement potential of ERI's on specific employees. This study was not designed to determine the relationship between the amount offered in an ERI and the acceptance rate of an ERI by the employees.

An unanticipated, but interesting result of this study is that bond ratings could not be used to reliably measure school district financial health. Moody's rating service does not provide regular ratings to school districts in Michigan. Standard and Poor's (S&P) only provides slightly more regular ratings of school districts. Interestingly, the S&P ratings gathered in this study, while not large in number, seem to indicate little variance. Nearly all school districts that received multiple ratings by S&P during the 2003-04 to 2007-08 school years did not experience a rating change. Additionally, the ratings themselves did not have an obvious correlation with school district fund equity percentage. Given the significant negative financial challenges faced by Michigan schools during this time period a lack of rating change and a lack of correlation between the ratings and the financial health of the school districts is unique and an area for further research.

Another interesting and unanticipated result of this study is that fund equity percentage did not appear to be as valid of a measuring tool for school district financial health as change in general fund expenditures. Several of the analyses in this study found that fund equity percentage change was not related to a variety of variables while general fund expenditure change did appear to be impacted by these same variables. This could be a sign that the use of fund equity percentage as a measuring tool for school district financial health is not reliable or valid. This may stem from the political nature of fund equity percentage. The chief measuring tool used by school districts, state government officials and the public to measure school district financial health is fund equity percentage. This causes fund equity percentage to be highly politically charged. Given the perceived importance of fund equity percentage coupled with the snapshot in time nature of fund equity percentage, school district officials may have both the reason and means to make political changes to the fund equity percentage. The politicization of this statistic may be resulting in decreased usefulness of fund equity percentage as a valid measure of school district financial health.

Further Considerations for School Districts and Researchers

This study has been narrowly focused on a quantitative review of the financial impacts of ERI's. While districts should certainly value the financial impacts of an ERI, other more qualitative aspects of ERI's must be considered by districts as well as researchers as they consider the potential ramification of offering an ERI. Beyond the effect on finances, ERI's potentially impact a variety of teacher and school quality measures. By design, ERI's remove experienced teachers from a system and replace

them with less experienced and often inexperienced teachers. This change in the demographic of the teaching population can have a profound effect on teacher quality, the various burdens on the professional development system within the district and the focus of school administration. New teachers require a different set of supports than more senior teachers. Often one of the required supports needed by a crop of new teachers is a solid, mature teaching staff to be mentored and supported by. An ERI could potentially simultaneously increase the need for mentor teachers while removing mentor teachers from the system. Additionally, the loss of experienced teachers could significantly impact the overall quality of teaching at least in the short term. A new influx of teachers warrants different specific professional development for these new teachers. A large cadre of new teachers also will require different and more prescriptive monitoring by administration. All of these potential unique needs caused by an ERI must be considered by districts prior to the implementation of an ERI.

Considering that the financial impact of ERI's as noted in this study appears to be negligible, the qualitative aspects of ERI's require more academic study as well as careful consideration by school districts. Instead of seeing an ERI as a tool to save money, ERI's should instead be considered for their impact on students and teacher quality. Even beyond teacher quality impacts on collective bargaining and general good will within the district should be considered when analyzing the impact of ERI's. Unfortunately, ERI's appear to be viewed by both districts and unions as a financial tool that is typically only viewed through the financial lens.

Recommendations for Practice

The following is a brief listing of recommendations for school district practitioners in Michigan regarding the use of ERI's:

1. **Do not implement an ERI with the expectation that it will positively impact the financial health of your school district.**
2. **If an improvement of financial standing is desired, a focus on an increase in student enrollment is a reasoned approach as opposed to providing an ERI.**
3. **If an ERI is provided employees, clearly quantify and tabulate the results of the ERI for internal purposes as well as potential research beyond the school district.**

The recommendations above are a result of the various statistical analysis completed in this study. Providing an ERI in Michigan does not appear to have a relationship with a school district being financially sound. Additionally, while providing an ERI does impact a school district's fund equity, the significance of this impact is less than an increase in student enrollment. Finally, this study identified that while many districts offered an ERI, some did not retain clear records of the scope and specific terms of the ERI, information that could be useful in estimating the effect of the ERI on the financial condition of the district.

Recommendations for Further Study

The following is a brief listing of recommendations for researchers studying ERI's and school district financial health:

1. Consider the impact of ERI's on school district financial health beyond the school districts in the State of Michigan and beyond the limited time period studied in this investigation.

Since this study is limited to school districts in Michigan located in the most populous counties during a given five year window, further research beyond Michigan is warranted to determine if the results of this study can be applied to other areas of the United States. The years covered in this study involved a specific time period in Michigan that saw a decrease in overall economic health in the state and the exacerbation of the limits of the Proposal A funding mechanism in the state. Further research is necessary to determine if the findings of this study are generalizable beyond the specific study parameters.

2. Analyze long-term school district financial health to determine if the potential impact of ERI's exceeds the five year window used in this study.

This study only reviewed five school years worth of financial data. Potentially the positive or negative impacts of an ERI extend beyond the five year window used in this study.

3. Determine if ERI's have non-financial impacts on school districts.

This study used only a financial lens to analyze the impact of ERI's. Further research studying the non-financial impacts of ERI's is required in order to fully understand the value of offering an ERI and to determine for both districts and employees what an ERI may fully entail.

4. Analyze the value of bond rating as a metric to determine school district financial health.

Bond ratings demonstrated too many limitations for complete inclusion as a metric in this study. However, the limited data provided by the bond ratings raised questions regarding their potential application and relationship to overall school district financial health. Given the importance that districts, bond rating agencies, bond sellers, bond purchasers and the general public place on bond rating, it is important to determine what if any relationship a school district's bond rating has on the actual financial standing of the district.

5. Analyze the validity of fund equity percentage as a measure of school district financial health.

Fund equity percentage appeared to have less of relationship with the variables analyzed in this study than anticipated. While this could be only unique to the factors considered in this study, it does seem to indicate that continued use of fund equity percentage as a barometer of school district financial health does require further analysis.

6. Study the various triggers that may cause a school district to elect to use an ERI.

Instead of further research focusing on just the quantitative impact of offering an ERI, future researchers should explore what are the triggers or causes that tend to lead a district to implement an ERI. What commonalities do districts that offer an ERI tend to share? Is ERI implementation a sign of economic struggle or potentially decreasing enrollment? Instead of future research only focusing on the potential effect

of ERI's, researchers should consider what factors lead a district to implement an ERI. This information may allow ERI implementation to become a barometer of district health or an indicator of district stability.

Summary

The locus of control of an ERI being almost entirely internal, coupled with a nearly mantra like union led focus on ERI's provides some of the rationale for their prevalence. Regardless of this prevalence, providing an ERI to teachers in the State of Michigan during this study window did not appear to impact a school district's financial health. ERI's may have a value, however, that value does not appear to benefit the district's bottom line.

APPENDIX

School District Survey

May 2011

INSERT NAME
INSERT ADDRESS

Dear INSERT NAME:

I am conducting a survey of school districts in the Metro Detroit area regarding the impact of Early Retirement Incentives (ERI) on school district financial health as part of my work towards earning my doctorate at Wayne State University. As a school official in Michigan you are being sent this survey.

Completing this survey is greatly appreciated. Simply answer the questions below and return the survey to me in the enclosed self-addressed stamped envelope. If you would prefer to return the survey to me via a pdf document attached to an email that is an option as well.

In order for your information to be included in this study you must complete all of the relevant questions below:

Name of school district: _____

1. Has your school district implemented an ERI, (sometimes referred to as a *buy-out* or a *Voluntary Resignation Incentive Program (VRIP)*) defined as a specific financial incentive intended to induce **teachers** to elect to retire or resign from the school district in the 2003-04, 2004-05, 2005-06, 2006-07 or 2007-08 school years?

____ Yes

____ No

If you indicated no above, you have completed the survey. Please return the survey in the enclosed envelope.

2. Please enter the school year or years when the ERI was offered:

3. Please list the total amount of compensation (cash, TSA payment, etc) offered to each teacher who accepted the ERI.

4. How many teachers elected to participate in the ERI?

5. Using your best judgment, please estimate the percentage of your total teaching population that was eligible to take the ERI in the year(s) it was offered using the following scale:

Percentage of teachers in your district eligible to take the ERI in the year(s) it was offered:

- _____ 0% – 20% of total district teaching population
- _____ 21% - 40% of total district teaching population
- _____ 41% - 60% of total district teaching population
- _____ 61% - 80% of total district teaching population
- _____ 81% - 100% of total district teaching population

If you have any summary documents created to either describe the ERI you offered or to quantify the results of the ERI that you are willing to share please provide a copy in the envelope with this survey.

Thank you for completing and returning this survey. If you have any questions regarding this survey or my results, please contact me directly at the contact information listed below.

Sincerely,

M. Jon Dean
 Doctoral Candidate
 Wayne State University

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ABSTRACT**AN EXAMINATION OF THE IMPACT OF EARLY RETIREMENT INCENTIVES ON SCHOOL DISTRICT FINANCIAL HEALTH**

by

M. JON DEAN**May 2012****Advisor:** Dr. Michael Addonizo**Major:** Education Policy Studies**Degree:** Doctor of Education

The combination of state controlled school funding in Michigan, rising employee costs and shrinking school enrollments have caused school districts to seek a variety of cost control measures. One of the measures frequently supported by both school districts and employee unions is the use of Early Retirement Incentives (ERI) to incentivize teachers to separate from the school district via a cash payment.

The purpose of this study was to analyze how offering or not-offering an ERI impacted on the financial health of a school districts in the State of Michigan. Selected school districts in Michigan were surveyed regarding any ERI's they may have offered during the 2003-04 to 2007-08 school years. If the district offered an ERI, various descriptive aspects of the offered ERI including ERI amount, number of participants in the ERI and replacement percentage of separating teachers was tabulated. The data points collected to determine the financial health of the school district included school

district bond rating, the school district fund equity percentage and change in general fund expenditures of school districts.

This study used both t-tests and multiple regression analysis to determine if offering an ERI had any effect on the financial health of the school district as measured by fund equity percentage and changes in general fund expenditures. Additionally, a multiple regression analysis was used to determine which various descriptor factors of an ERI might have the most significant impact on school district financial health.

This study found that no significant relationship existed between offering an ERI and the financial health of the school district as measured by either fund equity percentage or changes in general fund expenditure. Additionally, this study found that other independent variables including changes in student enrollment were more impactful on changes in general fund expenditures than offering an ERI. While bond ratings of school districts were originally designed to be used as a metric of school district financial health, they were discarded from the final analysis due to their relatively infrequent nature.

AUTOBIOGRAPHICAL STATEMENT

Education

Ed. S., Educational Leadership, Saginaw Valley State University, 2007

Area of Concentration: Central Office and the Superintendency

M. A., Educational Leadership, Wayne State University, 1999

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Professional Experience

Assistant Superintendent for Human Resources and Educational Development, Grosse

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Assistant Superintendent for Human Resources, Birmingham Public Schools, February

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Harlan Elementary Principal, Birmingham Public Schools, August 2005 – February 2008

Lindemann Elementary Principal, Allen Park Public Schools, August 2002 – July 2005

Algonac Elementary Principal, Algonac Community Schools, August 2000 – June 2002

High School Math Teacher, 1995 – 2000

Publications

“Can We Get Beyond Letter Grades?” Educational Leadership, ASCD, May 2006,

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Presentations

Creating Standards Based Report Card, National NCA Conference, 2005

Standards Based Grading in Elementary Schools, ASCD National Conference, 2006

Scheduling with the Student in Mind, Michigan NCA Conference, 2008

Hosting, Efficient, Effective NCA Visits, National and Michigan NCA Conferences, 2006 & 2007

Leadership Positions

President, Oakland Association of School Personnel Administrators, 2011-12

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