A LEGISLATIVE EXAMINATION OF THE NORTH CAROLINA TEACHERS' AND STATE EMPLOYEES' RETIREMENT SYSTEM: RETROSPECT AND PROSPECT

by

Richard Todd Griffin

A dissertation submitted to the faculty of
The University of North Carolina at Charlotte
in partial fulfillment of the requirements
for the degree of Doctor of Education in
Educational Leadership

Charlotte

2014

Approved by:

_____
Dr. Lisa G. Driscoll

_____
Dr. James J. Bird

_____
Dr. Lynn Ahlgrim-Delzell

_____
Dr. Lyndon P. Abrams

_____
Dr. Jim R. Watson

ABSTRACT

RICHARD TODD GRIFFIN. A legislative examination of the North Carolina Teachers' and State Employees' Retirement System: Retrospect and prospect. (Under the direction of DR. LISA G. DRISCOLL)

The North Carolina Teachers' and State Employees' Retirement System (TSERS) experienced a decline in its funded ratio from 112% in 2002 to 94% in 2011 and an increase in its unfunded actuarial accrued liabilities over the same period. The change in these two indicators is trending toward decreased fiscal solvency. The purpose of this research was to identify the potential changes to TSERS by the North Carolina legislature in light of its recent record of fiscal solvency. Using a qualitative case study research methodology, a thematic analysis of eleven interviews was conducted. Legislation and other documents as well as retrospective observations were analyzed.

The results revealed five themes: revenue, politics, transportability, knowledge, and commitment that occurred across the four research questions. This study concluded that the legislature is likely to offer the following amendments in the future: the lowering of the 7.25% rate of return assumption, not allowing the spiking of salary, ensuring the entire amount of all annual required contributions are made, offering an optional defined contribution plan option, and a vesting period decrease.

ACKNOWLEDGEMENTS

I would first like to express my sincere gratitude and appreciation to my wife, Amy Griffin, who has always been my inspiration and companion. It is her love that kept me going through the trials and tribulations of the dissertation process and the entire doctoral program. I would like to thank her for the many days and hours of work she encumbered while I was going through the program. My life is indebted to her. I would like to thank my wife for her honesty, patience, and understanding throughout my doctoral program.

I would like to thank my two children, Braxton and Emma, for their words of support and humorous commentary on the dissertation. The dissertation progress took many hours away from them and I appreciate their pride they have in me, their father.

I would like to thank my parents, Carolyn and Richard Griffin, who instilled in me a desire to pursue excellence and never quit. Their encouragement and support through difficult times was timely in nature.

I would like to express my deep appreciation to Dr. Lisa Driscoll, my dissertation chair, who supported me by providing suggestions and encouragement. I would like to sincerely thank Dr. Lisa Driscoll for upholding high expectations throughout this process, while ensuring that I kept moving toward completion of this dissertation.

To my committee members: Drs. Bird, Ahlgrim-Delzell, Watson, and Abrams, I wish to thank them for their honesty, feedback and understanding throughout my dissertation.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1: INTRODUCTION

As a result of the global financial crisis that characterized the Great Recession in the United States, the value of both privately and publically held retirement assets dropped precipitously. Over the past six years most private/personal retirement investments have returned to their September 2007 valuations; however, many public pension fund assets have not recovered to pre-recession levels (National Conference of State Legislatures, 2012; Pew Center on the States, 2010). In fact, the unfunded liabilities have grown precipitously large in many state plans (Pew Center on the States, 2010).

In the peak year (1999) the average funded ratio of assets to liabilities of 126 state funded educator retirement plans was 103% (Munnell, Aubry, & Quinby, 2013). A decade later in 2010 the state average funded ratio was a mere 77%, indicative of serious unfunded liabilities in the state pension sector across the country (Munnell et al., 2013), and for some pensions, a sign of growing insolvency. According to the Pew Center on the States (2010), in the aggregate, state pension systems are $452 billion or 16 % unfunded. In addition, there appeared to be a chronic underfunding of state pension plans since 2000, which may have been in part because of the manner in which accrued unfunded liabilities are calculated (U. S. Government Accountability Office, 2008a).

In North Carolina, the Teachers' and State Employees' Retirement System

(TSERS), the largest of its ten state administered retirement plans, exhibited a funded ratio of 112% (2001) that dropped to 99% (2008) and has steadily declined to 94% in 2011 (North Carolina Department of Treasury, 2011; Munnell et al., 2013). Although North Carolina's funded ratio over the last decade was among the highest of public plans in the nation (Pew, 2010) and was well above the 80% threshold for solvency (U.S. Government Accountability Office, 2008a), there was reason for concern. Using the GASB Standards 25/27 the unfunded actuarial accrued liability increased 10-fold from $391,086,516 (FY08) to $3,718,445,444 (FY12) applying a 7.25% rate of return on investments. These issues prompted the Boards of Trustees of the Teachers' and State Employees' Retirement System and the Local Governmental Employees' Retirement System to establish the Future of Retirement Study Commission in 2009 "to examine the design of the North Carolina Retirement and make recommendations for changes to the systems covering state and local government employees" ([North Carolina] Future of Retirement Study Commission, 2010). The study group, the Future of Retirement Study Commission, made six recommendations that were relevant to the solvency of TSERS into the future ([North Carolina] Future of Retirement Study Commission, 2010). Four years hence it is prudent to examine the fate of those recommendations, the past and proposed legislative amendments to the TSERS plan, and the informed opinion concerning potential future changes to the plan to maintain its fiscal solvency.

Conceptual Framework of the Study

The study represents applied research in contrast to research that extends theory. According to Bickman and Rog, (2009), "[a]pplied research uses scientific methodology to develop information to solve an immediate, yet usually persistent, societal problem.

The applied research environment is often complex, chaotic and highly political…"(p. x) Although an applied research study this project does employ Kingdon's (1995) agenda setting theory as a conceptual model. Agenda setting is an early stage in the policy process in which interest among policymakers rises to such a heightened level that a potential policy can be acted upon. The theory depicts agenda setting in three distinct streams: *policy streams, problem streams and political streams. Policy* streams refer to ideas from individuals that compete with one another to get attention. *Problem* streams are conditions policy makers address in a public forum. *Political* streams reflect the national political mood, pressure groups, and administrative legislative turnover. The streams are less rational and not wholly incremental, but opportunistic and idiosyncratic based on the convergence of three forces, which are all applicable to state policy-making.

This conceptual framework situates the past and future legislation to TSERS in the context of having to first get onto the agenda or into the consciousness of policymakers. As in many other states that offer defined benefit retirement plans for their employees, the contributions by the employer (either the district, the institution or the state) are considered part of the total compensation package, with the retirement benefit considered *deferred* compensation in exchange for the typically lower salaries paid to employees of public institutions in contrast to those paid by the private market for the same skill set. Thus, changes to TSERS involve having the General Assembly act on legislation submitted and that reaches the active agenda.

Changes to TSERS may be influenced by three agenda setting streams: (1) the *policy* stream in the state, which includes the defined benefit component of the plan; (2) the *problem* stream, which includes the declining fiscal solvency concern; and (3) the

political stream, which includes the North Carolina political environment. Each of these streams is subject to influence from other contexts and influences action in the other contexts.

The *policy* stream refers to how internal policy affects solvency within the internal context of TSERS: defined benefit versus defined contribution plans, actual statutes and regulations that govern the administration of the retirement system, the decisions its members execute regarding when to retire and how to allocate their benefit, and the impact the various decisions have on membership. A second topic advanced in the popular media and by some academic researchers characterizes defined benefit pensions as inherently inefficient and promotes a movement toward defined contribution plans as occurred within the private sector more than two decades ago (Costrell, Podgursky, & Weller, 2011).

The *problem* stream of TSERS refers to the trends in the economy that influence how pension plan assets can be increased, while the plan liabilities can be maintained at a steady state or decreased. The 18-month economic recession extending from December 2007 to June 2009 contributed to 2nd quarter 2009 average state income tax collections shrinking by 27% and state sales taxes declining 17% (Gordon, 2011). Over the same period, expenditures for social programs increased, which competed with state funding for other programs such as pension funding. At the same time, the stock market crisis created high volatility of investment value and returns and resulted in substantial losses in retirement plan earnings, whether they were defined benefit or defined contribution structures. Many states, including North Carolina, were not able to make their full required annual contribution to their public pension plans. Similarly, several other state

pension plans that had no unfunded liabilities prior to the recession slipped into that territory, also. Some state plans that had large unfunded pension liabilities prior to the recession were plunged deeper into serious shortfalls that rival the states' revenue generation (e.g., Illinois and Kentucky).

The *political* stream refers to the past, current and future legislative priorities in North Carolina. Recently, the solvency of state pension plans has received substantial media attention. Much of the coverage, which has been largely from conservative constituencies, has focused on states that have growing unfunded plan liabilities (Joint Economic Committee - Republicans, 2012; Peng & Boivie, 2011). These remarks have focused primarily on the worst case scenarios of a few states; however, their recommendations for change paint all states' pensions systems as mismanaged or insolvent without regard for the specific situations of states. For example, playing on the limited knowledge the public has regarding compensation packages, one commentator (Balfour, 2012; Balfour, 2013) asserted that the teachers and state employees' retirement packages were more generous than those offered in the private sector. This statement may be misleading in that pensions of public employees are considered part of the total compensation package, albeit in a delayed form. In essence, if salaries were increased for public employees to the levels found in the private sector, then the smaller amounts could be separately paid by the employer toward pensions and employees would be expected to pay a larger proportion of their salary toward retirement. Due to the 2012 elections the political environment changed in North Carolina where for the first time in 28 years the Governor is from the Republican party, and for the first time in 100 years, both the North Carolina House of Representatives and the Senate each have a majority of members that

identify themselves as members of or affiliated with the Republican political party. This change represents an important shift in legislative priorities, and has particular significance for the treatment of the TSERS solvency issue.

In summary, the *policy*, *problem*, and *political* streams have a bearing on the problem of this study – to delineate how legislators and policymakers may approach the continued solvency of TSERS. It is not the purpose of this study to directly examine each of these streams, but rather this framework provides the background scaffolding for this study in terms of recognizing that a problem exists and identifying policies that may address the problem and political interactions that link both of the former streams before a change can be made.

Problem Statement of the Study

Solvency in funding a public retirement system is important, because investing in a retirement plan is a long term activity for both the individual and the employer (the state). In a defined benefit plan the employee makes contributions to the plan (usually a set percentage of salary). The aggregate of these funds are invested in instruments that over a period of time are likely to produce a specified amount of money that can be disbursed to retirees and reinvested for employees. Typically, the state sets a target rate of return; in North Carolina this rate was 7.25%, which is lower than the nationwide average of 8.0%. Depending on the cycle of the economy (recession or inflation) an identical rate may be considered high risk or safe.

If the investments achieve or go beyond the target rate of return, then no unfunded actuarial liabilities are incurred for that annum. However, in the event that the target rate of return on investment is not meet, then a "liability" is accrued for that period. In the

best case scenario, the state (as the fiduciary) steps in and makes up the difference between the target earnings and the real earnings. If the difference is large, states often pay some, but not all of it. Basically, when a plan is short on the new assets (the target earnings for that annum) that it needs to reinvest for the following year to meet the 7.25% target in that year, in effect, the investments would have to earn a rate on even higher than the 7.25% to make the current target earnings and to recover the shortfall from the year prior. Unless action is taken to retire the unfunded liability, not many years could go by before the state has a large liability with little chance of meeting its long term goals for pension commitments.

At that point of the first liability, independent actuaries review the statistics and assumptions for the plan, and make a recommendation to the plan's Board of Trustees and the General Assembly to modify its Annual Required Contribution such that the unfunded liability is paid back within a period of time or amortized (not to exceed 30 years, although it is less). Each succeeding year that has a shortfall initiates a separate amortization schedule to pay off the incurred liability for that year. Thus, a plan administrator could actually stack several years of unfunded actuarially accrued liability payment schedules going forward, since the funded ratio represents a plan's assets as a percentage of liabilities, or the amount of money owed in benefits. The funded ratio is one of the primary measurements of a pension plan's overall funding health.

In Table 1 further evidence of declining fiscal solvability can be seen through the decrease in the funded ratio and the increase in the unfunded actuarial accrued liability over the last decade. The amount of state funding (appropriated through the North Carolina General Assembly biennial budget bill and termed the Annual Required

Contribution) typically has been determined by how well investment percentage gain has fared. For periods in which investment income does not meet projections, the General Assembly may appropriate greater amounts of revenue to sustain target asset levels. For the fiscal years 09 through 12, investment earnings did not meet projections and the General Assembly entered an amortization schedule for each of these fiscal years to address the shortfalls. In FY13, the remaining amortization period was 12 years.

Table 1: Historical funding trend of the North Carolina Teachers' and State Employees' Retirement System (2002-2012)

Fiscal Year	Total Active Members[1]	Actuarial Valuation of Assets[2] (a)	Actuarial Accrued Liability[2] (b)	Unfunded Actuarial Accrued Liability[2] (b-a)	Funded Ratio (a/b)
2002	473,016	$43.2	$39.9	($3.36)	108.4
2003	479,600	45.1	41.7	(3.38)	108.1
2004	492,769	47.4	43.8	(3.56)	108.1
2005	510,235	49.7	46.6	(3.05)	106.5
2006	530,353	52.4	49.4	(3.02)	106.1
2007	553,765	55.3	52.8	(2.47)	104.7
2008	572,146	55.1	55.5	0.39	99.3
2009	577,845	55.8	58.2	2.36	95.9
2010	590,770	57.1	59.9	2.77	95.4
2011	600,378	58.1	61.8	3.72	94.0
2012	617,396	59.9	63.6	3.72	94.2

Source: North Carolina Department of State Treasury. (various years). *Report on the Sixty-Ninth Valuation of the Teachers' and State Employees' Retirement System of North Carolina Prepared as of December 31, 2011*. Retrieved from https://www.nctreasurer.com/ret/Pages/Valuation-Reports.aspx

[1]Members include active members, retired members, terminated members and beneficiaries entitled to but not yet receiving benefits, beneficiaries of terminated and deceased members, and beneficiaries receiving disability retirement allowances.

[2]Assets, liabilities, and payroll data are in billions of US Dollars, unadjusted to constant dollars. In the case of a liability, parentheses indicate a positive liability.

Table 2 shows the increasing dollar amount of the Annual Required Contribution, which includes the Normal Cost, or the cost that the employer (North Carolina) must pay the TSERS in order to fund the liabilities in the current service year. The second cost, the Unfunded Actuarial Accrued Liability, is the amount of money that has accrued from liabilities of previous years. It can be seen that the TSERS liabilities have more than doubled since 2008, with an especially large increase between 2010 and 2011.

Table 2: North Carolina Annual Required Contribution Trend of TSERS

Fiscal Year	Total Percent of Payroll (c+d)	Employee Percent of Payroll (c)	Employer Percent of Payroll (State) (d)	Annual Required Contribution (ARC) Percent
2002	12.77	6.0	6.77	6.0
2003	12.81	6.0	6.81	8.05
2004	12.73	6.0	6.73	8.17
2005	12.74	6.0	6.74	8.34
2006	12.15	6.0	6.15	8.66
2007	12.19	6.0	6.19	9.05
2008	12.26	6.0	6.26	9.36
2009	12.6	6.0	6.3	9.87
2010	11.12	6.0	7.44	13.94
2011	11.12	6.0	4.93	13.69
2012	13.44	6.0	7.44	7.44
2013	14.76	6.0	8.76	8.76
2014	14.89	6.0	8.69	8.69

Source: North Carolina Department of State Treasury. (various years). *Report on the Sixty-Ninth Valuation of the Teachers' and State Employees' Retirement System of North Carolina Prepared as of December 31, 2011*. Retrieved from https://www.nctreasurer.com/ret/Pages/Valuation-Reports.aspx

The North Carolina General Assembly sets the annual contribution amount each year as part of the budget.

Purpose of the Study

The purpose of this research is to identify potential changes to TSERS by the North Carolina legislature in light of its recent record of fiscal solvency.

Research Questions

The research questions for this study are:

1. How, if at all, will the General Assembly of North Carolina address the declining fiscal solvency concern regarding the Teachers' and State Employees' Retirement System?
2. What is the recent legislative and policy history of TSERS?
3. How, if at all, will the General Assembly of North Carolina change the current Teachers' and State Employees' Retirement System in the near term future?
4. How, if at all, will the General Assembly of North Carolina change the Teachers' and State Employees' Retirement System for the long-term future?

Overview of the Methods

This study is based on a qualitative study research methodology including a legislative examination that incorporates document analysis, elite interviews and retrospective observations. This study seeks to explain how legislators in North Carolina will address the declining funding solvency ratio in the future of the Teachers' and State Employees' Retirement System (TSERS). This research study occurred in two phases. First, the recent legislative and policy review of TSERS including trends in TSERS performance in general (solvability) was performed using legal sources and annual

reports from various years, including auditors' reports. Second, the elite interviewing technique (Dexter, 1970) was completed, including perceptions of selected North Carolina General Assembly members, legislators, commission members, and other officials deemed uniquely knowledgeable on TSERS. This study also included legal and policy research. The legal and policy analysis was conducted using North Carolina General Statutes, legislative bills, the North Carolina Future of Retirement Study Commission's final report (2010), and the final report to the Joint Legislative Program Evaluation Oversight Committee (2011) among other documents.

For this study, members of the North Carolina General Assembly, former members of the Study Commission, and any other officials deemed uniquely knowledgeable on TSERS, were interviewed. Consistent with the elite interviewing process (Dexter, 1970), purposive sampling along with limited snowball sampling was used to identify possible experts with TSERS. In the interviewing of policymakers with unique knowledge that is not widely known, a small number of interviewees was pertinent because their knowledge and expertise are privileged and unique (Dexter, 1970). Although elite interviewing assumes individuals will vary in their proximity and familiarity to the phenomenon studied, all individuals may not be knowledgeable to all aspects of the phenomenon (Dexter, 1970). By concentrating on a small number of interviewees; it is possible to learn information that is only available to experts and policymakers in a particular field (Patton, 1990). From the interviews, relevant documents, and observations of the institutions (North Carolina General Assembly, Department of Treasurer) themes were developed to answer the research questions.

Definition of Terms

The definitions section is divided into two subsections. The first subsection defines the major types of retirement plans and policymaking bodies and commissions discussed in the study.

Public Employee Retirement System: According to the U.S. Census Bureau, a public employee retirement system is one that is financed by a separate fund of the administering unit of government (2013). The system must have a type of assured revenue stream in addition to appropriations from the administering government. Benefits are paid from a fund comprised of employee contributions, investment earnings and the contributions from the unit of government. Its members must consist of either current or former employees with rules for membership in the retirement system (U.S. Census Bureau, 2013).

Defined Benefit Plans (DB): A defined benefit retirement plan is one in which an employer promises a specified monthly benefit for life, which is predetermined, based on a formula consisting of an average of the highest salary or a smoothing of the earnings history, years of service, and a multiplier. It is *defined* because the benefit amount is substantially known in advance of retirement commencement. This is because fixed contributions, usually a percentage of earnings, are adjusted and/or balanced with governmental contributions on behalf of the employee. These contributions invested to produce additional funds that may be paid out at retirement. Employees may retire at either full or reduced benefit stages. Defined benefit plans offer cost-of-living adjustments (COLAs).

Governmental DB plans are regulated by section 401 (a) of the Internal Revenue Code, and thus, are subject to various rules concerning their operation and benefits. The regulations center around the employment status of the retiree and periods of time to be re-hired by the employer paying the retirement. Defined benefit plans have been offered by both private and public employers; however, since the 1970s the percentage of private employers that offer DBAs has decreased.

Defined Contribution Plans (DC): A retirement plan that provides retirement benefits based on a specific account an employee has maintained over the years. In the United States, 26 U.S.C. § 414(i) specifies a DC plan as a

> plan which provides for an individual account for each participant and for benefits based solely on the amount contributed to the participant's account, and any income, expenses, gains and losses, and any forfeitures of accounts of other participants which may be allocated to such participant's account.

For public school employees who are younger and desire mobility among employers, defined contribution plans provide more flexibility of pensions. Individual accounts are set up for employees, and either, the employer, the employee, or both make monetary contributions to the plan. Plan benefits are based on the amount credited to the account and the interest the principal earns from investments. Because the benefit amount is not guaranteed for one's lifetime as in the defined benefit plan, defined contributions are often characterized as the employee shouldering a greater amount of risk.

Hybrid Retirement Plans: A retirement plan that contains components of both defined benefit plans and defined contribution plans. Typically, employees cannot choose between each plan; each employee participates in both plans. Hybrid plans, generally,

contain a defined contribution plan for employee contributions and a defined benefit plan for employer.

Teachers' and State Employees' Retirement System (TSERS): The Teachers' and State Employees' Retirement System is one of ten different pension plans administered by the state of North Carolina. Members of TSERS include all types of state employees: teachers, public school administrators, guidance counselors, university employees, community college employees, and certain proprietary units (State of North Carolina, 2013). It is a defined benefit plan that includes cost sharing through member contributions (6% of salary), investment income, and by employer (State of North Carolina) through the Annual Required Contributions (ARC).

The second subsection defines the technical terms applied to assess and compare the relative health and fiscal solvency of the retirement plans.

Actuarial Valuation of Assets: The value of cash, investments, and other property belonging to a pension plan. It differs from the amount of assets indicated on a financial statement (Actual Valuation of Assets), because it is a mathematical calculation that takes into account the present monetary value of benefits payable, and the present monetary value of future monetary contributions. It also figures in the probability of mortality, disability, retirement, withdrawal from service, salary and interest. In recent literature, this value has been of critical concern because of the investment and real estate losses occurring just prior to when a sizable number of retirements are expected to occur.

Actuarial Accrued Liability (AAL): The present value today of the "promises" made to members in the pension plan. The amount of liability is dependent upon how it is calculated from the funding method and what assumptions are used.

Annual Required Contribution (ARC): The amount the employer (for example, the state of North Carolina in TSERS) would be required to contribute for the year, calculated annually in accordance with certain parameters in order to fund the pension liability over time into the future. This value is a sum of two costs: the normal costs, or what the employer or state must pay the retirement plan in order to support the liabilities gained in the previous year, and the unfunded actuarial accrued liabilities payment in order to cover the previous liabilities that are not fully paid for (amortized).

The ARC is the actuarial computed value; however, legislatures are not required to pay this amount. The use of the word "required" can be misleading, because

governments can choose to pay more or less than this amount. In 2012 the Government Accounting Standards Board (GASB) approved a plan to revise the accounting rules for public pensions, which will take effect in 2013. In these new standards, the Annual Required Contribution was removed as a reporting requirement and replaced with an actuarially determined contribution or a statutory contribution.

Discount Rate: A rate (expressed as an average percentage over time) that indicates the inflation of a future value of money. The present value necessary to have $100,000 in 10 years, assuming a 3% discount rate, would be $74,409.39. Pension plans use this value because the fund has a target amount of funds to pay out while remaining solvent at a future date. When a discount rate is applied to some future amount, it gives the current assets requirement.

Funded Ratio: The funded ratio compares the unfunded liabilities relative to the retirement system's assets. Expressed as a percentage of a system's liabilities, the funded ratio is calculated by dividing net assets by the actuarial accrued liabilities. The result is the percentage of the accrued liabilities that are covered by assets.

At a funded ratio of 100 percent, a pension system has total liabilities equal to its total assets, which is indicative of sufficient assets to pay all benefits earned to date by all its members. Most analysts indicate that funded ratios should not be lower than 80 percent. Since the United States' economic recession in 2007, many retirement funds have funded ratios that have declined to values below 80 percent.

Unfunded Actuarial Accrued Liability: The Actuarial Valuation of Assets minus the Actuarial Accrued Liability.

Vesting Period: The minimum service required for a state employee to qualify for benefits from a specific retirement plan.

Significance of the Study

This study is significant, because public educator retirement systems throughout the United States are undergoing changes due to the decline in the funded ratio and the increase in the unfunded actuarial accrued liabilities that are driving higher contribution rates by state legislatures. This situation is occurring in North Carolina with the TSERS plan. While it is not disputed that TSERS is one of the best managed plans in the United States, it is important to learn what issues make it to the policy agenda among the many policy options that legislators have. Will legal constraints concerning the contractual obligations due to current TSERS members make the changes only binding upon *new* members? Or will the ten year vesting period limit the Governor, who serves only 4 years, from obtaining the most highly qualified persons for his cabinet who are not already employed by the state? If changes to TSERS are made in a fashion that is non-deliberative and capricious, then it is possible the changes will cause harm to the state in being able to recruit and retain the best educators. In summary, the significance of the study lies in its potential to develop some insight into what the some of the most knowledgeable persons think is likely to happen and why.

Limitations of the Study

The evidence for the study findings will be provided from interviews, documents, and retrospective observations which may lead to limitations in data gathering and in its analysis.

1. The findings of this study are limited in part to the responses to interview questions by the participants, which rely on perceptions that may or may not be shared by all respondents.
2. In some cases, respondents may be reluctant to respond candidly or truthfully due to the sensitive nature of the information they are being asked to provide. This reluctance may limit the range of and depth of the themes that could be developed from the data analysis.
3. By only conducting a small (less than 30) number of interviews, broad external influences may be underestimated.
4. Due to purposive and snowball sampling, the opinions of all individuals in the state of North Carolina with relevant knowledge were not assessed. This may bias the findings to a smaller range of potential findings.
5. There was no attempt to validate through other parties the accuracy of respondent perceptions.
6. The documents analyzed were limited to publically available studies, audit reports, and North Carolina General Assembly bills and resolutions. Personal or drafts of documents were not sought.
7. Generalizability of the study conclusions was limited to comparisons with the conceptual framework rather than to other states.

Delimitations of the Study

Two delimitations have been identified that bound this study, but are not expected to significantly influence the conclusions of the study.

1. The study of proposed changes to the public educator retirement plan in North Carolina was conducted by interviewing purposefully selected North Carolina legislators and other persons having specialized knowledge. All North Carolina state legislators or state legislators of any other state were not interviewed. By delimiting this purposeful selection of respondents, it was not intended to collect opinions and perceptions from the entire body of North Carolina legislators, but rather from selected persons who have appear to have extensive and/or specialized knowledge of TSERS and the policy change process in North Carolina. The study was not intended to determine what the entire legislature perceives regarding the current status and future of TSERS.
2. This research was delimited to the state of North Carolina as a case study. Although the fiscal solvency situation of selected states was included in the literature review, this study does not perform an analysis of other state teachers' retirement systems.

Organization of the Study

Chapter 1 introduces the research and a discussion of the purpose and the context of the problem. The research questions that guided the study, the purpose, the research methods, definitions of key terms, the significance of the study, the limitations, and delimitations related to the research are also included.

In Chapter 2, the background of the conceptual framework, the literature search process, the discussion of literature on public educator retirement plans and a summary of the literature are presented. For comparison and context for North Carolina's TSERS fiscal solvency, selected states are presented.

Chapter 3 explains the study methodology. The study sample, data gathering instrument (interview protocol), data collection procedures, and a discussion of procedures used are presented.

Chapter 4 presents the findings of the study organized by the research questions.

Chapter 5 presents the conclusions and recommendations for future research.

CHAPTER 2: REVIEW OF THE LITERATURE

This chapter presents a review of the related literature, proposed legislation and general state statutes for publically administered and funded retirement systems in general, and specifically, for the state of North Carolina. To address the overall research question for this study, identifying the potential changes to TSERS by the North Carolina legislature in light of its recent record of fiscal solvency, Kingdon's (1984) multiple streams theory of agenda setting was used as a conceptual framework to interpret the phenomenon of getting issues onto the state legislative agenda. Agenda setting is an important precursor to subsequent stages in the policy process in the event that changes in the retirement system are initiated. This research does not aspire to test the theory of agenda setting, but rather employs the theory in order to understand, analyze, and explain likely directions for policy changes to the North Carolina state retirement system for educators (TSERS).

The Conceptual Framework

There are two distinct models used in describing the policy change process in state government and the federal government based on whether the policy change is incremental (Lindblom, 1959). Yet, despite some degree of plausibility in each of these

models, the vexing question in policy change is how and why some issues, instead of other issues, surface onto the agenda for action. A third theory that assumes that in policy making (ie., policy change) the problem must, first, get onto the agenda. Kingdon (1984, 1995) advanced the theory that change moves incrementally, in the sense that a window of opportunity for policy change is only intermittently open in its agenda setting process. Kingdon (1995) defined an agenda as "subjects or problems which government officials and persons outside of government are paying some serious attention to at any given time" (p. 3).

To identify the policy stage of agenda setting, Kingdon (1984) interviewed nearly 250 policymakers in two different arenas, federal health and transportation. He concluded that a "policy window" opens to the legislative action agenda when three separate, largely independent "streams" converge. He termed these streams as the problem stream, the policy stream, and the political stream.

A definition of each stream according to Kingdon (1984, 1995) follows. These "streams" were aptly named for the spheres of influence each asserts. The problem stream derives from the garbage can model in that the reasons why problems develop are varied and may be idiosyncratic. A problem is defined as some situation that is recognized by one or more constituencies as in need of action upon itself. Some problems develop as a form of self-interest in that persons develop problems as part of their occupation such as university professors and persons employed by advocacy groups. Other persons may simply advance a "pet" problem from time to time. Sometimes this apparent disorganization in problem development can be characterized as a collection of policy choices in search of a problem (Cohen, March and Olsen, 1972; Kingdon, 1984,

1995). A famous and oft cited quote from Cohen, et al. (1972) is that the problem stream is akin to

> a garbage can into which various kinds of problems and solutions are dumped by participants as they are generated. The mix of garbage in a single can depends on the mix of cans available, on the labels attached to the cans, on what garbage is currently being produced, and on the speed which garbage is collected and removed from the scene. (p. 2)

When a problem is not picked up and placed onto the action agenda, it may show up in other garbage cans and become related to other mixtures of garbage, until it finally is elevated to the agenda, and thus, it can be described as "an idea whose time has come" (Kingdon, 1984). In these situations when problems have moved from can to can over a period of time, this shuffling may be indicative of a solution that is being advanced by a constituency in search of a problem (Cohen, et al., 1972; Kingdon, 1984, 1995). Problems advance to the action agenda once a critical mass focuses attention on them and they attract sufficient policy solutions. Once a problem combines with policy and political streams, it becomes an "issue."

As the problem is a situation seeking some action, the policy stream can be described as the *idea prototypes* proceeding potential action. A policy stream is not composed of persons who develop ideas, but comprises the ideas themselves in various stages of development or content. These ideas may be in different forms: legislative bills or resolutions, research papers or reports, newspaper editorials, conversations, speeches, and testimony. At any given time there are a number of idea proposals that embody varying degrees of specificity. Once an idea coalesces around a problem, political actors may advance these two streams to open a window to the agenda.

At times groups in the political stream may advocate for a particular problem to be addressed, but unless there are viable policy ideas developed and available, the problem may not get out of the can. Kingdon (1995) asserts that the policy or idea proposals that are most likely to engage with a problem are those that meet several criteria. First, the policies must possess technical feasibility. Next, proposals are consistent with dominant [state or national values] and the current desire for action or inaction. Additionally, they can be implemented within the prescribed budget and can attract political support or strong opposition to a problem. Such policy proposals motivate a desire for action.

Policy communities are made up of specialists on idea topics. These may be cohesive or fragmented; that is, the academics, legislators and advocacy group leaders who advance ideas on a problem may all know each other and frequently interact with each other (cohesive) or they may not even know of the others' existence. Communities that are less fragmented develop strong "anchors" or ties to the problem definition and prevent instability in the problem definition over time. Likely in educator retirement plan circles, policy communities within a given state will at least have name recognition among its members. Excepting academics – policy communities across states are less likely to have a need to interact even on similar problems.

Finally, the political stream as defined by Kingdon (1995) refers narrowly to a persons or a group that act in accordance with factors such as the "public [national] mood, pressure group campaigns, election results, partisan or ideological distribution…and changes of administration (p. 145). The forces that motivate the political stream are often different from those of the problem stream and the policy

stream. The national mood is an important backdrop for predicting whether or not a problem or policy solution will get onto the agenda. Politicians and policy makers have a sense of how palpable this mood is and how much it can be pushed back. Of particular importance are changes in the national (or state) mood. Typically, the mood centers on whether the public wants government to be involved in a particular problem or not. For example, in the retirement arena, a desire for more government involvement would promulgate policies that increase funding for defined benefit retirement plans in a state. On the other hand, desires for less government involvement would be signaled by moves to have the government devolve itself of the risk in funding outcomes of state administered retirement plans by instituting participation in defined contribution retirement plans. When political administrations change over, the time is ripe for problems and policy alternative streams to coalesce with the dominant political stream, thus opening a window to get onto the legislative agenda in a state.

Kingdon's agenda setting theory functions as a conceptual model for this study, because it depicts agenda setting as not necessarily a rational process, but instead the process may be opportunistic and idiosyncratic based on the convergence of three forces or streams, all of which are applicable to state policy making. As stated earlier, the purpose of this study is to identify the potential changes to TSERS by the North Carolina legislature in light of its recent record of fiscal solvency. The following section explains the conceptual framework for this study, including how the problem stream, the policy stream, and the political stream relate specifically to the policy change agenda for TSERS by the North Carolina General Assembly.

Relating the Conceptual Framework to this Study

In this study, the declining fiscal solvency of TSERS is the problem. As shown in Table 1, the funded ratio (the actuarial valuation of assets divided by the actuarial accrued liability) has declined every year since 2004. In 2012 (the latest year for which data are available) the funded ratio equaled 94%, which is well above the critical level of 80% that actuarial analysts generally define as the tipping point of solvency for long-term obligations. However, if trends in employee contributions, the state contributions, and the investment earnings do not increase, this trend is likely to continue downward to the critical level. If this decline continues at the same rate, then the critical level could be reached by 2020.

This decline in funded ratio is not unique to North Carolina as several other states across the nation have experienced declines; many states are well below the 80% critical value. Two states, Florida and Georgia, have experienced declines in funding ratios; however, like North Carolina, the finding ratios are still above 80% in 2013. Two states, Alabama and South Carolina, have funding ratios that dropped to below 70% in 2013. Two states, Illinois and Kentucky, have declared their retirement systems for educators insolvent because the funding ratios have dropped below 50% in 2013.

Thus, nationally, this problem is being defined (perhaps, reluctantly so) by legislatures and their fiduciary bodies. Since educators' retirement is a state problem and not a federal problem, it resists comparisons to other states, unless the comparison states have a close relationship with that state.

According to Kingdon (1995), when problems do not move onto the agenda, it may be because they have not merged with policy and political streams or they may be moving from garbage can to garbage can seeking re-definition. For this specific problem, both of these explanations may apply.

Literature Search Process

Employing Kingdon's agenda setting theory as a conceptual framework for this study, the literature was searched and organized in relation to the three streams: *problem*, *policy*, and *political*. The fiscal solvency *problem* of the North Carolina Teachers' and State Employees' Retirement (TSERS) plan was examined in light of the potential and proposed *policy* solutions advanced by various *political* constituencies and politicians. The *problem* of whether TSERS is trending toward fiscal solvency is discussed. The discussion includes the issue of fiscal solvency of public educator retirement plans, the trend of the plan funded ratio in North Carolina, and the funded ratio trend in selected states (Georgia, South Carolina, Florida, Kentucky, and Illinois). Concluding this section is an explanation of North Carolina's (defined benefit) retirement plan for teachers and state employees as it exists in FY13.

The second section of this literature review provides a *policy* analysis of the policies pertaining to educator retirement plans for North Carolina and selected states. This section provides overviews of various plan types (defined benefit, defined contribution and hybrid) as structured in selected states. Finally, the third section offers a discussion of the *political* climate and trends nationally, in selected states and in North Carolina. A chapter synthesis follows.

A focused search of the literature was performed, with an emphasis on sources directly and indirectly related to the three streams (problem, policy and political) that pertained to the definitions, history, and trends of the fiscal solvency for public educator retirement plans. During this search, four domains of literature were identified: (1) academic, peer-reviewed research articles; (2) technical and issue reports; (3) legal actions; and (4) popular press content. The final domain involves the common popular press including newspapers, think tanks, internet sites, blogs, public commentary, and popular concerns about the topic.

The search process began with a keyword search of the first domain, an academic basis that included peer-reviewed research studies and doctoral dissertations. Topics such as the difference and similarities in teacher retirement plans across states, efficiency and equity in teacher pension benefits, and teacher retirement behavior were located. The search included electronic database searches of Education Abstracts, ERIC, Education Research Complete, Dissertation Abstracts On-Line, and Educational Administration Abstracts. The search returned scholarly and research articles on amending public educator retirement plans. The results included topics such as efficiency and equity in teacher pension benefits, teacher retirement behavior, and the various types of state pension plans for educators. The academic basis search also returned articles on deferred compensation for public employees and an analysis of pensions of public educator retirement systems. The academic basis search on public educator retirement plans revealed articles from peer-reviewed journals and associations including the *Journal of Educational Finance*, the journals of the American Education Research Association, and the National Center for Analysis of Longitudinal Data in Educational Research.

The second domain included technical and commissioned reports produced by university-sponsored policy centers and independent, non-profit policy research institutes and centers. A search of the website at The Center for Retirement Research at Boston College provided research studies on state and local pension plans and funding solvency. The National Conference of State Legislatures website contained articles on publically funded defined benefit plans, defined contribution plans, and hybrid retirement plans. Additionally, an analysis of legislative actions regarding amendments to public educator retirement plans from various states was also available. The National Institute on Retirement Security (NIRS), self-described as a non-partisan non-profit research institute specializing in defined benefit plans, was searched to obtain reports on public educator retirement plans.

The third domain included documents produced by federal, state and local governments. These documents comprised submitted legislation and actions by state legislatures and Congress, state treasurer's reports, and state retirement plan handbooks, including the North Carolina Teachers' and State Employees' Retirement System's handbook. The third domain of the research process on public educator retirement plans included information from state legislatures, General Assemblies, and state retirement systems for public employees. Information on the characteristics and regulations of the North Carolina Teachers' and State Employees' Retirement System was derived from the North Carolina General Statutes, the North Carolina General Assembly and legislative bills proposed from both the Senate and the House of Representatives. The term "teacher retirement programs" is defined in the North Carolina General Statutes. Several states, in addition to North Carolina, were chosen to be included in the literature review based

on the historical funded ratio trend of their k-12 public educator retirement plan. The state educator retirement plans in Alabama, Florida, Georgia, Illinois, Kentucky, and South Carolina were included for comparative purposes in the literature review. The fiscal solvency problem in some of these states appears to have been accepted onto the legislative agenda, which according to the Kingdon conceptual framework means that all three (problem, policy and political) streams have coalesced to open a policy window.

The fourth and final domain of the research literature included articles and interests on public educator retirement plans from the popular press and other common outlets. Most articles that addressed changes in the retirement system or perceived North Carolina TSERS fiscal insolvency were from the *Carolina Business Journal* and the on-line *Carolina Journal*. Popular press articles concerning North Carolina's political stream were derived from articles from the *New York Times* and *Fox News*. In 2012, the citizens of North Carolina elected a Governor sponsored by the Republican political party for the first time in 20 years. In addition, the search provided information from various think tanks and centers on legislatures, and specifically, on retirement authored reports drawn from extensive databases.

Relating the Literature to the Conceptual Framework

The purpose of this research is to identify the potential changes to TSERS by the North Carolina legislature in light of its recent record of fiscal solvency. This discussion of the literature section is organized according to the policy stream, problem stream and political stream.

The literature addressing the *policy* stream of public educator retirement plans includes the explanations of the educator retirement plans according to their type: defined

benefit, defined contribution and hybrid. A discussion of the literature includes a description of how TSERS is funded and the regulations of TSERS. Second, a *problem* stream discussion of the fiscal solvency of educator retirement plans of North Carolina and neighboring states includes the fiscal solvency trend of states. The retirement plans and recent events of selected states that fall in the high funded ratio category, the moderate funded ratio category, and the low funded ratio category are examined. Third, the literature describing the *political* stream of North Carolina, including the General Assembly was found in legislative actions, popular press articles and other advocacy outlets.

Policy Stream Literature

The policy environment of public educator retirement plans consists of three sections: a brief description of defined benefit plans and their history, defined contribution plans, and hybrid plans. A discussion of TSERS as it currently configured and its solvency follows.

According to the U.S. Census Bureau (2011), there were 222 state-administered public pension plans operating for state employees throughout the United States. State administered defined benefit plans are offered to employees in 47 states and 3 states offer defined contribution plans. A recent trend in a few states is to offer a hybrid plan, which allows proportions of contributions to go into both a defined benefit plan and also into a defined contribution plan. The North Carolina Teachers' and State Employees' Retirement System is and historically has been a defined benefit plan.

Defined Benefit Plans

Defined benefit (DB) plans are the most popular type of retirement plan in the public sector. Perhaps the primary reason DB plans are widespread is that the retirees of these plans like them.

Brief History of the Defined Benefit Plan: The development of defined benefit plans is largely divided into pre- and post- 1940 eras. The pre-1940s era was characterized by pay-as-you-go plans that were largely for the military and federal government employees. Later, as public school systems and institutions of higher education became established, a larger state workforce was needed.

The first public retirement plans in the United States were provided to disabled veteran army officers of the American Revolution and the War of 1812 (Clark, Craig, and Wilson, 2003). In 1885 disabled enlisted personnel in the army could retire at 75 percent of base pay at 30 years of service (Clark, et al., 2003). Both these army retirement systems were funded on a pay-as-you-go basis from Congressional appropriations, which levied extra expenditure obligations from time to time.

When a retirement program was established for naval officers and seamen a few years later, it was funded from the sale of captured ships and vessels from war (Clark, et al., 2003). When there were fewer wars and vessels to capture, the retirement system became insolvent. Congress paid the unfunded retirement obligations and instituted a temporary pay-as-you-go system. During this period there was no minimum age at which retirements could be taken, although that was instituted later.

Unlike today, where defined benefit retirement plans are predominately in the public sector, the earliest non-public employer sponsored retirement plans were defined

benefit plans in the private sector. In 1875 the American Express Company, which was at that time primarily a freight delivery business, offered the first employer sponsored defined benefit plan. Soon afterward other companies started their own defined benefit plans.

In the mid and late 1800s the first pension plans for educators were also established. These early pension plans for teachers were administered by cities and township, because these were the units that hired and paid the teachers. Later state teacher retirement plans began as state-wide joint (educator and district) contribution retirement plans (Chamberlain, 1946). In other words, the state would pay a portion of a teachers' retirement plan and the district would pay another portion of the retirement plan. The reasoning here was that although the towns and cities directly employed the teachers, cities and towns were by statute "creatures of the states." Defined benefit plans emerged when states began deducting amounts from each teacher's salary and placing these funds into a state-administered account for public educators (Chamberlain, 1946).

In 1920 after attempting to do so for more than two decades, Congress established a retirement plan for civil service workers through the Federal Employees Retirement Act. The federal plan was considered to be a generous offering in exchange for a mandatory retirement age, providing a pension based on years of service and end-of-career earnings. Retiring with an unreduced benefit, a retiree received about 50 percent of her income. Perhaps this benefit was seen as generous for government employees as during the 1920s few persons employed in the private sector had pension plans.

Congressional legislation conferred tax advantages to both corporations and individuals. The Revenue Act of 1921 allowed employers to deduct pension

contributions to qualified plans from corporate income. Later the Revenue Act of 1926 allowed income from pension fund earnings to accumulate tax free. By the 1930s most federal employees and a large percentage of other public employees were covered by retirement plans; however, in the private sector only 10-12 percent of the labor force was covered (Clark, et al., 2003). Approximately 40 percent of all state and local workers were educators and 21 states had teachers' retirement plans.

Many of these state teachers' retirement plans worked by having the contributions earn a specified rate of return, usually from 2 to 4 percent as "regular interest" (Clark, et al., 2003, p. 204), but in actuality states paid this "interest" in a pay-as-you-go manner. In Pennsylvania, in lieu of interest, the state contributed 2.8% of salary to the pension fund. Initially the Massachusetts plan was simply twice the accumulated amount of contributions with interest. Later the state revised this plan to a "scientific" defined benefit plan which used years of service, a service multiplier, and an end of career salary to calculate the benefit and an actuarial prediction to determine the state's contribution (Clark, et al., 2003; Studinski, 1920).

The retirement plans in the 1940s were markedly different from earlier ones in that these employed actuarially-based assumptions to calculate benefits and the fund's future liabilities, rather than the pay-as-you go approach. Broadly, these newer retirement plans exploited the concept of annuitizing current contributions toward a benefit in the future.

In 1943 the National Council on Teacher Retirement conducted a study of public educator retirement plans. The analysis focused on cash disbursements, teacher representation on the retirement board, restrictions on investments, employee

membership, employer contributions, withdrawal payments, and service requirements (Chamberlain, 1946).

In 1940 pension plans were exempt from wartime wage controls, which allowed companies to contribute funds that were not allowed as wages or salaries, and in 1948 pension plans were declared by the National Labor Relations Board to be within the statutory scope of collective bargaining. As a result of the growth of unions (who offered defined benefit pension plans) the number of employees with DB plans rose to an all-time high of 40% in 1960.

In 1974 Congress passed the Employee Retirement Income Security Act (ERISA). This Act covered defined benefit plans and defined contribution plans, which companies were switching to. The Act was passed in response to several retirement plan failures in the private sector, when companies failed to fund them to meet future obligations. In these situations, employees could lose all their current or future benefits. Under this law, two government agencies were charged to oversee retirement plans. The U.S. Department of Labor was responsible for ensuring that the plans are operated according to their charter. The second agency, the U.S. Internal Revenue Service (IRS), was tasked with making sure that the plan members are properly vested, that the plan is funded to remain solvent, and that it follows the laws. The Pension Benefit Guaranty Corporation (PBGC) was established under ERISA; this is an insurance program for pensions into which employers pay, as it receives no government funding. The PBGC does not insure pensions administered by public entities, but only privately administered plans. The fact that public governments are not insured by PBGC may be an issue as in 2012-13 some county and local governments have declared bankruptcy (e.g., Detroit,MI;

San Bernadino, CA; Stockton, CA; Jefferson County, AL; and Central Falls, RI) and a few states have pension systems whose liabilities far exceed their assets and may be at risk of failing to pay benefits in the future.

Characteristics of Current Defined Benefit Plans: In 2012 most public school educator retirement plans are of the defined benefit type. In a defined benefit plan, the solvency of the plan and the investment risk is assumed by the administrator; in most cases, this administrator is the state that professionally manages the plan funds. The employee contributes a predetermined percentage of salary (most often between 4 and 9 percent of salary), the assets of the plan are invested, and either the employee's administrative unit or the state legislature appropriates an amount equal to the minimum annual required contribution to maintain an acceptable level of assets for the future. The employee is not required to personally manage his contributions and is not charged administrative fees for their management by the state. These plans are free of individual plan fees for professional management and there is an absence of risk assumption for the employee. Thus, these defined benefit plans are extremely attractive for persons who are risk-averse.

The monthly benefit is determined by factors largely unrelated to investment risk:

- the number of years worked (and sometimes in relation to one's age),
- an annual salary estimate (either the average of a specified number of years or a linear approximation), and
- a multiplier.

Defined benefit plans involve educators making percentage contributions (usually between 4 to 8 percent) according to their amount of salary over the years of service,

which is supplemented or matched by a corresponding percentage or dollar amount by their school district or the state. Typically, using a formula that incorporates years of service, an "average" salary calculation based on a specified number of years, and a multiplier, a monthly amount of defined retirement benefits is derived. Typically, retirement benefits within defined benefit plans are calculated based on final salary, a multiplier percentage, and length of service.

Most defined benefit plans provide an average income replacement of about 55% during retirement (North Carolina General Assembly, 2011), but the exact percentage is driven by the formula used to calculate the benefit and the input data into the formula. Furthermore, most plans provide a cost of living (COLA) adjustment ([North Carolina] Future of Retirement Study Commission, 2010).

Defined Benefit Plans in Other States: Defined benefit plans for public educators vary from state to state in terms of the types of benefits offered and the cost of the plans for state legislatures (Toutkoushian, Bathon, and McCarthy, 2011). The plans vary across states in the multiplier used, salary percentage contribution rates, and funding match by the state. Variation among these aspects causes retirement benefits in some states to be twice as generous in comparison to other states (Toutkoushian, et al., 2011).

For example, the percent of formula multiplier is important, because it entails the percentage of annual growth in pension wealth for a given salary amount, and ultimately, drives the size of the monthly benefit. The top two states in terms of net benefits for teachers, Florida and Texas, have formula multipliers of 2.0% (Toutkoushian, et al., 2011).

After retirement is executed, the Cost of Living Adjustments (COLAs), or inflation adjustment over the succeeding years, is a major factor in how states differ in their teacher retirement programs. Most states use cost of living adjustments in teacher retirement plans. These adjustments frequently come under attack in states with conservative legislative bodies, especially if the COLA is not indexed to the inflation rate or the Consumer Price Index. Although the benefit is actually deferred compensation, it will be deferred to a greater extent when COLAs are absent or very low as during a recession.

Sometimes states make changes to the formula in order to forego COLAs. In Kansas, post retirement cost of living increases have been repealed in place of a higher formula multiplier, 1.85 instead of 1.75 (Kansas Public Employees' Retirement System, 2012). Oklahoma removed a requirement from the teacher retirement plan that included an estimate of future cost of living increases ([Oklahoma] Teachers' Retirement System, 2013). The legislators in Wyoming will not grant any post-retirement benefit increases until the teacher retirement plan is fully funded by the state regardless of cost of living increases needed (Wyoming Retirement System, 2013).

Each state has a different requirement and standard for vesting. For example, in some states, a public educator is vested after five years of service. In other states, a public educator is vested after ten years of service.

Contribution rates and to what extent the respective state may fund the retirement plan are other differences in state teacher pension plans. Alabama, Arizona, and Hawaii have teacher retirement plans that have been amended to reflect contribution rates and funding issues. In Alabama, a new tier of membership reduces teacher benefits by

lengthening the years in which the final average salary is calculated ([Alabama] Teachers Retirement System, 2013).

In Arizona, teachers are now required to contribute 53% of the benefits and costs of administering the plan (Arizona Defined Contribution and Retirement Study Committee, 2012). In Hawaii, the teacher retirement law recently changed by assessing the contributions of teachers who had high levels of compensation due to overtime and non-base pay increases ([Hawaii] State of Hawaii Employees' Retirement System, 2013).

In Idaho, teacher salaries do not include employer reimbursement for the purposes of calculating teacher retirement benefits. The cap placed on first year pension plan for teachers does not include employer reimbursement for teacher travel expenses ([Idaho] Public Employees' Retirement System of Idaho, 2013). The teacher retirement system in Maryland includes a five-year vesting period for new teachers in the state (Maryland State Retirement and Pension System, 2013). In Washington, early retirement provisions for teachers have been amended. Teachers have an option to choose a defined benefit plan, a hybrid plan or a defined contributions plan (Washington State Department of Retirement Systems, 2013).

North Carolina Teachers' and State Employees' Retirement System

Similar to other publicly administered defined benefit plans the North Carolina Teachers' and State Employees' Retirement System (TSERS) is governed by state laws and employer contributions are appropriated by the state legislature.

Automatic Membership: Individuals automatically become members of TSERS on their date of hire, if they are permanent, fulltime employees of a local board of education, a permanent state employee who works at least 30 hours a week and nine months a year, or a permanent employee of a designated charter school whose board has elected to participate in the retirement system who works at least 30 hours per week for nine months per year (Teachers' and State Employees' Retirement System Handbook, 2014). There are no membership provisions for part time employees.

Criteria for Member Pension Benefit Levels: Monthly benefit payments, after an employee retires, are based upon an employee's salary, age, and years of service. An individual TSERS member may retire in North Carolina with full unreduced benefits, provided he or she has satisfied one of the following criteria (Teachers' and State Employees' Retirement System Handbook, 2014):

- Reach age 65 with five years of service (age 65 with 10 years of service, if membership began on or after August 1, 2011);
- Reach age 60 with 25 years of service;
- Reach 30 years of service at any age.

A TSERS member may retire with reduced benefits once he or she reaches age 50 with 20 years of service or reaches age 60 with 5 years (10 years if membership began on

or after August 1, 2011) (Teachers' and State Employees' Retirement System Handbook, 2014).

Changes in Qualifying Age to Receive an Unreduced Benefit: Over the course of TSERS, the age at which a member can receive an unreduced benefit has been amended four times. In 1941, this age was set at 65 years. In subsequent years the age for unreduced benefits was coupled to vesting requirements and to length of service requirements. In 1967, the unreduced benefit age remained 65 years, but the vesting period decreased from 15 to 12 years. In 1969, the unreduced benefit age was lowered to 62 years with 30 years of experience. In 1973, unreduced retirement was awarded to a qualified member at any age with 30 years of experience. In 1985, an additional option for an unreduced benefit was offered at 60 years of age with 25 years of service. The history of unreduced benefit age changes in TSERS is shown in Table 3.

Table 3: Age requirement for an unreduced benefit in TSERS (1941-2011)

Fiscal Year Instituted	Type of Plan	Retirement Age	Contribution Rates	Notes
1941	Money purchase plan	65	Individual accounts similar to 401K	Employer invested money and granted interest
1963	Final Average Pay Plan	65	Employer contribution increased form 3.8% to 5.7%	Benefits were specified as multipliers
1967	Defined Benefit Plan	65	Employer rate increased form 7.62% to 8.95%	Vesting reduced from 15 to 12 years
1969	Defined Benefit Plan	62 with 30 years experience	Employer rate remained 8.95% but interest rate increased from 4.0% to 4.5%	Vesting reduced to 5 years
1973	Defined Benefit Plan	Retirement allowed at any age w/ 30 years	Same as 1969	In force in 2013
1985	Defined Benefit Plan	60 with 25 years of service	Employee = 6%	In force in 2013
2011	Defined Benefit Plan	Any age with 30 years of service	Employee= 6%	Vesting increased to 10 years

Source: North Carolina Department of State Treasury. (2013a). *Teachers' and State Employees' Retirement System Revised Handbook, 2013*. Retirement Systems Division. Retrieved from https://www.nctreasurer.com/Retirement-and-Savings/Managing-My-Retirement/Pages/Benefits-Handbooks.aspx

Contribution Rates and Vesting: The North Carolina General Assembly sets the employer (State of North Carolina) contributions to TSERS each year based on recommendations provided by an actuarial analysis. These contributions apply to any amortized unfunded liability and to sustain the future earnings capability of the fund. In all but one year (FY11) the General Assembly has paid 100% of the amount required by the actuarial recommendation. Often the amount of these contributions is expressed as a percentage of the state payroll; however, this is not how the contribution amounts are determined. In the FY13 fiscal year, employer contributions were 8.33% of payroll which was greater than the actuarial determined contribution of 8.03% (North Carolina Teachers' and State Employees' Retirement System, 2013).

The employer contributions are not assigned to an individual employee's account. Instead, the employer contributions are placed in an investment fund that will comprise the funds to be invested. Once the member retires, these funds are transferred to the Pension Accumulation Fund to supply lifetime benefits to retirees.

In FY13 a member becomes vested after ten years of creditable service, although eligible employees who began working before August 1, 2011 were vested after five years of service. The state defines vesting as the eligibility to apply for lifetime monthly benefits based on a formula applying the following criteria: age, service requirements, and the member's salary. The TSERS formula in effect for FY13 is shown in Figure 1.

$36,000	**X**	**1.82%**	**X**	**30 =**	**$19,656**	**/12**	**$1,638**
Average Final Compensation	Multiplied by	TSERS Multiplier	Multiplied by	Number of Years of Credible Service as a Member	Annual Benefit	Divided by 12	Monthly Benefit

Figure 1: Annual & monthly benefit costs for the Teachers' and State Employees' Retirement System (TSERS), active member, 2012

Source: Teachers' and State Employees' Retirement System Handbook, 2012.
Note. Average Final Compensation is defined as the average highest salary that occurred in four consecutive years. If one of the consecutive years includes final payment for unused vacation days, then the average final compensation will be increased by the extra payments.
Creditable Service is defined as any period of time when an employee contributes to TSERS.

Death Benefit: TSERS provides a death benefit for a member in active service. The death benefit is provided through the purchase of term life insurance to all members of TSERS and is not deducted from plan investment funds. These benefits were established by North Carolina General Statute 135-5(1) and thus may be amended only by action of the General Assembly.

In order for a death benefit to be paid, the active member's death must occur after twelve consecutive months of service or within 180 days of commencing retirement. The death benefit is equal to the greater of (1) contributions made by the member in the calendar year preceding the member's death or (2) a lump sum payment of an amount between $25,000 and $50,000 depending upon the highest twelve months of salary in the 24 months of service preceding death (North Carolina Teachers' and State Employees' Retirement System, 2013).

Survivor's Benefits: Once the retirement has been initiated by the member, a post-retirement survivor benefit may be paid depending on the member's choice of retirement option. A lifetime annuity benefit can be provided to the survivor, and is based on specific age and service requirements of the member. In FY13 these criteria were that the member had completed a specified 20 years of service at any age or have reached age 60 with five years of service (10 years if membership began on or after August 1, 2011) (Teachers' and State Employees' Retirement System, 2013).

Defined Contribution Plans

Although all states administer a retirement system for their employees, many states offer more than one plan; there are often separate plans for public school teachers and other school employees, legislators and judges, and for employees engaged in high-

risk occupations such as law enforcement officers and fire fighters. The reason for the separate plans has to do with differences in the age at entry into the occupation, the typical time served, the degree of hazard, and the expected career longevity, which would necessitate different formulas to determine pension benefits. Defined Contribution plans are interest-bearing savings plans whose monetary gains are sheltered from state and federal taxes until the funds are withdrawn (National Conference of State Legislatures, 2010). In defined contribution plans, the contribution from employees and employers is defined; however, the size of the pension benefit is unknown until such time that the funds are withdrawn.

The employee assumes the majority of the risk in selecting investments and managing defined contribution plans. In most cases, individuals are most worried about living longer than they have funds for, and retirees who are enrolled in a defined contribution plan may outlive their retirement savings (National Conference of State Legislatures, 2010). However, unlike defined benefit plans that cease once the pensioner and the beneficiary dies, the remaining funds in a defined contribution plan may be passed onto heirs.

Employees have individual accounts so they make investment decisions and control over withdrawals. Defined contribution retirement decisions are based on account value, employee contributions, and investments. Furthermore, the longer an employee is invested into a defined contribution plan, more substantial retirement savings may accrue, but losses can also occur. Most defined contribution plans are paid in a lump sum rather than monthly installments like in defined benefit plans (Lantry, 1997). If a

state employee has a defined contribution retirement plan and he decides to retire, the retiree benefit is determined by the balance in the account at that time (Lantry, 1997).

Movement Away from Defined Benefit Plans

Clark and McDermot (1990) advance that the movement away from defined benefit plans by private sector employers was caused by two factors: 1) the cost of government regulations of private sector defined benefit plans; and 2) structural changes in the economy which favored employee mobility. High employee turnover due to career opportunity mobility was inconsistent with DBs, because of the phenomenon of highest benefit accrual occurred in the final 30% of an employee's tenure (ie., backloading) that is characteristic of these plans. Thus, employees in defined benefit plans are penalized for leaving the original employer, if the new retirement system is not the same.

In general, defined benefit plan members who decide to leave the education profession prior to their final ten years (out of 30) receive very limited pension benefits (referred to as a *reduced benefit*). These same teachers can maximize their pension by staying in the profession additional years. However, if they stay too long beyond the initial age for an unreduced benefit, the growth rate of their pension wealth will begin to diminish (Freidberg & Turner, 2011).

Hybrid Plans

A hybrid retirement plan is one in which multiple options among defined benefit, defined contribution, and cash match are offered for members to enroll in simultaneously. Sometimes termed "combined plans," these plans provide features of two plans, often a defined benefit plan with a defined contribution plan, and do not allow a member to choose only one plan. Generally, these plans maintain a defined contribution plan for member contributions and a defined benefit plan for employer contributions.

The Washington Teachers' Retirement Plan 3 is a hybrid plan based on this model. In the defined benefit part of the plan, the lifetime monthly benefit is calculated on 1% multiplied by the service credit multiplied by the average final compensation. The plan requires service for 10 years for vesting, and five years of service credit with at least 12 months earned after age 44 (Washington State Department of Retirement Systems, 2013). The defined contribution part is composed of the individual member's contributions and their investment returns (Washington State Department of Retirement Systems, 2013). For the defined contribution plan there are six options or levels of mandatory member contribution rates, some of which are limited by age restrictions.

The State Teachers' Retirement System (STRS) of Ohio initiated a hybrid plan for teachers' newly employed July 1, 2001 and thereafter ([Ohio] State Teachers Retirement System of Ohio, 2014). The member contributes 10% of eligible salary of which 10% is applied to the defined contribution plan. The remaining 1% member contribution and the employer contribution fund a defined benefit plan ([Ohio] State Teachers Retirement System of Ohio, 2014). The total benefit calculation is developed from earnings from both plans. Upon retirement at age 60 or later the defined benefit portion is calculated by

multiplying years of service by 1% of the final average salary ([Ohio] State Teachers Retirement System of Ohio, 2014).

Louisiana has a cash balance plan where teachers contribute 8% and can retire at age 60 as long as they have at least five years of experience ([Louisiana] Teacher's Retirement System of Louisiana, 2013). Tennessee instituted a hybrid plan where the defined benefit has a multiplier of 1% and teachers must have a defined contribution plan attained from by the state (Tennessee Consolidated Retirement System, 2013). Similarly, The Indiana Public Retirement System (INPRS) administers the Teachers Retirement Fund (TRF), which accepts employer contributions for its defined contribution plan and member contributions of 3% of gross wages to its Annuity Savings Account (Indiana Public Retirement System, 2013).

The Nevada Public Employees Retirement System was used in a study of surplus deferred compensation for long term K-12 teachers (Mannino & Cooperman, 2011). The Nevada system was compared to the Denver Public School retirement system, the Colorado Public Employees retirement association, the Florida retirement system, and the Missouri Public Schools retirement system. The study compared threshold compensation values in all five state systems using the following measures: lump sum deferred compensation, supplemental return, supplemental contribution rate, supplement replacement ratio, and deferred compensation ratio. The results of that study suggest the Nevada Public retirement System had the lowest mean on the measures supplemental return and supplemental contribution rate. The Nevada Public Retirement System had a larger mean on supplemental replacement ratio and deferred compensation ratio than the other four public school retirement systems (Mannino & Cooperman, 2011).

Since 2012 Virginia has required teachers to contribute 5% of salary to the state's retirement plans. These contributions in the past have been made by the respective school systems. The state has announced that it intends to close all defined benefit plans for teachers in 2013 and replace the former plans with a hybrid plan which includes both defined benefit and defined contribution components (Virginia Retirement System, 2013). In the new plan, teachers must contribute to both the defined benefit plan and the defined contribution plan. Teachers will contribute 4% to the defined benefit plan and 1% of the salary to the defined contribution plan (Virginia Retirement System, 2013). New teachers in Virginia can select a defined contribution plan, which will provide teachers with a 50% match on their contributions up to 6% of the salary (Virginia Retirement System, 2013). However, employers will not contribute in the absence of teachers who decide not to contribute (Virginia Retirement System 2013).

Solvency Issues with Retirement Plans

This section on solvency issues with retirement plans refers to the trends in the economy that influence how pension plan assets can be increased, while the plan liabilities can be maintained at a steady state or decreased. During the recession extending from December 2007 to June 2009, state public educator pension plans were funded less, because states did not have the revenues to make the contributions they did previously. At the same time the stock market crisis created a high volatility in investments causing, in many cases, lower returns.

In many states, including North Carolina, the General Assembly did not make the full, annual required contribution to the public educators' retirement plan. The most

obvious effect of a state falling behind in its annual required contributions is that over time the plan may be underfunded or become fiscally insolvent.

There are two statistics that actuaries use to determine solvency of an annuity type investment: funded ratios and the unfunded actuarial accrued liability. Funded ratios, which are the ratio of assets to liabilities, are a straightforward way to detect the amount of assets that a pension has relative to what it needs for members over the long term (the liabilities). The funded ratios of public educator retirement plans fall into three categories: high (80% and above), moderate (60% to 80), and low (below 60%). The Pew Foundation (2012) in its The Widening Gap Update report using 2010 data determined that 16 states have funded ratios greater than 80%, the standard for fiscal solvency. The Pew update (2012) found 17 states with funded ratios between 70 and 79%, 9 states with funded ratios between 60 and 69% and eight states with funded ratios below 60. The states under discussion and their funded ratios are listed in Table 4.

Table 4: Selected states and funding ratios

State	Name of Plan	2012 Funded Ratio[1]
North Carolina	Teachers' and State Employees' Retirement System (TSERS)	94.2%
Florida	Florida Retirement System (FRS) (Regular)	86.9%
Georgia	Teachers Retirement System of Georgia	82.3%
Alabama	Teachers' Retirement System (TRS) of Alabama	66.5%
South Carolina	South Carolina Retirement System (SCRS)	64.7%
Kentucky	Teachers' Retirement System of the State of Kentucky (KTRS)	54.5%
Illinois	Teachers' Retirement System (TRS) of the State of Illinois	42.1%

[1]The 2012 funded ratio for North Carolina was obtained from North Carolina Department of State Treasury. (2012). *Report on the Seventieth Valuation of the Teachers' and State Employees' Retirement System (TSERS) of North Carolina prepared as of December 31, 2012*. Retrieved from http://www.nctreasurer.com/ret/Board%20of%20Trustees/2012%20TSERS%20Valuation.pdfThe 2012 funded ratio for Florida was obtained from *Florida Retirement System: Comparison of Actuarial Assets to Liabilities and Benefit Payments*. Retrieved from https://www.rol.frs.state.fl.us/forms/Asset_Liability_Chart.pdf
The 2012 funded ratio for Georgia was obtained from *Teachers Retirement System of Georgia. CAFR Year Ended June 30, 2013*, Retrieved from http://www.trsga.com/publications.aspx
The 2012 funded ratio for Alabama was obtained from the Alabama Retirement System. (2013). *Teachers' Retirement System of Alabama report of the actuary on the annual valuation prepared as of September 30, 2011*. Retrieved from http://www.rsa-al.gov/TRS/Pubs and forms/TRS Pubs/TRS-2011-9-30-Val.pdf
The 2012 funded ratio for the Kentucky Teachers Retirement System was obtained from the Kentucky Teachers' Retirement System. (2012). Comprehensive Annual Report as of June 30, 2012 Retrieved from http://www.ktrs.ky.gov/05_publications/index.htm
The 2012 funded ratio for Illinois was obtained from Teachers' Retirement System of the State of Illinois (2013). Retrieved from https://trs.illinois.gov/pubs/cafr.htm

Problem Stream Literature

States Possessing a High Funded Ratio

The public educator retirement plans for North Carolina, Florida and Georgia historically have exhibited high funded ratios. A high funded ratio is considered to be greater than 80%. North Carolina was discussed earlier in Chapter 1.

The Florida Retirement System (FRS) was established in 1970 from the consolidation of the Teacher's Retirement System, the State and County Officers and Employees Retirement System, and the Highway Patrol Pension Fund. In subsequent years the Judicial Retirement System (1972), the Food and Agricultural Sciences Supplemental Retirement program (2007) were brought into the FRS. Each of the 623,011 members in FRS may select a defined benefit plan (517,756 members in 2012) or a defined contribution plan (105,255 members in 2012) (Florida Department of Management Services, 2012). In addition to these active members, there are 334,682 retired members and beneficiaries, and 40,556 members enrolled in the Deferred Retirement Plan (Florida Department of Management Services, 2012). In 2012 approximately 304,073 or 48.81% of these members were employed in the 67 public school districts in Florida.

All active members contribute 3% of their salary. Since July 1, 2001, the Florida Retirement System has provided for vesting of benefits after six years of creditable service. The funding ratio for the FRS decreased from 105.65 % in FY07 to 86.38% in FY12, a 19.27% drop. Unfunded liabilities increased from approximately $6.7 billion in fiscal year 2007 to more than $20 billion in fiscal year 2012.

Annual Required Contributions (ARC) are calculated annually and are a sum of two different costs. The first component is the "normal cost," or what the employer owes to the system in order to support the liabilities gained in the previous year of service. The second component is an additional payment in order to make up for previous liabilities that have not yet been paid for termed the “annual required contribution.” According to a report by the Pew Center on the States, in 2010 Florida paid 107 percent of its annual required contribution. Additionally, the Florida Retirement System under went changes. These changes included an increase in the retirement age, the phase out of the automatic 3% annual cost of living increases in retiree benefits, an increase to eight years in the vesting period (the years of service required before employees become eligible to receive a pension), and an additional increase to eight years in the period over which final average salaries are determined (employees, based on years of service, receive a pension equal to a share of “final average salary”).

Table 5: Historical funding trend of the Florida Retirement System (2002 – 2012)

Fiscal Year	Total Members[1]	Actuarial Valuation of Assets[2] (a)	Actuarial Accrued Liability[2] (b)	Unfunded Actuarial Accrued Liability[2] (b-a)	Funded Ratio (a/b)
2002	894,256	$99.4	$86.5	($12.9)	114.96
2003	895,173	101.9	89.3	(12.7)	114.18
2004	920,271	106.7	95.2	(11.5)	112.10
2005	941,058	111.5	104.0	(7.6)	107.33
2006	960,166	117.2	111.0	(6.2)	105.57
2007	976,718	125.6	119.0	(6.7)	105.65
2008	982,326	130.7	124.1	(6.6)	105.35
2009	981,667	118.8	136.4	17.6	87.09
2010	981,459	120.9	139.7	18.7	86.59
2011	1,015,876	126.1	145.0	19.0	86.93
2012	1,101,286	127.9	148.1	20.2	86.38

Source: Florida Department of Management Services/Division of Retirement. (2012). *The Florida system annual report, July 1, 2011 – June 30*. Retrieved from https://www.rol.frs.state.fl.us/forms/2011-12_Annual_Report.pdf

[1]Members include active members, retired members, terminated members and beneficiaries entitled to but not yet receiving benefits, beneficiaries of terminated and deceased members, and beneficiaries receiving disability retirement allowances.

[2]Assets, liabilities, and payroll data are in billions of US Dollars, unadjusted to constant dollars.

Table 6: Florida Annual Required Contribution Trend

Fiscal Year	Total Percent of Payroll (c+d)	Employee Percent of Payroll (c)	Employer Percent of Payroll (State) (d)	Annual Required Contribution (ARC) Percent
2002	11.62	0	11.62	10.75
2003	11.71	0	11.71	10.81
2004	11.37	0	11.37	10.85
2005	11.43	0	11.43	11.52
2006	11.52	0	11.52	10.72
2007	11.52	0	11.52	10.72
2008	11.54	0	11.54	10.73
2009	11.95	0	11.95	14.97
2010	11.81	0	11.81	14.97
2011	4.68	0	4.68	10.54
2012	n/a	3.0	n/a	n/a

Source: Florida Department of Management Services/Division of Retirement. (2012). *The Florida system annual report, July 1, 2011 – June 30*. Retrieved from https://www.rol.frs.state.fl.us/forms/2011-12_Annual_Report.pdf

[1]Members include active members, retired members, terminated members and beneficiaries entitled to but not yet receiving benefits, beneficiaries of terminated and deceased members, and beneficiaries receiving disability retirement allowances.

[2]Assets, liabilities, and payroll data are in billions of US Dollars, unadjusted to constant dollars.

The Teachers' Retirement System of Georgia provides retirement for all teachers in the state's public schools and other state higher education employees. The plan was fully funded in FY02, but since that time has exhibited a funded ratio that has dropped each succeeding year to its current value (2012) of 82.3% (Teachers' Retirement System of Georgia, 2013) as noted in Table 7. In FY08 and FY09 the plan experienced large net investment losses ([Georgia] Teachers' Retirement System of Georgia, 2013).

Since FY09 the plan has experienced a decrease in active members (those still working and contributing salary) from 226,537 to 213,648 FY12 ([Georgia] Teachers' Retirement System of Georgia, 2013). Over the same time period, the number of retirees and beneficiaries has increased from 245,006 to 298,471 ([Georgia] Teachers' Retirement System of Georgia, 2013). Coupled with lower than expected (7.5% rate of return expected) earnings on investments for all but 2012, the plan experienced significant draws from its assets which contributed to the drop in the funded ratio. These shortfalls from the expected 7.5% return on investments has been offset by an increase in the percentage of salary contributed by active members to 6.0% as shown in Table 8 and the amortization of the unfunded liability for which the state makes an Annual Required Contribution.

Full retirement benefits are calculated on 2.0% of a member's two highest paid consecutive years of service multiplied by the number of years of service up to 40 years ([Georgia] Teachers' Retirement System of Georgia, 2013). Members may retire with full benefits at 30 years and age 60 years ([Georgia] Teachers' Retirement System of Georgia, 2013). Compared with other states, this plan is fairly generous in its benefit calculations. However, members only become fully vested after 10 years of service,

which is the same as North Carolina's vesting period and is one of the longest. Yet, unlike North Carolina, if a member terminates prior to the ten year threshold, the member's contributions are refunded with interest.

Table 7: Historical funding trend of the Teachers' Retirement System of Georgia (2002-2013)

Fiscal Year	Total Members[1]	Actuarial Valuation of Assets[2] (a)	Actuarial Accrued Liability[2] (b)	Unfunded Actuarial Accrued Liability[2] (b-a)	Funded Ratio (a/b)
2002	296,042	$40.5	$39.7	($0.80)	102.0
2003	309,167	42.4	41.9	(0.47)	101.1
2004	317,928	44.6	44.2	(0.39)	100.9
2005	330,051	46.8	47.8	0.97	98.0
2006	344,359	49.3	51.1	1.80	96.5
2007	363,591	52.1	55.0	2.90	94.7
2008	377,344	54.4	59.1	4.78	91.9
2009	386,910	53.4	59.5	6.01	89.9
2010	391,226	54.5	63.6	9.06	85.7
2011	394,748	55.4	66.0	10.6	84.0
2012	399,813	56.3	68.4	12.1	82.3
2013	403,236	n/a	n/a	n/a	n/a

Source: [Georgia] Teachers' Retirement System of Georgia. Comprehensive annual financial reports. Fiscal Years Ended 2008 - 2013. *Teachers Retirement System of Georgia*. Retrieved from http://www.trsga.com/Publications.aspx

[1]Members include active members, retired members and beneficiaries currently receiving benefits, terminated members not yet receiving benefits, and terminated members, non-vested.

[2]Assets, liabilities, and payroll data are in billions of US Dollars, unadjusted to constant dollars.

n/a = not available

Table 8: Georgia Annual Required Contribution Trend

Fiscal Year	Total Percent of Payroll (c+d)	Employee Percent of Payroll (c)	Employer Percent of Payroll (State) (d)	Annual Required Contribution (ARC) Percent
2002	10.0	5.00	5.00	9.24
2003	10.0	5.00	5.00	9.24
2004	10.0	5.00	5.00	9.24
2005	10.0	5.00	5.00	9.24
2006	10.0	5.00	5.00	9.24
2007	10.0	5.00	5.00	9.24
2008	10.25	5.00	5.25	9.24
2009	10.30	5.00	5.30	9.28
2010	11.61	5.25	6.36	9.74
2011	11.89	5.53	6.36	10.28
2012	15.1	6.00	9.1	10.28
2013	n/a	6.00	n/a	11.41

Source: [Georgia] Teachers' Retirement System of Georgia. Comprehensive annual financial reports. Fiscal Years Ended 2008 - 2013. *Teachers Retirement System of Georgia*. Retrieved from http://www.trsga.com/Publications.aspx
n/a=not available

States Possessing a Moderate Funded Ratio

Moderate funded ratios are those below 80% but above 60%. The Teachers' Retirement System (TRS) of Alabama and the South Carolina Retirement System (SCRS) exhibited funding ratios in the moderate range. As shown in Table 9, Alabama's funded ratio decreased from 97.4% in FY02 to 71.1% in FY11 assuming an 8% investment rate of return (Alabama Teachers' Retirement System, 2008). During FYs 08 and 09, the retirement fund experienced investment losses and in the following 2 years, investment gains were far below those of FY07 (Alabama Teachers' Retirement System, 2008).

Between FY07 and FY12 the number of retirees drawing benefits increased from 64,056 to 77,295 (Alabama Teachers' Retirement System, 2008). New active members increased by approximately 7,600 over the same time period. Thus, members are drawing out the resources of the system at a faster rate than employee contributions and investment returns can compensate for.

The Teachers Retirement System of Alabama (TRS) is one of three public employee retirement plans administered by the state of Alabama; it has more than two times the assets of the other two state-administered plans combined. TRS was established in 1939 by the Alabama General Assembly. The formula for calculating benefits allows 2.0125% of the average of the highest three of the last 10 years of final compensation for each year of service. Teachers and other education employees are eligible to retire with a full lifetime benefit after age 60 with 10 years or more of service or any age with 25 or 30 years of service. The member contribution from salary was 5%, until October 2012 when this percentage was raised to 7.25%.

In 2012 the Alabama General Assembly created a Tier 2 benefit plan for TRS members hired on or after January 1, 2013. The Tier 2 members will pay lower contribution rates (6%), but will not be able to draw a full retirement benefit until age 62 with a minimum of 10 years of service. The benefit is calculated on 1.65% of the average final compensation multiplied by the number of years of service. The benefit is capped at 80% of the member's final compensation.

Legal issues prevent states from making changes to their retirement plans that would affect the benefits due to current members (Munnell, Aubry and Quinby, 2010). Alabama amended its existing public educator retirement plan in 2012 by developing a new defined benefit tiered plan. (The major changes include a retirement age change, a longer service requirement, longer time period for calculating the final average compensation, a change in the multiplier, and changes to employee contributions).

Table 9: Historical funding trend of the Alabama Teachers' Retirement System (2001-2012)

Fiscal Year	Total Members[1]	Actuarial Valuation of Assets[2] (a)	Actuarial Accrued Liability[2] (b)	Unfunded Actuarial Accrued Liability[2] (b-a)	Funded Ratio (a/b)
2001	176,976	$17.5	$17.2	$(0.24)	101.4
2002	197,819	17.9	18.3	0.47	97.4
2003	202,110	18.1	19.3	1.25	93.6
2004	207,336	18.7	20.9	2.19	89.6
2005	214,008	19.2	23.0	3.78	83.6
2006	222,274	19.9	24.0	4.12	82.8
2007	227,498	20.7	26.0	5.3	79.5
2008	230,416	20.8	26.8	6.0	77.6
2009	229,821	20.6	27.5	7.0	74.7
2010	233,881	20.1	28.3	8.2	71.1
2011	233,575	19.4	29.0	9.4	67.5
2012	235,165	18.8	28.3	9.5	66.5

Source: [Alabama] Teachers' Retirement System member handbook. (2012). *Teachers' Retirement System (RSA-AL).* Retrieved from www.rsa-al.gov/TRS/Pub; Alabama Retirement Systems. (2008). *The Retirement Systems of Alabama comprehensive annual financial report for the fiscal year ended September 30, 2007.* Retrieved from http://www.rsa-al.gov/About%20RSA/Pubs%20and%20forms/RSA%20Pubs/CAFR/2007%20CAFR/Introductory%20Section.pdf ; Alabama Retirement System. (2008). *The Retirement Systems of Alabama comprehensive annual financial report for the fiscal year ended September 30, 2007.* Retrieved from http://www.rsa-al.gov/About%20RSA/Pubs%20and%20forms/RSA%20Pubs/CAFR/2007%20CAFR/Introductory%20Section.pdf

[1]Members include active and retired members in addition to disability retirements, surviving spouses, and new beneficiaries.

[2]Assets, liabilities, and payroll data are in billions of US Dollars, unadjusted to constant dollars. These data do not reflect Tier II members who joined the TRS after January 1, 2013.

Table 10: Alabama Annual Required Contribution Trend

Fiscal Year	Total Percent of Payroll (c+d)	Employee Percent of Payroll (c)	Employer Percent of Payroll (State) (d)	Annual Required Contribution (ARC) Percent
2002	10.91	5.0	5.91	12.54
2003	10.92	5.0	5.92	14.44
2004	10.92	5.0	5.86	14.36
2005	10.86	5.0	5.76	16.06
2006	10.76	5.0	6.45	17.07
2007	11.45	5.0	6.28	17.51
2008	11.28	5.0	6.39	18.38
2009	11.39	5.0	6.42	17.75
2010	11.42	5.0	3.94	18.66
2011	11.44	7.25	3.94	18.66
2012	11.71	7.5	n/a	n/a

Source: [Alabama] Teachers' Retirement System member handbook. (2012). *Teachers' Retirement System (RSA-AL).* Retrieved from www.rsa-al.gov/TRS/Pub; Alabama Retirement Systems. (2008). *The Retirement Systems of Alabama comprehensive annual report for the fiscal year ended September 30, 2007.* Retrieved from http://www.rsa.al.gov/About%20RSA/Pubs%20and%20forms/RSA%20Pubs/CAFR/2007%20CAFR/Introductory%20Section.

These data do not reflect Tier II members who joined the TRS after January 1, 2013.

The South Carolina Retirement System (SCRS) was established in 1945 by the General Assembly and is administered by the South Carolina Public Benefit Authority. The authority is the fiduciary of five defined benefit plans retirement plans of which SCRS has the largest membership. One of the plans, SCRS, was established to provide retirement and other benefits to teachers and other employees of the state and its political subdivisions.

Similar to that in Alabama, the South Carolina Retirement Systems for educators' funded ratio has decreased from 86% in FY02 to 64.7%% in FY13 (South Carolina Public Employees Benefit Authority, 2013). While funded ratios in this range may not be solely an indicator of fiscal insolvency, a downward trend may indicate issues in the plan's funding over time. The decrease in the funded ratio since FY03 has been due to the actual investment returns being less than the expected 7.25% and the increases in the system's liability due to ad hoc cost of living adjustments provided to retirees prior to the 2012 legislation capping these allowances (South Carolina Public Employees Benefit Authority, 2013). According to the 2013 South Carolina Retirement Systems Comprehensive Annual Report, it is expected that the funded ratio will continue to decrease for "the next several years as outstanding deferred investment losses become fully recognized in the actuarial value of assets" (p. 96). Related to this, the SCRS experienced increases in its unfunded actuarial liability which increased from $12.4 billion (FY12) to $13.9 billion (FY13) (South Carolina Public Employees Benefit Authority, 2013).

The plan's investment return for FY12 was a loss of 4.85% which was lower than the target return (7.5%), while for the same time the total dollar amount of monthly

retirement benefits paid to retirees increased 6% over the previous year (South Carolina Public Employees Benefit Authority, 2013). This increase in benefit payments was primarily attributable to the 1.7% cost of living increase and to the increased number of new retirees (South Carolina Public Employees Benefit Authority, 2013). In FY13 the return on investments matched the expected 7.5% (South Carolina Public Employees Benefit Authority, 2013).

In 2012 the South Carolina General Assembly enacted several reforms via Act 278 designed to improve the SCRS' funding status and its long term fiscal solvency. Most reforms were implemented in July 2012; however, some changes will occur in 2013 and extend through FY15. These changes addressed several issues: member and employer contribution rates, the establishment of different classes of membership depending on plan enrollment dates, different benefit formulas for the different membership classes, and future cost of living adjustments (termed annual retirement allowances).

Prior to FY12 the SCRS had two classes of membership, termed Class I and Class II. Class I membership is no longer available. Effective July 1, 2012 a third class membership was established. These classes of membership possess different benefit formulas. In FY12 Class II members contributed 7.0% of earnable compensation which was an increase over the 6.5% contributed from FY06 through FY11. Beginning in FY12 the General Assembly raised the Class II member contribution rate by 0.5% per annum until it reaches 8.0% in FY15. Further, the employer contributions are expected to be increased from 10.6% (FY13) to 10.9% (FY15) (South Carolina Public Employees Benefit Authority, 2013).

The General Assembly also enacted changes to the benefit formula. Class II members may receive a full benefit after a five year vesting requirement either at age 65 or after completion of 28 years of service regardless of age. Members may earn a reduced benefit (South Carolina Public Employees Benefit Authority, 2013). Members may receive a reduced benefit at age 60 with a 5% reduction for each year under 65. The former retirement option for age 55 with 25 years of service, reduced 4% for each year under 28, was discontinued effective July 1, 2012. The vesting period remained the same at five years.

With the establishment of Class III membership, benefit accrual criteria changed for those members. A Class III member who has separated from service with at least eight years or more of earned service may be eligible for full benefit subject to the Rule of 90 requirement that the total of the sum of the member's age and creditable service equals at the minimum 90 years (South Carolina Public Employees Benefit Authority, 2013). Both Class II and Class III members are eligible to earn a reduced or deferred benefit at age 60 if the five or eight year service requirement, respectively, is satisfied (South Carolina Public Employees Benefit Authority, 2013). In addition, effective January 2, 2013 for any class of member, the cost of purchasing service credit will be no less than 16% of the highest salary. These changes clearly represent a trend within SCRS to increase the age and the vesting requirements, and lower the multiplier for which a member of any Class can receive a full (lifetime) benefit. These strategies may on average decrease the number of years SCRS has to pay out the annuity.

The benefit formula (percentage of compensation, years averaged for average final compensation, and years of service) was also changed for Class III members from

that of Class I and Class II members. The formula for Class I members is 1.45% of Average Final Compensation times the years of credited service (South Carolina Public Employees Benefit Authority, 2013). Class II members earn 1.82% of Average Final Compensation (AFC) times the years of credited service. The AFC for Class II members is the average annual earnable compensation during 12 consecutive quarters and includes up to 45 days of unused annual leave. For Class III members the formula is 1.82% of Average Final Compensation times the years of credited service (South Carolina Public Employees Benefit Authority, 2013). The AFC for Class III members is the average annual earnable compensation during 20 consecutive quarters, and unused annual leave at retirement is not included (South Carolina Public Employees Benefit Authority, 2013).

Finally, in 2012 the South Carolina General Assembly acted to reduce the forward liability that paying uncapped "cost-of-living allowances" tethered to indices such as the Consumer Price Index to retires would wreak on the fund's assets. Effective July 1, 2012, and annually thereafter, the annual retirement allowance was increased to be the lesser of one percent or five hundred dollars (South Carolina Public Employees Benefit Authority, 2013). Receipt of this allowance was limited to retirees with full benefits the second year of retirement, and members who retired with a reduced benefit would not receive the allowance until the second July 1 after reaching age 60 (South Carolina Public Employees Benefit Authority, 2013).

Table 11: Historical funding trend of the South Carolina Teachers' Retirement System (2001-2013)

Fiscal Year	Total Members[1]	Actuarial Valuation of Assets[2] (a)	Actuarial Accrued Liability[2] (b)	Unfunded Actuarial Accrued Liability[2] (b-a)	Funded Ratio (a/b)
2001	403,982	$18.5	$21.2	$2.68	87.4
2002	409,543	19.3	22.5	3.15	86.0
2003	412,919	20.2	24.4	4.20	82.8
2004	418,152	20.9	26.0	5.12	80.3
2005	424,577	21.6	30.2	8.6	71.6
2006	432,997	22.3	32.0	9.73	69.6
2007	442,342	23.5	33.8	10.23	69.7
2008	452,380	24.7	35.7	10.96	69.3
2009	457,332	25.2	37.2	11.97	67.8
2010	458,504	25.4	38.8	13.37	65.5
2011	458,504	25.6	38.0	12.41	67.4
2012	461,748	25.5	39.5	13.92	64.7
2013	468,617	25.8[3]	41.2[3]	15.4[3]	62.5[3]

Source: South Carolina Public Employees Benefit Authority. (2013). *Comprehensive annual financial report for the fiscal year ended June 30, 2013*. Retrieved from http://retirement.sc.gov/financial/CAFR%202013.pdf

[1]Members include active members, retired members, terminated members and beneficiaries entitled to but not yet receiving benefits, beneficiaries of terminated and deceased members, and beneficiaries receiving disability retirement allowances. All permanent, full-time and part-time employees must join unless specifically exempted by statute or are eligible and elect to participate in the ORP. Membership data obtained from CAFRs for years ended 2002-2013 Retrieved from http://retirement.sc.gov/financial/archives.htm

[2]Assets, liabilities, and payroll data are in billions of US Dollars, unadjusted to constant dollars

[3] Gabriel Roder Smith & Company. (2013). South Carolina Retirement System (SRCS) Actuarial Valuation Report as of July 1, 2013. Retrieved from http://www.scstatehouse.gov/reports/PEBA/4B%20-%202013_SCRS_Val%20Final.pdf

Table 12: South Carolina Annual Required Contribution Trend

Fiscal Year	Total Percent of Payroll (c+d)[1]	Employee Percent of Payroll (c)	Employer Base Rate Percent (d)	Actuarially Required Contribution (ARC) Percent
2002	10.61	6.0	4.61	6.0
2003	10.61	6.0	4.61	6.0
2004	10.31	6.0	4.31	13.7
2005	10.05	6.25	6.5	13.95
2006	10.73	6.25	4,23	14.7
2007	10.64	6.5	4.14	15.7
2008	10.62	6.5	4.12	15.8
2009	9.86	6.5	3.36	16.1
2010	9.86	6.5	3.36	17.1
2011	10.01	6.5	3.51	17.1
2012	n/a	7.09	n/a	16.5

Source: South Carolina Public Employees Benefit Authority. (2013). *Comprehensive annual financial report for the fiscal year ended June 30, 2013*. Retrieved from http://retirement.sc.gov/financial/CAFR%202013.pdf

[1]Base Employer Rate and does not include health and dental insurance surcharges and optional incidental death and accidental benefit surcharges. Retrieved from South Carolina Public Benefit Authority (PEBA). *Employer Contribution Rates, FY12.* http://www.retirement.sc.gov/employers/news/2012rates.htm

Base Employer Rate and does not include health and dental insurance surcharges and optional incidental death and accidental benefit surcharges. Retrieved from South Carolina Public Benefit Authority (PEBA). *Employer Contribution Rates, FY14, Proposed FY15*. https://www.retirement.sc.gov/employers/contributionrates.htm,

States Possessing a Low Funded Ratio

In Kentucky, the funding ratio of the Kentucky Teachers' Retirement System (KTRS) has steadily decreased from 86.6% in 2002 to 51.9% in 2013. Kentucky has a history of chronically underfunding the pension plan for public educators. The decline in funding ratio is due primarily to the state's (employer) failure to make actuarially required contributions on a consistent basis and investment returns.

Since 2008, the state (employer) has not met the recommended annual employer contributions necessary to pre-fund the employee benefit requirements to members of the retirement system (Kentucky Teachers' Retirement System (KTRS), 2013). During the same time period, the state's annual employer contributions have increased from 60.5 million in 2009 to $261 million in 2013 (Kentucky Teachers' Retirement System, 2013). The cumulative increase as a percent of payroll has increased from 1.88% in 2009 to 7.27% in 2013 (Kentucky Teachers' Retirement System, 2013). In 2012, the actuarial value of assets equaled 15 billion. The actuarial determined liabilities equaled 28 billion (Kentucky Teachers' Retirement System, 2013).

The investment returns of the plan have fluctuated from 7.5% to 14.1% with an average of 8.9% in the past thirty years. In 2013, KTRS's investment program encumbered a 14.1% total rate of return (Kentucky Teachers' Retirement System, 2013). This percentage ranked in the top 10% of returns for pension funds in the nation. Additionally, the KTRS's investment returns have ranked in the top 7% over the past five years (Kentucky Teachers' Retirement System, 2013). The Board of Trustees of KTRS delegates investment authority to a committee, which in turn, works collaboratively with professional staff to evaluate investment allocations.

Table 13: Historical funding trend of the Kentucky Teachers' Retirement System (2002-2011)

Fiscal Year	Total Active Members[1]	Actuarial Valuation of Assets[2] (a)	Actuarial Accrued Liability[2] (b)	Unfunded Actuarial Accrued Liability[2] (b-a)	Funded Ratio (a/b)
2002	93,627	$13.5	$16.0	$2.1	86.6
2003	110,862	13.9	17.0	2.7	83.5
2004	112,515	14.2	18.0	3.3	80.9
2005	113,716	14.6	19.1	4.5	76.3
2006	116,512	14.9	20.3	5.4	73.1
2007	119,148	15.2	21.2	6.0	71.9
2008	121,139	15.3	22.4	7.1	68.2
2009	123,232	14.9	23.4	8.5	63.6
2010	125,158	14.9	24.3	9.4	61
2011	125,158	15.0	26.0	11.0	57.4

Source: Kentucky Teachers' Retirement System. (2013). Comprehensive Annual Financial Report as of June 30, 2012 Retrieved from http://www.ktrs.ky.gov/05_publications/index.htm

[1]Members include active members, retired members, terminated members and beneficiaries entitled to but not yet receiving benefits, beneficiaries of terminated and deceased members, and beneficiaries receiving disability retirement allowances.

[2]Assets, liabilities, and payroll data are in billions of US Dollars, unadjusted to constant dollars

Table 14: Kentucky Required Contribution Trend

Fiscal Year	Total Percent of Payroll (c+d)	Employee Percent of Payroll (c)	Employer Percent of Payroll (State) (d)	Annual Required Contribution (ARC) Percent
2002	18.22	7.625	10.56	21.75
2003	18.22	7.625	10.59	23.03
2004	18.02	7.625	10.39	25.33
2005	17.84	7.625	10.21	26.78
2006	17.22	7.625	9.59	27.42
2007	17.34	7.625	9.71	28.03
2008	13.45	7.625	5.82	26.07
2009	13.41	7.625	5.78	28.14
2010	13.31	7.625	5.68	29.41
2011	11.77	7.625	4.14	29.99

Source. Kentucky Teachers' Retirement System. (2013). Comprehensive Annual Financial Report as of June 30, 2012 Retrieved from http://www.ktrs.ky.gov/05_publications/index.htm

Table 15: Historical funding trend of the Illinois Teachers' Retirement System (2002-2013)

Fiscal Year	Total Active Members[1]	Actuarial Valuation of Assets[2] (a)	Actuarial Accrued Liability[2] (b)	Unfunded Actuarial Accrued Liability[2] (b-a)	Funded Ratio (a/b)
2002	289,799	$22.3	$43.0	$21.0	52.0
2003	304,009	23.1	47.0	24.0	49.3
2004	316,375	31.5	51.0	19.4	61.9
2005	328,416	34.0	56.0	22.0	60.8
2006	335,693	36.5	59.0	22.4	62.0
2007	347,800	41.9	66.0	24.0	63.8
2008	357,232	38.4	69.0	30.2	56.0
2009	368,309	38.0	73.0	35.0	52.1
2010	378,827	37.4	77.2	40.0	48.4
2011	386,837	37.8	81.2	44.0	46.5
2012	429,881	38.0	90.0	52.0	42.1
2013	430,167	38.1	93.9	55.7	40.6

Source: [Illinois] Comprehensive annual financial reports. (various years). *Teachers' Retirement System of the State of Illinois.* Retrieved from www.trs.illinois.gov

[1]Members include active members, retired members, terminated members and beneficiaries entitled to but not yet receiving benefits, beneficiaries of terminated and deceased members, and beneficiaries receiving disability retirement allowances.

[2]Assets, liabilities, and payroll data are in billions of US Dollars, unadjusted to constant dollars.

Kentucky has a history of chronically underfunding the pension plan for public educators. In an effort to improve the funding efforts, the state recently enacted a statute that requires all employers participating in one of the states cost sharing plans to make full actuarial contributions on a yearly basis. This change takes effect in 2015 (Kentucky Teachers' Retirement System, 2013).

The Illinois Teachers' Retirement System assumes an investment return of 8% per annum. On September 21, 2012, the Illinois Teachers' Retirement System voted to lower its rate of return from 8.5 percent to 8.0 percent. This change increased the state's fiscal year 2014 ARC from $3.07 billion to $3.36 billion. The Introduction to the 2013 Comprehensive Annual Financial Report stated,

> By all accounts, the long-term funded status of TRS is worst in the nation. TRS's funded ratio at the end of the fiscal year stood at 40.6 percent, on an actuarial basis, with a total long-term unfunded liability of $55.7 billion. The obligations owed members over the next several decades have increased by 162 percent since 2000. However during the same period, TRS assets grew by only 63 percent. (p.7)

The Illinois state retirement plan reduced pension benefits for all teachers. The legislators in Illinois created a two-tier system with reduced pension benefits for all teachers. Brand new teachers entering the profession or the first time cannot retire at age 55 ([Illinois] Teachers' Retirement System of the State of Illinois, 2013). They must wait until they turn 67 to retire in order to receive full retirement benefits ([Illinois] Teachers' Retirement System of the State of Illinois, 2013). The teachers' pensions are also capped based on years of experience and whether or not the teacher has started teaching in one state and moved to Illinois to continue teaching. Due to the fact the state has reduced the pension benefits for teachers, it is imperative for teachers in Illinois to invest in either a

traditional 403 (b), a Roth 403 (b), or a 457 (b) ([Illinois] Teachers' Retirement System of the State of Illinois, 2013).

Table 16: Illinois Annual Required Contribution Trend

Fiscal Year	Total Percent of Payroll (c+d)	Employee Percent of Payroll (c)	Employer Percent of Payroll (State) (d)	Annual Required Contribution (ARC) Percent
2002	17.15	9.0	8.15	24.36
2003	22.55	9.0	13.55	22.24
2004	23.96	9.0	14.96	23.98
2005	21.84	9.0	12.84	19.76
2006	17.04	9.4	7.64	23.09
2007	19.76	9.4	10.36	27.06
2008	22.69	9.4	13.69	33.36
2009	27.06	9.40	17.66	35.09
2010	32.96	9.40	23.96	35.26
2011	33.08	9.40	23.68	38.37
2012	34.89	9.4	25.49	n/a
2013	38.03	9.4	28.63	n/a

Source. Source: [Illinois]. Comprehensive annual financial reports. (various years). *Teachers' Retirement System of the State of Illinois.* Retrieved from www.trs.illinois.gov

Political Stream of the Literature Review

The political environment in North Carolina has impacted how the Teachers' and State Employees' Retirement System (TSERS) is funded in the state. In 2012, North Carolina elected a republican governor for the first time since 1982. Additionally, in 2012 the General Assembly became largely made up of Republicans for the first time in 40 years (Severson, 2011). This political make-up of the General Assembly has affected the recent legislative history of TSERS. This section will include recent legislative bills regarding TSERS since 2007 and selected descriptions of legislative bills that have influenced the retirement age, vesting requirements, and the state Treasurer.

The North Carolina Teachers' and State Employees' Retirement System is defined in Chapter 135 in the North Carolina General Statutes (N.C.G.S. § 135C). In the Membership section, the statutes define retirement as "the termination of employment and the complete separation from active service with no intent or agreement, express or implied, to return of service" (N.C.G.S. § 135-3(20). Membership in TSERS is defined as "all persons who shall become teachers or State employees after the date as of which the retirement System is established (N.C.G.S. § 135-3(1).

In addition to the North Carolina Future of Retirement Study Commission's report in 2010, the General Assembly appointed a Joint Legislative Program Evaluation Oversight Committee to compare TSERS to other state retirement plans in 2011. The report found that TSERS is well funded and consists of features that are typical or less generous, compared to other states (North Carolina General Assembly, 2011). The major purpose of the Oversight Committee's study was determining how TSERS is funded and

how the funding status of TSERS compares to other states (North Carolina General Assembly, 2011).

There have been several legislative bills related to TSERS since 2007. The General Assembly of North Carolina constructed several Senate Bills and House Bills related to changes to the Teachers' and State Employees Retirement System. These bills were passed and are considered minor structural changes to the Teachers' and State Employees Retirement system. The following is a brief description of three legislative actions taken by the General Assembly related to TSERS in 2011.

House Bill 927 (2011) changed the statutes governing the Teachers' and State Employees Retirement System vesting requirement for state employees from the historically sound 5 years to 10 years. State employees who begin service after 2011 must work 10 years to become fully vested. This bill was hotly contested in the North Carolina General Assembly but passed on a bi-partisan basis. There has been great discussion amongst legislators, educators, and law makers regarding changing the vesting requirement back to 5 years, especially to address the mobility of the demographical change in the workforce.

Senate Bill 804 (2011) made technical and conforming changes to statutes affecting the state retirement system. This bill changed the days all employees must notify the Board of Trustees that they are members of the retirement system from 90 days to 30 days. This bill enables employees of schools systems whose compensation is derived from federal, state, or local funds to be members of the Teachers' and State Employees Retirement to the full extent of their compensation.

Senate Bill 687 (2011) is an act to adjust the retirement age for members of the Teachers' and State Employees' Retirement System who became members after August 1, 2011. Any member can retire at age 60 as long as they have 15 years of service. The historically sound retirement age requirement in North Carolina has been contested. Currently, TSERS does not have a minimum retirement age. The Future of Retirement Study Commission recommended the General Assembly amend the TSERS plan to include a minimum retirement age of 55 years. Thus far, the General Assembly has not made this change.

Summary

The research literature on fiscal solvency of public educator retirement plans is derived from four separate domains. Analyses of public educator retirement plans from an academic basis (domain one) include scholarly articles on amending state educator retirement plans, efficiency and equity in teacher pension benefits, teacher retirement behavior, and the various types of state pension plans for educators. Discussions of public educator retirement plans from research centers and Universities (domain two) include data and research from The Center for Retirement Research at Boston College (Munnell and Soto, 2007), The National Conference of State Legislatures (2009, 2009a), and The National Institute on Retirement Security. Public educator retirement plan analyses from state legislatures (domain three) incude state statutes on retirement for state employees and proposed bills from both the House of Representative and the Senate. Information about public educator retirement plans from the common popular press (domain four) includes on-line journals regarding fiscal solvency of TSERS and the vastly different political make-up of the General Assembly in North Carolina.

The discussion of the literature on fiscal solvency in public educator retirement plans and, more specifically, TSERS was divided into three environments: the policy environments, the fiscal environment, and the political environment. The first point of discussion involved the way that the policy environment of public educator retirement plans is based on the types of plans most states offer employees: defined benefit plans, defined contribution plans, and hybrid plans. A discussion of the history of defined benefit plans, current defined benefit plans, and examples of defined benefit plans in other states was included. A discussion of defined contribution plans in general, and states that offer a combined defined contribution plans/hybrid plan was included as well. Second, the fiscal environment is based on the historical trend of funded ratio for retirement plans. For the purposes of this study, this environment was divided into three sections: high, moderate, and low. TSERS, historically, has maintained a high funded ratio. The public educator retirement plans in North Carolina, Florida and Georgia are consistently funded at high levels. The funded ratio of the public educator retirement plans in Alabama and South Carolina have fallen in the moderate range. The plans in Kentucky and Illinois have low funded ratios. Third, the political environment in North Carolina has affected the decision making process in TSERS. The General Assembly is primarily made up of Republicans for the first time in twenty years, which has important ramifications because the regulations and characteristics of TSERS are based on the political environment in the state.

CHAPTER 3: METHODOLOGY

The purpose of Chapter 3 is to describe the methodology used in the study. This study employed qualitative methodology, specifically an instrumental single case study research design. Interviews, documents and retrospective observations comprised the data collection strategies. This study sought to explain how legislators in North Carolina may address the declining funded solvency ratio in the future of the Teachers' and State Employees' Retirement System (TSERS). The purpose of this research was to identify potential changes to TSERS by the North Carolina legislature in light of its recent record of fiscal solvency.

The study was guided by the following research questions:

1. How, if at all, will the General Assembly of North Carolina address the declining fiscal solvency concern regarding the Teachers' and State Employees' Retirement System?
2. What is the recent legislative and policy history of TSERS?
3. How, if at all, will the General Assembly of North Carolina change the current Teachers' and State Employees' Retirement System in the near term future?
4. How, if at all, will the General Assembly of North Carolina change the Teachers' and State Employees' Retirement System for the long-term future?

This study adds to the body of knowledge regarding changes to public educator retirement plans on a state and national level.

Chapter 3 is divided into three sections: Design of the Study, Data Collection Procedures, and Data Quality and Analytic Procedures. The Design of the Study section explains the qualitative, instrumental single case study methodology and clarifies the role of the researcher. The Data Collection section includes the interview method, elite interviewing, sampling techniques, prospective participants, selection process, the setting of the interviews, document analysis, and assurance of confidentiality. The Data Quality and Analytic Procedures section includes factors of trustworthiness including credibility, transferability, dependability and confirmability and how the data will be analyzed and interpreted through triangulation.

Design of the Study

This study, a legislative analysis of the public educator retirement system in North Carolina, employed a qualitative, instrumental single case study design. In single case study research, a case is examined based on a certain problem or issue. Yin (1994) suggests case studies should be used when the focus of the study is based on "how" questions. The researcher should strive not to influence the responses of those individuals participating in the study (Yin, 1994).

Instrumental case studies describe cases that generalize findings back to the conceptual framework. According to Stake (1995), instrumental cases are used to understand more about a problem than what is obvious to individuals. The study of a particular case is used to prove insight into a particular problem. Additionally, in instrumental case study research, a particular case facilitates understanding of something

else (Stake, 1995). In this study, the problem being examined is the fiscal solvency of public educator retirement plans. The single case in this study was North Carolina, more specifically the Teachers' and State Employees' Retirement System (TSERS). Although the funding solvency concern is apparent in other states (Florida, Georgia, Alabama, South Carolina, Kentucky, and Illinois), the focus of this study was specifically the North Carolina Teachers' and State Employees' Retirement System. This legislative examination incorporated document analysis, elite interviews, and retrospective observations as data collection procedures.

Role of the Researcher

The specific role of the researcher in this study was as a doctoral student completing his dissertation in partial fulfillment of the doctoral degree requirements. The researcher's goal was to produce a study with a credible outcome that added to the body of research on public educator retirement plans and implementation of legislative change to these plans on both a state and national level. The researcher was mindful of potential bias. The researcher acknowledges being biased to the fact that serving in a high school principal's role, in the state of North Carolina, as an occupation means the public educator retirement system in North Carolina directly affects the researcher, even though it will be twenty or more years before the researcher retires.

Data Collection Procedures

Elite interviewing, document analysis and retrospective observations were the three methods used for data collection in this study. North Carolina historical legislative bills on TSERS from 2007 to the present and historical documents regarding TSERS were the documents analyzed. Examples of documents analyzed were the

recommendations suggested by the Future of Retirement Study Commission in 2010 and the Final Report to the Joint Legislative Program Evaluation Oversight Committee in 2011. Retrospective observations are events or situations that have occurred politically or through policy changes in the past. Retrospective observations were made and were analyzed in conjunction with the interview transcripts and the documents.

Interview Method

A fundamental aspect of interviewing is to provide an opportunity for participants to express their opinions and perceptions in their own terms (Patton, 2002). Because the study sought to glean information about potential courses of action by the General assembly regarding TSERS changes, persons interviewed had to have specific knowledge of and a sophisticated understanding of the retirement plan. The interview protocol developed for this study was originally created by the researcher and includes broad open-ended questions. The interview protocol was made up of ten specific interview questions that assisted the researcher in answering the research questions. The researcher followed the interview protocol for each participant. The Interview Protocol is included in Appendix A.

Elite Interviewing

To gather the most comprehensive data, the process of elite interviewing was conducted with individuals who had specific knowledge of the details of TSERS. The elite interviewing process was conducted with open-ended questions to generate as much information as possible. The participants, in most interviews, roamed freely with responses. Open-ended questions allowed the participants to speak specifically about their opinions and perceptions of the details of TSERS. Additionally, elite interviews

allowed the researcher to understand the context and role of the interviewees after conducting the interviews (Tolar, 1985).

The interviews took place in settings selected by the research participants or over the telephone. The open-ended questions were administered in places that were comfortable and familiar to the participants. In elite interviewing, a small number of participants are acceptable because the knowledge base and insights of the participants are unique (Aberbach & Rockman, 2002). The target number of respondents for this study was eleven participants. All the interviews were conducted in a setting selected by each interviewee. The interviews included open-ended questions (Appendix A), and were audio-taped, transcribed, and postal mailed back to the participants. This process is called member checking, a process where transcripts were provided to each interviewee to change, add or delete remarks (Seidman, 2006).

The researcher did not predetermine themes. However, the results of the research study were derived from a systematic review of data collected from the interviews. The benefit from single case study methodology is an in-depth understanding of the phenomenon discussed, funding solvency, using responses from the interviewees, which may not be ascertained from the document analysis. The relationship among the questions on the Interview Protocol and the study's research questions are presented in Table 17.

Table 17: Relationship of interview questions to research questions

Research Questions	Interview Questions
How, if at all, will the General Assembly of North Carolina address the declining fiscal solvency concern regarding the Teachers' and State Employees' Retirement System?	4, 5
What is the recent legislative policy history of TSERS?	1, 2, 3, 4
How, if at all, will the General Assembly of North Carolina change the current Teacher and State Employee retirement plan in the near term future?	6, 7
How, if at all, will the General Assembly of North Carolina change the Teachers' and State Employees' Retirement System for the long-term future?	8, 9, 10

Sampling

Consistent with the process of elite interviewing, both purposive and snowball sampling were used to identify possible participants (Dexter, 1970). Purposive sampling was used to select the primary participants (legislators, policymakers, commission members) who have specific knowledge of fiscal solvency related to TSERS in North Carolina. Snowball sampling was used after each participant was asked what other individuals they thought should be included in the study.

Participants

The number of participants interviewed was eleven individuals. The researcher concluded the participant search when the data were saturated. Some of the participants were purposefully selected based on their willingness to participate in the research and their unique and specialized knowledge of the public educator retirement system (TSERS) in North Carolina. Other participants were selected from suggestions made by the purposively selected participants, thus evoking snowball sampling. A broad overview of the participants and their relationship to the study including political affiliation and sampling procedures is depicted in Table 18. The next section provides more information on the participants including TSERS membership information.

Table 18: A broad description of the participants

Part #	Political Party	Affiliation	Committees	Study	Sample	Active Member
A	Dem	Public Education	Study Comm	Pilot	Purposive	Yes
B	Rep	Gen Assembly	Senate	Full	Purposive	Yes
C	Rep	Gen Assembly	House of Rep	Pilot	Purposive	Yes
D	Rep	Gen Assembly	Senate	Full	Snowball	Yes
E	Rep	Gen Assembly	House of Rep	Pilot	Purposive	Yes
F	Dem	County Executive	LGRS	Full	Snowball	No
G	n/a	Public Management	Study Comm	Pilot	Purposive	Yes
H	Dem	Gen Assembly	Senate	Full	Snowball	Yes
I	Rep	Gen Assembly	House of Rep	Full	Purposive	Yes
J	n/a	Public Education	Study Comm	Full	Purposive	Yes
K	Dem	State Treasury	House	Full	Snowball	Yes

Respondent Information

Respondent A has over twenty five year experience with public education and the Teachers' and State Employees' Retirement System. This respondent has served on various committees as an advocate for public educators in the state of North Carolina. This respondent has been a member of TSERS for over twenty years.

Respondent B has been a member of the North Carolina General Assembly (Senate) for five years or less. This respondent has served on Education committees in the General Assembly including Appropriations and Education Policy. These committees generally cover K-12 public education, Community Colleges and the University System. This respondent has been a member of TSERS for over five years.

Respondent C has been a member of the North Carolina General Assembly (House of Representatives) for ten years or less. This respondent has served on finance committees, revenue laws committees, and pensions & retirement committees. The policy decisions in the House of Representatives generally go through the finance committee. This respondent has been a member of TSERS for over ten years.

Respondent D has been a Senator in the North Carolina General Assembly for more than twenty years. During that time, this respondent has served on education, finance, appropriations, and judiciary committees. This respondent has been a member of TSERS for over twenty years.

Respondent E has been a member of the North Carolina General Assembly for less than three years (House of Representatives). This respondent has experience working with the Department of Public Instruction, the Department of Public Safety, and Human Resources. This respondent has been a member of TSERS for over twelve years.

Respondent F has experience working with the board of trustees for both TSERS and the Local Government Retirement System. This respondent also has experience working with human resources administration and public health administration. This respondent is a member of the Local Government Employees Retirement System in North Carolina.

Respondent G has experience working in city, public management for over twenty-five years. This respondent has experience working directly with county commissioners, county and city managers, and the board of trustees with TSERS. This respondent has been a member of TSERS for over twenty-five years.

Respondent H has been a member of the North Carolina General Assembly for ten years or less (Senate). This respondent has experience working with the Pensions, Retirement & Aging Committee, the Health and Human Services Committee, and working with higher education administrators. This respondent has been a member of TSERS for over ten years.

Respondent I has been a member of the North Carolina General Assembly for ten years or less (House of Representatives). This respondent has experience working on personnel committees and pension committees. This respondent has been a member of TSERS for over ten years.

Respondent J has experience working on retirement system studies in North Carolina, Virginia, and Tennessee. This respondent has experience working with higher education administrators, pension plans, retirement systems, and state finances. This respondent has been a member of TSERS for over thirty years.

Respondent K has over thirty years experience working as a member and with the North Carolina General Assembly in the House of Representatives. This respondent has experience working with governmental agencies, the state Treasurer's office, the General Assembly with both the House and Senate, and the North Carolina Governor's office. This respondent has been a member of TSERS for over thirty years.

Selection Process

The researcher identified North Carolina legislators, currently serving and formerly serving in the General Assembly, who have served on a committee related to the public educator retirement system or who have proposed a specific bill. For this study, the participants were chosen based on the following three qualifications:

1) North Carolina legislators who have submitted a bill to the General Assembly regarding TSERS in the past three years.
2) Members who served on either the Future of Retirement Study Commission (2010) or the Joint Legislative Program Evaluation Oversight Committee (2011).
3) Any other officials deemed uniquely knowledgeable on TSERS.

The researcher sought a balanced approach of both democrats and republicans in the General Assembly. However, for reasons beyond the researcher's control, fewer democrats were interviewed. A recruitment packet containing a recruitment letter, interview protocol, two copies of the consent and a returned envelope was postal mailed to fifteen individuals who were purposely selected from the target population. A follow-up telephone call was made to all individuals after one week to gauge their interest of participating in the study.

Setting

The primary settings for the interviews were selected by the participants. The interviews took place in schools, coffee-shops, restaurants, and offices. Four of the participants agreed to participate in the study, but could not meet for a face-to-face interview. Therefore, a telephone interview was conducted. The interviews were audio recorded and transcribed by the researcher in the privacy of the researcher's home to maintain confidentiality.

Document Analysis

Throughout the research process, the researcher located and reviewed historical documents on TSERS and analyzed legislative documents, bills and other policy reports on TSERS. The legislative documents revealed the historical regulations and characteristics of TSERS. These legislative and policy documents provided information about the goals and aspirations of the General Assembly. The legislative documents included the final report of the Future of Retirement Study Commission and the final report from the Joint Legislative Education Oversight Committee.

Assurance of Confidentiality

Maintaining participant confidentiality is vitally important with research involving human subjects. The participants' identifying information was kept strictly confidential. Direct quotes and general opinions about the future of TSERS were used in the data analysis process, but the participants' identities were not stated. Each participant was assigned a case number and all data related to that participant were labeled with the case number. All data (both electronic and physical) were stored in locked file cabinets at the researcher's home and the office of the faculty advisor. Locked in a separate

location, two flash drives contained the participant information and the participant number assigned in the study. No one other than the researcher and faculty advisor had access to these files. The interviews were digitally, audio-taped and transcribed by the researcher. The interview transcript was postal mailed to the participants for corrections, additions and deletions.

Data Quality and Analysis Procedures

In qualitative, instrumental case study research methodology, the overall trustworthiness and study quality must be enhanced by several key factors. The factors that influence trustworthiness in case study research are credibility, dependability, transferability and confirmability. The triangulation of data sources is a strategy in case study research that assures the problem is explored and analyzed through multiple data sources.

Credibility

The term "credibility" in assessing the trustworthiness of qualitative research occurs when the results of a qualitative study are believable from the opinions of the participants in the study (Lincoln & Guba, 1985). One source of credibility in qualitative case study research refers to how the participants are appropriately identified and chosen (Lincoln & Guba, 1985). The researcher used elite interviews, document analysis and retrospective observations to collect data. The elite interview technique was used, because the individuals chosen to participate had specific knowledge regarding TSERS policy development and implementation. All interviews were transcribed by the researcher, then individual transcripts were postal mailed to the participants for additions, deletions, or amendments.

Transferability

Transferability in this qualitative case study research refers to how applicable the findings of the study will be to members of the North Carolina General Assembly and to public educators in the state. The degree to which the results of this study can be related to future studies on public educator retirement systems is an example of transferability (Mertens, 1998).

Dependability

Lincoln and Guba (1985) defined dependability as illustrating the findings of a study as consistent and repeated. Dependability in qualitative research is also defined as stability over a specific period of time with each participant (Berry, 2002). The researcher established dependability in this study by reviewing the themes with the faculty advisor and triangulating the themes with the document analysis and retrospective observations.

Confirmability

Confirmability refers to how the findings reflect the way that the participants' opinions and perceptions relate to the phenomenon (Marshall& Rossman, 2006). Confirmability derives from the interpretation of the data and ensures that the perceptions of the participants are connected to the documents and retrospective observations and not the researcher's opinions (Lincoln & Guba, 1985). In this study, the interview transcripts can be traced to the original source. In other words, the participants, upon reviewing the interview transcripts, were able to approve and validate the data.

Triangulation

During the data analysis phase of this study, the interview transcripts, documents, and retrospective observations were triangulated. The themes that were derived from the

interview transcripts were validated and compared to information in the documents and the retrospective observations. The interview transcripts were kept on two flash drives and maintained in a locked cabinet in the researcher's home and in the faculty advisors office. The researcher and faulty advisor met on multiple occasions to finalize the themes and their relationship the research questions. Chapter 4 presents the themes from the interview transcripts, the documents, and the retrospective observations, organized by how they relate to the research questions. Chapter 5 presents the researcher's conclusions and suggestions for further research.

CHAPTER 4: RESULTS

The purpose of this research was to identify potential changes to TSERS by the North Carolina legislature in light of its recent record of fiscal solvency.

The four research questions for this study were:

1) How, if at all, will the General Assembly address the declining fiscal solvency concern regarding the Teachers' and State Employees' Retirement System?
2) What is the recent legislative policy history of TSERS?
3) How, if at all, will the General Assembly of North Carolina change the current Teachers' and State Employees' Retirement System in the near term future?
4) How, if at all, will the General Assembly of North Carolina change the Teachers' and State Employees' Retirement System for the long-term future?

Five themes were developed from analyzing and triangulating the interviews, documents, and retrospective observations. These themes were: Revenue, Politics, Transportability, Knowledge, and Commitment. A description of each theme is included first. Then, the themes are organized by the four research questions. Some themes are relevant to multiple research questions.

Description of the Themes

Theme 1: Revenue

The first theme, Revenue, refers to the adequacy of revenue into TSERS by the three sources; members, investment returns, and the state of North Carolina (employer contribution) and how assets are measured against liabilities. As noted earlier in this study, the member contribution of 6% of eligible earnings per annum are set by North Carolina General Statute 135-8(b)(1). This rate has been constant since 1975. What has not been constant are the investment returns and the General Assembly's ability to make up the investment shortfalls.

North Carolina state general fund revenue collections for FY 09, 10, 11, fell below FY08 revenue. There were differing opinions from the respondents on whether the North Carolina Department of Treasury would be able to sustain the current funded ratio that was over 100% for several years and at 99.3% in 2008 or even if it was prudent to do so. In addition, there was some awareness that TSERS is only one of 10 different retirement plans administered by the state of North Carolina, indicating that "the state has to think about how to invest the money for not only teachers but, all state employees. The reason for this is, since people are living longer, the state must factor in the longevity piece," as one participant explained.

There are three subthemes that fall under the theme of Revenue. The first subtheme is Earnings Expectation. The second subtheme is Asset Allocation. The third subtheme is Unfunded Actuarial Accrued Liability.

Subtheme 1: Expectation of Earnings

The subtheme, Expectation of Earnings, refers to the expected/projected 7.25% rate of return on investments made by TSERS. The investment returns are one of the three revenue streams used in funding TSERS. Since the long term solvency and operation of a retirement system is built on collecting member contributions at regular intervals over a long period of time (30 years), the investment returns added to the early contributions are, through compounding over time, used to reach the retirement funding goal. When at any point investment returns fail to meet the target rate, the state must step in and make that deficit whole or effectively, the *loss* of interest on the member contributions compounds over time. One respondent who was obviously aware of this relationship stated, "The system will remain solvent if the General Assembly can continue to buy their way out of the loss in investments they incurred at the beginning of the Recession in 2008." Another respondent echoing the importance of the timing of ARC payments stated, "The TSERS fund will remain solvent if investments are made at the proper time. One of the items the General Assembly needs to monitor constantly is the allocation of funds. However, the ongoing asset base needs constant monitoring because of the way investments are made internationally and across the world."

Several respondents stated that the 7.25% rate of return is unrealistically high because only risky investments can be expected to earn that rate in the current economy. It may be that for an individual investor, a 7.25% rate of return appears high when personal bank savings rate returns hover in the 1.0% to 2.0% range. During the Great Recession and the period afterward (2007-2013) investment returns fell below the 7.25% earnings target. However, according to actuaries, this figure for TSERS actual

investment portfolio represents a reasonable rate of return on investments that minimize risk and rely on a significant allocation (averaging 36%) of fixed income assets (Report on the Seventieth Valuation of the Teachers' and State Employees' Retirement System of North Carolina, various years). In a study commissioned by the Investment Management Division of the Department of State Treasurer pertaining to the 30 year risk analysis over various scenarios of market decline, using multiple return environments and investment targets (discount rates) of 7.25%, 7.00% and 6.75%, it was concluded that at the 50th percentile – the current returns of 7.1% would steadily rise to 10.6% by 2040 (North Carolina Department of State Treasurer, 2012).

One respondent voiced moving to a more modest rate of return. This is a likely action that the General Assembly may take. One downside to moving to a lower rate of return is that it will increase the unfunded actuarial accrued liabilities, which will drive a larger annual required contribution. This will lower the funded ratio and make TSERS appear less solvent. This statement seems counterintuitive. Consider that the 7.25% discount rate is the rate of return that the total assets available to a new entrant in the retirement system would have 30 years into the future. If a higher discount rate is assumed, a lower contribution by the state over time would be required. If the state failed to make the ARC, then the unfunded liabilities would grow and essentially compound due to the loss in interest they would have earned over the period. However, if the discount rate is reduced, then a higher rate of contributions by the state would be required. The ARC would be higher and if the state failed to fully the fund the ARC, the liabilities would grow at a faster rate, thus making the system appear more underfunded. Between 2010 and 2012 the average ARC across public pension plans in the United

States increased to an aggregate of $38 trillion; if the ARC had been calculated at 4% (considered a risk-less rate) the ARC would have ballooned to $62 trillion (Munnell, Aubry, Hurwitz and Medenica, 2013). At the end of the 2013 fiscal year TSERS had earned 9.24% on its investments, which surpassed expectations by 1% (North Carolina Department of State Treasurer, 2013a).

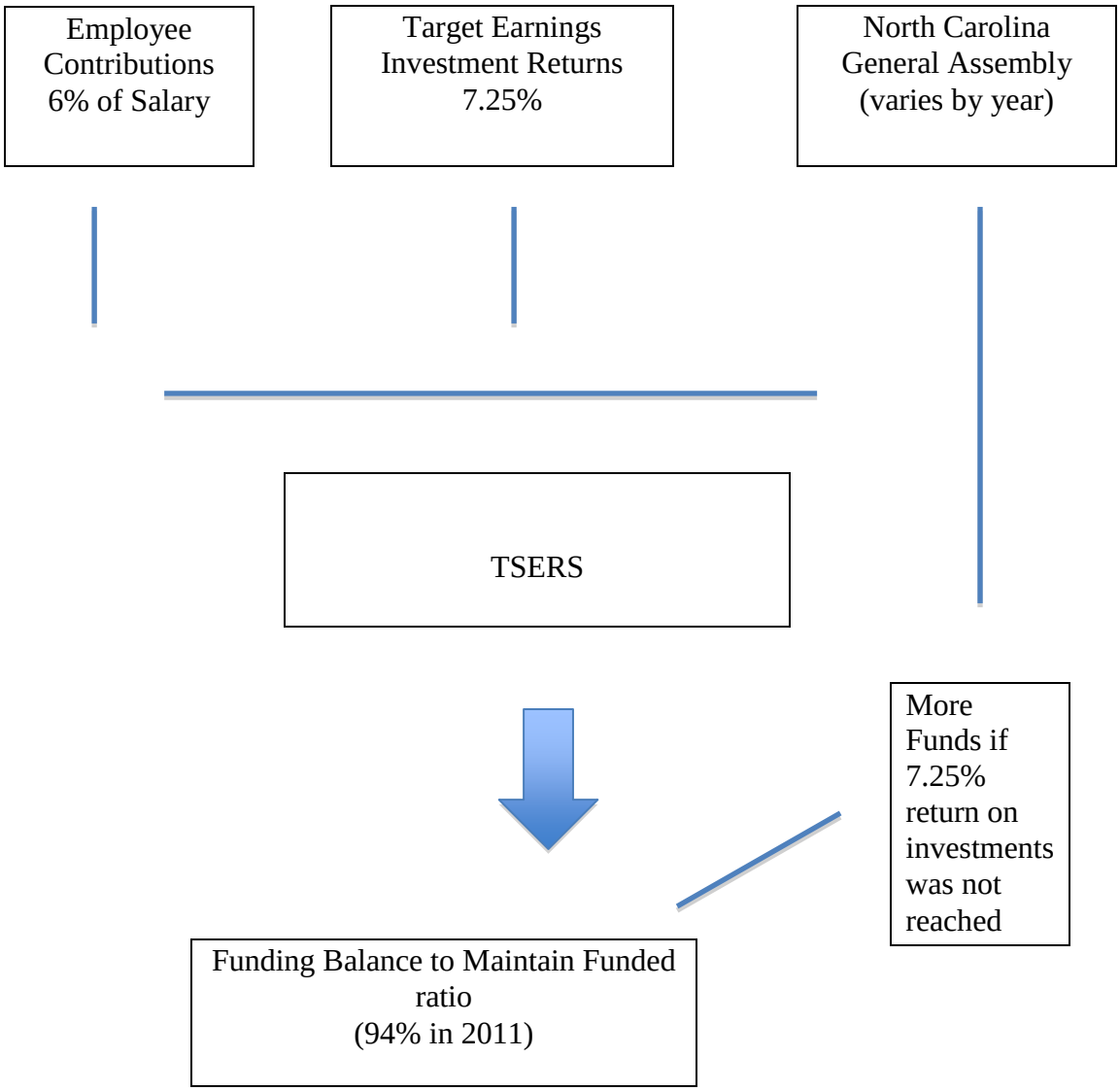

Figure 2: The funding plan for the North Carolina Teachers' and State Employees' Retirement System

Subtheme 2: Asset Allocation

The subtheme, Asset Allocation, refers to a mixture of the investments such as the proportion of stocks to bonds. The retrospective observation is the assets allocation of TSERS is predominantly in bonds. The principle is always safe in bonds. However, the earnings on bonds rate is relatively low. On the other hand, investments in stocks offer a much greater rate of return but the principal is at risk. The proportion, TSERS will return on assets, if it is not adjusted from time to time, could be lower than the rate of inflation.

Based on the interview transcripts, one respondent referred to the asset allocation form of revenue in order to influence the funding solvency of TSERS. The respondent continued by stating that currently, the funding ratio is somewhere in the neighborhood of 94% to be fully funded in the teacher's plan. TSERS has been over 100% in years past. In 2008, the plan had some market activities (The Great Recession) which resulted in decline, which dropped the funding ratio below 100, into the 90s range. In the past legislative session, quite a bit of work was done to get changes made in the asset allocation of the plan to ensure the funds would grow and be safe. As stated earlier and based on the historical funding ratio trend, in 2002, the funding ratio of the system was 108.4% funded. In 2012, that percentage steadily declined to 94%, which is documented evidence of the declining funding ratio (North Carolina Department of State Treasury, 2011; Munnell et al., 2013).

Subtheme 3: Unfunded Actuarial Accrued Liability

The third subtheme refers to the unfunded liability that is continuing to grow. This statistic is the bane of all annuities. It is the amount of liability in the retirement system that resulted from returns lower than the discount rate (7.25% in North Carolina)

that the employer (North Carolina) failed to fund at the time the deficit occurred. Each year the actuary computes the Annual Required Contribution that will bring the fund into solvency over a period of amortization. Specifically, the ARC is the amount of money that is recommended that the State contribute to the Plan to fully fund it for the long term. In fiscal year 2010-2011, the General Assembly did not appropriate the full required contribution calculated by the actuary to TSERS for the first time in its 69 year history. At the time the state had a $3 billion budget deficit. Currently, there is no requirement that the state contribute at least the same amount as employees; yet, if the state's contributions were averaged over the preceding 30 years (1978 through 2008), the average contribution would be 6.8% of eligible compensation. Based on the consistent payment of the ARC, the amortization period for the 2012 unfunded liability is nine years – well below that of the Government Accounting Standards Board (GASB) requirement of a 30 year amortization period (North Carolina Department of State Treasury, 2009). One respondent noted that, "There have been years when it has not been funded well, on the whole it has generally kept up with its payout requirement. Unlike a whole lot of general retirement systems, it is pretty close to being fully funded for the moment."

In addition to below expected investment returns and underfunding by then General Assembly, plan benefits can also compete with the funds that can be used toward investment. Cost of Living increases (COLAs), the absence of a minimum age for retirement benefits, and pension spiking were such "benefits" that may harm future earnings members who are not yet retired.

Cost of Living (COLAs) increases are provided on an ad hoc basis to retirees and their beneficiaries. COLAs are paid directly out of earnings and if an unfunded liability

exists, they could affect the extent to which a payment is made in full to retire that liability. COLAs also decrease the amount of funding available for investment such that new investment projections must be run to keep the plan on track for the future. These are subject to influence by the political process and as result of such behavior they have been capped to the Consumer Price Index percentage.

TSERS has a provision for full benefits with 30 years of service at any age. This allows individuals to retire from TSERS early and work in another occupation for at least 15 years before eligibility for social security benefits. Two examples of policies are the non-minimum retirement age provision and the spiking of four consecutive years of salary. An example of an unfunded liability is a teacher who is employed in a school system and becomes a member of TSERS at age 21, making her eligible to retire at age 51. In this scenario, it is possible that this teacher will actually be drawing benefits longer in retirement than the years she paid in the system because most individuals are living longer.

There are two documents that addressed amending the retirement age for members of TSERS. In 2010, the Future of Retirement Study Commission recommended the General Assembly change the retirement age to age 55 with 30 years of service. The reason the Commission gave for amending the retirement age is by adjusting the retirement age to 55 with 30 years of service, job openings for younger employees should increase. Senate Bill 687 proposed any state employee of North Carolina can retire with full benefits at any age with 30 years of service. There are varying opinions of the impact of the retirement age and how it affects the recent legislative history of TSERS.

The responses concerning the retirement age begin with one respondent's comment that the retirement age is something that will probably change at some point and time. Another respondent noted that the retirement age requirement needs to be amended for two specific reasons: it only affects new hires and it will not affect that many people in the long run. Another respondent stated, the retirement age needs to be changed because many former employees double dip and a large number of people take early retirement and go to other states like South Carolina to start all over. Another respondent stated, the retirement age is hotly contested, but it is not the end of the world to retire and go somewhere else and retire again. Another respondent stated that the age for entrance into the system or what age an employee can retire with unreduced benefits will change in the near future.

The more specific opinions on the retirement age are related to funding solvency. One respondent stated there is a need for a definite age for full retirement benefits in order to make this system solvent:

> For example, if someone goes to work for the state department right out of high school at age 18 and retires at age 48, they have worked 30 years. They live 40 years in retirement receiving retirement checks, that plan just does not work. The plan needs to have to have a definite age and it's probably going to have to be around 60 or 62.

Another respondent stated it would be very reasonable to have a minimum retirement age with something like 58 or 60, even with 30 years of service, such that the state should consider implementing a minimum age.

Pension spiking is when an individual has a highest four consecutive years of salary that is substantially higher than the average of the other 26 years of salary, effectively allowing the individual to receive a much higher pension benefit. This

spiking is extremely harmful to the retirement fund, because for most of the individual's years of service the salary estimates predicated on a percentage level of raises is no longer valid. Thus, the retiree is allowed to take from the fund over time a greater amount than actuarially predicted. This causes an unexpected shortfall in the current funds available for investment. For the 2014 General Assembly, legislation is planned to be introduced that addresses this issue (North Carolina Department of State Treasurer, 2014).

Another policy that contributes to the unfunded liability is the lack of a spiking prohibition in calculating the highest four consecutive years of salary. One respondent related an example of how spiking salary can burden the system for many years,

> He put in 26 years as a legislator with a salary of 14,000 a year, and left and went to work at 145,000 a year for 4 years. So, the result of that is, even though he paid so little into the retirement system at 6% of his salary, we have to calculate his retirement based on 145,000 a year salary because he did that for 4 years. So, he is drawing for the rest of his life over 100,000 a year. Where, for 26 years, his salary was never over 15 thousand. So, just by doing that, those 4 years he worked for the revenue, his salary is costing us for the rest of his life. That's a manipulation of the system.

The discount rate of return of 7.25% was not contemplated by the General Assembly when TSERS was implemented. At the onset of TSERS (in the 1940s), the discount rate 7.25% was considered to be sufficient to cover future years of retirement liabilities; it was never contemplated by the General Assembly that persons would live thirty to forty years in retirement. The life expectancy rate was 62 in 1940 and 68 in 1950 (United States Center for Disease Control, 2011).

Theme 2: Politics

The theme of Politics refers to the process of developing a legislative bill to address a particular problem and the steps it takes to get the bill on the legislative agenda.

A retrospective observation is a two-step process to get a bill on the legislative agenda. The process of developing a legislative bill encompasses the interplay of persons with legislation that get bills into a committee. The first step involves moving the bill forward, moving the bill to another committee, or voting the bill out of the committee. The second step involves what happens to a bill once it gets to the legislative floor for a vote.

Throughout the interviews, respondents indicated that TSERS bills barely passed or were still in committee. Multiple respondents mentioned a recent legislative bill that addresses the flexibility of state employees to move money from one account another had not been fully developed. One stated, "We just have not gotten it to a point where we are comfortable with it. We have been back and forth with some factions and whether all parts of that bill are needed or not." Several respondents mentioned a bill that did pass on a bipartisan basis that gave the state Treasurer more flexibility and autonomy to make investment decisions. In the 2013 legislative session, House Bill 357 gave the North Carolina State Treasurer autonomy to invest and use more risk for TSERS. Basically this bill gave more autonomy and flexibility to the state treasurer. House Bill 357 (2013) authorized the treasurer to use more risk in funding more programs. The bill was passed out of the House Finance Committee with a one-vote margin. One respondent gave the main reason for the introduction of House Bill 357 (2013):

> …the state is highly invested right now, somewhere as high as 40% in the bond market. The bond market does not necessarily return high rates of return, but it's safe investments, unless interest rates go up. The state is in a position where bonds have been very good, interest rates are very low, and bonds have been incredible investments for a long period of time. But, even if we start seeing a one or two percentage point move in the interest rates, the bond market will crash.

Another responded indicated that House Bill 357 (2013) gave the Treasurer "the flexibility to move investments into real estate and other areas to maintain the solvency of the system." House Bill 357 was passed and signed by the Governor in the 2013 legislative session.

Theme 3: Transportability

The theme of Transportability refers to state employees having the flexibility to move from one state to another or from the state to the private sector without a loss of benefits.

There are two policies that relate to transportability: the vesting period and the option to add a defined contribution plan. The extension of the vesting period was acted upon by the General Assembly in House Bill 927 (2012). In this document the North Carolina General Assembly decreased mobility of pensions by increasing, literally doubling the vesting requirement, from 5 years to 10 years. House Bill 927 (2012) changed the historically sound, 5-year vesting to 10 years in 2012. All the respondents mentioned that this change, while it protected early contributions to the TSERS from being withdrawn, sharply decreased transferability.

Throughout the United States with businesses and governments needing to react to events more quickly, retirement funds are becoming more mobile. In this environment it may be assumed that states should be more inclined to cater to a very mobile workforce that desires transportability in pensions. There were varying opinions on making this change to a more mobile pension option, with a few respondents stating it would be best to change the vesting of state employees back to 5 years.

Some respondents stated that they thought that the 10 year vesting requirement would revert back to the original 5 year requirement. One stated, "House Bill 927 finally got the 5-year vesting changed to 10 years. It will probably be reverted back to 5-year vesting if certain things take place."

A second policy was recommended by the Future of Retirement Study Commission and outlined in the final report; however, this policy has not been acted upon. The North Carolina Future of Retirement Study Commission was developed in 2009 by both the Board of the North Carolina Retirement System and the Board of the Local Government Employees' Retirement System ([North Carolina] Future of Retirement Study Commission, 2010). The joint boards suggested the Commission make recommendations to amend the Teachers' and State Employees' Retirement plan by clearly defining the retirement benefits that should be provided to all state employees in North Carolina ([North Carolina] Future of Retirement Study Commission, 2010). The primary recommendation of the commission was for TSERS to offer a choice between a defined benefit plan and a defined contribution plan for all state employees.

The recommendation to offer state employees a choice between a defined benefit plan and a defined contribution plan will split the costs of the plan between the state and local government. The reasons behind this recommendation relates to transportability because the defined contribution plan will appeal to teachers by providing higher benefits for teachers who come from other states and work in the retirement system for less than 20 years ([North Carolina] Future of Retirement Study Commission, 2010). According to this report, the defined contribution options will have several components:

- Defined Contribution plans should be presented to new state employees so informed decisions can be made between defined contribution and defined benefit plans;
- New employees should be granted 60 calendar days to choose a plan;
- The retirement system should develop materials for employees to understand the choice between defined benefit and defined contribution plans;
- The defined contribution plan should cost the same as the defined benefit plan;
- The state retirement system will operate the defined contribution plans in conjunction with 401K or 457b programs;
- After an employee chooses a specific plan, a one-time change will be permitted;
- Additional study is needed to determine the pros and cons of transferring contributions from one plan to another;
- An annuity option should be offered by the retirement system for the defined contribution option;
- Vesting will remain the same in both plans, 5 years ([North Carolina] Future of Retirement Study Commission, 2010).

Five respondents made comments on the impact of the state offering both a defined benefit plan and a defined contribution plan as a choice for each employee. One respondent expressed concerned over the public image, politics, the private sector, and the government benefits being careless in their development and implementation for retirement plans. Echoing the need to be more like private business, the respondent stated this discussion regarding defined contribution plans stemmed from the real perception that the private sector does not have a defined benefit plan and appears to be doing fine.

This respondent also indicated that new teachers coming into the profession and administrator should have the right to choose. A third respondent indicated that TSERS will offer a choice between a defined benefit plan and a defined contribution plan in the future in order to offer employees a choice, a mobile defined contribution plan which would allow employers to bring back some of the better employees. The respondent stated, "A change will be a boon to quality state employees and maybe modify the deficit long term."

On the other hand respondents indicated that the defined contribution plan should not be abolished. Another respondent felt the defined contribution option should be available. The fourth respondent felt either a defined contribution or a defined benefit offered at the same time with a one-time decision making capability of changing from one to another would be beneficial to others. Also, the defined contribution plan requires a great contribution from the state in order to effectively offer the same retirement security to the members in the future. The defined contribution option is a viable alternative. Another respondent felt there are state employees out there that would be better off with a defined contribution option and if a defined contribution option is offered, the state should add an option for people to switch to the state defined benefit option. The North Carolina General Assembly has not acted upon the defined contribution choice for state employees.

Theme 4: Knowledge

The theme Knowledge refers to the steep learning curve policymakers experience as part of their service on legislative committees and state commissions to address TSERS issues. A retrospective observation is the fact that the Future of Retirement

Student Commission consisted of twelve members with varying backgrounds. The committee consisted of legislators, county commissioners, public employees, public educators, work force development coordinators, and supplemental insurance providers. Many of these members experienced a steep learning curve as part of their service on the Study Commission.

Theme 5: Commitment

The commitment theme refers to the North Carolina General Assembly's desire to fulfill retirement obligations to state employees. A retrospective observation is the commitment theme directly corresponds to the positive trend of fiscal solvency TSERS has exhibited over the past ten years. Even though the positive trend is declining, several respondents indicated in the interview transcripts that the state will continue to fulfill the obligation to offer a sound state retirement system.

Relating Themes to the Research Questions

Research Question 1: Addressing the Declining Fiscal Solvency Concern

The North Carolina Teachers' and State Employees' Retirement System has experienced changes in two indicators of fiscal solvency: the funded ratio and the annual required contribution. In 2002, the funded ratio of TSERS was 108.4%, which indicated that TSERS had $1.08 for every $1.00 of current and future obligations. In 2012, that percentage had declined to 94% (Buck Consultants, 2011; Munnell et al., 2013). Even though a 94% funded ratio is considered an acceptable value for solvency, the downward trend over the decade was a cause for concern for the North Carolina General Assembly and the North Carolina Department of Treasury. The second fiscal solvency issue concerned whether the state of North Carolina satisfied the actuarial Annual Required

Contribution each year to move the increasing unfunded accrued liability to zero. The two themes that supported the declining fiscal solvency concern were: 1) Revenue and 2) Politics.

The revenue theme relates to the declining fiscal solvency concern. TSERS makes up nearly 65% of all the public pension plans in the state of North Carolina. The Great Recession of 2008 increases the share of both state and local budgets allotted to TSERS form 2.9 percent to 4.2 percent. TSERS is funded by three sources: employee contributions, employer/state contributions, and investment returns. The employee contribution rate has historically been set at 6%, which is the current rate. The General Assembly (the state employer) sets their own contribution rate yearly depending on the investment returns. The investment returns are set at a 7.25% discount rate. The theme Revenue includes three subthemes: expectation of earnings, asset allocation, and unfunded liabilities. Expectation of earnings is the expected 7.25% investment rate. The investments are considered assets. The assets are allocated to separate investments based on general statutes. For example, 20% of assets are invested as fixed income, 65% of assets are placed in public equities, 10% in real estate, and 7.5% in alternative investments. These assets collectively must make up 7.5% of the system yearly to ensure the system remains solvent. Unfunded liabilities are the portions or occurrences of TSERS the plan does not address with funding. During the Great recession, the amount required to amortize unfunded liabilities increased from 0.9% to 4% of payroll of TSERS. One example of an unfunded liability is the formula for determining retirement benefits. The benefit formula is based on an employee's four highest consecutive years of salary, years experience, and a 1.82% rate. An employee who experiences a

significant salary increase during their final four years before retirement, will receive a higher monthly benefit. The plan does not address this unfunded liability.

The politics theme relates to the declining funding solvency concern as well. Politics plays an important role in the development and implementation of the politics and components of TSERS. The North Carolina General Assembly makes all the rules and procedures for TSERS. They determine the state contribution to the plan annually, make provisions for changes to the plan, and are responsible for ensuring the plan remains solvent. In the 2013 legislative session, the General assembly made the state Treasurer the sole fiduciary of all TSERS investments. Therefore, the Treasurer must ensure decisions are made with care and diligence. The Treasurer has the autonomy to move asset allocations among high risk/high return investments such as stock to low risk/low returns, like bonds.

Research Question 2: Recent Legislative Policy History

The theme that emerged for the recent legislative policy history was Transportability. The Transportability theme refers to state employees' mobility, which is expressed through two policies, one that was acted upon and one that was not acted upon. House Bill 927 increased the vesting requirement to 10 years. The Future of Retirement Study Commission's recommendation to offer both a defined benefit plan and a defined contribution plan at the same time has not been acted upon. The theme that corresponds with the recent legislative policy history is Transportability.

The state employee workforce has changed in the past several years in comparison to trends within the workforce when the TSERS plan was implemented in 1946. Historically, public educators and state employees would work for 30 years and retire.

The General Assembly could estimate funds needed for TSERS based on this trend. However, in recent years, the workforce has changed and become more mobile. Public educators are moving from state to state more frequently due to higher salaries, family concerns and individual interests. The TSERS plan currently does not address the transportability of state employees.

Research Question 3: Near Term Future

The themes related to possible near term future changes to TSERS include Transportability, Knowledge, and Commitment. Transportability related to near term future changes refers to changing the TSERS plan from a defined benefit to a defined contribution plan. The theme of Knowledge refers to the actuarial and technical aspects of TSERS that drives a steep learning curve for policy makers. The theme Commitment refers to the state of North Carolina fulfilling the obligation to fund the retirement system.

Transportability for near term future changes to TSERS addresses the changing demographics in the state workforce. A retrospective observation is the General Assembly's decision to move away from teacher tenure. With the discontinuing of career status (tenure) for educators in North Carolina in 2018, it is likely that there will be more increased mobility between educators across state lines and between private sector lines. This demographic group would benefit from short vesting requirements and a defined contribution plan. In the interview transcripts, three respondents made specific comments regarding the state offering a defined contribution plan instead of a defined benefit option. One respondent stated the change to a defined contribution plan would be coming in the near future. Another respondent feels the state needs to transition from a

defined benefit plan to a defined contribution plan so the plan will remain solvent. Another respondent lamented that the state needs to go away from a defined benefit and more toward a defined contribution. However, there has not been a major effort to do that at this point. The plan may need to be adjusted to a defined contribution in the future for TSERS to remain solvent. However, one respondent noted moving to defined contribution plan would not be a revenue neutral action. A document that addresses the Transportability theme in the near term future is House Bill 927. If the state moves the vesting requirement back to 5 years in the near term future, the changing demographic workforce will be addressed to assist mobile teachers who move from state to state.

The theme of Knowledge relates to near term future changes of TSERS. In the interview transcripts, several respondents mentioned the complexity of the learning that takes place just to discuss and understand the problems. One respondent lamented that policy makers often did not understand the plight of educators and often made decisions emotionally rather than rationally. Another respondent noted the difference in backgrounds and experiences that many legislators have prior to becoming members of the General Assembly. One respondent mentioned the difference in opinions many individuals possess in regards to policy-making based on their backgrounds. This respondent noted the difference in opinions of Democrats, Republicans, law enforcement agencies, fire departments, and rescue groups. The Future of Retirement Study Commission's final report was a document with a culmination of the learning curve individuals experience in developing the final recommendations to the General Assembly. The members of the commission represented the state employees in their respected professions. The recommendations presented in the final report were based on

the steep learning curve the members experienced as well as the representation of each aspect of state employees.

The theme Commitment relates to near term future changes to TSERS because the General Assembly is committed to maintaining a solvent system. One respondent believes, contrary to what a lot of the past state employees want to believe, the state wants to fulfill its obligation of what has been promised. This respondent stated there should be a long-term study with the Treasury office to determine effectiveness. A second respondent feels with employer cost increase, the commitment from the General Assembly to the retirement system will remain solvent. A third respondent referred to the rate of return on investments. This respondent explained that when the rate of returns goes down, the actuarial cost to the taxpayer goes up. Then, if the 7.25% rate of return is achieved, the actuarial numbers will reach expected returns in the fund, and the cost is not changed. In this respondent's example, the state has met the obligation to fund the actuarial requirements to keep the fund whole consistently. This respondent continued by stating whether the state stays with a defined benefit plan or moves to a defined contribution plan in the future, the plan will be viable and solvent. The state employees will be able to count on a retirement vehicle if they spend their career in the state. A fourth respondent believes the nature of the commitment is such that it will stay at high levels.

Research Question 4: Long-Term Future Changes?

The themes related to long-term future changes are Commitment and Revenue. Commitment refers to the current defined benefit plan and the state keeping the plan the same as it has been in the past. Revenue refers to the state amending program

requirement such as increasing employer contributions in the future if investment returns are not profitable.

The Commitment theme as it relates to long-term future changes to TSERS is based on maintaining the system as a defined benefit plan. Based on the interview transcripts, three respondents strongly stated that TSERS should remain a defined benefit plan, because the plan has been successful for many years as measured by the solvent funded ratio for the past ten years. One respondent stated that TSERS needs to stay a defined benefit plan, because it is "working for the state of North Carolina, " and therefore, the retirement system should stay the same. Another respondent added that there are some who disagree on the plan remaining a defined benefit plan. The respondent stated that some will try to move from a defined benefit plan to a defined contribution plan and this would be a mistake. The plan needs to stay a defined benefit plan. It will not be sustainable to increase the employer contribution. One respondent agreed that the plan needed to remain a defined benefit. However, this respondent suggested adding a 401K defined contribution where the state pays in and employee has opportunity to pay in also. Another respondent expressed that current employees who are vested should not have the defined benefit/defined contribution option, because "they will have problems with their retirement." If a teacher comes into North Carolina with 5, 10, or 15 years from another state, it is impossible for them to buy years from another state.

The Joint Legislative Program Evaluation Oversight Committee examined the TSERS plan in 2011. In the final report, the committee contended the current defined benefit plan is one of the most effective in the nation and moving the plan to a defined contribution option would be less generous in the future.

The theme of Revenue relates to long-term future changes to TSERS through the amendment of program requirements such as the idea of increasing employer contributions. A retrospective observation of increasing employer contributions is the state continuing the historically sound defined benefit plan for state employees. A major concern regarding increasing employer contributions is the state relying on the 7.25% return on investments. For many years, the state had depended on a 7.25% return on investments and that is no longer the norm currently or projected to be the norm in the future. One respondent is concerned that a spike in the employer contributions is evident in the long-term future, which may impact the current polices of TSERS. Another respondent believes one of the things that may impact employer contributions is monitoring the allocation of funds. According to this respondent, the manager of the funds is a knowledgeable person who has come on board will continue to monitor these assets. So, the state needs to look the history of North Carolina's support for keeping the plan intact. This respondent is referring to the assets the plan has to keep it funded. This respondent believes the assets will continue and the plan will continually be funded in a proper manner now and in the future.

House Bill 357 is a document that relates directly to the possibility of increasing employer contributions. The State Treasurer was given autonomy to move funds from one place to another if the returns were not producing. Due to this bill, the state Treasurer does not have to get General Assembly approval to move funds if the investments are not producing enough revenue. As long as the investment returns are meeting the 7.25% return, employer contributions will not have to increase.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

Chapter 5 provides the conclusions and recommendations of the study on the fiscal solvency of the North Carolina Teachers' and State Employees' Retirement System (TSERS). This chapter is divided into three sections. The first section presents the conclusions of the study. The second section provides recommendations for future research. The third section offers a summary of the research.

Conclusions

The results provided by the investigation of the research questions in this study yielded important and potentially beneficial information for public school employees and school boards, and may help them understand he current and future status of retirement options for public employees under TSERS, including changes that may occur as a result of activity by the general Assembly. With respect to the primary research question examined in the study, the researcher concluded that the legislature is likely to offer the following amendments in the future: the lowering of the 7.25% rate of return assumption, the issue of spiking of salary, the issue of making all annual required contributions, an optional defined contribution plan option, and a vesting period decrease.

7.25% Rate of Return Assumption

The North Carolina General Assembly, as the state employer for public educators, has been cautious with making major amendments to the TSERS plan. For example, the General Assembly has to rely on a 7.25% rate of return on investments every year to fund the retirement system in conjunction with both employee contributions and employer contributions. For each fiscal year the investment returns fail to achieve the 7.25% rate of return, an unfunded actuarial liability develops. To ensure solvency, the actuary calculates an amortization schedule that designates an amount of funding that the General Assembly is advised to appropriate as part of its "employer contribution." For example, TSERS experienced higher than expected returns on investments in the 1990s. Due to this, the state contributions to TSERS between 2000 and 2005 fell below the employee contribution rate. However, in FY08 during the Great Recession, TSERS returned a negative 20% rate of return. Therefore, the state contribution rate may have to be higher in the future to make up for the difference in the loss of investments (North Carolina General Assembly, 2011).

There are both pros and cons regarding the conclusion of the 7.25% discount investment rate of return. On a positive note, if TSERS pays the full Annual Required Contribution (ARC) and investment returns continue to come in at the 7.25% rate of return, the share of both state and local budgets for TSERS will drop from 2.9% to 2.1% by 2046. For example, in 2010, the funding for TSERS was distributed as follows: investment returns, $5.7 billion; employee contributions, -$835.8 million; and the general assembly contributed $583 million. The TSRS plan cost $3.3 billion in employee benefits and $10.6 million in administration fees.

On the other hand, the General Assembly historically has funded TSERS 100% of the ARC. However, in 2011, the General Assembly only paid 73% of the ARC because investment returns come in at a higher rate then 7.25%. Furthermore, based on an estimated long term yield for the plan, returns on stocks and bonds in premiums to cover the risk of holding assets is 4% on a 30 year bond, which is lower than the 7.25%.

If the General Assembly changes the 7.25% discount rate to a lesser rate, then the risk of funding solvency becomes a major concern. Therefore, it is not so simple to change. However, instead of changing the investment return rate, the General Assembly can address the problem through other policies in TSERS such as anti-spiking measures, making all required contributions, offering a defined contribution plan and amending the vesting period. These other policies are alternatives to changing the 7.25% discount rate.

Salary Spiking

Pension spiking in defined benefit retirement plans occurs when the final (and often those of highest salary) years are extremely inflated – many times more than two fold. For example, if an employee's annual salary for the highest continuous four years out of 26 years of service is $20,000, and later the salary (due to the employee accepting another covered position) increases to $140,000 for the final four continuous years prior to retirement, the employee's annual benefit will be much higher for the remainder of her life. Yet, the amortization plan that funds her retirement was largely based on the first 26 years of work, and is insufficient to fund her retirement benefit at this much increased benefit. Because this benefit is paid out of current funds, this spiking harms the retirement fund in that it removes the funds needed for current investment.

There are both positives and negatives to the General Assembly addressing the

salary spiking issue. On a positive note, if the General Assembly decreases the final average salary for all state employees by extending the number of highest consecutive years included in the benefit calculations from 4 to 6, the salary spiking unfunded liability may be addressed to some extent, because 6 years often represents 20% of the member's contribution into the 30 year plan. On the other hand, if the benefit formula continues to be based on an employees' four highest consecutive years salaries, state employees may continue to seek much higher paid occupations and positions during the last five to eight years of service prior to retiring, continuing to create an unfunded liability. Currently, the TSERS plan is not designed to account for salary spiking. The General Assembly could address this component of the plan as an alternative to decreasing the 7.25% discount rate of return.

Required Contributions

TSERS is funded from member contributions, state contributions (General Assembly), and investment income. The combination of these three funding sources has to account for current and future pension benefits and plan administration expenses. The General Assembly must ensure that the plan is solvent to pay out the benefits and costs of administering the plan in such a manner that the plan revenue is sufficient (North Carolina General Assembly, 2011). For example, in 2010 the largest portion of TSERS was funded by investment returns at $5.7 billion. In the same year, members contributed $835.8 million and the General Assembly contributed $583 million. In 2010, TSERS paid out $3.3 billion in employee benefits and the administrative cost of the plan was $10.6 million (North Carolina General Assembly, 2011).

There are both positive and negative points of interest regarding all three funding sources (member contributions, General Assembly contribution, and investment returns). Positively, if the General Assembly follows the Annual Required Contribution schedule, which it has historically done, the TSERS plan is likely to remain solvent.

On the other hand, the General Assembly could increase the employee contribution rate in the future. In the early 2000s, the General Assembly contribution rate fell below the employee contribution rate. In future years, the General Assembly's contribution rate may have to be higher to make up for the $16 billion loss in 2008.

Optional Defined Contribution Plan Option

The TSERS plan will more than likely remain a defined benefit plan in the foreseeable future. Offering a defined contribution option would address the changing demographics for the future workforce and address teacher mobility. However, more study is needed to determine if moving to a defined contribution plan is feasible.

The North Carolina Future of Retirement Study Commission's final report (2010) recommended that the General Assembly amend TSERS to offer a choice between a defined benefit plan and a defined contribution plan for all state employees. Currently, this recommendation has not been acted upon by the General Assembly. If the General Assembly decides to offer a choice for employees, it may address the mobility of state employees while costing the state additional funds. In a defined benefit plan, the risk associated with investments is encumbered by the state, while in a defined contribution plan, the state employees assume the risk of investments.

There are both positives and negatives to the General Assembly offering a choice between a defined benefit plan and defined contribution plan for public educators.

Positively, if the General Assembly offers a defined contribution option for public educators in K-12 education, plan members would make choices for investing the funds of their own retirement and a defined contribution option would address the transportability of the new workforce. TSERS plan members could move from the public sector to the private sector or from state to state without losing retirement benefits. Additionally, the state employer contribution percentage is likely to be fixed in a defined contribution plan. The employer contribution rate can be established at a low rate to keep costs down.

On the other hand, in the current defined benefit plan, an employee's lifetime retirement income is based on the 1.82% formula, the four highest consecutive years of salary, and total years of experience. If the General Assembly offers both, it would have to fund both plans. Furthermore, the General Assembly has to weigh the options of reducing the costs in providing a solvent retirement system for employees with the ability to recruit and retain qualified personnel.

Vesting Period Decrease

The vesting period for state employees enrolled in TSERS has historically been five years. Vesting refers to a minimum service requirement to receive the retirement benefits. In 2011, House Bill 927 changed the vesting period for employees who become members of TSERS after August 1, 2001 to ten years. This change limits the mobility of state employees. Some concern was expressed regarding the increase in the vesting requirement to 10 years in that it may harm the state more than help the retirement system. The state may lose state employees, like teachers, to other states where the vesting period is lower.

There are both positives and negatives to the General Assembly amending the vesting period requirement back to five years for TSERS members. On a positive note, if the vesting period remains the same currently (10 years for members hired after August 1, 2011, 5 years for members already vested before August 1, 2011), the costs and new hire benefits will reduce. The estimated saving is $9.9 million annually.

On the other hand, the outcome of the savings will not be evident in less than 30 years, or until most members have hire dates after August 1, 2011. Additionally, the change to a 10 year vesting period increased the years of service to qualify for retirement for employees aged 65 from 5 to 10 years.

Recommendations

Based on the study results and conclusions, there are several recommendations for future study and research. The recommendations are as follows:

1) A few respondents mentioned the public educator retirement plan should address members who have ten or less years of service who are likely to experience greater mobility in employment throughout their working lives. The educator workforce has changed in recent years. Educators are not staying in the same school district for 20 years or even in the same state. Thus, a job with a mandatory retirement system that mandates decades-long longevity in a single retirement system or risk steep penalties in benefits is becoming a deterrent to attracting younger educators. Further, when members leave TSERS and remove their contributions, there is an overall deficit to the earnings potential of TSERS. One recommendation is that a needs assessment be completed which focuses on members with less than 10 years of service,

their likelihood for mobility, and what retirement structure would benefit them.

2) If the TSERS plan undergoes a major change in the next ten years it will more than likely entail an option between a defined benefit option and defined contribution option. More study is needed to determine if TSERS should either change the plan to a defined contribution plan or offer a choice for state employees to choose between each plan.

Summary

In North Carolina, TSERS is a fiscally solvent public educator retirement system because the General Assembly continues to fulfill the promises for its members by offering a sound retirement system. The legislators interviewed do not see the declining funded ratio as an issue of funding, rather an issue of components of the system. Due to the fact that North Carolina has one of the most solvent systems in the nation, the declining funded ratio and the system remaining solvent will continue to be watched by legislators. The General Assembly could amend the plan features of TSERS for future hires or current employees who are not vested to reduce costs for the plan. For example, the General Assembly could increase the employee contribution rate, decrease the vesting period, decrease final average salaries to avoid spiking, and develop a minimum retirement age. However, these changes may affect future solvency of the system.

REFERENCES

Aberbach, J. D., & Rockman, B. A. (2002). Conducting and coding elite interviews. *Political Science and Politics, 35*(4), 673-676.

Alabama Teachers' Retirement System. (2008). *The Retirement Systems of Alabama comprehensive annual financial report for the fiscal year ended September 30, 2007.* Retrieved from http://www.rsa-al.gov/About%20RSA/Pubs%20and%20forms/RSA%20Pubs/CAFR/2007%20CAFR/Introductory%20Section.pdf

Alabama Teachers' Retirement System. (2013). *Teachers' Retirement System of Alabama report of the actuary on the annual valuation prepared as of September 30, 2011*. Retrieved from http://www.rsa-al.gov/TRS/Pubs and forms/TRS Pubs/TRS-2011-9-30-Val.pdf

[Alabama] Teachers' Retirement System. (2013). *Rate change letter*. Retrieved from http://www.rsa-al.gov/TRS/trs.html

[Alabama] Teachers' Retirement System (RSA-AL). *Teachers' Retirement System member handbook.* (2012). Retrieved from www.rsa-al.gov/TRS/Pub

Arizona Defined Contribution and Retirement Study Committee. (2012). *Final Report*. Retrieved from http://www.aztreasury.gov/wp-content/uploads/2012/02/SB1609-Pension-Study-Committee-Final-Report-Dec-21-2012.pdf

Balfour, B. (2013). Reform for NC Pension. *Charlotte Business Journal*. February 1, 2013. Retrieved from http://www.bizjournals.com/charlotte/print-edition/2013/02/01/reform-for-nc-pension.html?page=all

Balfour, B. (2012). *Reforms needed for North Carolina's Ailing Pension System*. Civitas Institute. Retrieved from http://www.nccivitas.org

Berry, J. M. (2002). Validity and reliability issues in elite interviewing. *Political Science and Politics, 35*(4), 679-682.

Bickman, L., & Rog, D. (2009). *Handbook of applied social research methods*. Sage: Thousand Oaks, CA.

Center for Retirement Research at Boston College and Center for State and Local Government Excellence. (2001-2011). *Public Plans Database*. Accessed at http://crr.bc.edu/data/public-plans-database/

Chamberlain, L. M. (1946). Pensions and retirement pay. *Review of Educational Research, 6*(3), 274-278.

Clark, R. L., Craig, L. A., & Wilson, J. W. (2003). *A history of public sector pensions in the United States*. Philadelphia: University of Pennsylvania Press.

Cohen, M. D., March, J. G., & Olsen, J. P. (1972). A garbage can model of organizational choice. *Administrative Science Quarterly, 17*(1), 1-25.

Costrell, R. M., Podgursky, M., & Weller, C. E. (2011). Fixing teacher pensions: Is it enough to adjust existing plans. *Education Next, 11*, 60-69.Retrieved from http://educationnext.org/journal/fall-2011-vol-11-no-4/

Dexter, L. (1970). *Elite and specialized interviewing*. IL: Northwestern University.

Florida Department of Management Services/Division of Retirement. (2012). *The Florida system annual report, July 1, 2011 – June 30*. Retrieved from https://www.rol.frs.state.fl.us/forms/2011-12_Annual_Report.pdf

Florida Retirement System (2012). *Comparison of Actuarial Assets to Liabilities and Benefit Payments*. Retrieved from https://www.rol.frs.state.fl.us/forms/Asset_Liability_Chart.pdf

Florida State Board of Administration. *Financial statements, managements' discussion and analysis, and other report.* Ended June 30, 2012 and 2011.

Friedberg, L., & Turner, S. (2011). Pensions and public school teacher retirement: An analysis using national teacher data. *Research Dialogue TIAA_CREF Institute, 99,* 2-22.

[Georgia] Teachers Retirement System of Georgia. (various years*). Comprehensive annual financial reports. Fiscal Years Ended 2008 - 2013. Teachers Retirement System of Georgia*. Retrieved from http://www.trsga.com/Publications.aspx

Gordon, T. (2011). *State budgets in recession and recovery*. *Policy Brief.* Washington, DC: Brookings Institution. Retrieved from http://www.brookings.edu/research/reports/2011/10/27-state-budgets-gordon

[Hawaii] State of Hawaii Employees Retirement System: ERS. (2013). *Hawaii administrative rules.* Retrieved from www.ers.ehawaii.gov

[Idaho] Public Employees Retirement System of Idaho. (2013). *PERSI member handbook.* Retrieved from www.persi.idaho.gov/persi_member_handbook

[Illinois] Teachers' Retirement System of the State of Illinois (2013). *Comprehensive annual financial report*. 2012. Retrieved from www.trs.illinois.gov

Indiana Public Retirement System. (2013). *Comprehensive annual financial report*. Retrieved from http://www.in.gov/inprs/annualreports.htm

Joint Economic Committee Republicans. (2012). *The pending state pensions crisis*. Republican Staff Commentary, September 26, 2012. Retrieved at jec.senate.gov/republicans

Kansas public employees' retirement system. (2012). Insight-Kansas Public Employees Deferred *Compensation Plans Newsletter*. Retrieved from www.kpers.org

Kentucky Teachers' Retirement System. (2013). *Comprehensive annual financial report.* Retrieved from www.ktrs.ky.gov

Kingdon, J. W. (1995). *Agenda, alternatives and public policies*. (2nd ed.). New York: Harper Collins.

Kingdon, J. W. (1984). *Agenda, alternatives and public policies*. Boston: Little, Brown.

Lindblom, C. E. (1959). The science of "muddling through." *Public Administration Review, 19*(2), 78-88.

Lantry, T. (1997). Defined contributions: Is it right for public pension plans? *Employee Benefits, Journal*, 9-21.

Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry*. Thousand Oaks: Sage.

[Louisiana]. Teacher's retirement system of Louisiana (TRSL). (2012). *TRSL member handbook: Regular Plan A and Plan B*. Retrieved from www.trsl.org

Mannino, M. V., & Cooperman, E. S. (2011). Surplus deferred pension compensation for long-term K-12 employees: an empirical analysis for the Denver Public School retirement system and four state plans. *Journal of Pension Economics and Finance, 10*(3), 457-483.

Marshall, C., & Rossman, G. B. (1999). *Designing qualitative research (3rd ed.*). Thousand Oaks: Sage.

Maryland State Retirement and Pension System. (2013). *Retirement handbook.* Retrieved from www.sra.state.md.us/Participants

Mertens, D. M. (1998). *Research methods in education and psychology: Integrating diversity with quantitative and qualitative approaches.* Thousand Oaks: Sage.

Munnell, A. H., & Soto, M. (2007). *State and local pensions are different from private plans*. Center for Retirement Research at Boston College, *1*, 1-11.

Munnell, A. H., Aubry, J., & Quinby, L. (2010). *The funding of state and local pensions:2009-2013.* State and Local Plans Issue Brief #10. Chestnut Hill,MA: Center for Retirement Research. Retrieved from http://crr.bc.edu/briefs/the-funding-of-state-and-local-pensions-2009-2013/

Munnell, A. H., Aubry, J., Hurwitz, J., & Mendenica, M. (2013). *The funding of state and local pensions: 2012-2016.* State and Local Plans Issue Brief #32. Chestnut Hill,MA: Center for Retirement Research. Retrieved from http://crr.bc.edu/briefs/the-funding-of-state-and-local-pensions-2012-2016/

National Conference of State Legislatures. (2009). *State retirement system defined contribution plans*. Retrieved from http://www.ncsl.org

National Conference of State Legislatures. (2009a). *Pensions and retirement plan enactments in 2009 state legislatures*. Retrieved from http://www.ncsl.org

National Conference of State Legislatures. (2010). *State defined contribution and hybrid pension plans*. Retrieved from http://www.ncsl.org

National Conference of State Legislatures. (2012). *Pensions and retirement plan enactments in 2012 state legislatures*. Retrieved from http://www.ncsl.org

[North Carolina] *An act to make technical and conforming changes to statutes affecting state retirement systems*, NC-SB 804, General Assembly of North Carolina, 2011-232d Session. (2011).

North Carolina Department of State Treasury. (2014). *Draft. Pension Spiking Prevention Act of 1/8/2014.* https://www.nctreasurer.com/ret/Board%20of%20Trustees/PensionSpikingPreventionActOf2014_1-8-2014DRAFT.pdf

North Carolina Department of State Treasury. (2013). *Teachers' and State Employees' Retirement System Revised Handbook, 2013*. Retirement Systems Division. Retrieved from https://www.nctreasurer.com/Retirement-and-Savings/Managing-My-Retirement/Pages/Benefits-Handbooks.aspx

North Carolina Department of State Treasury. (2013a). *Treasurer Cowell reports fiscal year end pension fund returns*. Retrieved from https://www.nctreasurer.com/inside-the-department/News-Room/press-releases/Pages/Treasurer-Cowell-Reports-Fiscal-Year-End-Pension-Fund-Results.aspx

North Carolina Department of State Treasury. (2012). *Risk analysis. Report to the Investment Advisory Committee. November 12, 2012*. Retrieved from https://www.nctreasurer.com/inv/IAC%20Resources/IACRiskAnalysis-111412.pdf

North Carolina Department of State Treasury. (2012a). *Report on the Seventieth Valuation of the Teachers' and State Employees' Retirement System of North Carolina prepared as of December 31, 2012*. Retrieved from http://www.nctreasurer.com/ret/Board%20of%20Trustees/2012%20TSERS%20Valuation.pdf

North Carolina Department of State Treasury. (2011). *Report on the Sixty-Ninth Valuation of the Teachers' and State Employees' Retirement System of North Carolina prepared as of December 31, 2011*. Retrieved from http://www.nctreasurer.com/ret/Pages/Valuation-Reports.aspx

North Carolina Department of State Treasury. (2011a). *Guidance on Teachers' and State Employees' Retirement System (TSERS) 10-year vesting law change.* Retirement Systems Division. Retrieved from https://www.nctreasurer.com/search/pages/Results.aspx?k=10%20year%20vesting%20law%20change

North Carolina Department of State Treasury. (2010). *Report on the Sixty-Eighth Valuation of the Teachers' and State Employees' Retirement System of North Carolina prepared as of December 31, 2010*. Retrieved from https://www.nctreasurer.com/ret/Pages/Valuation-Reports.aspx

North Carolina Department of State Treasury. (2009). *Report on the Sixty-Seventh Valuation of the Teachers' and State Employees' Retirement System of North Carolina prepared as of December 31, 2009*. Retrieved from https://www.nctreasurer.com/ret/Pages/Valuation-Reports.aspx

North Carolina Department of State Treasury. (2008). *Report on the Sixty-Ninth Valuation of the Teachers' and State Employees' Retirement System of North Carolina prepared as of December 31, 2008*. Retrieved from https://www.nctreasurer.com/ret/Pages/Valuation-Reports.aspx

[North Carolina] Future of Retirement Study Commission. (2010). *Final report to boards of trustees of the teachers' and state employees' retirement system and the local government employees' retirement systems.* North Carolina Department of the State Treasurer. Retrieved from http://www.nctreasurer.com/ret/Future%20of%20Retirement/FORSCreport.pdf

North Carolina General Assembly. (2011). *Compared to other states' retirement plans, TSERS is well funded and its plan features are typical or less generous. Report 11-05. Final Report to the Joint Legislative Program Evaluation Oversight Committee.* Program Evaluation Division. Retrieved from http://www.ncga.state.nc.us/PED/Reports/byDate.html

North Carolina General Statutes. (2013). *Chapter 135: Retirement system for teachers and state employees; social security; state health plan for teachers and state employees. (Article 1).* Retrieved from www.ncga.state.nc.us

[North Carolina] Retirement governance changes, NC-HB 357, General Assembly of North Carolina, 2013-234d Session. (2013).

[North Carolina] State Employees Retirement System Changes, NC-NB 927, General Assembly of North Carolina, 2011-232d Session. (2011).

North Carolina Teachers' and State Employees' Retirement System. (2013). *Comprehensive annual finance report.* Retrieved from http://www.nctreasurer.com

[Ohio] State Teachers Retirement System of Ohio. (2014). *New members – Combined Plan*. Retrieved from https://www.strsoh.org/duringcareer/newmembers/coplan.html

[Oklahoma] Teachers' Retirement System. (2013). *Client handbook.* Retrieved from www.ok.gov/TRS/ClientHandbook

Patton, M. Q. (1990). *Qualitative research & evaluation methods*. Thousand Oaks: Sage.

Patton, M. Q. (2002). *Qualitative research & evaluation methods*. Thousand Oaks: Sage.

Peng, J., & Boivie, I. (2011). *Lessons from well-funded public pension: An analysis of six plans that weathered the financial storm.* Washington, DC: National Institute on Retirement Security. Retrieved from http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CDMQFjAB&url=http%3A%2F%2Fwww.ncpublicschools.org%2Fdocs%2Fhumanresources%2Fbenefits%2Flessons-pensions.pdf&ei=YUE7UprHPIWC8gSTmIDIDw&usg=AFQjCNE_SXiwSEfeIvKBWL8JxyayDRDR8g&sig2=-1taR7n1-i08KJQajG_Idg&bvm=bv.52288139,d.eWU

Pew Center on the States. (2010). *The trillion dollar gap: Underfunded state retirement systems and the road to reform*. Retrieved from http://www.pewstates.org/research/reports/the-trillion-dollar-gap-85899371867

Seidman, I. (2006). *Interviewing as qualitative research: A guide for researcher in education and the social sciences.* New York: Teachers College Press.

Severson, K. (2011, December 11). GOP's full control in long-moderate North Carolina may leave lasting stamp. *The New York Times*. Retrieved from http://www.nytimes.com/2012/12/12/us/politics/gop-to-take-control-in-long-moderate-north-carolina.html?_r=0

South Carolina Public Employees Benefit Authority. (2013). *Comprehensive annual financial report for the fiscal year ended June 30, 2013*. Retrieved from http://retirement.sc.gov/financial/CAFR%202013.pdf

Stake, R. (1995). *The art of case research.* Newbury Park, CA: Sage Publications.

State Retirement Changes, NC-SB 687, General Assembly of North Carolina, 2011 Session. (2011).

Studinski, P. (1920). *Teachers' pensions in the United States: A critical and descriptive study.* Institute of Government. New York: D. Appleton & Company. Retrieved from http://www.archive.org/stream/teacherspensions00studuoft#page/n7/mode/2up

Tennessee Consolidated Retirement System. (2013). *Annual TCRS report.* Retrieved from www.treasury.state.tn.us

Toutkoushiam, R. K., Bathon, J. M., & McCarthy, M. M. (2011). A National Study of the Net Benefits of State Pension Plans for Educators. *Journal of Education Finance, 37*(1), 1-11.

Tolar, A. (Ed). (1985). *Effective interviewing*. Chicago: Charles C. Thomas Publisher.

United States Center for Disease Control. (2011). *Vital statistics rates in the United States.* Retrieved from www.cdc.gov

U.S. Census Bureau. (2011). *State government retirement systems: General summary. Table 5 number and membership of state public employee retirement systems by state: Fiscal year 2009.* Retrieved from http://www.census.gov/newsroom/releases/archives/news_conferences/st_gov_retirement_tables.html

U.S. Census Bureau. (2013). *Public pensions: State administered defined benefit data summary report: 2012*. Governments Division briefs. Retrieved from www.census.gov/prod/2013pubs/g12-cg-spp-st.pdf

U.S. Census Bureau. (2103). *Revenues of state-administered defined benefit retirement system finances by state: 2012 - United States – States.* 2012 Census of Governments. American Fact Finder. Retrieved from http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk

U.S. Government Accountability Office. (2008a). *State and local government retiree benefits: Current funded status of pension and health benefits*. Retrieved from www.gao.gov/products/GAO-08-223

U.S. Government Accountability Office. (2008b). *State and local government pension plans: Current structure and funded status.* Retrieved from http://www.gao.gov/new.items/d08983t.pdf

Virginia Retirement System. (2013). *Hybrid retirement plan.* Retrieved from www.varetire.org

Washington State Department of Retirement Systems. (2013). *Washington State Teachers' Retirement System, -plan 3 member handbook, November 2013.* Retrieved from http://www.drs.wa.gov/member/handbooks/trs/plan-3/default.htm

Wisconsin Department of Administration, Department of Employee Trust Funds, and Office of State Employment Relations. (2012). *Study of the Wisconsin retirement system*. Retrieved from etf.wi.gov/publications/wrs-study.pdf

Wyoming Retirement System. (2013). *Public employee pension plan handbook.* Retrieved from www.retirement.state.wy.us

Yin, R. (1994). *Case study research: Design and methods*. Thousand Oaks: Sage.

APPENDIX A: INTERVIEW PROTOCOL

1. Please describe your present position?

2. Please describe your familiarity with the details of the public retirement system?

3. Please describe your familiarity with the details of the North Carolina Teachers' and State Employees' Retirement System (TSERS)?
   Probe: Do you have a direct role in TSERS implementation?
   Probe: Do you have a direct role in setting policy for TSERS?

4. Please describe your familiarity with how TSERS is funded?

5. Please describe your knowledge of fiscal solvency in regards to TSERS? Will TSERS remain solvent? How?

6. What would be your position on TSERS offering both a defined benefit option and a defined contribution option?

7. What has your position been on these legislative bills in the past few years that have proposed changes to TSERS? (Show table of selected bills)
   Probe: What is your position on amending the retirement age?
   Probe: What is your position on centralizing 403b providers across the state?

8. What do you envision TSERS will look like ten years from now?

9. Is there anything else regarding TSERS or fiscal solvency in North Carolina that you would think is important that I have not covered?

10. Are there other persons that I should talk with?

APPENDIX B: CONSENT FORM

UNC CHARLOTTE
College of Education

Educational Leadership

9201 University City Boulevard, Charlotte, NC 28223-0001

t/ 704-687-8863 f/ 704-687-3493

http://education.uncc.edu

Informed Consent for

A Legislative Examination of the North Carolina teachers' and State Employees' Retirement System: Retrospect and Prospect

Project Title and Purpose

You are invited to participate in a research study entitled, "A Legislative Examination of The North Carolina Teachers' And State Employees' Retirement System: Retrospect and Prospect."

Across several states retirement pensions of public educators are being modified to provide longer vesting requirements, smaller payouts, and changes from a defined benefit to a defined contribution structure. Each year, legislation is filed in the North Carolina General Assembly that proposes significant changes to the retirement system for public employees. In 2009, the North Carolina General Assembly created the Future of Retirement Study Commission to examine the Teachers' and State Employees'

Retirement System (TSERS). In 2010, this Study Commission provided the General Assembly with eight recommendations to improve TSERS.

The purpose of this study is to explore what potential changes to the Teachers' and State Employees' Retirement System for North Carolina are possibilities for change and in particular are prompted from the recommendations from the Future of Retirement Study Commission's final report. Although there has been much research conducted on teacher retirement plans in general, there is little direct research that examines how the North Carolina General Assembly might address changes to TSERS in the future.

The study is being conducted by Mr. Richard Todd Griffin; a doctoral student in the UNC Charlotte Department of Educational Leadership, and Lisa G. Driscoll, Ph.D., Associate Professor, and supervising faculty member.

Eligibility

The target population for this pilot study are persons at least 21 years of age who have unique knowledge of TSERS, its implementation, and the political environment of North Carolina. These individuals are

(1) current and past North Carolina legislators,

(2) current and former members of the Future of Retirement Study Commission,

(3) other elected or appointed officials, and

(4) any other individual who has technical knowledge of the North Carolina Teachers' and State Employees' Retirement System (TSERS).

Overall Description of Participation

You were solicited, because you were purposefully identified as having knowledge of the North Carolina Teachers' and State Employees' Retirement System (TSERS).

You will be asked to participate in one face-to-face interview or a telephone interview regarding your knowledge and experience with the North Carolina Teachers' and State Employees' Retirement System (TSERS). The interview will involve 12 open-ended questions and is expected to take about 45 minutes. The investigator may also ask follow-up questions to clarify or get more detail on something that you have stated. The interview will be audio-recorded and then transcribed by the investigator. Within approximately two weeks later you will be offered the interview transcripts for review, to correct, add or remove items. You will not be assigned to any "group."

Length of Participation

Your direct participation in this project will last a total of 1 hour and 45 minutes (45 minute interview + 1 hour transcript check) over the course of a single month. You will be interviewed one time. The interview will last no more than 45 minutes. The transcript check will take 1 hour. If you decide to participate in this pilot study, you will be one of 10 persons interviewed. The period from the time of your solicitation and the interview transcript returned to you for checking will occur within one month, but the entire pilot study, including data analysis and report will take 12 months.

Risks and Benefits of Participation

There are no known risks to participation in this study. However, there may be risks which are currently unforeseeable. There are no direct benefits of participating in this study, except that you may glean some knowledge about the North Carolina Teachers'

and State Employees' Retirement System (TSERS) from the analysis of your interview. There are no costs to you to participate in this study.

Volunteer Statement

You are a volunteer. The decision to participate in this study is completely up to you. If you decide to be in the study, you may stop at any time. You will not be treated any differently if you decide not to participate in the study or if you stop once you have started.

Confidentiality

Any information about your participation, including your identity, is completely confidential. The following steps will be taken to ensure this confidentiality:

(1) Your audio-recording and all materials related to you, including the transcript from the recording, will be assigned a code number. This code number will be used on all materials; your name will not be on any materials. The interview will be transcribed by Mr. Richard Todd Griffin using a computer. Upon completion, all evidence of the interview recording and transcript will be deleted from the computer.

(2) All files generated from the interview will be identified with only a code name and will be stored on each of two password protected flash drives. These flash drives will be stored in a locked file cabinet at the home of the primary investigator and in a locked file cabinet at the office of the faculty supervisor. Only myself and my supervising faculty member (Dr. Lisa G. Driscoll) will have access to the interviews and any other materials related to you.

(3) There will be no emailing of the data files between the faculty advisor and myself. All communication with you will be made either by postal-mail or telephone, whichever you prefer.

(4) All data will be destroyed at the end of 3 years by erasing the flash drive, erasing any voice recordings, and shredding any paper documents.

Statement of Fair Treatment and Respect

UNC Charlotte wants to make sure that you are treated in a fair and respectful manner. Contact the university's Research Compliance Office (704-687-3309) if you have questions about how you are treated as a study participant. If you have any questions about the actual project or study, please contact Richard Todd Griffin at (704) 677-0581, rgriff43@uncc.edu or Dr. Lisa G. Driscoll (704) 687-862l, Lisa.Driscoll@uncc.edu

I have read the information in this consent form. I have had the chance to ask questions about this study, and those questions have been answered to my satisfaction. I agree to participate in this research project. I understand that I will receive a copy of this form after it has been signed by me and the principal investigator.

_____

Participant Signature

_____ _____

Investigator Signature DATE

APPENDIX C: RECRUITMENT LETTER

UNC CHARLOTTE
College of Education

Educational Leadership

9201 University City Boulevard, Charlotte, NC 28223-0001

t/ 704-687-8863 f/ 704-687-3493

http://education.uncc.edu

August 21, 2013

Dear Prospective Participant,

As a doctoral student, I am responsible for gaining extensive experience with the methods and procedures used to conduct independent research. In accordance with the requirements of the Institutional Review Board (IRB) of the University of North Carolina at Charlotte, I would like to invite you to participate in a pilot study for my dissertation entitled, "A Legislative Examination of the North Carolina Teachers' And State Employees' Retirement System: Retrospect And Prospect."

This study is intended to explore how the General Assembly will address the recommendations outlined in the Future of Retirement Study Commission's final report on TSERS in 2010. The report may be electronically assessed by visiting www.nctreasurer.com.

I will gather data via one face-to-face or telephone interview (approximately 45 minutes long), by analyzing documents, and taking field notes. The interview transcript will be kept in a locked file cabinet, only accessible by myself and my faculty advisor to protect your anonymity and it will be destroyed three years after completion of the study.

Your input will be a valuable contribution to the research of the public educator retirement system in North Carolina. Please email me indicating your willingness to participate in the study. If you have any questions, please contact me at rgriff43@uncc.edu or 704-677-0581 or Dr. Lisa G. Driscoll, Ph.D. at Lisa.Driscoll@uncc.edu.

Sincerely,

Richard Todd Griffin

Doctoral Candidate

Educational Leadership

APPENDIX D: TELEPHONE SCRIPT

Telephone Script

A Legislative Examination of the North Carolina Teachers' and State Employees' Retirement System: Retrospect and Prospect

Hello!

My name is Richard Todd Griffin and I am conducting a study on the Teachers' and State Employees' Retirement System (TSERS) for dissertation research and my doctoral degree research at the University of North Carolina at Charlotte. Last week I mailed you a packet of materials about my study.

The study focuses on the recommendations presented to the North Carolina General Assembly in 2010 by The Future of Retirement Study Commission. Your name was selected as a possible participant, because you were believed to be knowledgeable about the topic. I would like to interview you for about 45 minutes.

Would you be interested in participating in this study?

Wait for response.

APPENDIX E: IRB APPROVAL

UNC CHARLOTTE

Research and Economic Development
Office of Research Compliance

9201 University City Blvd, Charlotte, NC 28223-0001
t/ 704.687.1876 f/ 704.687.0980 http://research.uncc.edu/compliance-ethics

Institutional Review Board (IRB) for Research with Human Subjects

Certificate of Approval

Protocol #	**13-07-14**
Protocol Type:	**Expedited** 7
Title:	**A Legislative Examination of the North Carolina Teachers' and Sta Employees' Retirement System: Retrospect and Prospective**
Initial Approval:	**8/12/2013**
Responsible Faculty	**Dr. Lisa Driscoll Educational Leadership**
Investigator	**Mr. Richard Todd Griffin Educational Leadership**

After careful review, the protocol listed above was approved by the Institutional Review Board (IRB) for Research with Human Subjects under 45 CFR 46.111. This approval will expire one year from the date of this letter. In order to continue conducting research under this protocol after one year, the "Annual Protocol Renewal Form" must be submitted to the IRB. This form can be obtained from the Office of Research Compliance web page http://research.uncc.edu/compliance-ethics/human-subjects.

Please note that it is the investigator's responsibility to promptly inform the committee of any changes in the proposed research prior to implementing the changes, and of any adverse events or unanticipated risks to subjects or others.

Amendment and Event Reporting forms are available on our web page at: http://research.uncc.edu/compliance-ethics/human-subjects/amending-your-protocol.

M. Lyn 8/18/13

Dr. M. Lyn Exum, IRB Chair Date

APPENDIX F: IRB ADDENDUM APPROVAL

Research and Economic Development
Office of Research Compliance
9201 University City Blvd, Charlotte, NC 28223-0001
t/ 704.687.1876 f/ 704.687.0980 http://research.uncc.edu/compliance-ethics

Institutional Review Board (IRB) for Research with Human Subjects

Certificate of Approval

Protocol #	**13-07-14**
Protocol Type:	**Expedited** 7
Title:	**A Legislative Examination of the North Carolina Teachers' and Sta Employees' Retirement System: Retrospect and Prospective**
Initial Approval:	**8/12/2013**
Responsible Faculty	**Dr. Lisa Driscoll Educational Leadership**
Investigator	**Mr. Richard Todd Griffin Educational Leadership**

After careful review, the protocol listed above was approved by the Institutional Review Board (IRB) for Research with Human Subjects under 45 CFR 46.111. This approval will expire one year from the date of this letter. In order to continue conducting research under this protocol after one year, the "Annual Protocol Renewal Form" must be submitted to the IRB. This form can be obtained from the Office of Research Compliance web page http://research.uncc.edu/compliance-ethics/human-subjects.

Please note that it is the investigator's responsibility to promptly inform the committee of any changes in the proposed research prior to implementing the changes, and of any adverse events or unanticipated risks to subjects or others.

Amendment and Event Reporting forms are available on our web page at: http://research.uncc.edu/compliance-ethics/human-subjects/amending-your-protocol.

M. Lyn 8/18/13

Dr. M. Lyn Exum, IRB Chair Date