Reforming Teacher Pensions

Leigh Anenson, University of Maryland
REFORMING TEACHER PENSIONS

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Pension reform has taken center stage in the public policy debate as states struggle to deal with the fallout from the Great Recession. Retirement benefits are not only a critical component of income-maintenance for public retirees, but also a source of economic stimulus to every state economy. In this article, we integrate and extend the pension reform movements in law, education and economics by studying teacher pensions across the United States. Our interdisciplinary approach concentrates on defined benefit plans in states that do not contribute to Social Security. Focusing on this vulnerable and important group of government workers, we aim to improve theory and practice by providing a valuable perspective as states reconsider their pension obligations.

We initially estimate the severity of the public pension problem through a variety of statistical analyses and comparisons among fifty plans that do and do not fund Social Security. We then evaluate the legality and desirability of existing and proposed reforms. Significantly, pension reform raises new constitutional questions that are challenging courts to arrive at an acceptable conceptual framework for consistent interpretation and application. With the foregoing financial, political, and legal considerations in mind, we suggest a comprehensive set of reform measures. We provide these policy prescriptions along with a managerial paradigm for political action. The policymaking methodology directs attention not only to the pension plans themselves, but also to the political reality of their creation and continued operation. We conclude that a comprehensive response to the public pension crisis is necessary to avert disaster and maintain plan solvency both now and in the future.

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“Today, education is perhaps the most important function of state and local governments.”

--Brown v. Board of Education

Education has entered an age of uncertainty. The Great Recession has forced hard choices on government leaders with education shrinking in state budgets and declining in national priority. An often overlooked challenge to government-sponsored education comes from the crisis in public pensions. The federal safeguards in place for pensions sponsored by private employers do not exist in the public realm. With trillions of dollars at stake, practitioners, policymakers, and academics alike are urgently addressing the pension problem. Politicians in more than forty states have been considering a variety of proposals and implementing changes that affect millions of government workers and retirees. Courts have also entered the milieu as impacted employees are testing whether reforms surmount legal obstacles and pass constitutional muster.

The debate over public pension reform has far reaching implications for the present financial security of teachers and the future of education. Given that educator wages are lower than other professions and forms of government employment, pensions as a form of deferred compensation enable states to hire the most effective teachers. Cutting pension benefits without increasing salaries could hurt the recruitment and retention of quality public school teachers.

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3 National Association of State Retirement Administrators, Issue Brief: Spending on Public Employee Retirement Systems, at 1, Aug. 27, 2012, http://www.nasra.org (hereinafter “2012 NASRA Issue Brief”) (“In the wake of the 2008-09 market decline, over 40 states and many cities have taken steps to improve the financial condition of their retirement plans and to reduce costs.”).
4 Darius Lakdawalla & Rand Corporation, The Economics of Teacher Quality, 49 J.L. & ECON. 285 (2006) (concluding that teacher wages have fallen from 1940-1990 despite the increased demand for education in advanced economies); REPORT OF THE TASK FORCE ON TEACHER LEADERSHIP, Leadership for Student Learning: Redefining the Teacher as Leader at 6 (April 2001) (noting that data from the federal Bureau of Labor Statistics and other sources put elementary and secondary school teachers below that of police officers, detectives and firefighters); id. at 1 (advising that the average salaries for teachers remain at or near the bottom of the professional wage scales).
5 See Lakdawalla & Rand, supra note 3 (concluding that evidence from the National Longitudinal Survey of Youth demonstrates that wages are a good measure of teacher quality); see also Melanie Hicken, Firefighters, teachers face smaller retirement safety net, CNNMONEY, Feb. 11, 2013 (“Before the recession, studies showed that public and private-sector workers had roughly equal compensation when both salaries and benefits were considered[]” (quoting Jean-Pierre Aubry at Boston College’s Center for Retirement Research)).
6 A recent report by the Center for Retirement Research at Boston College concluded that pension cuts “will almost certainly result in a lower quality of applicants for one of the nation’s most important jobs.” Alicia H. Munnell & Rebecca Cannon Fraenkel, Compensation Matters: The Case of Teachers, Center for Retirement Research, Boston College (Jan. 2013); Eric A. Hanuschek, The Economic Value of Higher Teacher Quality, National Bureau of...
quality linked to economic achievement individually and gains in gross domestic product collectively, changes to educator pension systems deserve serious consideration.

In this article, we integrate and extend the pension reform movements in law, education and economics by studying teacher pensions across the United States. Our interdisciplinary approach concentrates on defined benefit plans that do not contribute to Social Security. Focusing on this vulnerable and important group of government workers, we aim to improve theory and practice by providing a valuable perspective as states reconsider their pension obligations.

Part I appraises the problem and establishes that the retirement income security of public employees is in jeopardy. More specifically, it analyzes the pensions of teachers who contribute to their plans, collectively more than thirty billion dollars annually, and not to Social Security. These defined benefit plans are in pension systems that span thirteen states and comprise more than 300,000 members. Using the latest data from the Center for Retirement Research at Boston College, we investigate the financial condition of fifty teacher pensions over a seven year period and explore the similarities and differences between plans in Social Security and non-Social Security states. Our financial calculations show serious underfunding of educator defined benefit plans systemic of all pensions since the global financial crisis. The detailed comparisons between plans that do and do not fund Social Security also demonstrate that the latter pensions are, in fact, much worse than the former and most at risk of failure.

Part II surveys the recent reforms of public pensions as well as the legal obstacles to these legislative solutions. Significantly, pension reform raises new constitutional questions that are challenging courts to arrive at an acceptable conceptual framework for consistent interpretation and application. We assess and summarize decisions on public pension changes by concentrating on the constitutional constraints under the Contracts Clause.

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7 Linda Darling-Hammond, Educating Teachers: The Academy’s Greatest Failure or Its Most Important Future?, 85 ACADEME 26-33 (Jan.-Feb. 1999) (commenting that the ability of teachers is one of the most powerful determinants of student achievement and is more influential than poverty, race, or the educational attainment of parents); Michelle A. Rhee, Commentary, Policies Should Reflect The Importance of Teaching, EDUC. WEEK, Jan. 25, 2012, at 24 (citing study from Harvard and Columbia detailing profound economic impact of highly effective teachers on students earnings and overall quality of life).


9 NASRA Issue Brief 2012, supra note 3, at 2 (noting that forty percent of public school teachers do not contribute to Social Security (25-30 percent of state and local employees overall), amounting to $31.2 billion annually that would have been paid to Social Security).
with teacher pensions in non-Social Security states, we highlight the following jurisdictions: Alaska, California, Colorado, Connecticut, Illinois, Kentucky, Louisiana, Maine, Massachusetts, Missouri, Nevada, Ohio, and Texas.

Part III focuses on fixing teacher pensions. Our recommendations take into account the dire financial condition of educator defined benefit plans and the experience with existing reforms and their ongoing constitutional challenges. The discussion additionally advances and synthesizes scholarship across different disciplines. In particular, our analysis and proposals relating to the public pension crisis bridge the academic divide in law, education, and economics. Through our quantitative and qualitative analysis, we extend the recent research of legal scholars on public pension systems as well as our own prior research in this area.

Our proposals advocate items for immediate action as well as measures meant for ongoing improvement. Due to the diversity in law and legislation among states, we do not urge a uniform answer to the pension problem, but rather, provide options and a decision-making framework for political action. The multi-dimensional model directs attention to potential reforms ex ante and ex post to the pension contract. It also addresses key actors in the provision of public retirement benefits, politicians and unions. It further aims to involve the public, who will ultimately bear the financial and social burdens associated with public plans, by increasing the accuracy and transparency of pension promises.

The article concludes that a comprehensive response to teacher pensions is necessary to avert disaster. The defined benefit plans of public school teachers have unfunded liabilities of almost a trillion dollars that is part of a national gap in public plans estimated as exceeding three trillion.10 These plans have no oversight by the federal government and no insurance program if the plan fails. As such, our evaluation and recommendations regarding defined benefit plans that are not part of Social Security inform the ongoing debate over public pensions that has made the headlines of every major newspaper in the country. These benefits are not only a critical component of income-maintenance for public retirees, but also a source of economic stimulus to every state economy.11

The narrow focus on teacher pensions additionally highlights the broad significance of reform to education. Great thinkers throughout history have reflected on the value of education to society.12 Nelson Mandela believed that “[e]ducation is the most powerful weapon you can use

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11 NASRA Issue Brief 2012, supra note 3, at 3 (explaining that more than 200 billion dollars is paid annually from pension funds to public retirees and their beneficiaries across the United States).

12 Horace Mann said that “[a] human being is not attaining his full heights until he is educated.” HORACE MANN, THE ART OF TEACHING (1840). Plato advised that “The purpose of education is to give to the body and to the soul all the beauty and all the perfection of which they are capable.” PLATO, THE REPUBLIC (Benjamin Jowett trans. 1946).
to change the world.”

G. K. Chesterton described education in an equally profound manner: “Education is simply the soul of society as it passes from one generation to another.” For these reasons, perhaps, states have always viewed education as an essential element of a successful democratic system of government. Therefore, our study serves as an important reminder to political leaders that how they deal with the public pension crisis is at once humanistic, yet deterministic as well.

I. Measuring the Financial Condition of Public Pensions: A Study of Educator Defined Benefit Plans

Widespread media attention of recent studies has exposed enormous unfunded liability in public pension plans. Depending on the assumed discount rate and other variables, state pensions are collectively between $700 billion and almost $4.6 trillion short of the funding needed to meet their actuarial liabilities. For public school teachers, one study found that unfunded obligations

amounted to $933 billion. In this section, we add to these financial analyses by examining educator defined benefit plans.

These plans are the primary kind of pension offered to public employees. Under a defined benefit plan, the government has the obligation to provide retirement income to its employees for the duration of the participant’s life and potentially that of his or her spouse. As such, these plans require employees to rely on employers for their retirement income. In theory, the promise of a pension benefit creates a concomitant duty on the part of the state. In reality, however, the employee bears the risk that a state government will fail to provide such benefits.

We analyze seven years of data (2003-2009) provided by the Boston College Center for Retirement Research. We examine a total of fifty public teacher pensions, comparing the thirteen plans that do not fund Social Security with the thirty-seven plans that do. To preview our conclusion, we find that the asset allocation in non-Social Security plans are providing lower returns (and less risk) than plans that invest in Social Security. The contribution rates are higher for both employees and employers in non-Social Security states, but their investment performance is worse along with their funded ratios. Overall, the data analysis exposes more serious flaws in the non-Social Security states because they do not have a guaranteed pension like those retirement systems that also have Social Security. The results are shown in the Appendices in Tables 1-7 and Figures 1-5.

A. Asset Allocation

be $3.20 trillion under a taxable muni rate and $4.43 trillion using a Treasury-discounting measure for 116 state government defined benefit plans).

18 See BARRO & BUCK, supra note 10 (calculating $933 billion shortfall in teacher pension funding); see also id. (noting previous study estimated only $332 billion).

19 Our calculations ignore other post-retirement employee benefits, including state-provided employee health care. The Trillion Dollar Gap, THE P E W CENTER ON THE STATES (February 2010) (reporting these additional costs total $587 billion in present value). We also focus on state pensions, not local city and county plans. See Novy-Maxx & Rauh, supra note 17, at 1215 (estimating these plans hold $.56 trillion in assets (citing U.S. Census Bureau, Census of Governments (2007))).


Pensions are funded by employer and employee contributions and the income generated through their investment. More than half of pension financing derives from these investments. If the investments fail to generate an adequate rate of return, as evidenced by the most recent market downturn, the adverse effects on the plan can be devastating.

Pension funds are invested in a diversified portfolio based on various asset allocations that include cash, equities, bonds, real estate, and alternative assets. Differences in asset allocations typically affect the return to the pension plan and, accordingly, are a determinant of pension health.

Descriptive statistics show that the differences in asset allocations for the plans that do and do not contribute to Social Security are most apparent in bonds, real estate, and alternative investments. The largest variation is in the allocation to bonds. Plans that do not fund Social Security have nearly 4% more of their assets allocated to bonds, and, in particularly, U.S. bonds. These plans also invest more in real estate (6.95% versus 5.29%), with over 1.5% more assets in real estate investments. However, they allocate less to alternative investments, with the largest variation in 2009.

Inferential statistics suggest that the defined benefit plans that do not invest in Social Security are reducing risk through the higher allocation to bonds, real estate, and alternative investments. Comparing the one-year (annual) investment returns for each type of pension plan, there are similar average returns over the seven year time period. Nevertheless, these small percentage differences have a large impact because of the enormous value of pension assets in both types of plans. For five out of the seven years, the non-Social Security plans have a better return.

In 2003, Social Security plans have a higher return and, in 2009, a smaller loss. Calculating the

25 See ALLEN ET AL., supra note 24, at 441-53.
26 NASRA Issue Brief 2012, supra note 3, at 6. Because investment income accounts for a major share of pension funding, studies have focused on improving investment decisions. See, e.g., Marcia Gaughan Murphy, Regulating Public Employee Retirement Systems for Portfolio Efficiency, 67 MINN. L. REV. 211 (1980) (regulation of pension fund investment); Odd J. Stalebrin et al., Prudent Public Sector Investing And Modern Portfolio Theory: An Examination Of Public Sector Defined Benefit Pension Plans, 30 PUBLIC BUDGETING & Fin. 28-46 (2010) (statistical analysis illustrating that majority of plans are incurring more than optimal risk in their portfolios).
27 See Appendix Figure 3.
28 There is a steady stream of research measuring asset allocations in public and private pension plans. See, e.g., Karen Eilers Lahey et al., Real Estate and Alternative Asset Allocations of U.S. Firms’ Defined Benefit Pension Plans, 18 J. REAL ESTATE PORT. MGT. 273 (2012) (reviewing the business literature).
29 See Appendix Table 1; Figure 1.
30 See Appendix Table 1; Figure 2. Real estate is normally an asset used to keep up with inflation of the liabilities. This is because real estate investments tend to keep up with inflation, thereby, hedging against the effects of inflation on the portfolios’ liabilities.
31 See id.
32 See Appendix Figure 3.
33 Id. In 2009, states that do not contribute to Social Security had total actuarial assets of $371,763,812 and an average of $28,597,216 assets per state. For states that do contribute to Social Security, the total amount of actuarial assets was $1,219,653,106 with an average of $34,847,232 per state. Id.
34 Id.
35 Id.
standard deviation of these returns, there is a small difference in return (5.42% vs. 5.62%) and a larger (4.83 vs. 5.21) difference in risk for the defined benefit plans that invest in Social Security. These results suggest that, as a group, non-Social Security pensions have a lower return with lower risk over the seven year period than Social Security pensions. The next three indicators of financial conditions add additional dimensions to the analysis.

B. Plan Membership

The number of active members and retirees is another important factor to consider in observing the economic status of pension plans. A larger number of retirees will require the plan to have more active members in order to sufficiently finance the pension fund. The non-Social Security plans average nearly 50,000 more members and about 14,000 more retirees per state than that of Social Security plans. Current demographic data indicate that the budget crisis is reducing the number of new teachers. As a result, the composition of active and retired plan membership may continue to be in jeopardy.

C. Contribution Rates

An additional consideration is the contributions made by employers and employees to the defined benefit pension plans. In most state teacher pension plans, the employee contributes a certain percentage of his or her pay and the employer contributes a certain percentage based on the employees pay.

The data shows that non-Social Security plans have significantly higher contribution rates for both employees and employers. Social Security plans pay on average a 3% lower employee contribution and the employers pay over 1% less. This is a sizeable difference. Significantly, these high contribution rates limit the ability of non-Social Security states to raise more funds without adding Social Security to their plans. The difficulty is underscored by a recent study concluding that government contributions to employee retirement, including social security and pensions, will have to increase by 250% to achieve full funding.

D. Funded Ratio

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36 See Appendix Table 2.
37 Id. (showing non-Social Security plans have 45,401 more active members and 13,652 more retirees per state).
38 See Appendix Table 3; Figure 4.
39 Id.
40 Id.
The final and principal calculation to consider in evaluating defined benefit plans is the funding ratio. This ratio measures a plan’s financial health by dividing the market or actuarial value of assets by the liabilities or, stated differently, the funded ratio of a defined benefit pension plan is the ratio of a plan’s current assets to the present value of earned pensions.

The funded ratio of teachers’ pension plans with Social Security remained above 80% each year until 2009, where it dipped to 76%. Meanwhile, non-Social Security plans struggled to stay around the 70% mark for most of the decade and dropped sharply by more than 11% from 2008 to 2009. The average of the non-Social Security states pensions’ funded ratios fall at a much steeper rate than that of the Social Security pensions, deteriorating at nearly double the rate of Social Security plans in percentage points.

The substantial decline in the funded ratios of non-Social Security plans presents a real danger for teachers who may not receive their retirement benefits. This risk of insufficient assets on which to earn income necessary to pay the promised benefits is, of course, compounded by the fact that these teachers are not eligible for Social Security benefits.

E. Regression Results

The descriptive statistics reported in Tables 1-4 and Figures 1-5 show the differences between non-Social Security pensions and Social Security pensions for public employees in defined benefit plans. In Tables 5-7, we run OLS regressions to determine which variables, if any, are significantly different when the dependent variable is the unfunded actuarial accrued liability (Uaal). The regression allows us to look at all of the variables at one time rather than just examining one variable at a time. Table 5 provides the definitions for each of the variables in the OLS regressions. Table 6 shows the means and standard deviations for all of the variables in the regression for all fifty states, the regression for the non-Social Security states, and the regression for Social Security states. Table 7 provides the results.

The OLS regression for all states is of primary interest because it allows us to determine if there is a significant difference for the dummy variable Social Security pension plans or non-Social Security plans. At the .01 level of significance, there is a difference between the two types of

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43 If liabilities exceed assets, the plan is underfunded. See 2005 WILSHIRE REPORT, supra note 1, at 3. The actuarial value of assets is often determined using a smoothing method to reduce the effects of market volatility when calculating contribution rates. See id. at 9. For an explanation of the different valuation methods (current market, actuarial, or variations of the two), see ALLEN ET AL., supra note 24, at 253–54.


45 See Appendix Table 4. The average public employee pension is 59 percent underfunded. ANDREW G. BIGGS, STATE BUDGET SOLUTIONS, PUBLIC SECTOR PENSIONS: HOW WELL FUNDED ARE THEY REALLY (2012), available at http://www.statebudgetsolutions.org/doclib/20120716_PensionFinancingUpdate.pdf. The funding problem is also getting worse. Using standard actuarial accounting, the average public pension fell to about 75 percent in 2011 versus 103 percent in 2000. Id. Without significant reform, the downward trend can be expected to continue. See Lahey & Anenson, supra note 22, at 315-16 (finding number of unfunded plans tripled from 2000 to 2003).

46 See Appendix Table 4; Figure 5.

47 See id.
state pension plans when looking at the Uaal which measures the difference between the
actuarial accrued liability and actuarial assets. Thus, if the plan is non-Social Security, it is more
likely to have an unfunded actuarial accrued liability. It is also significantly more likely (.01
level of significance) to have more teachers in the plan with lower salaries, more equities and
bonds in the investment portfolio, a higher projected benefit obligation, more members in the
pension plan, and a larger state population. There is not a significant difference in the employee
or employer contribution rates or the one year return on portfolio investment variables and the
Uaal variable.

In sum, the market crash wiped out billions for already unfunded public pension plans. Our
financial evaluation makes clear that plans in non-Social Security states have not been spared. In
fact, our comparative study and regression results show these plans are more unstable and
susceptible to failure than plans of public employees scheduled to receive retirement along with
Social Security benefits.

Our assessment of the effect of ongoing economic forces is even more dramatic when considered
together with the demographic forces reshaping retirement income security. Pension receipt
among retirees is expected to continue to grow as aging Baby Boomers, which account for a
disproportionate share of the population, retire sooner than previous generations and live
longer. Therefore, the unsustainability of these plans, whose membership includes roughly
one-quarter of all public employees, should be of great interest to lawmakers and the public at
large who must eventually foot the bill. It is assuredly of great concern to the participants
themselves. Advances in medical science will allow many of us the blessing of a long life. Yet
such a blessing comes with the curses of old age that include loss of autonomy and control, along
with the threat of outliving one’s resources when we are no longer able to provide for ourselves
through work.

It is not surprising then that the gravity of the current crisis has pushed pension reform-- for
teachers and other government workers-- to the front of the public policy agenda in each state
capital. To gain a better understanding of how to manage what analysts are calling the public
pension “bomb,” the next section surveys these political measures in addition to their potential
legal constraints.

II. Reviewing Reforms and Their Legal Obstacles: State Survey of Public Pension
Legislation and Litigation

48 In almost 150 years, retirement age has fallen dramatically. See Patrick Purcell, Older Workers: Employment and
Retirement Trends, Congressional Research Service Report for Congress (Sept. 16, 2009) (showing more than three-
quarters of males aged 65 or over were in the labor force in 1850 compared with less than one-fifth by 1990).

49 Jack M. Beermann, Public Pension Crisis, Boston University School of Law Working Paper 17 (Aug. 17, 2012),
available at: http://ssrn.com/abstract=2131481 (noting that about 1 in 4 public employees do not contribute to the
Social Security System).

50 Many newly elected governors and legislators have promised to focus on improving public pensions. Roads to
Reform: Changes to Public Sector Retirement Benefits Across States, THE PEW CENTER ON THE STATES (November
2010) [hereinafter “Roads to Reform”].

51 Given the data, the ticking time bomb seems an apt analogy. Katie Benner, The Public Pension Bomb, FORTUNE
(May 12, 2009), available at money.cnn.com (“States nationwide have short changed their retirement systems.”). In
California, a non-Social Security state with one with the largest unfunded liabilities in the public pension system
nationally, interested parties are calling the crisis a pension “tsunami.” See pensionstsunami.com.
Pension reform has taken center stage in the public policy debate as states struggle to deal with the fallout from the Great Recession. Given the alarming actuarial deficits, government officials in almost every state have marshaled the political will to enact reform legislation.\footnote{NASRA Issue Brief 2012, supra note 3, at 3 (“As states and cities address the effect of the Great Recession, cost of pension benefits remain a key point in the discussion.”); Michael Corkery, Pension Crisis Looms Despite Cuts, WALL ST.J.COM, (Sept. 21, 2012) (noting that forty-five states since 2009 have cut pension benefits); Paul M. Secunda, Constitutional Contracts Clause Challenges in Public Pension Litigation, 28 HOFSTRA LAB. & EMP. L.J. 263 (Spring 2011) (providing statistics on state governors rolling back pensions to respond to the budget crisis); see also Edward J. Zychowicz, A Global Look at the Reform of Public Pension Systems, 2 J. INT’L BUS. & L. 49 (2003) (providing an international comparison of public pension reform).} Unfortunately, most measures address only part of the problem and fall short of an optimal solution.\footnote{See, e.g., Christopher D. Hu, Note, Reforming Public Pensions in Rhode Island, 23 STAN. L. & POL’Y REV. 523 (2012) (discussing Rhode Island and concluding that five years of piece meal legislation did not work).} Moreover, many states are facing lawsuits challenging these new statutes which may ultimately stymie reform measures.\footnote{Stuart Buck, Legal Obstacles to State Pension Reform, THE ASSOCIATION FOR EDUCATION FINANCE AND POLICY, Aug. 26, 2011, available at http://ssrn.com/abstract=1917563 or http://dx.doi.org/10.2139/ssrn.1917563 (commenting on litigation in nine states).} With a view to guiding future legislative correctives, this section reviews recent reforms in non-Social Security states and analyzes their likely legal obstacles. A summary of public pension reforms is provided in Table 8.

A. Political Reform Measures

The recession is putting tremendous pressure on public pensions and the state governments that fund them. Even with an optimistic rate of return on pension fund investments, projections estimate that plans in seven states will be insolvent by 2020 and plans in half the states will be broke by 2027.\footnote{American States’ Pension Funds: A Gold Plated Burden, ECONOMIST, Oct. 16, 2010, at 11, available at http://www.economist.com/node/17248984; Joshua Rauh, The Day of Reckoning for State Pension Plans, Kellogg Sch. of Mgmt. (Mar. 22, 2010), http://kelloggfinance.wordpress.com/2010/03/22/the-day-of-reckoning-for-state-pension-plans/ (illustrating the ten states whose funds are expected to become insolvent the soonest and the ten expected to become insolvent the latest). See also Norcross & Biggs, supra note 9, at 2 (reporting that state actuaries estimate that New Jersey’s pension plans could run out of assets to make benefit payments as early as 2013) (citations omitted).} The pension funds in two states whose employees are without Social Security, Colorado and Illinois, will default in the next decade without drastic measures.\footnote{Maria O’Brien Hylton, Combating Moral Hazard: The Case for Rationalizing Public Employee Benefits, 45 IND. L. REV. 413, 468 (2012).} The financial situation in these two states, along with California, led one analyst to conclude that “bankruptcy or the complete cessation of all state functions save paying benefits to retirees is not unthinkable.”\footnote{Buck, supra note 54 (noting policy tradeoff between benefits and public services).} Other states are in an emergency scenario as well where paying down the pension debt will curtail public services, such as money needed for schools.\footnote{Buck, supra note 54 (noting policy tradeoff between benefits and public services). With the desire for public employees to have adequate retirement benefits both now and in the future, elected officials in several states have enacted a variety of reform measures.
More than twenty-five states enacted significant changes in legislation to its public pensions in 2011. States with pension plans that do and do not fund Social Security have enacted similar reforms. These changes apply to all members of public pensions, including educators. State legislators have focused on the following measures to help their pension funds: employee contributions, employer contributions, cost of living adjustments (COLAs), age and service requirements, and calculation of benefits. A summary of the major reforms made to state teacher’s retirement systems that do not contribute to Social Security are further detailed below.

All non-Social Security states enacted reform legislation. Five of the thirteen states altered their contribution rates in the past few years to combat funding issues. Meanwhile, one state altered its employer contribution rate by actually decreasing it. Another typical reform has been to alter the COLA, which is an adjustment made to pension benefit payouts in order to counteract the effects of inflation. Four states have made changes to its plan’s COLAs, many affecting only new retirees.

The most common changes have been to age and service requirements. Eight of the thirteen non-Social Security states have modified these requirements. Furthermore, six states have made changes to the calculation of retirement benefits. These changes normally concern decreasing the benefit factor and increasing the number of years used to calculate the final average compensation. The general formula for most plans at retirement entitles an employee to an annual income equal to a percentage of the employee’s final average salary, multiplied by the number of years of employment.

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59 Pensions and Retirement Plans – Resources, NATIONAL CONFERENCE OF STATE LEGISLATURES (2012), available at http://www.ncsl.org/issues-research/labor/pension-and-retirement-legislative-summaries-and-r.aspx (last accessed 3/7/12) Eighteen legislatures enacted increases in employee contributions and sixteen enacted increases in employer contributions, while only eleven states did in 2010. Id. Sixteen legislatures increased age and service requirements and six legislatures lengthened the period over which final average salary is computed. See id.

60 Id. Two of the changes only apply to new hires. Id.

61 Id.

62 Id.

63 Id.

64 Id.

65 Id.

66 Id.

67 Edward A. Zelinsky, The Cash Balance Controversy, 19 VA. TAX REV. 683, 687–91 (2000). The final-pay provision bases benefits on earnings averaged, for example, over the last three years of employment or over the three consecutive years in a ten-year period immediately prior to retirement in which earnings are the highest. Compare California’s relatively simple state retirement system formula—2% x Years of Service x Final Average Salary—with Ohio’s more complicated formula—2.2% x Final Average Salary x Years of Service up to thirty years and 2.5% x Final Average Salary x Years of Service after thirty years. NAT’L EDUC. ASS’N, CHARACTERISTICS OF LARGE PUBLIC EDUCATION PENSION PLANS 60, 63 (2004), available at http://www.nea.org/takenote/images/char2004.pdf. Teachers typically accrue benefits after thirty years of service and receive 57.7% of the final average salary, while public safety workers generally receive 66.6% of the final average salary. See Olivia S. Mitchell et al., Developments in State and Local Pension Plans, in PENSIONS IN THE PUBLIC SECTOR 11, 15 (Olivia S. Mitchell & Edwin C. Hustead eds., 2001), 20–21. Another common method is the career-pay provision that bases benefits on earnings averaged over the entire career of employment. For an explanation of the various types of defined benefit formulas used in calculating plan benefits, see ALLEN ET AL.
Alaska was relatively proactive in the maintenance of its pension plan. In 2005, it shifted all of the state’s new employees to defined contribution plans. Furthermore, in 2008, the state authorized up to $5 billion in pension obligation bonds by state and local governments to fund its pension and make up for double-digit investment losses in individual portfolios.

In contrast, California has only recently made necessary reforms. The state has the largest public pension system in the United States. A report by the Little Hoover Commission, a bi-partisan state oversight agency, estimated the unfunded liabilities of California’s ten largest public pension plans (of eighty-seven studied) to be $240 billion. Since its funded ratio plummeted along with the stock market, California had only managed to lower the benefit factor from 2.5% to 2.148% at age 63 or later. But the state legislature had been attempting to cut costs by rolling back retirement benefit increases that were enacted in 1999. It finally succeeded this year. The 2013 Pension Reform Act makes a number of changes for new employees. These include reduced benefit formulas and increased retirement ages. Among other plan modifications, there will be a three-year final compensation formula, a cap on the annual salary used to calculate it, a prohibition on purchasing additional retirement service credit, and a limitation on post-retirement public employment.

To forestall impending financial doom, Colorado has made extensive reforms to its pension in recent years. The changes increased both employer and employee contributions and raised the


68 Alaska, SB141 2005; Roads to Reform, supra note 50. Employees are bitter about the switch and continue to ask lawmakers to repeal the change every year. Id.

69 Id.; Alaska, Ch. 35, Laws of 2008 (HB 13).

70 Lahey & Anenson, supra note 22, at 320-21 (reviewing financial status of public pension systems in California five years ago); see also Hylton, supra note 57, at 465 (noting that California will be insolvent in twenty years by some accounts and that its municipalities are already declaring bankruptcy).

71 Little Hoover Commission, Public Pensions For Retirement Security 3 (2011); see also id. (predicting that large cities in California will soon be devoting one-third of their operating budgets to pension payments).

72 Roads to Reform, supra note 50.

73 California SB 400 1999; Roads to Reform, Roads to Reform, supra note 50. The proposed changes consist of higher contributions by employees, raising the retirement age, and eliminating pension spiking. Id. Pension spiking is when employees inflate their final salary to receive a larger pension check. See Anthony York & Jack Nolan, California state employees take advantage of pension perk, available at latimes.com/news/local/la-me-pensions-airtime-20110216, 0, 6769843-story (last checked 1-18-13) (reporting that employees buy additional years to add to their pension formula which normally is years of service times the highest one year or three year compensation times 2 to 3 percent); Buck, supra note 54 at 22-23 (discussing pension spiking among firefighters in Massachusetts leading to reform and litigation). See generally Beermann, supra note 49 (outlining methods of pension spiking).

74 For a complete discussion of the California pension reform, see http://www.calpers.ca.gov/eip-docs/employer/program-services/summary-pension-act.pdf.

75 Id.

76 Roads to Reform, supra note 50. Many of the changes only affect new hires. Id. The Colorado Public Employees’ Retirement Association (PERA) is the 21st largest public pension plan in the United States. PERA website, http://www.copera.org/pera/about/overview.htm.
minimum retire age from 55 to 60 for future employees. The state also capped its COLA for both current and future employees and retirees at 2%, instead of 3.5%. Another struggling non-Social Security state that made changes was Illinois. It has the worst-funded public pension in the nation. Unfunded pension obligations approach $80 billion. To curtail its accruing liabilities, Illinois enacted legislation to stop double dipping, which enabled retirees to receive pension benefits and a second salary from a public entity. It also raised the retirement age for new employees from 60 to 67 and capped the salary on which pension benefits are calculated. Missouri followed Illinois by increasing its standard retirement age for new hires to 67.

Kentucky enacted various reforms in 2008 that affected only new hires. The reforms included: changing the final average compensation calculation to the final five years of pay, instead of the highest five, and implementing a graduated tier system for new employees lowering the benefits. In 2010, the state also increased the retiree health care contribution.

Louisiana and Maine have made changes to their pension plans as well. Louisiana increased its employee contributions, cut its COLA, and altered the final average compensation for new hires to the highest five consecutive years. Maine increased the normal retirement age for participants with less than 5 years of service from 62 to 65. The state is also considering

77 Colorado, Ch. 65, Laws of 2010 (SB 146).
78 Colorado, Ch. 2, Laws of 2010 (SB 1); Roads to Reform, supra note 50. The COLA reduction has been challenged as a violation of U.S. and state constitutional protections. See Justus v. State, No. 2010CV1589 (filed D. Co. 2011) [available at http://www.copera.org/pdf/Misc/06-29-11Order.pdf, last accessed 2/9/13]. Because of this challenge, many states have suspended their COLA changes. Roads to Reform, supra note 50.
79 Id.
80 Id. For the earlier financial woes of the Illinois pension plan, see Lahey & Anenson, supra note 22, at 318-20 (detailing public pension situation in Illinois as of 2005).
81 R. Eden Martin, Unfunded Public Pensions— The Next Quagmire (Aug. 19, 2010) (explaining that Illinois has unfunded pension obligations approaching $80 billion with unfunded retiree health obligations adding approximately $40 billion more); see also Hylton, supra note 57, at 467 n.65 (discussing the rise and fall of Illinois governor Rod Blagojevich and his disastrous policies on its debt); id. at 414-15 (comparing operating budget of $43 billion to its five pension funds that are $35 billion in the red). Illinois owes $2.6 billion this year on its pensions and, by comparison, the state will spend almost $6 billion next year on primary education. Id.
82 Roads to Reform, supra note 50. The state also authorized the issuing of $3.5 billion in pension obligation bonds and is considering issuing additional debt in the future. Id.; Illinois Public Act 96 – 0889 (SB 1946) 2010.
83 Illinois Public Act 96 – 0889 (SB 1946) 2010; Roads to Reform, supra note 50. Raising the retirement age to 67 is the highest of any state. Id.
84 Id. Other changes for Missouri consist of mandatory employee contributions and increased vesting periods for new hires. Id.; Missouri, HB 1 of the First Extraordinary Session of 2010 (signed by the governor on July 19, 2010).
85 Roads to Reform, supra note 50; Kentucky, HB 1 of 2008 Special Session.
86 Kentucky, HB 1 of 2008 Special Session; Roads to Reform, supra note 50.
87 Id. Kentucky, Act 159 of 2010 (HB 540).
88 Louisiana, Act 992 of 2010 (HB 1337).
89 Roads to Reform, supra note 50.
90 Id.
legislation for switching to a defined contribution plan or shifting state employees into Social Security.\footnote{Id.}

Massachusetts, Nevada, Texas, and Ohio are the remaining non-Social Security states that made changes.\footnote{Id.} Massachusetts tightened many loopholes to save money, such as increasing the minimum age for retirement from 55 to 60.\footnote{Id.} Nevada also increased the retirement age for new hires from 60 to 62, and reduced the COLA and final benefits calculation.\footnote{Id.} Texas upped the age and service requirements, reduced early retirement benefits, and lowered benefits as a percent of final salary.\footnote{Id.} Despite political gridlock over pension reform since 2009, Ohio recently changed the law for all of its pension plans, including the plan available to teachers. The 2012 legislation affects all workers and retirees and is expected to save almost $12 billion in accrued liabilities.\footnote{Id.} The teachers pension plan increased employee (but not employer) contributions and retirement age, modified the benefit formula, reduced the COLA, and lengthened the years of service requirement.\footnote{Id.}

In light of the foregoing, legislatures have been making changes to their retirement plans to combat concerns about their continued viability. Presumably to avoid the high costs of lawsuits, states have been careful to limit reforms to new hires. But certain states like Colorado and Ohio, unable to finance their pension obligations, went further and extended reforms to current employees and even retirees.\footnote{Id.} The next section analyzes the challenges to these legal changes in Colorado and other states to enable lawmakers to reasonable anticipate the litigation risk of future pension reform.

B. Legal Barriers to Reform

This part explains the next phase of public pension reform-related controversies—litigation. It considers lawsuits against state governments by affected employees claiming constitutional and other legal protections. The discussion is intended to improve our understanding of the impact and potential success of future reforms on public sector employee retirement systems.

Legislative interference with pension rights raises state and federal constitutional concerns. Namely, government alteration of the defined benefit plan or its basic features could potentially

\footnote{Id.}
\footnote{Id.}
\footnote{Massachusetts ch. 176, Acts of 2011 (SB 2065); see also Buck, supra note 54, at 22-23 (discussing pension spiking among firefighters in Massachusetts leading to reform and litigation).}
\footnote{Id. Nevada ch. 426, Laws of 2009 (SB 427); Roads to Reform, supra note 50.}
\footnote{Id. Texas Ch. 1308, Laws of 2009 (HB 2559). Benefits remain unchanged for current members despite the fact that Texas law allows such changes. See supra discussion of legal barriers to pension reform in Part II.B.}
\footnote{Id. The teacher's plan is called the State Teachers Retirement Plan of Ohio or STRS and the website is: \url{https://www.strsoh.org/legislation/legislation.html}. Many of these changes will be phased in over a period of time.}
\footnote{Id.}
\footnote{See discussion supra notes 76-78, 96-97. States whose employees receive Social Security have also cut benefits to retirees. See Gavin Reinke, Note, When a Promise Isn't a Promise: Public Employers' Ability to Alter Pension Plans of Retired Employees, 64 VAND. L. REV. 1673, 1674 (2011) (noting that Colorado, Minnesota, South Dakota, and New Jersey have passed pension reforms that reduced the amount of benefits to already-retired public employees).}
violate the Contracts Clause, the Takings Clause, and the Due Process Clause. Legal protection extends only to existing employees and retirees. No protection is afforded to new hires.

The traditional view of public pensions sees them as gratuities granted by the state that can be modified or abolished even after retirement. A few states like Texas still adhere to it. As far as the constitution is concerned, lawmakers in states that have adopted the gratuity approach have the most freedom to fix pension problems. They may be constrained by moral and policy concerns, but not the law.

An overwhelming majority of states, however, have transformed tradition and retreated from the notion of pensions as unprotected gratuities. The modern view gaining momentum is more

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99 Reforms that disadvantage certain workers more than others may also be challenged under the Equal Protection Clause. Similar to the Due Process Clause, alleged equal protection violations are subject to a rational basis review. As a result, pension reform will not be voided on equal protection grounds so long as the statutory classification has some relation to the purpose of the retirement system. Because many statutes set apart retirees as the class that the retirement system is chiefly designed to benefit, it follows that non-retirees will not be entitled to the same treatment under the law. For instance, in State ex rel. Horvath v. State Teachers Ret. Bd., the Supreme Court of Ohio declared that the disparate treatment of public employees (public school teachers) who meet retirement eligibility and those who survived an equal protection challenge. State ex rel. Horvath v. State Teachers Ret. Bd., 697 N.E.2d 644, 652-53 (Ohio 1998). Independent of these constitutional rights provisions, certain states also have constitutional provisions relating to their public retirement systems. These provisions may be an independent source of legislative limitation on unilateral modifications. See Smith v. Bd. of Tr. of La. State Employees’ Ret. Sys., 851 So.2d 110, 1108 (La. 2003).

100 See Dodge v. Bd. of Educ. of City of Chicago, 302 U.S. 74, 81 (1937) (ruling that a new statute reducing payments under a prior statute to those already receiving their pensions did not violate the Contract Clause); Pennie v. Reis, 132 U.S. 464 (1889) (abolition of pension plan and transfer of funds deducted from employees’ paychecks to other purposes did not violate pension plan beneficiaries’ due process rights because public pensions as gratuities that could be withdrawn at any time).

101 City of Dallas v. Trammel, 101 S.W.2d 1009 (Tex. 1937); Kunin v. Feofanov, 69 F.3d 59, 63 (5th Cir. 1995) (Texas law). Pensions are deemed gratuities only with respect to compulsory plans. Amy Monahan, Public Pension Plan Reform: The Legal Framework, 5 EDUC. FIN. & POL’Y 617 (2010) (noting that only compulsory plans in Texas and Indiana have no legal protection for adverse plan changes only for compulsory). Optional plans have protection. Id.; see also Kraus v. Bd. of Tr. Of Pol. P. Fund, 390 N.E.2d 1281, 1285 (Ill. 1979) (explaining that optional retirement plans in Illinois had protection from the time they began contributing to the pension fund) (case citations omitted). Indiana and, possibly, Arkansas may also follow the gratuity approach with respect to involuntary plans. See Robinson v. Taylor, 29 S.W.3d 691 (Ark. 2000); Eric M. Madiar, Public Pension Benefits Under Siege: Does State Law Facilitate Or Block Recent Efforts To Cut The Pension Benefits Of Public Servants?, 27 ABA J. LAB. & EMP. L. 179, 185 (Winter 2012) (listing Texas, Indiana and Arkansas as a state utilizing the gratuity approach).

102 As discussed supra, however, there may be additional protections for pension benefits.

103 See Opinion of the Justices to the House of Representatives, 303 N.E.2d 320, 325 (Mass. 1973) (citing, e.g., Foley v. Springfield, 328 Mass. 59 (1951) (allowing the legislature to cut retirees’ pensions in case they accepted and had earnings from outside employment after their retirement) and McCarthy v. State Bd. of Retirement, 331 Mass. 46 (1954) (holding that it did not matter that the member was actually receiving his retirement benefits when the statute was passed denying him "creditable" service for his period in the General Court)); City of Dallas v. Trammel, 101 S.W.2d 1009 (Tex. 1937) (law cutting monthly pension payments to retiree by more than half held constitutional because retiree has not vested right to participate in the fund which is under the complete control of the legislature).

104 For the evolution from pensions as gratuities to protectable interests, see, e.g., Kraus v. Bd. of Tr. Of Pol. P. Fund, 390 N.E.2d 1281, 1285 (Ill. 1979) (gratuity approach changed under the state constitution); State ex rel. Horvath v. State Teachers Ret. Bd., 697 N.E.2d 644 (Ohio 1998) (gratuity approach changed by state statute).
protective of the retirement security of public employees. We use the term “view” loosely as this category of cases has by no means congealed into clear conceptual framework.\textsuperscript{105} We understand the modern view to mean merely that it is possible for government workers to have a protectable interest in their pensions. The interest can be conditional and allow states to change the plan terms under certain circumstances.\textsuperscript{106} Nevertheless, at some point, the interest may become unconditional and free from any and all detrimental changes by the state.\textsuperscript{107} Legal protection for public pensions may be grounded in contract, related tort principles, and property.\textsuperscript{108}

1. Due Process Clause

Courts in Maine and Connecticut picture pensions as property.\textsuperscript{109} In both states, the pension expectation matures into a property right at some point prior to retirement, possibly upon acceptance of employment. The property-based analysis tests the legislation for compliance with substantive due process under a rational basis review. Statutory changes will be upheld if they have a legitimate purpose and the method of achieving that goal is reasonable.\textsuperscript{110} Thus, while

\textsuperscript{105} Parker v. Wakelin, 123 F.3d 1, 7 (1st Cir. 1997) (“There is much disagreement on the details.”); see also id. (eschewing abstract theory in favor of contemplating the such as the structure of the state pension program at issue and the intent of the legislature that created it). For different approaches to public pension protection mentioned by courts, see, e.g., Pineman v. Oechslin, 488 A.2d 803, 808 (Conn. 1985) (describing two limited vesting views and an estoppel approach). For various categories of pension rights conceived by legal scholars, See, e.g., Monahan, supra note 101 (suggesting three modern approaches; Constitutional Protection of Past and Future Benefit Accruals, Constitutional Protection of Past Benefit Accruals and non-constitutional Contract Protection); Jeffrey B. Ellman & Daniel J. Merrett, Pension and Chapter 9: Can Municipalities Use Bankruptcy to Solve Their Pension Woes, 27 E\textordmasculine}MORY B\textordmasculine}ANKR. D\textordmasculine}EV. J. 365 (2011) (describing multiple modern views including the vested-rights doctrine, the California Rule, the Pennsylvania Rule, contract-theory and the property interest approach.). An additional complication is that courts and commentators use the term “vesting” to mean different things without further elaboration and do not always distinguish between the satisfaction of service requirements and retirement eligibility. We try to avoid the term in this article.

Notably, even the traditional view had variations in meaning. See Kraus v. Bd. of Tr. Of Pol. P. Fund, 390 N.E.2d at 1285 (explaining conflicting Illinois decisions suggesting whether benefits could be recalled entirely under the gratuity approach). In discussing public pension law in 1973, the Supreme Court of Massachusetts opined that “the law in this country defining the character of retirement plans for public employees was not settled at the time (indeed it remains unsettled today).” Opinion of the Justices to the House of Representatives, 303 N.E.2d 320, 326 (Mass. 1973).

\textsuperscript{106} See, e.g., Parker v. Wakelin, 123 F.3d 1, 7 (1st Cir. 1997) (reviewing various approaches). See also discussion infra at PartII.B.3.

\textsuperscript{107} See id.

\textsuperscript{108} In determining federal constitutional protection, courts defer to the definitions provided by state law.

\textsuperscript{109} Pineman v. Oechslin, 488 A.2d 803, 809-10 (Conn. 1985); Spiller v. State, 627 A.2d 513, 516-17 (Me. 1993).

legislatures in property states do not have an unfettered power of revocation, employees not yet retired or eligible for retirement are protected against purely arbitrary revisions.\textsuperscript{111}

In \textit{Spiller v. State},\textsuperscript{112} the Supreme Court of Maine determined that state action excluding unused sick leave from the benefit calculation as well as increasing the minimum retirement age and penalty for early retirement was not a violation of Due Process.\textsuperscript{113} These pension reforms applied only to employees who had not met the initial service requirement.\textsuperscript{114} Despite endorsing a property approach, the Supreme Court of Connecticut in \textit{Pineman v. Oechslin}\textsuperscript{115} never reached the due process issue because it was not pursued on appeal.\textsuperscript{116}

Notwithstanding the agreement of the two states that modification of pension benefits should be subject to a property model, Connecticut specifically rejected the contract approach while Maine did not. Despite its failure to find that the pension statute constituted a contract for employees with fewer than seven years of creditable service,\textsuperscript{117} the court in \textit{Spiller} left the contract door ajar for which to envision future legislative modifications of pension benefits.\textsuperscript{118} It also endorsed promissory estoppel in appropriate cases to protect employee reliance interests before retirement.\textsuperscript{119}

Following \textit{Spiller v. State}, the First Circuit Court of Appeals in \textit{Parker v. Wakelin}\textsuperscript{120} further interpreted Maine’s retirement statute to contractually bind the state to provide an undiminished level of benefits only upon retirement. Public school teachers were challenging several reforms, including an increase in member contributions, a cap on the salary used to calculate benefits, and a delay in the first cost-of-living adjustment.\textsuperscript{121} The appellate court reversed the district court decision determining that contract protection began once a worker satisfied the service requirements.\textsuperscript{122} The statutory language guaranteed pension benefits once they are due.\textsuperscript{123} In attempting to understand the meaning of the word “due,” the Circuit Court found there were three possible explanations. First, pension benefits could be due from the moment of

\textsuperscript{111} The Supreme Courts of Maine and Connecticut indicated, directly or indirectly, that employees have statutory rights to their pensions upon retirement or retirement eligibility. See \textit{Spiller v. State}, 627 A.2d at 516 (retirement); \textit{Pineman v. Oechslin}, 488 A.2d at 810 (eligibility).


\textsuperscript{113} \textit{Spiller v. State}, 627 A.2d at 517 n.12.

\textsuperscript{114} \textit{Id.} at 514.

\textsuperscript{115} 488 A.2d 803 (Conn. 1985).

\textsuperscript{116} \textit{Id.} at 810.

\textsuperscript{117} \textit{Id.} at 514-17 (reversing lower court decision that contract rights begin upon employment).

\textsuperscript{118} \textit{Id.} at 517 n.12 (“We do not here determine whether additional changes to the retirement statute would implicate the contract… clauses of our constitutions…”).

\textsuperscript{119} \textit{Id.} (citing Christensen v. Minneapolis Mun. Employees Retirement Benefits Bd., 331 N.W.2d 740, 748 (Minn. 1983)).

\textsuperscript{120} 123 F.3d 1 (1st Cir. 1997).

\textsuperscript{121} \textit{Id.} at 3.

\textsuperscript{122} \textit{Id.} at 2.

\textsuperscript{123} \textit{Id.} at 8.
Second, they could be due if the teacher had completed the initial service requirements, albeit benefits are not yet payable. Third, benefits could be literally due to be received at retirement. The First Circuit found the latter interpretation the most persuasive without further elaboration by the legislature.

2. Takings Clause

Takings Clause challenges also involve envisioning pensions as property. These challenges are largely, but not entirely, derivative of the Contract Clause jurisprudence discussed in more detail below. Moreover, like other constitutional claims in the public pension area, state and federal law is read virtually in unison. Ohio provides an illustration. In State ex rel. Horvath v. State Teachers Ret. Bd., the Supreme Court of Ohio found that a revocation of interest earned on contributions prior to retirement did not constitute an unconstitutional taking a property under state and federal law. Utilizing the triad of factors provided by the U.S. Supreme Court in Penn Cent. Transp. Co. v. New York, the court found that public pension funds were properly characterized as public not private property and any economic impact was slight considering offsetting potential, although unrealized, benefits provided by the retirement system. The court additionally reasoned that there were no reasonable investment-backed expectations to accrued interest because the reform removing the provision for interest earned was in effect for as many or more years as the law providing for interest and that, in any event, reliance on a state of affairs should not include the challenged regulatory scheme.

3. Contract Clause

The remaining non-Social Security states (and most states), along with Maine and Ohio discussed supra, adhere to a contracts perspective limited by the Contract Clause and subject to

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124 Id. (plaintiffs position).
125 Id. (district court decision). Under the Maine statute, the service requirement is a necessary but not sufficient condition to receive a pension.
126 Id. at 9 (state position).
127 Id. There is a fourth reading of the statutory text; that is, benefits could be due once an employee qualifies for retirement. The statutory scheme provided that eligibility for retirement is triggered by completion of a number of years of service and reaching a particular age. Id. at 2-3.
128 See Buck, supra note 54, at 2 n.6 (commenting that a takings violation is dependent on finding a contractual right in the future stream of payments); id. at 49-50 (citing Ruckelshaus v. Monsanto Co., 467 U.S. 986, 1003 (1984) (finding that contracts are property within the meaning of the Takings Clause)); see also Beermann, supra note 49, at 59 (clarifying that pension modifications may not violate the Contracts Clause for the reason that they are deemed a reasonable and necessary government interest but can still be considered an illegal taking because the government justification is irrelevant). Spiller v. State, 627 A.2d 513, 515 n.6 (Me. 1993) (noting that the lower court decided the case on the contract clauses despite the fact that the plaintiffs also argued a takings of their property without compensation and without due process of law).
130 697 N.E.2d 644, 648-52 (Ohio 1998)
132 Id. at 650-52.
intermediate scrutiny. Stricter examination of legislative ends as well as the means for achieving them concerning contract rights results in a higher degree protection for participants from legislative revision than those found to be property. Therefore, courts in jurisdictions recognizing pensions as contracts are more likely to bar reform efforts.

Constitutional contract protection has generated the most scholarly attention and criticism concerning public pensions. Not surprisingly, it is the primary basis of recent lawsuits. This little interpreted clause is experiencing a renaissance as courts across the country give it new meaning in the context of pension reform.

The legal analysis is substantially the same under federal or state law because the majority of state contract clauses echo the federal contract clause. To determine whether pension reform is an unconstitutional impairment of an employee’s contract, courts employ a three-part test: (1) whether there is a contractual obligation; (2) if a contract exists, whether the legislation imposes a substantial impairment; and (3) if there is an impairment, whether the legislation is reasonable and necessary to serve an important public purpose.

a. Contract Existence

Determining element one—the existence of a contract—varies across jurisdictions. The source of the contract right may be found in the state constitution, statute, judicial decision, or even the collective bargaining agreement. The most common basis for the agreement is the state statute providing for public pensions. Courts tend to look to the relevant language as well as the intent of the drafters to discern whether a contractual right was created against the state. As a textual

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133 Beermann, supra note 49.

134 Because most state statutes do not expressly create a contract. Amy B. Monahan, Statutes As Contracts? The “California Rule” And Its Impact On Public Pension Reform, 97 IOWA L. REV. 1029, 1037 (2012) (The collective bargaining contract, often known as memorandums of understanding in the public sector, may explicitly create a contract.)

135 U.S. CONST. Art. I, § 10 (providing “No State shall . . . pass any … Law impairing the Obligation of Contracts.”).


137 See 16B AM. JUR.2D Constitutional Law § 753 (2012) (“Generally, the federal and state constitutional guarantees against the impairment of contractual obligations are interpreted essentially identically and given the same effect.”). Federal courts also rely primarily on state law to determine the existence of a contract.


139 See Spiller v. State, 627 A.2d 513, 515 n.9 (Me. 1993) (case citations omitted). The non-Social Security states of Alaska, Illinois, and Louisiana have constitutional pension protection provisions. ALASKA CONST. Art XII, § 7: “Membership in employee retirement systems of the State or its political subdivisions shall constitute a contractual relationship. Accrued benefits of these systems shall not be diminished or impaired.” ILL. CONST., ART. XIII, § 5: “Membership in any pension or retirement system of the State, any unit of local government or school district, or any agency or instrumentality thereof, shall be an enforceable contractual relationship, the benefits of which shall not be diminished or impaired.”

140 U.S. Trust Co. of N.Y., 431 U.S. at 17 n.14; see also Monahan, supra note 134, at 1038, 1041.
matter, federal and several state courts employ a canon of construction requiring clear and unambiguous evidence of a contract.\textsuperscript{141} The presumption against finding a contract is predicated on the idea that legislatures, in enacting statutes, declare policy rather than binding contracts.\textsuperscript{142} While the use of this textual canon may be questionable when the government is acting as an employer, decisions on constitutional contract law still favor existing employees and retirees.\textsuperscript{143} With respect to these pension plan participants, the question is not only “if” there is a contract, but “when” was it formed? Courts have given different answers.

At one end of the scale are states like Alaska,\textsuperscript{144} California,\textsuperscript{145} Colorado,\textsuperscript{146} Illinois,\textsuperscript{147} Nevada,\textsuperscript{148} and Massachusetts,\textsuperscript{149} among others, which find the pension contract formed simultaneously with employment.\textsuperscript{150} The effect of such a rule is that future accruals may be protected or,

\begin{itemize}
\item[\textsuperscript{141}] See, e.g., Pineman v. Oechslin, 488 A.2d 803, 809-10 (Conn. 1985); Spiller v. State, 627 A.2d 513, 515 (Me. 1993); State ex rel. Horvath v. State Teachers Ret. Bd., 697 N.E.2d 644, 653-54 (Ohio 1998). Courts have coined the phrase “unmistakability doctrine” for this rule of construction. United States v. Winstar Corp., 518 U.S. 839 (1996); see also Parker v. Wakelin, 123 F.3d 1, 5 (1st Cir. 1997) (recounting history of the doctrine to Justice Marshall’s opinion in Fletcher v. Peck, 10 U.S. 87 (1810)). See also Monahan, supra note 134, at 1076 (explaining that courts in California do not use the rule of construction and, in fact, erroneously fail to inquire into legislative intent at all).
\item[\textsuperscript{142}] See, e.g., National Railroad Passenger Corp. v. Atchison, Topeka & Santa Fe Railway Co., 470 U.S. 451, 465-66 (1985); Nat'l Educ. Ass'n-R.I. v. Ret. Bd. of the R.I. Emps.' Ret. Sys., 890 F. Supp. 1143, 1151 (D.R.I. 1995) (describing the presumption as “no small hurdle to vault”). The strength of the presumption in any given case will depend on what principles the court looks to for guidance. A court may simply conclude there is no contract based on the absence of any reference to contract in the text. See Parker v. Wakelin, 123 F.3d 1, 9 (1st Cir. 1997) (reserving the issue of whether the statute must expressly employ contract language). Other courts may be willing to delve into legislative history, if any, and so on.
\item[\textsuperscript{143}] Beermann, supra note 49, at 33 (discussing state constitutional law). See generally Monahan, supra note 101 (reviewing 24 states and concluding that there are legal protections for public pension benefits).
\item[\textsuperscript{144}] Alaska has language that specifically applies only to accrued benefits, but the courts have interpreted the provision to protect all benefits from the time participants enroll. Hammond v. Hoffbeck, 627 P.2d 1052, 1057 (Alaska 1981); Municipality of Anchorage v. Gallion, 944 P.2d 436 (Alaska 1997).
\item[\textsuperscript{145}] See generally Monahan, supra note 134 (tracing ninety year history of the California rule).
\item[\textsuperscript{149}] See generally Opinion of the Justices to the House of Representatives, 303 N.E.2d 320, 329 (Mass. 1973) (holding that a proposed increase in the contribution percentage for employees was presumptively invalid because no evidence had been presented to excuse the impairment of the members’ pension rights).
\item[\textsuperscript{150}] Monahan, supra note 134, at 1036, 1046, 1071 (counting twelve states that follow the California approach but noting that three of them have now modified it Oregon, Colorado, and Massachussetts); see also Jonathan B. Forman, Funding Public Pension Plans, 42 J. MARSHALL L. REV. 837, 866 (2009).
\end{itemize}
alternatively, purely prospective changes to pension benefits may be null and void. Because
the law in these states is extremely protective of public employees’ and retirees’ pension
expectations, legislatures face the most difficult legal obstacles to pension reform. Notably,
reform would be especially onerous in Illinois and Alaska as it would require a constitutional
amendment.

The inability of legislatures to respond to economic emergencies under the first day rule is
perhaps why courts appear to be liberalizing this line of authority. A recent decision from
Colorado, for instance, distinguished core retirement benefits protected upon employment from
other plan provisions. In finding the cost of living (COLA) reduction for employees and
retirees constitutional, the district court in Justus v. State noted the absence of any clear
statutory language evidencing that plan participants were entitled to an unchanged COLA for the
duration of their benefits. The court also emphasized the fact that the legislature had
previously changed the COLA for participants. Although the prior change had not been to
detrimental, the court found that the revision negated any reasonable expectations that the COLA
would remain the same.

The result in Colorado suggests that judges in future cases may not blindly follow precedent and
read all plan provisions into the agreement. Rather, courts may scrutinize each provision to
discern whether it is a term of the contract. Lessons for lawmakers attempting to save money
in order to salvage their retirement systems would be to differentiate primary from arguably
ancillary terms. Legislators should also consult the history of state pension legislation. Past
modifications of particular provisions may increase the odds that such reforms will be allowed in
the future.

A lower court in Massachusetts also deviated from the contract upon initial employment rule
endorsed by the state supreme court. The intermediate appellate court in Dullea v. Mass. Bay
Transp. Auth. allowed the complete repeal of increased benefits 37 days after enactment due
to the lack of substantial service under the provision. It held that contract rights to pension

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151 Monahan, supra note 134, at 1066-69 (discussing California law).
152 Monahan, supra note 134, at 1072-73 (discussing decisions in Colorado and Oregon).
153 Justus v. State, No. 2010-CV-1589, slip op. at 9 (Colo. Dist. Ct. June 29, 2011); see also Monahan, supra note 134 (noting that the district appears to break with the California rule endorsed by the Colorado Supreme Court).
155 Id.
156 Id.
157 Id.
158 The case is still pending on appeal.
162 Id. at 1235-36.
benefits originate “when the employees first began work or level existing at the point when the promise had created expectations firm enough to command judicial respect.”[^163] Moreover, like Colorado, a more recent decision by the Massachusetts Supreme Court in *Madden v. Contributory Ret. Appeal Bd.*,[^164] emphasized its prior precedent separating core essential terms from the purportedly peripheral.[^165] Accordingly, legislatures contemplating statutory amendments need to consider carefully not only if and when there is a contract, but also what terms are included within it.

At the opposite end of the scale are decisions from jurisdictions like Kentucky,[^166] Louisiana,[^167] Missouri,[^168] and Ohio.[^169] These states find no contract until retirement or earlier upon qualification for retirement.[^170] As a result, legislation adversely affecting non-retired workers (and some existing workers who meet the prescribed age and service requirements for retirement eligibility) will be upheld under a contract challenge. Recall from the discussion above that Maine protects pre-eligibility pension interests as a matter of property, but only retirees as a matter of contract.[^171] Thus, Maine falls into this category as well. Furthermore, some of the states following the first day rule outlined above adhere to a limited versus absolute contract paradigm.[^172] Pre-retirement benefit reductions withstand constitutional challenge to the extent they are reasonable.[^173] Post-retirement (or retirement eligibility) benefit reductions are

[^163]: *Id.* (emphasis added).


[^165]: *Madden*, 729 N.E.2d 1095 at 1098 (holding that the statutory contract language means that the government may not deprive members of the "core of . . . reasonable expectations" that they had when they entered the retirement system) (citing Opinion of the Justices to the House of Representatives, 303 N.E.2d 320 (Mass. 1973)).


[^167]: *Smith v. Bd. of Trs. of the La. State Emps.' Ret. Sys.*, 851 So.2d 1100, 1106-07 (La. 2003) (retirement eligibility). The Louisiana Constitution explicitly provides that membership in any retirement system shall be a contractual relationship between employee and employer. *LA. CONST. ART. X, § 29(B).* Similar to Alaska and Illinois, Louisiana constitutionally protects accrued benefits of state public pension plan participants. *LA. CONST. ART. X, § 29(E)(5).* Rather than reading pension contract rights to begin with employment, however, the Louisiana Supreme Court interpreted its constitution to protect benefits once a participant qualifies for retirement under the plan. *Smith v. Bd. of Tr. of La. State Employees' Ret. Sys.*, 851 So.2d 110, 1105 (La. 2003) (noting that the constitutional provision also declares that future benefits can be altered by legislative enactment).


[^170]: Recall that the satisfaction of plan vesting requirements also triggers legal protection in Maine and Connecticut. However, because those states reject contract in favor of a property approach, pension reforms will stand if they satisfy due process of law.

[^171]: Parker v. Wakelin, 123 F.3d 1 (1st Cir. 1997).


This formalistic dichotomy between limited vested rights which can be modified and absolute vested rights which cannot be modified is not found in federal law. Still other jurisdictions fall in between these two extremes. Courts draw fault lines at some point after the onset of employment but before retirement eligibility. As such, it is potentially easier for state sponsors to alter existing benefits than the “first day” of government employment approach followed in many non-Social Security states but more difficult than the “last day” approach adopted in a few others. This more moderate method of ascertaining constitutional safeguards directs attention to the reliance interests of public workers. Pension benefits may be protected under alternative theories bordering contract. Specifically, rights may arise pre-retirement eligibility under the doctrines of promissory estoppel or akin to quasi-contract.

Employment benefits are protected as a result of proven reliance. Moreover, at some point during the employment relationship, reliance is presumed as a matter of law.

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174 Id. (citing decisions from California, Louisiana, and Michigan). Nevada provides even broader protection for workers than California and other states. While California limits the contract right only to benefits that accumulate during their service, see Pasadena Pol. Off. Ass’n v. City of Pasadena, 195 Cal. Rptr. 339, 346 (Cal. Ct. App. 1983), Nevada immunizes benefits from alteration at the time of retirement and allows employees to keep even those favorable changes that went into effect after the employee’s service ended. Pub. Emps.’ Ret. Bd. v. Washoe Cnty., 615 P.2d 972, 974 (Nev. 1980) (finding reduction in retirement benefits unconstitutional after repeal of a law quadrupling the amount of benefits a retired legislature may receive which went into effect after the legislators service ended).

175 See the discussion of the development of the absolute and limiting vesting approaches supra note 104.


177 Pineman v. Oechslin, 488 A.2d 803, 808 (Conn. 1985) (discussing contract implied in law approach); Singer v. City of Topeka, 607 P.2d 467, 476 (Kan. 1980) (public employee acquires contract right in pension plan after “continued employment over a reasonable period of time during which substantial services are furnished to the employer, plan membership is maintained, and regular contribution into the funds are made”); Christensen v. Minneapolis Mun. Employees Retirement Benefits Bd., 331 N.W.2d 740, 747 (Minn. 1983); West Virginia Booth v. Sims, 456 S.E.2d 167, 181 (W. Va. 1995) (declaring that protectable interest depends on whether the employee had a sufficient number of years within the system to have “relied substantially to his or her detriment on existing pension benefits and contribution schedules”); see also Beermann, supra note 49, at 36-37 (contrasting results in estoppel cases where employees were challenging the same pension reforms (citing Myers v. W. Virginia Consol. Pub. Ret. Bd., 226 W.Va. 738 (2010) and Adams v. Ireland, 207 W.Va. 1 (1999)). For a discussion of the causes of action for promissory estoppel and quasi-contract, see T. Leigh Anenson, Treating Equity like Law: A Post-Merger Justification of Unclean Hands, 45 AM. BUS. L.J. 455, 499 (2008); see also id. at 501 (analyzing equitable defense of estoppel).

178 The West Virginia Supreme Court announced: “[C]hanges can be made with regard to employees with so few years of service that they cannot be said to have relied to their detriment. Line drawing in this latter regard must be made on a case-by-case basis, but after ten years of state service detrimental reliance is presumed.” Booth v. Sims, 456 S.E.2d 167, ¶ 15 (W.Va. 1994) (syllabus by the court).

179 Id. The Minnesota Supreme Court adopted a “promissory estoppel approach” and equated it to a contract implied in law often referred to as quasi-contract. Christensen v. Minneapolis Mun. Employees Retirement Benefits Bd., 331 N.W.2d 740, 748 (Minn. 1983) (finding suspension of retiree benefits due to increase in retirement age unconstitutional); see also Pineman v. Oechslin, 488 A.2d 803, 808 (Conn. 1985) (delimiting Minnesota’s approach
In the non-Social Security states specifically, decisions from Maine and Massachusetts indicate that reliance interests may trigger constitutional protection. Recollect that the Supreme Court of Maine declared the promissory estoppel option potentially available to prevent detrimental changes to pension benefits. 180 Remember too that an appellate court in Massachusetts announced that a contract right arises after “substantial service.” 181

Additional possibilities exist for mid-career pension protection. Courts could adopt an approach that secures public pensions, like private pensions, after an employee completes the requisite service under the plan. 182 Other jurisdictions may also attempt to strike a balance between government discretion to reform their retirement systems and their employees’ legitimate expectations by protecting benefits after each day of service. Legislatures would be free to change terms on a going forward basis for current employees as well as to provide for a prorated solution for retirees. Safeguarding benefits actually earned to date would mirror private sector pension protection and allow legislative changes for future service. 183

Stuart Buck contends that “[t]his theory coheres with most of the caselaw construing federal and state contracts clauses.” 184 Whether or not Buck’s assessment that an accrual method provides the most accurate description of existing decisions, it is this particular middle ground that has generated the approval of legal scholars. 185 The position of Professor Alicia Munnell and Laura Quinby, associated with the Center for Retirement Research at Boston College, seems to square with Buck. They posit that distinguishing between benefits earned for past service (protected) and benefits expected for future service (unprotected) is defensible because it puts public

is that “a statutory pension plan is found to constitute a contract implied in law based upon the reasonable expectations of the public employee[“]. The court reserved judgment on whether a contract approach may be viable in a future case. Christensen v. Minneapolis Mun. Employees Retirement Benefits Bd., 331 N.W.2d at 748.

180 See Spiller v. State, 627 A.2d 513, 516-17 (Me. 1993); see also discussion supra at note 119 and accompanying text.

181 See Dullea v. Mass. Bay Transp. Auth., 421 N.E.2d 1228, 1235 (Mass. App. Ct. 1981) (finding contract right arises after substantial services are provided); accord Singer v. City of Topeka, 607 P.2d 467, 475 (Kan. 1980) (more than 11 years of service is substantial service). An early decision in California came to a similar conclusion. See Kern v. City of Long Beach, 179 P.2d 799 (Cal. 1947) (employee has pension rights as soon as he has performed substantial services for his employer”). For the evolution of the “California Rule” of public pension rights, see Monahan, supra note 134.

182 See Singer v. City of Topeka, 607 P.2d 467, 474 (Kan. 1980) (citing cases from Arkansas, Delaware, and Pennsylvania); Buck, supra note 54, at 33 (relying on federal precedent construing statutory contract claims under ERISA (citing Hoefel v. Atlas Tack Corp., 581 F.2d 1, 4-5 (1st Cir. 1978); Pratt v. Petroleum Prod. Mgmt., Inc. Employee Sav. Plan & Trust, 920 F.2d 651, 661 (10th Cir. 1990)); see also Hudr v. Illinois Bell Tel. Co., 234 F.2d 942, 946 (7th Cir.), cert. denied, 352 U.S. 918, 77 S. Ct. 216, 1 L. Ed. 2d 124 (1956) finding that a "pension plan is a unilateral contract which creates a vested right in those employees who accept the offer it contains by continuing in employment for the requisite number of years["]). But see Parker v. Wakelin, 123 F.3d 1, 3 (1st Cir. 1997) (reversing court decision adopting the satisfaction of service paradigm).

183 Madiar, supra note 101, at 183.

184 Buck, supra note 54, at 3; see also id. at 35. In support of his position, Buck cites, for example, Hughes v. Oregon, 838 P.2d 1020 (Ore. 1992), where the Oregon Supreme Court declared that pension reform subjecting PERS retirement benefits to taxation was a nullity as applied to benefits “accrued or accruing for work performed before the effective date of [the] legislation.” Id. at 34.

185 See Monahan, supra note 134; Buck, supra note 54. But see Madiar, supra note 101, at 192-93 (criticizing Monahan’s position that contract protections should extend to what workers have accrued).
pensions on the same footing as private pensions. 186  Professor Amy Monahan similarly concludes that protected benefits should be those earned for services performed. 187  She asserts that theory and public policy support the idea that government workers are only entitled to the benefits they have accrued during their employment. 188  Monahan explains that retroactive changes are unfair to employees just as it is unfair to employers to lock them into an economic bargain prospectively at the beginning of employment. 189  

She additionally claims non-accrual based pension jurisprudence is unsupported by contract theory which looks to the reasonable expectations of the parties. 190  Accepting the concept of pensions as deferred compensation, 191  Monahan argues that no employee can have a reasonable expectation of future benefits given the nature of the employment relationship. 192  Subject to the employment at will doctrine, employee can have their salary reduced or can even be terminated at any time for almost any reason. 193  Professor Monahan’s argument makes sense. But her logic does not necessarily extend to discrete groups of government workers who have heightened protection from the loss of employment. Teachers, most notably, fall into this category. 194  For the academic profession at least, tenure virtually guarantees employment. Reliance on future accruals is therefore more reasonable for teachers. As a result, it is more probable that prospective retirement benefits may be deemed a protectable interest. 195  

In any event, legal developments are dynamic and not definitely resolved. The foregoing discussion reveals that the means of discerning where the pension privilege ends and a legal


187  Monahan, supra note 134.

188  See id.

189  See id. The result is especially incongruous when government employers can change other aspects of the employment relationship. Monahan, supra note 101; cf. Julie A. Roin, The Limits of Textualism: Cooper v. IBM Personal Pension Plan, 77 U. CHI. L. REV. 1195 (2010) (explaining how courts will look at the practical impact of the plan change and the employer’s flexibility to finance future plans when considering cash balance plan conversions from defined benefit pension plans in the private sector).

190  Monahan, supra note 134.

191  Id.; Buck, supra note 54 (pension as back-loaded salary).

192  Monahan, supra note 134, at 1078-79; cf. Beermann, supra note 49 (agreeing with Monahan’s argument only to the extent that it is supported by the policy of flexibility).

193  Monahan, supra note 134, at 1078-79.

194  Lawmakers tailoring reforms to certain groups need to be careful of equal protection violations as well. Certain groups of workers may also have reasonable and protectable expectations as to certain aspects of their plan. Plans are different because they cover employees with different characteristics. See Olivia S. Mitchell et al., Developments in State and Local Pension Plans, in PENSIONS IN THE PUBLIC SECTOR 11, 15 (Olivia S. Mitchell & Edwin C. Hustead eds., 2001). For the police and firefighters whose jobs are physically demanding, retirement plans provide for retirement at earlier ages in order to preserve a younger workforce. Id. Therefore, dramatically increasing the minimum retirement age for these employees may be deemed unconstitutional.

195  Accord Beermann, supra note 49; cf. Buck, supra note 54, at 37 (arguing that even state employees with a property interest in their jobs, such as those with academic tenure, can still be fired after due process is afforded to them).
contract begins is still a moving target. As the legal community attempts to understand the diverse judicial methods of determining liability, the paucity of court decisions coupled with the complexity of the constitutional issues place politicians in a difficult position.\textsuperscript{196} Financial concerns force them to find solutions to rescue their deteriorating retirement systems, yet jurisprudential considerations in many states provide no clear guidance whether reforms will overcome legal obstacles.

If no contract exists between the government pension plan sponsor and its participants, there is no need for further inquiry into the degree of impairment or its necessity as set forth in elements two and three respectively. Correspondingly, even if a contract is found, be it on the first or last day of employment, or somewhere in between, legislative changes must still be ruled a substantial impairment of that contract. Regardless of impairment, pension reforms may withstand constitutional challenge if they are found to be within the police power of the state.

b. Substantial Impairment

The Supreme Court has given scarcely any guidance as to what constitutes a substantial impairment of the contract.\textsuperscript{197} The Court has indicated that the requisite degree of impairment may be measured by reference to the values underlying the common law of contracts.\textsuperscript{198} This suggests a balancing approach where lower courts weigh the policies of certainty and fairness on a case by case basis. For the sake of simplicity, courts considering public pension contracts could evaluate certainty in terms of the participants need to order their financial affairs against fairness to state legislatures which need to maintain flexibility.\textsuperscript{199} In short, continuing the advised analogy to private law, “substantial” would seem to mean a material rather than a minor breach.\textsuperscript{200}

Not all state courts interpreting their own constitutional provisions use the language “substantial impairment,” but they often espouse a similar if not identical standard.\textsuperscript{201} California’s version, for instance, measures whether disadvantages are offset by new advantages.\textsuperscript{202} Illinois courts

\textsuperscript{196} In anticipating subsequent reforms, lawmakers in states where rights are derived entirely by legislation (and where courts also examine the statutory language) should be explicit that the reforms do not create a contract.

\textsuperscript{197} Monahan, supra note 134, at 1041 n.70. Under the original understanding of the Contract Clause, all retrospective modifications of contractual obligations were unconstitutional. See Douglas W. Kmiec & John O. McGinnis, The Contract Clause: A Return to the Original Understanding, 14 HASTINGS CONST. L.Q. 525 (1987). Later cases examined not only if there was an alternation of the agreement, but also its significance.


\textsuperscript{199} See Balt. Teachers’ Union v. Mayor & City Council of Balt., 6 F.3d 1012, 1017 (4th Cir. 1993) (explaining that inducement to contract and reasonable reliance are determinants of impairment); see also Monahan, supra note 134 (arguing that fairness should prevail allowing legislative changes).

\textsuperscript{200} U.S. Trust Co. of New York v. New Jersey, 431 U.S. 1, 26-27 (1977); see also id. at 31 (citing El Paso v. Simmons, 379 U.S. 497, 515 (1965)).

\textsuperscript{201} At least one state foregoes any remaining analysis after finding a contract. Yeazell v. Copins, 402 P.2d 541 (Ariz. 1965) (contract begins at employment and may not be changed without employee consent).

\textsuperscript{202} California’s concept of contract seems to conflate the second and third prongs of the standard contract approach. See Monahan, supra note 134 (noting ambiguity); see also Munnell & Quinby, supra note 186, at 2-3 (putting California’s test in the third prong of the contract standard).
discern whether the modification directly or indirectly diminishes the benefits. Legislatures seeking clarity from the constitutional conundrum of contract clause jurisprudence should turn to actual results under state decisional law. California has been the most prominent battle ground over pension reform. In California, changes to benefit formulas, funding sources, and methodology have each been ruled to be substantial impairments of the pension contract. Conversely, changes to actuarial factors reducing employer contributions (rather than benefit calculations) were not deemed substantial. Other jurisdictions have found participants’ contract rights impaired by increasing minimum age requirements for retirement, mandating unpaid leave, and doubling employee contributions without added benefits.

Consider as well the seemingly small 1.5 percent COLA reduction in Colorado at issue in *Justus v. State* which had a serious financial impact on pension participants. If the district court decision is reversed and pension reform is upheld on appeal, retirees who received a pension of $33,254 in 2009 will lose more than $165,000 in benefits over a twenty-year period. Of course, the same reforms will save taxpayers millions.

Analyzing case outcomes across approximately half of the United States, Professor Monahan concluded that the second part of the three-part constitutional contract standard is relatively easy to satisfy as many reforms of public pension plans have been found to be impairments. In the

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206. For decisions in other states, see *Calabro v. City of Omaha*, 531 N.W.2d 541 (Neb. 1995) (eliminating cost-of living supplemental payments found to be a substantial impairment); *Deonier v. State*, 114 Idaho 721 (1988) (offsetting pension benefits by the amount of workers’ compensation benefits received deemed substantial impairment).

207. *Int’l Assn. of Firefighters v. City of San Diego*, 667 P.2d 675 (Cal. 1983); accord *Strunk v. Pub. Employees Ret. Bd.*, 108 P.3d 1058 (Or. 2005). Other pension reforms outside of California that did not rise to the level of substantial impairments include reducing the amount of employer contributions where there was no evidence that doing so would render the pension system actuarially unsound, investing pension assets in a state prison construction project, accounting changes, changing the default rules for beneficiary designations, and providing participants a choice of continuing to accrue benefits under an old formula or moving to a new accrual structure. Monahan, *supra* note 134 (citing cases from Washington, West Virginia, South Dakota, and Maryland, respectively).


211. See discussion of Colorado reforms, *supra* notes 76-78 and accompanying text.


213. Monahan, *supra* note 101; see also Monahan, *supra* note 134 (clarifying that her prior research reviewed twenty four jurisdictions).
thirteen states where pensions are a substitute for federal Social Security benefits, we believe that reforms are even more likely to be barred because they rise to the level of constitutional harm. 214 Public pension benefits are the one and only retirement payment from any government. Indeed, in considering the public pension crisis, many scholars have emphasized that the absence of additional federal benefits places these particular public workers in a more vulnerable position in terms of their retirement security. 215

c. Reasonable and Necessary to Accomplish Important Objective

Despite the existence of a contract and its substantial impairment, state reforms may still survive under the third prong of the Contract Clause analysis. To do so, however, such legislative changes must be reasonable and necessary to accomplish an important purpose.

Under the federal ends-means analysis, the purpose of the reform is sufficiently important if it is meant to accomplish a broad social or economic objective rather than favoring narrow special interests. 216 The method is reasonable and necessary if the government did not assume the risk of the events prompting the change and there was no other way to solve the problem. 217 Satisfying both will shield state pension reforms from invalidity. 218 Courts testing legislative objectives under state law appear to ascribe to a similar standard of review. In Massachusetts, for example, judges use more lenient language and ask whether the modifications are reasonable and bear a material relationship to the theory of the pension system and its successful operation. 219

In considering public pension reform, reducing the budget deficit is likely to be held an important purpose, 220 but cutting pension benefits may not be deemed necessary to accomplish that purpose. 221 State reforms may better surmount a Contract Clause challenge, however, if they have already attempted other ways to address their monetary woes. 222

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214 We agree with Professor Monahan that employees in non-Social Security states should fare no better under the first prong of the Contract Clause analysis, id. at 1078-79, but we believe this distinction is important in the second prong inquiring into the impact of the reform.

215 See, e.g., Monahan, supra note 134.


217 U.S. Trust Co. of N.Y., 431 U.S. at 29-31 (“unforeseen and unintended”).

218 Unlike the deference given legislatures in determining the existence of a contract, courts tend to scrutinize legislative justifications for changing contractual terms. See United States Trust, 431 U.S. at 25-26 (“Courts defer to a lesser degree when the State is a party to the contract because the State’s self-interest is at stake.”).

219 Madden v. Contributory Ret. Appeal Bd., 729 N.E.2d 1095, 1098 (Mass. 2000) (citing a California decision) (finding teacher’s part-time service may be prorated to reduce creditable service after she entered the retirement system because the regulation was correcting a disparity in treatment).

220 See, e.g., Spiller v. State, 627 A.2d 513, 515 (Me. 1993) (noting lower court ruling that reducing budget deficit satisfied the ends requirement but that pension cuts failed to meet the means requirement); Christensen v. Minneapolis Mun. Employees Retirement Benefits Bd., 331 N.W.2d 740, 751 (Minn. 1983) (cutting expenditures at a time of fiscal distress is legitimate and significant public purpose).

221 Pub. Emps.’ Ret. Bd. v. Washoe Cnty., 615 P.2d 972, 973-74 (Nev. 1980) (finding denial of early retirement to certain public employees eligibility unreasonable and unnecessary without evidence the change was essential to maintain the integrity or flexibility of the system).

222 Baltimore Teachers Union v. Mayor and City Council of Baltimore, 6 F.3d 1012, 1020-21 (4th Cir. 1993).
Relying on Supreme Court precedent that found economic interests a defensible use of state power, one scholar predicts that states may use of the ongoing recession to justify pension modifications under the necessity exception.\textsuperscript{223} By analogy to the doctrine of excuse in contract theory, states raising the defense must show they had no reason to know of a possible drastic drop in the market value of their public pensions.\textsuperscript{224} Still, simply showing an unanticipated severity of the financial crisis may not be enough.\textsuperscript{225}

The inability of state governments to excuse themselves for pension changes is even more likely when considering the availability of equitable defenses. Specifically, the government’s resort to the excuse doctrine may be rebuffed by reference to legal equity given that states are at least partly responsible for the present predicament.\textsuperscript{226} As indicated earlier, in many cases, proof of persistent underfunding aggravated actuarial deficits and made pensions vulnerable to the stock market plunge in the first place. The application of the equitable defenses of unclean hands or estoppel would be particularly apt should governments attempt to use a different discount rate to establish excuse than they used to set their contributions.

Consequently, the level of legal protections afforded to public pension benefits is, at worst, a quagmire and, at best, greatly in need of direction and development. The analysis above makes clear that across or even within individual states, constitutional law provides inadequate guidance to lawmakers intent on reforming their retirement systems. However, it is axiomatic that new hires do not have legally enforceable expectations of a predictable level of retirement income. As such, many governments, including those outlined above in states that do not fund Social Security, limited pension reform to incoming workers. While these lawmakers played it safe and avoided lawsuits with substantial legal bills, they may have also eluded a more immediate and meaningful outcome.

Focusing on public sector employee pensions that do not contribute to Social Security, we attempted to rationalize contradictory court decisions as well as frame the academic debate seeking a cogent conception of contract law. We also analyzed other theories of recovery and, correspondingly, potential pitfalls to the ongoing statutory changes to state retirement systems. Accordingly, our study of the political and legal context of public pension reform provides a basis for the conversation to come on how best to revamp these failing systems. It is axiomatic that pervasive investment losses make it necessary to put money in to these plans, but it also means there is less money available to pay contributions. Growing obligations raise the specter

\textsuperscript{223} Whitney Cloud, Note, \textit{State Pensions Deficits, The Recession, and a Modern View of the Contracts Clause}, 120 YALE L.J. 2199 (2011)

\textsuperscript{224} See \textit{id.} at 2205.

\textsuperscript{225} See \textit{id.}; see also AFSCME v. City of Benton, Arkansas, 513 F.3d 874, 882 (8th Cir. 2008) (calling for an unprecedented emergencies,’ such as mass foreclosures caused by the Great Depression. . .); \textit{Peterson v. Fire and Police Pension Association}, 759 P.2d 720, 725-26 (Colo. 1988) (allowing alteration of survivor pension benefits “to avoid bankrupting the Denver system and others throughout the state”); \textit{cf.} Buck, \textit{supra} note 54, at 46 (“Court holdings on the necessity exception tend to veer in different directions.”).

of more taxes and less public services, including state funding of education.\textsuperscript{227} The dire financial situation also presents the possibility of a costly federal bailout.\textsuperscript{228} The potential consequences to public employees and retirees who do not participate in Social Security are especially distressing as they could be left with insufficient assets for retirement.

III. Developing a Decision-Making Framework: Discussion and Recommendations

Hardly any attention has been paid to public pensions until the recent market downturn exposed enormous unfunded liabilities. It should be underscored that states must attempt to close the trillion plus dollar gap between what state governments and workers put into their pension funds and what states owe retirees and beneficiaries. The foregoing sections examined the financial, political, and legal setting related to public pensions, particularly the plans of educators in non-Social Security states. With these considerations in mind, this section suggests a comprehensive set of reform measures. These policy prescriptions are provided as part of a managerial paradigm along with criteria by which to evaluate them. The evaluation criteria are not presented as a definite algorithm, but rather as principles reflecting an often-conflicting range of values. These common goals of social policy include efficiency, equity (fairness), and adequacy.\textsuperscript{229}

The policymaking methodology directs attention not only to the pension plans themselves, but also to the political reality of their creation and continued operation. This means addressing both the internal environment associated with public pensions, such as contribution and benefit levels along with plan design, as well as the external environment. The political dimension, or moral hazard, is what analysts increasingly point to as the predominant source of the public pension problem.\textsuperscript{230} Notably, our proposed changes and underlying philosophy are reinforced by scholarly works in law, education, and economics. By bringing both theorists and empiricists into the discussion of public pensions, along with our own analysis and estimations, we aim to enhance the quality of the debate over the relative merits of competing reform proposals.

\textsuperscript{227} See, e.g., Gina Raimondo, \textit{Truth in Numbers: The Security and Sustainability of Rhode Island’s Retirement System} (May 2011), available at http://www.ricouncil94.org/Portals/0/Uploads/Documents/General%20Treasurer%20Raimondo%20report.pdf (“In recent years, state aid to cities and towns, which is used mostly for K-12 education, has decreased annually by eight percent[.]”).

\textsuperscript{228} We do not favor the kind of federal invention historically provided to the private sector, such as the automotive industry and financial services. See T. Leigh Anenson & Donald O. Mayer, “Clean Hands” and the CEO: Equity as an Antidote to Excessive Compensation, 12 U. Pa. J. Bus. L. 947, 948-50 (2010) (explaining how banks were able to private the gain and ultimately socialize the risk during the most recent financial meltdown); Hylton, \textit{supra} note 57, at 434-36 (discussing the outlay of taxpayer dollars as a windfall to banks and not to borrowers).

\textsuperscript{229} These norms are implicit in the recent legal and economic literature on public pensions in the law and policy journals on pension reform and explicit in publications addressing other issues involving retirement income security. Brian J. Kreiswirth, \textit{The Role of the Basic Public Pension in a Retirement Income Security System}, 19 COMP. LAB. L. & POL’Y 393 (1997-1998) (discussing values of fairness, adequacy, and efficiency); Robert Costrell, et al, “Fixing Teacher Pensions: Is it Enough to Adjust Existing Plans?,” \textit{EDUCATION NEXT}, Fall 2011, 60-69, http://educationnext.org/files/ednext_20114_forum.pdf (outlining economist debate over pension reform on grounds of equity (fairness) and efficiency); \textit{see also} Monahan, \textit{supra} note 134 (criticizing California rule of constitutional contract protection on grounds of inefficiency).

A. Minimizing Moral Hazard

Short term political manipulations have resulted in long term harm to public employee retirement systems. The political risks associated with public pensions are unknown in the private sector and deserve consideration in any comprehensive reform package. As such, corrective measures should include restraining political leaders who are incentivized to supply potentially excessive benefits as well as restricting unions that understandably demand such benefits for their members without regard for whether these obligations can ever realistically be met. To date, the negotiations have typically taken place without input from an ignorant and often uninterested public.

1. Lawmakers

This part confronts the political dimension of public pension promises. Pension security is put in peril by politicians who are disposed to sacrifice future benefits for present interests.\textsuperscript{231} Too often, elected officials spend public dollars with far less care than they would spend private dollars.\textsuperscript{232} Experience also teaches that pension benefits are usually increased during economic boom cycles but not decreased during the bust cycles.\textsuperscript{233} Indeed, comparable to state action during the relentless rise in stock prices, governments promised workers better compensation and benefit packages during the housing boom when sky high prices elevated property tax revenues.\textsuperscript{234} Public sector employment packages were so good that some analysts found that they even exceeded those found in the private sector.\textsuperscript{235}

In addition to the political incentives to provide excessive benefits, there are two main dangers related to pension fund assets: underfunding and borrowing.\textsuperscript{236} Examples abound. Because pension funds hold a massive amount of assets,\textsuperscript{237} legislators in California and other states have

\textsuperscript{231} See, e.g., West Virginia Booth v. Sims, 456 S.E.2d 167, 183 (W. Va. 1995) (“It is a recurrent problem of government that today's elected officials curry favor with constituents by promising benefits that must be delivered by tomorrow's elected officials.”); Reinke, supra note 98 (detailing causes of pension underfunding to include states falling behind in their payments and ill-considered benefit increases).

\textsuperscript{232} Hylton, supra note 57, at 446; Olivia S. Mitchell & Robert S. Smith, Pension Funding in the Public Sector, 76 REV. ECON. & STAT. 278, 282-83 (1994).

\textsuperscript{233} See Hylton, supra note 57, at 445 (using California as an example of this phenomenon); Bermann, supra note 48, at 27; see also Roads to Reform, supra note 50 (noting that states have historically ignored their retirement obligations in both good times and bad).

\textsuperscript{234} Hylton, supra note 57, at 421-22 (discussing how states lowered contribution levels and retirement ages).

\textsuperscript{235} Id. at 422 (citations omitted); see also id. (commenting that large numbers of public employees began receiving six figure pensions for the first time).


\textsuperscript{237} See, e.g., Novy-Marx & Rauh, supra note 17, at 1213 (noting that the 116 state plans studied had $1.94 trillion in total assets in 2009); W. Scott Simon, Public Employee Pension Plan Trusts, in THE PRUDENT INVESTOR ACT: A GUIDE TO UNDERSTANDING (2006) (commenting that $2.75 trillion in state and municipal pension fund assets were spread among about 2,300 public employee pension plans in the U. S. at the end of 1999) (citing Greenwich Associates and the U.S. Census).
been known to dip into them to pay unrelated bills.\textsuperscript{238} Moreover, it has been reported that Illinois, for instance, has not paid its pension bill since 1970.\textsuperscript{239} Illinois is not unusual. Funding level declines have been persistent across states.\textsuperscript{240} The situation is bad and getting worse.\textsuperscript{241}

Professor Jack Beermann provides one of the most inclusive accounts of the political economy of public pensions.\textsuperscript{242} With respect to underfunding public pensions, he explains that it is in substance, if not in form, an example of deficit spending.\textsuperscript{243} Basically, current taxpayers enjoy the benefits of government services while delaying the costs for future taxpayers.\textsuperscript{244} The harm to the next generation is that they will be required to pay for the excesses of prior generations and, at the same time, receive less government services as states allocate limited funds to pensions for retirees.\textsuperscript{245}


\textsuperscript{239} Nanette Byrnes & Christopher Palmeri, \textit{Sinkhole! How Public Pension Promises Are Draining State and City Budgets}, BLOOMBERG BUSINESSWEEK, June 13, 2005, \url{http://www.businessweek.com/magazine/content/05_24/b3937081.htm} (reporting findings of the Civic Federation, a Chicago research group sponsored by the business community, that Illinois has not paid its pension bill in full since 1970).

\textsuperscript{240} See, e.g., Ellman & Merrett, \textit{supra} note 105 (detailing statistics on funding level decline for public pensions). Given the horrific budget issues facing most states, lawmakers will be even more apt to take funding holidays.

\textsuperscript{241} For fiscal year 2008, the Pew Center found that states and localities fell short of funding their pension plans by $452 billion of pension liabilities. \textit{The Trillion Dollar Gap}, \textit{supra} note 18 (reporting total shortfall more than $1 trillion if retiree health care and other benefits included).

\textsuperscript{242} Beermann, \textit{supra} note 49, at 26 (commenting that economists and political scientists began studying the problem as early as the 1970s); see also Ellman & Merrett, \textit{supra} note 105 (considering the political dimension of public pension promises). For another extensive discussion, see Hylton, \textit{supra} note 57; Simko, \textit{supra} note 236.

\textsuperscript{243} Accord Simko, \textit{supra} note 236, at 1061. Beermann explains that deficit spending is not universally bad. However, he concludes that it “seems to be intended more for political stimulus than economic stimulus.” Beermann, \textit{supra} note 49, at 23. Politicians benefit from deficit spending because it allows them to reward supporters (government workers) with additional services (or in this case pension benefits) without requiring the public to pay for them. \textit{Id.} at 24. They are also out of office when the bill comes due. \textit{Id.}

\textsuperscript{244} \textit{Id.}

\textsuperscript{245} \textit{Id.}
Given these inherent risks, our discussion centers on three possible reforms. First, we propose that state governments impose new funding requirements. Second, because state budget requirements have been shown to increase underfunding, we next suggest that states modify these requirements. Third, and finally, we urge states to enact prohibitions against the misuse of fund assets. Notably, the federal funding and fiduciary duty rules mandated by the Employee Retirement Income Security Act of 1974 (ERISA) for private pension plans do not extend to public plans.

### a. Funding Requirements

As an initial matter, lawmakers should dissuade their penchant for underfunding public pensions by enacting legislation compelling certain (or at least an acceptable range) of funding levels. The exact level, full funding or something less, should be enough to ensure the payment of future liabilities. In short, to the extent possible, states should be required to set aside enough assets in their pension funds to provide retirement benefit cash flows relating to these payments. In the non-Social Security states, court decisions in Alaska and California have held that actuarially sound funding is a contractually protected term of the pension program. The Illinois Supreme Court, however, has determined that protection extends only to benefits and not funding.

### b. Balanced Budget Constraints

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247 Cf. Reinke, *supra* note 98 (arguing that the federal government should incentivize state governments to adopt minimum funding requirements by allowing them to issue tax-exempt bonds for the purpose of funding the pensions of public employees).

248 The optimal funding level is beyond the scope of this article. See Forman, *supra* note 150, at 860 (urging full funding of public pensions despite potential misuse by employees and lawmakers); Norcross & Biggs, *supra* note 9, at 2 (discussing new statute in New Jersey that put on ballot constitutional requirement to fully fund pensions); Costrell et al., *supra* note 229 (outlining the problem of overfunding).

249 See Simko, *supra* note 236, at 1065-79 (listing states that already require adequate funding levels); *see also* Beermann, *supra* note 49, at 39 (commenting that any attempt to move to actuarially adequate funding may be impossible or extremely difficult for many states).


As a related matter, state governments should modify existing balanced budget constraints, if any. Balanced budget requirements were put in place in many states to avoid accelerating budget deficits. But they have had unintended consequences on public pensions.252 Borrowing to satisfy operating expenses may not be available in tight fiscal times so underfunding pensions allows state governments to balance their budgets without cutting services.253 As a result, there is a negative correlation between underfunding and balanced budgets.254 To eschew balanced budget regulation from undercutting pension funding, states can simply change the law to delineate pension funding as a current cost.255

c. Misuse of Assets

Our last recommendation aimed at deterring the morally hazardous behavior of state legislatures concerns the inappropriate use of pension fund assets. Drawing inspiration from the federal regulation of private pensions, states should consider measures prohibiting the removal of trust assets and limit other uses to arms’ length transactions subject to fiduciary standards.256 Consequently, states should deal directly with funding issues by mandating a particular level of funding and/or indirectly by amending balanced budget laws that encourage underfunding. They should also bar the improper removal and use of fund assets. These safeguards should deter the dynamic of rent seeking by politicians and better align the spending of public dollars with the best interests of their owners, the taxpaying public.

2. Labor Leaders

In addition to curtailing political behavior on the supply side of the pension problem, states may similarly consider curbing the demand side. Because most public school teachers are unionized,257 banning or otherwise restricting collective bargaining over retirement income would eliminate the potential pressure on lawmakers to provide unsustainable benefits.

Professor Maria O’Brien Hylton outlines the debate for and against such a ban before staking a more moderate position.258 As she explains, proponents of denying collective bargaining point to the political reality that the retirement benefits of government workers are the product of a process that disadvantages taxpayers.259 Opponents, including Professor Paul Secunda and the

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253 Id. See also Beermann, supra note 49, at 33 (concluding that “the short-term nature of state budgeting and the inapplicability of “balanced budget” requirements conspire to create a long term mess of underfunded pension obligations”).
254 Chaney, et al., supra note 250, at 307 (finding state balanced budget requirements negatively correlated with pension funding to full actuarial standards).
255 Accord Beermann, supra note 49, at 33. Because pension promises are an off-budget method of providing compensation to state employees for current services, the larger the share that can be paid in the form of deferred compensation, the more services government can provide out of current revenue.
258 Hylton, supra note 57, at 472-82.
259 Id. at 476; see also Beermann, supra note 49, at 20-21 (providing example of excessive benefits due to legislative largesse and overly zealous unionized public school teachers in Rhode Island).
International Labor Organization, argue that collective bargaining is a moral imperative amounting to a fundamental human right.\(^{260}\)

Hylton questions, however, whether the opponents’ position should extend to public employees. She asserts that there are fundamental distinctions between public and private sector employees that justify a difference in treatment.\(^{261}\) She notes that collective bargaining in the public sector is a relatively recent phenomenon and, accordingly, lacks a long-standing tradition that it is appropriate.\(^{262}\) As she also observes, unlike their counterparts in the private sector, public employees do not typically generate profits.\(^{263}\) As such, public employees negotiate to secure a larger slice of taxpayer dollars in the form of benefits and other compensation.\(^{264}\) Given the evidence that unions have engaged in rent seeking behavior, they have the power to raid the public fisc.\(^{265}\) Hylton, therefore, concludes that restricting union activity regarding public pensions may be proper in exceptional cases.\(^{266}\) We agree.

As a practical matter, prohibiting or even limiting collective bargaining in the public sector would provoke fierce resistance. The massive protests to potential government regulation of union rights concerning pensions recently evidenced in Wisconsin and other states suggest that an embargo should be considered as a last resort.\(^{267}\) Of course, states should study their own


\(^{261}\) Id. at 480-81.

\(^{262}\) Id.

\(^{263}\) Id.

\(^{264}\) Id. (“When public employees strike, they strike against taxpayers.”).

\(^{265}\) Id.; see also Beermann, supra note 49 (explaining the unions have placed a higher priority on current wages than on adequate funding of pension promises). See generally Anne O. Krueger, The Political Economy of the Rent-Seeking Society, 64 AM. ECON. REV. 291 (1974).

\(^{266}\) Hylton, supra note 57, at 417 (noting that it may be necessary to prohibit bargaining over retirement income in extreme cases).

collective bargaining experience to see if such a prohibition would actually remove barriers to necessary reforms. Politicians should not invite controversy if banning bargaining would be insufficient to solve the pension problem. As a political strategy, lawmakers could publicize their intent to enact measures to weaken public sector unions regarding public pensions (such as proposing to study this option) as a way of bringing more reticent and unreasonable unions to the bargaining table. At least in some states like Ohio, the magnitude of the current crisis aligned once divergent interests to insure that public pension plans remain afloat.

Notwithstanding the foregoing proposals relating to lawmakers and labor leaders, curing the pension crisis will be further enhanced by regulation including taxpayers in the reform process. Unlike public sector unions, taxpayers are diffuse and disorganized. Suggested methods of taxpayer involvement will be considered in the next section.

3. Taxpayers

The political expediency of public pension promises can be resisted not only through law reform limiting such morally hazardous behavior, but also through regulation targeting public passivity. Recall the tendency of politicians to please voters and supporters, many of whom are government workers, by promising additional benefits and binding taxpayers to irresponsible commitments from which they likely cannot remove themselves. Customarily, provoking a political backlash is undesirable, but its absence in the provision of government-sponsored pensions has enabled the present predicament. Therefore, reforms should inform and enable taxpayers to participate in the provision of public pensions.

There is consensus among pension scholars across disciplines that increased transparency, uniformity, along with more accurate discount and amortization rates, should be included in any retirement reform package. We address each recommendation in turn.

See Secunda, supra note 52, at 263 (discussing pension reform bill in Wisconsin that strips most collective bargaining rights from most public-sector employees); Mark Trumbull, Did Wisconsin choose nuclear option in collective bargaining fight?, THE CHRISTIAN SCIENCE MONITOR (Mar. 9, 2011).


269 States like Texas have never permitted collective bargaining in the public sector. See Hylton, supra note 57, at 452-53 (noting that the prohibition did not stop morally hazardous behavior yet did make change easier to implement when the state could no longer afford its retirement benefits).


271 Hylton, supra note 57, at 471-72 (recommending reforms that “encourage taxpayers to function like shareholders and others with a serious stake in the financial health of a private enterprise”).
a. Transparency

To begin, raising awareness is necessary so that the public can understand and evaluate the economic magnitude of state public pension liabilities. Humans deal with crisis in our daily lives and, to the extent we survive them, such troubles usually raise our level of consciousness and lower our expectations. A good dose of reality is needed by the electorate (and all parties) impacted by public pensions.

As stated earlier, scholarly interest in public pension liabilities is relatively recent and coincides with the series of financial setbacks suffered by economies worldwide. We were one of a few commentators who, five years ago, sounded the alarm that a souring investment climate increased the risk that thousands of government workers would not receive their expected pension. At that time, we urged the acceptance of mandatory disclosure laws to timely identify funding issues and facilitate solutions. We stand by that recommendation.

We agree, however, with Professor Beermann who observes that transparency is not a complete panacea because of psychological propensities to discount long-term problems, especially when the overall share of liability is small. Further, because residents move from state to state, taxpayers may also determine (correctly) that they will not be held accountable when obligations come due. Nonetheless, despite these potential impediments, we believe that more sunshine relating to the financial status of retirement plans is an integral part of the overall solution to the public pension predicament.

b. Uniformity

Next, improved uniformity on key information will likewise lead to progress on the problem of public pensions. The financial status of public pensions is difficult to discern, in part, because these funds vary widely with different sets of laws for each system. When and how liabilities are reported is subject to vagaries in each state. Not all states publish current data.


273 Lahey & Anenson, supra note 22, at 316.

274 See id.


276 See id.; see also Robert P. Inman, Public Employee Pensions and the Local Labor Budget, 19 J. PUB. ECON. 49, 50 (1982) (arguing that mobile taxpayers are likely to support deferring payment for current services until later at the expense of less mobile residents).

277 See Costrell, et al, supra note 236 (calling for transparency to defined benefit plan participants as well); Reinke, supra note 98 (discussing federal bill, Public Employee Pension Transparency Act, that requires pension plans to file annual reports on funding levels and actuarial assumptions). Given the increased demands of public accountability, state governments have begun to put spending online. See Tracy Loew, States put spending online, USA TODAY, at 3A (Feb. 23, 2009).

278 There are different vesting requirements, fiduciary standards, and reporting rules. See generally CYNTHIA L. MOORE, PUBLIC PENSION PLANS: THE STATE REGULATORY FRAMEWORK (2d ed. 1993) (discussing various disclosure and reporting requirements in states). In a survey of state and local government pension funds by the
Comparisons of the reported information among public pension systems are complicated by different levels of requisite funding and underlying assumptions that determine pension plan liabilities. These assumptions include demographics, assumed rates of return on investments, as well as other economic indicators and information about the plan. In retirement systems for teachers, for instance, there are different actuarial methods for calculating retirement benefits that include age at entry, projected unit credit, and aggregate cost. Assumed inflation rates range from 2.5% to 5% and assumed interest rates range from 7% to 12.9%. States may also consolidate their systems for purposes of reporting or disclose the data separately for each system within the state. Adopting the same criteria for reporting within and between states would permit a complete comparison of each separate system.

We highlighted the lack of uniformity as an obstacle to reform in our prior research and advocated the adoption of the Uniform Management of Public Employees Retirement Systems Act (UMPERS) or minimum universal disclosure rules akin to it. We do so again.

The reporting obligation of UMPERS requires three kinds of reports to be produced and distributed by each retirement system: a summary plan description, an annual report, and an annual disclosure of financial and actuarial status. The summary plan description provides an

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281 See 2005 WILSHIRE REPORT, supra note 1, at 3.
282 See generally 2005 WILSHIRE REPORT, supra note 1; see also id. at 3 (noting that even for those systems seeking to report in a timely manner, it often takes six months to a year for actuaries to determine values).
283 See id.; see also Mitchell et al., supra note 14, at 23–25 (discussing various methods used by actuaries to determine pension plan liabilities); Tongxuan Yang & Olivia S. Mitchell, Public Pension Governance, Funding, and Performance: A Longitudinal Appraisal (Pension Research Council Working Paper 2005), available at http://prc.wharton.upenn.edu/prc/prc.html (highlighting the lack of national regulation and conformity about funding targets, management of funds, investment alternatives, and reporting of performance).
284 NAT’L EDUC. ASS’N, supra note 67, at 70–77.
explanation of the retirement program and its benefits.\textsuperscript{288} The annual report must contain specific financial and actuarial information.\textsuperscript{289} Both must be distributed to plan participants and beneficiaries and made available to the public.\textsuperscript{290} The annual disclosure of financial and actuarial status is a more detailed compilation of the retirement system and its financial position.\textsuperscript{291} The disclosure need not be published,\textsuperscript{292} but must be available at the principal office of the system and at a central repository where reports of all systems in a state are filed.\textsuperscript{293} Thus far, however, only Wyoming\textsuperscript{294} and Maryland\textsuperscript{295} have adopted the contents of the uniform law.\textsuperscript{296} Such a small percentage of the United States hardly creates uniformity. More states should consider it to ensure clear and complete information to those with an interest in monitoring the system and to create political incentives for leaders to address pension difficulties in a timely and reasonable manner.

c. Accuracy

Last, but certainly not least, in helping to preserve public pensions is improved accuracy. Current reporting methods understate the liability to the taxpayer. These misrepresentations as to the magnitude of fiscal stress are frequently credited as a contributing cause to the imminent demise of many public pension plans.\textsuperscript{297}

\begin{footnotesize}
\begin{enumerate}
\item \textsuperscript{288} See id. § 16.
\item \textsuperscript{289} See id.
\item \textsuperscript{290} See id. § 13(b)(2)–(3); see also id. § 14(a)(1)–(3). It has the same wide distribution requirements as the summary plan description. See id. §§ 13(b)(5), 14(a)(4).
\item \textsuperscript{291} See id. § 17.
\item \textsuperscript{292} See id. §§ 13(b), 14.
\item \textsuperscript{293} See id. § 18.
\item \textsuperscript{295} Maryland’s pension fund management had been subject to public scrutiny. See, e.g., Stephanie Hanes, Chapman Draws 7½-Year Prison Term, BALTIMORE SUN, Nov. 2, 2004, at 1A; Michael Dresser & Jon Morgan, Md. Pension Trustees Are Often Absent, BALTIMORE SUN, Nov. 18, 2001, at 1B; Jon Morgan et al., Questions Abound in Pension’s Fiscal Skid, BALTIMORE SUN, Nov. 15, 2001, at 1A.
\item \textsuperscript{297} See, e.g., Beermann, supra note 49. See generally Fred J. Gertz & Leslie E. Papke, Public pension plans: Myths and realities for state budgets, 60 NAT. TAX J. 305-23 (2007) (finding evidence that assumptions are manipulated in order to lower the necessary contributions to the pension plans).
\end{enumerate}
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The private sector may be the best reference for fixing flawed actuarial methods and practices. Valuing pension liabilities according to the likelihood of payment, rather than the return expected on pension assets, is one of many possible corrections. But it is an important one in forcing state sponsors to disclose the true cost of their future pension commitments and should be considered as a first step in enabling reform. Basing the discount rate on the riskiness of the payout, actuaries agree that it should be about half what states typically designate; that is, around 4 percent rather than the inflated 8 percent used by many states. With an arguably correct rate, unfunded liabilities for public sector pensions more than triples from $1 trillion to more than $3 trillion. For individual states, a market-based discount rate can up unfunded debt obligations even more. In New Jersey, for example, Professors Eileen Norcross and Andrew Biggs calculated liabilities to be $173.9 billion rather than $44.7 billion as reported by

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298 Norcross & Biggs, supra note 9, at 2 (noting that “economists almost universally agree” that private sector accounting methods are more appropriate than current public sector assumptions in calculating pension liabilities). They explain that “[c]urrent public sector pension accounting rules effectively violate well accepted economic precepts such as the Modigliani–Miller results in corporate finance, the Black–Scholes formula for options pricing, and the general “law of one price.” Id. at 2 n.6.

299 See, e.g., Novy-Marx & Rauh, supra note 17, at 1211 (asserting that the appropriate discount rate to calculate liabilities should reflect risk from a taxpayer perspective rather than the expected rate of return on pension assets as stipulated by government accounting rules); Barro & Buck, supra note 10, at 5-6. For an explanation of the two competing theories-- market and actuarial-- for accurate valuation of state pension plans, see Kaspar, supra note 286, at 12-16.

In addition to choosing a rate with which to discount the future payments from accrued benefits, the amortization period is another important variable in calculating pension debt. Longer periods show smaller present values versus shorter periods which yield larger values. Despite an aging workforce, public pensions amortize over thirty years as compared to private pensions that use a fifteen -year period. See M. Barton Waring, Liability: Relative Investing, 30 J. PORT. MGT. __ (2008) (finding that the midpoint of a public pension’s stream of future benefit payments is around 15 years in the future and, accordingly, a lump sum payment in 15 years can be treated as the annual benefit liabilities owed by a plan). Accord Norcross & Biggs, supra note 10, at 1; see also Hylton, supra note 57, at 432 (arguing that governments “cannot justify the use of a thirty-year period because the number of years until retirement is not that long in most cases”).

300 Accord Beerman at 33. The public sector accounting standards set by the Governmental Accounting Standards Board (GASB) 45 are incomplete in so far as they allow states to set their own discount rate. Hylton, supra note 57, at 423-30 (noting that GASB 45 mimicked FASB 106 in the private sector and drew attention to the present value of the level of benefits promised, but failed to specify a discount rate). See also Governmental Accounting Standards Bd. (GASB), Other Postemployment Benefits: A Plain-Language Summary of GASB Statements No. 43 and No. 45 (2004) [hereinafter GASB Statements], available at http://www.gasb.org/cs/BlobServer?blobcol=urldata&blobtable=MungoBlobs&blobkey=id&blobwhere=1175820457538&blobheader=application%2Fpdf. States need not follow the standards in the first place. Texas went so far as to block their implementation by statute. Hylton, supra note 56, at 424 (citations omitted).

301 Barro & Buck, supra note 10, at 5; see also Norcross & Biggs, supra note 10, at 1 n.1 (applying a discount rate of 3.5%, the yield on Treasury bonds with a maturity of 15 years as of May 27, 2010); Novy-Marx & Rauh, supra note 17, at 1217-18, 1246 (noting states use an 8% discount rate). Under a market value of liability theory, however, states like Texas may legitimately use a different (higher) discount rate since the promised payout is not guaranteed and may reduce benefits at any time. California, based on current case law backing benefits under the Constitution, should apply the risk-free rate. See Stanford Institute for Economic Policy Research, Going For Broke: Reforming California’s Public Employee Pension Systems 2 (2010), http://siepr.stanford.edu/system/files/shared/GoingforBroke_pb.pdf.

302 Barro & Buck, supra note 10, at 5.
the state. Similarly, a 2010 Stanford study found California pension plans to have unfunded liabilities several times larger than reported. Whether or not the truth will set states free, it will at least provide government sponsors (and, by extension, taxpayers) a better idea of the fiscal challenges they are facing with their retirement systems.

Accordingly, the lack of transparency, uniformity, in addition to inaccurate actuarial methods and practices, has exacerbated the widespread moral hazard problem inherent in public pensions. Fixing these faults should be part of the remedy.

### B. Modifying Existing Plans or Plan Structure

State pension deficits are at an all-time high. Accordingly, each state government must continue to do the math and make corrections. Pension costs may be more manageable for some jurisdictions than for others. The kind and magnitude of change needed varies due to differences in benefit levels, size of unfunded pension liabilities, and levels of effort by states historically to make contributions. Significantly, the chronic failure of pension plan sponsors to pay required contributions has caused even more contributions to make up the difference. What is consistent across jurisdictions is that states will not assume any new fiscal commitments concerning their pensions, but rather, attempt to cut costs both now and in the future. How they solve their pension crises will have a profound impact on interested parties and the economy. To name just a few concerns, certain measures may treat similarly-situated workers differently, fail to provide adequate levels of support at retirement, and pose different degrees of litigation risk (and expenses). Reforms are also likely to have long term labor market affects. Conventional wisdom accepts that deferred compensation by way of pension benefits is a recruitment and retention tool for government service. As a result, the amount and other attributes of

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303 Norcross & Biggs, supra note 10, at 2 (recalculating New Jersey’s unfunded benefit obligation using private sector accounting methods to be $173.9 billion rather than $44.7 billion, when liabilities are discounted at the 8.25 percent annual return that New Jersey predicts it can achieve on funds’ investment portfolios).

304 STANFORD INSTITUTE FOR ECONOMIC POLICY RESEARCH, supra note 299 (studying the three largest pension plans and applying a risk-free rate of 4.14% rather than rate of return assumptions of 8%, 7.75%, and 7.5%).

305 Accord, e.g., Kaspar, supra note 286, at 2, 19; see also Hylton, supra note 57, at 418-23 (explaining that many private sector companies made significant changes to plans and were able to reduce costs after being forced by the Financial Accounting Standards Board (FASB) in 1993 to confront the true cost of their pensions). For the same reasons of accuracy and accountability, scholars have called for changes in the accounting method when reporting on Social Security trust funds. See generally Jackson E. Howell, Accounting for Social Security and Its Reform, 41 HARV. J. ON LEGIS. 59 (2004).

306 Ellman & Merrett, supra note 105. Recent data from the Bureau of Labor of Statistics show that public pension obligations account for almost 17 percent of all public debt in the United States. Yet, for states as a whole, it is less than one percent of total spending. NASRA Issue Brief 2012, supra note 3, at 3.

307 NASRA Issue Brief 2012, supra note 3, at 1, 3; Ellman & Merrett, supra note 105 (providing statistics on funding level declines).

308 See discussion supra Part II.B.

309 Costrell et al., supra note 229 (citing literature); Deborah Kemp, Public Pension Plans: The Need for Federal Regulation, 10 HAMLINE L. REV. 27 (1987) (“The impetus for this expansion [of public pensions] is the need to induce individuals to accept lowering paying government employment over jobs in private industry.”); Steven E. Achelpohl, Public Pensions in Nebraska: Good News for the Public Employee, 16 CREIGHTON L. REV. 63 (1982-83) (noting that lower salary levels frequently means that financial security at retirement represents the major inducement to a person weighing government service); Michael Corkery, Pension Crisis Looms Despite Cuts, WALL ST.J.COM, (Sept. 21, 2012) (“Part of the attraction of public service jobs has been guaranteed pensions and other
government-sponsored pensions may determine who enters public service and how long they stay.\textsuperscript{310} As indicated previously, there is tremendous variation among educator defined benefit plans. The following discussion takes a holistic view of these public pensions and offers a potpourri of reform possibilities. Such reforms include more modest modifications of existing plans to major changes in plan structure.\textsuperscript{311} We also suggest that lawmakers contemplate additional protections like adding federal Social Security to those plans without it and establishing a state entity similar to its federal counterpart for private pensions in case of insolvency.

1. Defined Benefit Plan Changes

State government employers fund defined benefit plans through a combination of employer and employee contributions with the major portion coming from investment returns on already-accumulated assets that have been accrued over a long period of time.\textsuperscript{312} Given the pension funding equation, contributions must increase or benefits decrease, or both, since fund investments have failed to produce the return needed to make the promised payments. To add to incoming funds, states can simply up employee contributions.\textsuperscript{313} This solution may be more difficult to enact in non-Social Security states since employees already pay 3\% more on average in contributions than Social Security states.\textsuperscript{314}

To subtract outgoing funds, states could change benefit calculations, such as capping salaries to determine the final average pay. States should at least eliminate loopholes like double dipping and pension spiking as has been done in California and other states.\textsuperscript{315} Raising the retirement age can also help a public pension plan save on future costs.\textsuperscript{316} Even increasing the age for new hires by just a few years can result in significant savings.\textsuperscript{317} With retirees expected to live four more years than retirees in 1950, it makes sense to adjust for this higher age expectancy.\textsuperscript{318}

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\textsuperscript{310} Monahan, supra note 102 (citing Costrell & Podgursky 2009).

\textsuperscript{311} Roads to Reform, supra note 50. Suggestions made by professionals and organizations ranged from incremental changes of existing plans to a more drastic overhaul of plan structure. Id.

\textsuperscript{312} Employer contributions account for 28 percent, employee contributions 12 percent, with investment returns making up the remaining amount. NASRA Issue Brief 2012, supra note 3, at 3 (employees contribute 4-8 percent of their pay to retirement); see also National Association of State Retirement Administrators, Issue Brief: Public Pension Plan Investment Returns, October 2011, http://www.nasra.org/resources/InvestmentReturnBrief.pdf.

\textsuperscript{313} Id.

\textsuperscript{314} See Table 4.

\textsuperscript{315} Part II.A. See also Beermann, supra note 49 (pension spiking); Hylton, supra note 57, at 422 (noting that some states encouraged employees to use up saved vacation and over-time during their last year of employment in order to inflate their income; the state would then pay 90\% of this “final salary”-an amount often greater than the retiree's true base pay).

\textsuperscript{316} The Trillion Dollar Gap, supra note 19.

\textsuperscript{317} Id.

\textsuperscript{318} Id.
Another option is to cut COLAS or pass some of the investment risk to employees. This can be done by correlating COLAs with the performance of investment returns. Wisconsin’s pension system is a good example of this type of risk sharing. The legislature in Wisconsin created a dividend process for COLAs. The system works by providing a dividend if the investments returns are positive in a given year. However, if the following year the system has a poor investment return, retirees may see their pensions reduced.

2. Alternative Benefit Plans

Rather than restraining pension growth through modifications of existing plans (and in lieu of a federal rescue), states could consider changes to plan structure. In the past several years, we have seen the erosion of government guaranteed benefits to 401k style or hybrid plans.

The defined contribution plan eliminates the Ponzi-style system of defined benefit plans that pay pension benefits to retirees from current contributions. Employer and employee contributions would be used solely to generate savings for employees. In contrast, governments sponsoring a defined benefit plan promise to pay a particular level of benefit that may have no relationship to what employees contributed to the fund during their employment. Economists Michael Podgursky and Robert Costrell argue this is the fundamental flaw in defined benefit design. They explain that alternative plans will close the gap between contributions and pension wealth by tying benefits to contributions.

The defined contribution plan has the economic advantage for government employers of removing responsibility for underfunding or underperformance of fund assets. At the same time, however, there are adequacy concerns with employees completely bearing the risk of their retirement. Current account balances of these plans in the private sector show that low and moderate wage earners lack adequate income for retirement. Teachers, whose salaries are

319 Id.
320 Id.
321 Id.
322 Id.
323 Id.
324 Id. The only guarantee is the base benefit. Id.
325 Lahey & Anenson, supra note 22, at 323 (explaining that the federal government adopted the defined contribution plan solution in 1986 and now has half of its workers enrolled which relieves the federal retirement system of the unfunded pension liabilities facing state and local governments) Dan Van Bogaert, Solving The Public Pension Plan Dilemma, 19 J. PENSION BENEFITS: ISSUES IN ADMINISTRATION 37-46 (2012) (comparing status of government-sponsored pension systems relative to the private sector and analyzing different points of view regarding public pension reform).
327 Robert M. Costrell, “GASB Won't Let Me”: A False Objection to Pension Reform, Policy Perspective Published by The Laura and John Arnold Foundation (2012) (arguing that plans should tie benefits to contributions).
328 See id.
usually modest at best and declining relative to the private sector and other public sector workers, will be particularly at risk. Nevertheless, the defined contribution plan could be modified to provide a federal guarantee to help ensure that workers have adequate income at retirement.

Because of legal considerations, states changing the plan structure will likely leave in place existing defined benefit plans with reforms targeting new hires. As a result, fairness concerns arise in creating two tiers of employees. Illinois, California, and other states are in this situation where young educators may not be getting their fair share of the retirement pie. Equity concerns can be minimized to some extent by allowing employees a choice of plans. Many states, such as Ohio and Colorado, offer the option of either a defined contribution plan or a defined benefit plan to its new employees. Employee opinion polls indicate a preference for defined benefit plans while other studies show that these plans inhibit mobility and harm employees who move out of state. The reason defined benefit plans incentivize employees to stay with one employer is that they are structured so that employees earn more retirement benefits relative to their salary later in their careers. Defined contribution plans are portable and not tied to the employer. They, therefore, eliminate the penalty for mobility.

In addition to employee adequacy and equity associated with changing plan structure, state governments should assess efficiency issues beyond the obvious reduction in liability. Alternative plans appear to be more efficient because they reduce the risk for states of future

By 2030, life expectancy at age 65 is expected to be 17.5 years for men (82.5 years of age) and 21 years (86.1 years of age) for women. Alicia H. Munnell, The Financial Crisis and Restoring Retirement Security, Testimony before the Committee on Education and Labor, U.S. House of Representatives, Feb. 24, 2009 (citing the 2008 Annual Report of the board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds).


331 For a discussion of providing a federal guarantee for defined contribution plans in the private sector, see THERESA GHILARDUCCI, WHEN I’M SIXTY-FOUR: THE PLOT AGAINST PENSIONS AND THE PLAN TO SAVE THEM (2008); Regina Jefferson, Rethinking the Risk of Defined Contribution Plans, 4 Fla. Tax Rev. 607, 640-41 (2000). See also Hylton, supra note 57, at 468 (advocating the adoption of a Federal Thrift Savings Plan, a special defined contribution plan available to federal employees and members of the uniformed services); id. (outlining the plan and its advantages (citing Thrift Savings Plan, https://www.tsp.gov/planparticipation/about.shtml (last visited Jan. 2, 2013)).

332 Costrell et al., supra note 229. In New York, Pennsylvania, and Alabama, new hires will receive 10 to 20 percent less in retirement than current workers. See Hincken, supra note 4, at 1; see also id. (considering the case of new California state highway patrol officer who will receive $900,000 less than his colleagues over the course of a 30-year retirement).

333 Lahey & Anenson, supra note 22, at 325.

334 See id.; Alicia H. Munnell et al., Why Some States Introduced Defined Contribution Plans?, CENTER FOR RETIREMENT RESEARCH AT BOSTON COLLEGE (2008). Other states include North Dakota, Washington, Montana, Florida and South Carolina. Id. California and Maine also offer the defined contribution plan option to employees, but is only as a supplemental plan. http://www.calstrs.com/about%20calstrs/ataglance.aspx; http://www.mainepers.org/FAQs/Active_Members_FAQs.htm.

335 Frederick M. Hess & Juliet P. Squire, The False Promise of Public Pensions, 158 POL’Y REV. 75-85 (2009) (discussing outmoded paradigm of teaching as a profession that is not in a mobile workforce); Robert M. Costrell & Michael Podgursky, Golden Handcuffs, EDUC. NEXT 61 (Winter 2010).
defined benefit pension deficits. However, the switch to a defined contribution plan may further imperil defined benefit plans because there will be less active members to fund existing pensions.

In addition, there is disagreement among economists over whether eliminating the defined benefit plan will cause turnover. Increased turnover is an important consideration because it not only raises costs due to the recruitment and training of new hires, but possibly lowers teacher effectiveness as well. Professor Christian Weller asserts the turnover risk is real. He explains that public sector employers, unlike their private sector counterparts, are not able to offset the switch in plans to retain workers through stock options and grants.

Transition costs may also be substantial. Moreover, defined contribution plans have higher investment and administrative costs. Public defined benefit plans generally have lower administrative expenses because they are free from regulation. The weighted average administrative cost for DB plans is only 0.34 percent of assets, but as the Illinois Municipal Retirement Fund found out, replacing defined benefit plans with defined contribution plans could increase costs to more than 2.25 percent. Alaska, which abandoned the defined benefit plan and offered only the defined contribution plan to state employees in 2005, is now attempting to return to its former plan structure.

Cash balance plans, a type of hybrid plan now popular in the private sector, have lower net costs than defined contribution plans and asset-liability matching strategies that effectively neutralize volatility. Transition and turnover costs, however, will likely increase similar to defined contribution plans. But adequacy concerns are more favorable because employees receive a guaranteed return although payments are still largely determined by the performance of invested contributions instead of a percentage of the employee’s final salary. While the pension benefit

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336 Id.
337 See supra discussion in Part I.B. of the differences in defined benefit plan membership between Social Security and non-Social Security states.
339 Costell, et al, supra note 229, at 67. It is unlikely that teachers, especially those with tenure, would return to the private sector in order to receive a better pension. Employee Commitment to Worker’s Retirement Plans Has Declined Over Last Decade, Watson Wyatt Analysis Finds (Oct. 21, 2009) (showing benefit values as a percentage of pay in the private sector has dropped over the last decade).
341 Munnell et al., supra note 334.
342 Id.
344 Costrell, et al., supra note 229, at 69 (discussing Alaska’s consideration of returning to the defined benefit plan and West Virginia which did in fact return to the defined benefit plan); see also The Trillion Dollar Gap, supra note 19.
346 Id.
is lower than it would be with a defined benefit plan, employees do not have to manage the investment risk as they would under a defined contribution plan. Notwithstanding the warnings of actuaries who feared that state employees who lack Social Security benefits will become “ward[s] of the state,” Louisiana began offering the cash balance plan option for new hires effective July 1, 2012.

Whether state governments should shift all or part of the retirement risk to their employees by implementing alternative plans is a value-laden question and one that requires the resolution of disputed assumptions. Despite their heavy debt burden, governments have choices in attempting to right-size their budgets and constrain the growth of benefits costs. In choosing, it should be remembered that pension plans have micro and macroeconomic effects. Retirement planning is important not only for the financial security of public employees, but as a key component of the national economy.

C. **Supplementing Benefits with Social Security**

The growing concern over the ability of pension plans to serve the retirement needs of public sector employees warrant contemplation of supplementing pension benefits with Social Security benefits. After all, the guarantee of future income in some form is fundamental to the phenomenon of retirement.

Social Security is the largest federal social program. Established in 1935, the Social Security System provides lifetime retirement benefits and also benefits for disability, survivorship, and death. While the future of this social insurance program remains uncertain, the program has

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347 Costrell, et al., *supra* note 229, at 64 (Costrell and Podgursky favoring the conversion of educator defined benefit pensions to cash balance plans). Cash balance plans also have more limited death and disability benefits. Hicken, *supra* note 4, at 2 (discussing Louisiana’s switch to a cash balance pension plan and its effect on employees who become disabled or family members of employees who die before reaching the retirement age).

348 Louisiana’s new cash balance plan has been ruled unconstitutional by a trial judge for not receiving the requisite vote of the state legislature. *Id.* The decision has been appealed. *Id.* Kansas, where employees do contribute to Social Security, will also make cash balance plans available for new employees beginning January 2015. Other Social Security states whose pension reform included provisions for mandatory or optional hybrid plans for new employees include Michigan (2010), Rhode Island (2012), Tennessee (2012), and Virginia (2014). Washington switched new employees into a hybrid plan in 1998.


352 *Id.* To receive the lifetime retirement benefits a worker must have 40 credits of covered work and can begin receiving the benefits at age 62. *Id.*

accomplished its mission of reducing poverty rates among elderly Americans.\textsuperscript{354} In fact, most retired workers depend on Social Security benefits as their primary source of income.\textsuperscript{355} Together with pensions and personal savings, it is a critical component of old-age income security.\textsuperscript{356}

Today, Social Security coverage is almost universal. The program protects 94\% of all workers.\textsuperscript{357} The remaining non-covered workers consist of public employees, including members of the thirteen state teacher retirement systems in Alaska, California, Colorado, Connecticut, Illinois, Kentucky, Louisiana, Maine, Massachusetts, Missouri, Nevada, Ohio and Texas.\textsuperscript{358} As detailed previously, pension plan members collectively tally in the hundreds of thousands.\textsuperscript{359} Population statistics also provide an estimate of the number of individuals and families that are affected by the failure to receive a Social Security retirement benefit. According to the 2010 Census, the combined population in these states is 121,518,384, which is


\textsuperscript{354} Brown et al., supra note 348, at 633 (citing U.S. Soc. Sec. Admin., Income of the Population 55 or Older, 1996 133 tbl.VIII.5 (1998)).

\textsuperscript{355} \textit{Id.} (citing U.S. Soc. Sec. Admin., Income of the Population 55 or Older, 1996, 93 tbl.VI.A.1 (1998)).


\textsuperscript{357} \textit{Id.; see also} Table 1. According to the Bureau of Labor Statistics in December 2011 there were 153,302,000 people in the labor force and 139,551,000 employed. Employment Situation Summary Table A. Household Data, seasonally adjusted, Bureau of Labor Statistics, available at \url{http://www.bls.gov/news.release/empsit.a.htm} (last accessed March 22, 2011). In 2011, there were around 25 million public sector employees. \textit{Id.}

\textsuperscript{358} \textit{Id.} State governments were not able to include employees with pensions in the Social Security System until the middle of the twentieth century. Originally, the Social Security Act of 1935 excluded state and local employees from coverage. \textit{Id. (discussing covered workers in commerce and industries other than railroads)} Teachers and Social Security, September 7 2006, available at \url{http://www.cga.ct.gov/2006/rpt/2006-R-0547.htm} (advising that limited coverage was due to constitutional concerns over whether the federal government could impose taxes on state governments). Given its limited inclusion, numerous amendments were added throughout the years to expand the coverage. H.R. Res. 6635, 76th Cong. (1939) (enacted) (adding child, spouse, and survivor benefits to wives and widows over age sixty-five and children under eighteen); H.R. Res. 7225, 84th Cong. (1956) (enacted) (offering a Disability Insurance Program). Not until 1951 were states able to extend Social Security coverage to employees that were already covered under a public retirement system. 42 U.S.C § 418 (2011) (allowing coverage of all state employees except for police and firefighters covered under a public retirement system); see also P.L. 103-432, Approved Oct. 31, 1994 (108 Stat. 4398) (extending coverage to police officers and firefighters). In 1991, Congress amended the law to provide that state and local government employees are subject to mandatory Social Security coverage unless they are members of a public retirement system or covered under a “Section 218 Agreement.” Dawn Nuschler, et al., Social Security: Mandatory Coverage of New State and Local Government Employees, CONGRESSIONAL RESEARCH SERVICE, July 25, 2011. Available at \url{http://www.nasra.org/resources/CRS%2020211%20Report.pdf} , last accessed 2/23/12).

\textsuperscript{359} \textit{See supra} Part I.B.
almost 40 percent of the United States population of 306,745,538. Thus, Social Security benefits would provide a safety net to thousands of teachers and may also help prevent any gaps in coverage that adversely affect work, such as becoming disabled. Moreover, unlike state plans, Social Security is transferable as workers move from job to job and in and out of public employment.

However, for states and their employees, gaining Social Security coverage comes at a cost. These costs could be significant at a time when many pension plans are struggling financially. Social Security is primarily funded by a payroll tax. It requires employers and employees to each contribute 6.2% of the employee’s annual salary and these payments must be made in a timely fashion. As discussed supra in Part III.A.1, many states have skipped required payments to their state teachers’ defined benefit plans over the years because legislatures decided to save money and push the payments into the future. If the contributions required by Social Security are added to the current contribution rates, it would be a substantial expense for both the employers and employees.

Given (or in spite of) the present economic climate along with the massive scope of public sector benefits-driven indebtedness, states may determine that the benefits of inclusion outweigh the costs. For example, the State of Maine recently proposed to make Social Security available to all teachers.


361  Simply adding Social Security coverage would not necessarily provide better benefit protections than what is already provided by the state because the effect of adding coverage would depend on exactly how state and local governments modify their existing plans to allow this extra coverage. Nuschler, supra note 356.


363  Id. It is likely that the state would redesign the plan to offset some of the benefits of adding Social Security with the contribution rates. Id.
state employees, including teachers.\textsuperscript{368} The proposal includes a phase in period and would eliminate additional stress on its pension fund and the possibility of repudiating earlier promises to retirees.\textsuperscript{369}

State teachers’ retirement systems that choose to add Social Security coverage do so by voluntary agreement, otherwise known as a “Section 218 Agreement,”\textsuperscript{370} between the Social Security Administration (SSA) and the state.\textsuperscript{371} Such agreements coordinating retiree pension costs with Social Security differ from state to state. Certain groups may be covered while others are not, depending on how states make the arrangements.\textsuperscript{372}

The terms of admission require the state to hold a referendum.\textsuperscript{373} Majority vote in favor of coverage among pension plan members wins.\textsuperscript{374} States may alternatively opt to divide employees under the same pension plan into groups.\textsuperscript{375} Groups in favor of joining, do so; those against, do not. Once coverage is provided, it cannot be terminated.\textsuperscript{376} Furthermore, all future employees of that group are required to participate in Social Security.\textsuperscript{377} A chronology of Social Security legislation and coverage is summarized in Table 9.

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{368} Maine created a task force that generated a report in 2009. ME. UNIFIED RET. PLAN TASK FORCE, TASK FORCE STUDY AND REPORT; MAINE STATE EMPLOYEE AND TEACHER UNIFIED RETIREMENT PLAN (2010), available at http://www.mainepers.org/PDFs/other\%20publications/ or MainePERS\%20Final\%C2\%20URP\%C2\%20Task\%C2\%20Force\%C2\%20Report\%3#-9-2010.pdf. See also Hylton, supra note 57 (noting that the pension shortfall in Maine was directly attributable to investment losses and not to overly generous pension promises).
\item \textsuperscript{369} See Mary Williams Walsh, Maine Giving Social Security Another Look, N.Y. TIMES, July 21, 2010, at A1, available at http://www.nytimes.com/2010/07/21/business/economy/21states.html; Hylton, supra note 57 (advising that “Maine will have to come up with a considerable sum to sustain its existing pension plan, presumably through some combination of taxes and service cuts”).
\item \textsuperscript{370} 42 U.S.C. § 418.
\item \textsuperscript{372} 42 U.S.C. § 418. “Section 218 Agreements” cover positions not individuals. Public employees brought under a Section 218 Agreement in groups known as coverage groups. \textit{Id}.
\item \textsuperscript{373} 42 U.S.C. § 418(d)(3). In 1955, Congress passed a law that allowed public employees who already had public pensions to elect Social Security coverage through “Section 218 Agreements” by conducting employee referendums. \textit{Id}.
\item \textsuperscript{374} \textit{Id}. There have been proposals involving extending mandatory Social Security coverage to all newly hired public employees. This is in response to projected Social Security shortfalls. \textit{Id}.
\item \textsuperscript{375} \textit{Id}. “Further amendments in 1956 permitted certain states to split state or local retirement systems into ‘divided retirement systems’ based on groups of employees that voted for Social Security coverage and groups of employees that voted against Social Security coverage. Currently 23 states are authorized to operate a divided retirement system.” Nuschler, supra note 356.
\item \textsuperscript{376} \textit{Id}. This law was challenged in California in Bowen v. Pub. Agencies Opposed to Social Security Entrapments, 477 U.S. 41 (1986). The Supreme Court rejected California’s arguments and held that the law was valid. \textit{Id}.
\item \textsuperscript{377} H.R. Res. 1900, 98th Congress (1983) (enacted). Some state retirement systems have placed bans on social security coverage and have prohibited members from holding another referendum, such as Connecticut Teachers’ Retirement System. See e.g. Teachers and Social Security, CONNECTICUT GENERAL ASSEMBLY REPORT, September 7 2006. Available at http://www.cga.ct.gov/2006/rpt/2006-R-0547.htm , last accessed 3/7/12).
\end{itemize}
\end{footnotesize}
The federal government could possibly mandate that all public pensions must contribute to Social Security to help the solvency of both Social Security and the public pensions. Universal coverage would improve the shortfalls in Social Security by creating more members thereby increasing the FICA tax revenues as well as enhance state pension plans by sharing some of the burden in paying out benefits with the federal Social Security system. A federal mandate, however, may be constitutionally suspect in requiring state employers to pay a tax to the federal government. Furthermore, research has shown that this may only improve the solvency of both Social Security and state pension plans by a mere couple of years.

When state pension funds run out of money, retirees who are not under Social Security will have no relief other than their own personal savings, if any. As such, state governments and their employees should consider having their public pension plans participate in the Social Security System as an additional protection against the economic risk of old age.

D. State Guarantee Against Default

The absence of any safeguards, particularly a safety net for public workers in the event of plan failure, is a serious concern. In addition to (or in place of) supplementing state pensions with federal Social Security benefits, states could provide a guaranteed benefit for insolvent plans.

Private-sector plans pursuant to federal law have such a guarantee via the Pension Benefit Guaranty Corporation (PBGC). The corporation administers bankrupt plans and pays workers less than 100% of their defined benefits. Its underwriting and financial activity is funded in part from insured plan sponsor premiums.

379 Id.
380 Id.
381 Id.
382 The level of voluntary savings is declining because more people are choosing to maintain a relatively high standard of living during their pre-retirement years and forego accumulated savings for old age. See ALLEN, supra note 24, at 7 (noting that personal savings rates are “running at historically low levels”).
383 The PBGC guarantees the payment of basic pension benefits either by becoming the trustee of under-funded plans upon termination or by providing financial assistance through loans (which are typically not repaid) in the event a pension fund can no longer pay benefits when due at the guaranteed level (insolvency). 2005 PERFORMANCE & ACCOUNTABILITY REPORT, PENSION BENEFIT GUARANTY CORPORATION 6, 10 (Nov. 15, 2005) [hereinafter 2005 PBGC Performance & Accountability Report]. The PBGC separately operates single-employer and multiemployer pension programs. The PBGC’s obligations begin upon plan termination for single-employer pensions and upon insolvency for the multiemployer pensions.
384 Id. at 11. Other funding comes from employer under-funding liability payments, income earned on investments, and any assets taken over from failed plans. Id.; see also 29 U.S.C. §§ 1306-1307 (2000) (addressing premium rates). The corporation receives no taxpayer monies and its statutory duties are not backed by the full faith and credit of the United States Government. 2005 PBGC PERFORMANCE & ACCOUNTABILITY REPORT, supra note 381, at 3.
Adopting a similar approach, the state sponsor would pay insurance premiums per employee for each employee participating in the pension program. Like the addition of Social Security, such an alternative would not be free. Indeed, it may pose a substantial and, in particular cases, insurmountable strain on already budget-strapped states. Nonetheless, insuring defined benefit pensions against default (albeit at a reduced rate) would provide public employees some retirement security while simultaneously allowing states significant cost savings in the long-run.

A state assurance against plan insolvency would also eliminate the need for future federal aid in which all taxpayers would bear the burden. Placing state pensions within the federal umbrella of PBGC protection would not be easy or advisable. Moreover, bankruptcy is not a likely option for restructuring state pension debt obligations. In the states facing emergency cost-cutting and taxing situations, it may be necessary to accept federal assistance (if offered) in the form of a low-interest loan or the authorization to issue tax subsidized bonds. Accordingly, with many teacher defined benefit plans on the brink of economic disaster, states should study ways of providing plan termination insurance to bridge the gap in coverage that would otherwise be filled by Social Security.

385 2005 PBGC PERFORMANCE & ACCOUNTABILITY REPORT, supra note 381, at 11.
386 A side-risk of plan termination insurance is that government sponsors may follow a riskier investment strategy. Brian A. Ciochetti, et al., Determinants of Real Estate Asset Allocations in Private and Public Pension Plans, 19 J. REAL ESTATE FIN. ECON. 193–210 (1999) (positing that the PBGC guarantee encourages more risk taking regarding pension investments by corporate sponsors).
387 R. Eden Martin, Unfunded Public Pensions— The Next Quagmire (Aug. 19, 2010) (advising that “[t]he next big issue on the national political horizon” is whether the federal government should bailout the many states across the country with “overly generous and badly underfunded pension plans”).
388 Martin, supra note 385. Due to the number of plan failures and the failing financial health of major industries, the PBGC has an exploding deficit and faces tremendous future exposure. 2004 ANNUAL REPORT, PENSION BENEFIT GUARANTY CORPORATION 10 (Mar. 1, 2005) (Executive Director’s Report); 2005 PBGC PERFORMANCE & ACCOUNTABILITY REPORT, supra note 381, at 1. See also T. Leigh Anenson & Karen Eilers Lahey, The Crisis in Corporate America: Private Pension Liability and Proposals for Reform, 9 U. PENN. J. LABOR & EMP. L. 495, 504-10 (2007) (analyzing the fiscal distress of the PBGC and suggesting reforms).
389 See generally David A. Skeel Jr., States of Bankruptcy, 79 U. CHI. L. REV. 677 (2012) (making a case for state bankruptcy). Federal bankruptcy is available to subdivisions of state governments. See Hylton, supra note 57 (providing city and county examples that have restructured pension debt through bankruptcy); Ellman & Merrett, supra note 105 (focusing on cities rather than states ability to use bankruptcy to solve their pension problems).
390 Martin, supra note 385 (citing Joshua Rauh & Robert Novy-Marx, THE ECONOMIST VOICE); see also Reinke, supra note 98 (arguing that the federal government could incentivize state governments to adopt minimum funding requirements by allowing them to issue tax-exempt bonds for the purpose of funding the pensions of public employees). A common response for states attempting to address failing pension funds is to issue bonds. As discussed in Part II.A., Alaska and Illinois issued bonds to fund their pension obligations. Underfunding will also adversely affect the investment ratings of government bonds. See Daniel P. Mahoney, Toward a More Ethical System of State and Local Government Retirement Funding, 14 J. PUB. BUDG., ACCT. & FIN. MGMT. 197, 202 (2002). We previously cautioned governments against rolling the dice by issuing more bonds to satisfy pension obligations. Lahey & Anenson, supra note 22, at 321-22 (cautioning against the continued use of bonds as a stop-gap measure that gambles on economic upswings or other uncertainties); see also Hylton, supra note 57, at 430-31 (describing the government bond debacle after GASB 45 became effective that was a boon for Wall Street banks); THAD CALABRESE, SOCU’Y OF ACTUARIES, PUBLIC PENSIONS, PUBLIC BUDGETS, AND THE RISKS OF PENSION OBLIGATION BONDS, 7-11 (2010), available at http://www.soa.org/library/monographs/retirement-systems/public-pension-finance/2010/june/momo-2010-mrs10-calabrese.pdf (outlining risk of bonds).
In conclusion, the preceding discussion conducted a normative analysis of possible pension reforms. No measure alone will be a panacea. Many measures will be subject to contentious political and legal debate. The main objective of this article has been to present alternatives and broaden the conversation about public pension reform across disciplines. While it concentrated on one subcategory of public pensions, educator defined benefit plans, our analysis and recommendations have implications for the pensions of all public employees and, even more broadly, for government policies concerning old-age security. The American public certainly understands that we must live by our human capital. What we do with the pensions of public school teachers will have a profound impact on the retirement security of these important and often under-valued group of government workers and our economy.

**CONCLUSION**

Education is not only the “soul of society,” but the sacred duty of government. The crisis in public pension systems potentially places that obligation in jeopardy.

While teacher pensions have been spotlighted in the education debate, they have been largely ignored in the legal literature on pension reform. We provide a comprehensive analysis of teacher defined benefit plans. Using data from the Center for Retirement Research at Boston College, we initially estimate the severity of the public pension problem through a variety of statistical analyses and comparisons between plans that do and do not contribute to Social Security. We then evaluate the legality and desirability of existing and proposed reforms.

Given the variation in plans among states, as well as the legal and political environments in which they operate, we do not propose a single, simple solution to this intractable problem. Rather, we offer an array of options that should be taken into account in assessing the present and future role of pensions as income maintenance for public retirees and their beneficiaries. We additionally provide a paradigm for considering changes to public plans.

For the short-term, we unite legal and economic theory in assessing the costs and benefits of possible reforms (including modifications of existing plans as well as changes to plan structure). For the long-term, we suggest a three-pronged model of measures targeting politicians, unions, and the public. The framework is meant to facilitate decision-making by policymakers as they tackle tough issues and difficult choices. Finally, in the thirteen states where teacher pensions systems do not contribute to Social Security, we strongly encourage government leaders to consider a safety net in the event of plan failure. We suggest that states either supplement these plans with Social Security, or alternatively, creating a state institutional safeguard similar to what the PBGC provides for private pensions.

With the viability of government benefit programs being increasingly called into question, nothing is certain except that the direction of future pension changes will remain controversial. It bears repeating that reforming educator pension systems has far-reaching social consequences and ultimately reveals the value we place on education. If Aristotle was right that “teachers who

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392 Costrell et al., *supra* note 229 (“Teacher benefits have become a flashpoint in the education debate.”).
educate deserve more honor than parents,“  

their economic well-being should be part of the conversation about retirement.

**APPENDIX: TABLES 1-9 AND FIGURES 1-5**

**TABLE 1**

<table>
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<th>Panel A: Equities</th>
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<tr>
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<td>17.65%</td>
<td>40.78%</td>
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<td>40.86%</td>
<td>18.94%</td>
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<td>30.88%</td>
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<td><strong>Average</strong></td>
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<td>Non-Social Security</td>
<td>Social Security</td>
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<tr>
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<td>U.S. Bonds</td>
<td>Foreign Bonds</td>
<td>U.S. Bonds</td>
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<td>19.83%</td>
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<td>15.77%</td>
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<td>17.86%</td>
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</tr>
<tr>
<td>2005</td>
<td>17.44%</td>
<td>1.49%</td>
<td>13.23%</td>
<td>1.50%</td>
</tr>
<tr>
<td>2006</td>
<td>16.65%</td>
<td>1.47%</td>
<td>13.32%</td>
<td>1.11%</td>
</tr>
<tr>
<td>2007</td>
<td>15.18%</td>
<td>1.48%</td>
<td>12.48%</td>
<td>1.13%</td>
</tr>
<tr>
<td>2008</td>
<td>16.98%</td>
<td>2.05%</td>
<td>14.07%</td>
<td>1.53%</td>
</tr>
<tr>
<td>2009</td>
<td>15.55%</td>
<td>1.90%</td>
<td>13.53%</td>
<td>1.55%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>17.07%</strong></td>
<td><strong>1.65%</strong></td>
<td><strong>13.74%</strong></td>
<td><strong>1.38%</strong></td>
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<table>
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<th>Social Security</th>
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<table>
<thead>
<tr>
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<th>Real Estate</th>
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<th>Real Estate</th>
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<td></td>
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<td>2.07%</td>
<td>5.45%</td>
<td>1.91%</td>
</tr>
<tr>
<td></td>
<td>2004</td>
<td>1.96%</td>
<td>5.26%</td>
<td>1.94%</td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>2.16%</td>
<td>5.57%</td>
<td>2.34%</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>2.03%</td>
<td>6.94%</td>
<td>2.56%</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>3.52%</td>
<td>7.62%</td>
<td>3.07%</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>4.97%</td>
<td>8.94%</td>
<td>5.14%</td>
</tr>
<tr>
<td></td>
<td>2009</td>
<td>4.73%</td>
<td>8.86%</td>
<td>6.33%</td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong></td>
<td><strong>3.06%</strong></td>
<td><strong>6.95%</strong></td>
<td><strong>3.33%</strong></td>
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</table>

Panel D: Cash & Other

<table>
<thead>
<tr>
<th>Year</th>
<th>Cash &amp; Short Term</th>
<th>Other Assets</th>
<th>Cash &amp; Short Term</th>
<th>Other Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2003</td>
<td>2.68%</td>
<td>3.00%</td>
<td>3.12%</td>
</tr>
<tr>
<td></td>
<td>2004</td>
<td>2.84%</td>
<td>3.25%</td>
<td>3.10%</td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>2.14%</td>
<td>3.65%</td>
<td>2.52%</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>1.73%</td>
<td>3.90%</td>
<td>2.35%</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>1.69%</td>
<td>3.72%</td>
<td>2.94%</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>2.35%</td>
<td>5.22%</td>
<td>1.99%</td>
</tr>
<tr>
<td></td>
<td>2009</td>
<td>2.71%</td>
<td>6.72%</td>
<td>2.51%</td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong></td>
<td><strong>2.31%</strong></td>
<td><strong>4.21%</strong></td>
<td><strong>2.65%</strong></td>
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</table>

Panel E: Investment Returns

<table>
<thead>
<tr>
<th>Year</th>
<th>1-year Investment Returns</th>
<th>Standard Deviation</th>
<th>1-year Investment Returns</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>5.55%</td>
<td>5.65384</td>
<td>6.38%</td>
</tr>
<tr>
<td></td>
<td>2004</td>
<td>15.39%</td>
<td>2.74204</td>
<td>15.11%</td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>10.39%</td>
<td>1.56769</td>
<td>10.30%</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>11.42%</td>
<td>3.09414</td>
<td>11.25%</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>17.49%</td>
<td>3.00598</td>
<td>16.85%</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>-4.93%</td>
<td>6.86027</td>
<td>-6.97%</td>
</tr>
<tr>
<td></td>
<td>2009</td>
<td>-17.37%</td>
<td>10.92009</td>
<td>-13.56%</td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong></td>
<td><strong>5.42%</strong></td>
<td><strong>4.83486</strong></td>
<td><strong>5.62%</strong></td>
</tr>
</tbody>
</table>
### TABLE 2

**MEMBERSHIP IN DEFINED BENEFIT PUBLIC PENSION PLAN**

Panel A: Averages

<table>
<thead>
<tr>
<th>Year</th>
<th>Actives</th>
<th>Retirees</th>
<th>Inactive vested</th>
<th>All members</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-Social Security</td>
<td>Social Security</td>
<td>Non-Social Security</td>
<td>Social Security</td>
</tr>
<tr>
<td>2003</td>
<td>177,524.17</td>
<td>132,072.97</td>
<td>71,206.25</td>
<td>56,569.43</td>
</tr>
<tr>
<td>2004</td>
<td>166,296.31</td>
<td>132,674.43</td>
<td>71,878.85</td>
<td>59,840.51</td>
</tr>
<tr>
<td>2005</td>
<td>181,666.83</td>
<td>133,371.49</td>
<td>76,785.00</td>
<td>62,352.83</td>
</tr>
<tr>
<td>2006</td>
<td>175,489.85</td>
<td>136,337.97</td>
<td>75,683.15</td>
<td>64,714.69</td>
</tr>
<tr>
<td>2007</td>
<td>188,832.67</td>
<td>137,441.49</td>
<td>82,643.25</td>
<td>67,317.51</td>
</tr>
<tr>
<td>2008</td>
<td>181,892.23</td>
<td>138,412.74</td>
<td>81,237.92</td>
<td>69,774.94</td>
</tr>
<tr>
<td>2009</td>
<td>194,711.08</td>
<td>138,296.91</td>
<td>88,801.92</td>
<td>72,103.83</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>180,916.16</td>
<td>135,515.43</td>
<td><strong>78,319.48</strong></td>
<td><strong>64,667.68</strong></td>
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</table>

Panel B: Totals

<table>
<thead>
<tr>
<th>Year</th>
<th>Actives</th>
<th>Retirees</th>
<th>Inactive vested</th>
<th>All members</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-Social Security</td>
<td>Social Security</td>
<td>Non-Social Security</td>
<td>Social Security</td>
</tr>
<tr>
<td>2003</td>
<td>2,130,290.00</td>
<td>4,622,554.00</td>
<td>854,475.00</td>
<td>1,979,930.00</td>
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<tr>
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<td>2,161,852.00</td>
<td>4,643,605.00</td>
<td>934,425.00</td>
<td>2,094,418.00</td>
</tr>
<tr>
<td>2005</td>
<td>2,180,002.00</td>
<td>4,668,002.00</td>
<td>921,420.00</td>
<td>2,182,349.00</td>
</tr>
<tr>
<td>2006</td>
<td>2,281,368.00</td>
<td>4,771,829.00</td>
<td>983,881.00</td>
<td>2,265,014.00</td>
</tr>
<tr>
<td>2007</td>
<td>2,265,992.00</td>
<td>4,810,452.00</td>
<td>991,719.00</td>
<td>2,356,113.00</td>
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<td>2,364,599.00</td>
<td>4,844,446.00</td>
<td>1,056,093.00</td>
<td>2,442,123.00</td>
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<tr>
<td>2009</td>
<td>2,336,533.00</td>
<td>4,840,392.00</td>
<td>1,065,623.00</td>
<td>2,523,634.00</td>
</tr>
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395 *Public Pension Plan Database, CENTER FOR RETIREMENT RESEARCH AT BOSTON COLLEGE available at http://pubplans.bc.edu/pls/htmldb/f?p=198:3:3062121679734452::NO::: (last accessed 3/7/12).*
<table>
<thead>
<tr>
<th>Plan</th>
<th>Employee Contribution Rate</th>
<th>Employer Contribution Rate</th>
</tr>
</thead>
<tbody>
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<td>6.42%</td>
</tr>
<tr>
<td>Arkansas</td>
<td>6.00%</td>
<td>14.00%</td>
</tr>
<tr>
<td>Delaware</td>
<td>3.00%</td>
<td>6.85%</td>
</tr>
<tr>
<td>Florida</td>
<td>3.00%</td>
<td>4.91%</td>
</tr>
<tr>
<td>Georgia</td>
<td>5.53%</td>
<td>5.30%</td>
</tr>
<tr>
<td>Hawaii</td>
<td>6.00%</td>
<td>6.54%</td>
</tr>
<tr>
<td>Idaho</td>
<td>6.23%</td>
<td>10.39%</td>
</tr>
<tr>
<td>Indiana</td>
<td>3.00%</td>
<td>5.85%</td>
</tr>
<tr>
<td>Iowa</td>
<td>5.38%</td>
<td>8.33%</td>
</tr>
<tr>
<td>Kansas</td>
<td>4.00%</td>
<td>7.72%</td>
</tr>
<tr>
<td>Maryland</td>
<td>2.00%</td>
<td>6.47%</td>
</tr>
<tr>
<td>Montana</td>
<td>7.15%</td>
<td>2.49%</td>
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<td></td>
</tr>
<tr>
<td>New Hampshire</td>
<td>7.00%</td>
<td>11.04%</td>
</tr>
<tr>
<td>New Jersey</td>
<td>6.50%</td>
<td>14.30%</td>
</tr>
<tr>
<td>New Mexico</td>
<td>7.90%</td>
<td>13.90%</td>
</tr>
<tr>
<td>New York</td>
<td>3.50%</td>
<td>8.62%</td>
</tr>
<tr>
<td>North Carolina</td>
<td>6.00%</td>
<td>5.12%</td>
</tr>
<tr>
<td>North Dakota</td>
<td>8.75%</td>
<td>8.75%</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>7.00%</td>
<td>9.50%</td>
</tr>
<tr>
<td>Oregon</td>
<td>6.00%</td>
<td>5.73%</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>7.37%</td>
<td>8.65%</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>8.75%</td>
<td>22.32%</td>
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<tr>
<td>South Carolina</td>
<td>6.50%</td>
<td>9.68%</td>
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<tr>
<td>South Dakota</td>
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<td>6.00%</td>
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<tr>
<td>Tennessee</td>
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</tr>
<tr>
<td>Utah</td>
<td>0.00%</td>
<td>16.32%</td>
</tr>
<tr>
<td>Vermont</td>
<td>5.00%</td>
<td>1.80%</td>
</tr>
<tr>
<td>Virginia</td>
<td>5.00%</td>
<td>6.26%</td>
</tr>
<tr>
<td>Washington</td>
<td>4.80%</td>
<td>9.18%</td>
</tr>
</tbody>
</table>

*396 2010 Comparative Study of Major Public Employee Retirement Systems, Wisconsin Legislative Council (2011).*
<table>
<thead>
<tr>
<th>State</th>
<th>Non-Social Security</th>
<th>Social Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Virginia</td>
<td>6.00%</td>
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<tr>
<td>Wyoming</td>
<td>7.00%</td>
<td>7.12%</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>5.00%</td>
<td>4.80%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
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<td><strong>9.27%</strong></td>
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</table>

**Non-Social Security States**

<table>
<thead>
<tr>
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<th>Non-Social Security</th>
<th>Social Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska</td>
<td>8.00%</td>
<td>7.00%</td>
</tr>
<tr>
<td>California</td>
<td>8.00%</td>
<td>8.25%</td>
</tr>
<tr>
<td>Colorado</td>
<td>8.00%</td>
<td>10.15%</td>
</tr>
<tr>
<td>Connecticut</td>
<td>6.00%</td>
<td>10.11%</td>
</tr>
<tr>
<td>Illinois</td>
<td>9.40%</td>
<td>25.49%</td>
</tr>
<tr>
<td>Kentucky</td>
<td>9.11%</td>
<td>17.21%</td>
</tr>
<tr>
<td>Louisiana</td>
<td>8.00%</td>
<td>15.50%</td>
</tr>
<tr>
<td>Maine</td>
<td>7.65%</td>
<td>14.35%</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>11.00%</td>
<td>1.62%</td>
</tr>
<tr>
<td>Missouri</td>
<td>4.00%</td>
<td>4.51%</td>
</tr>
<tr>
<td>Nevada</td>
<td>11.88%</td>
<td>11.88%</td>
</tr>
<tr>
<td>Ohio</td>
<td>10.00%</td>
<td>10.00%</td>
</tr>
<tr>
<td>Texas</td>
<td>6.40%</td>
<td>6.40%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>8.26%</strong></td>
<td><strong>10.96%</strong></td>
</tr>
</tbody>
</table>

**TABLE 4**

**FUNDING RATIO**

<table>
<thead>
<tr>
<th>Year</th>
<th>Non-Social Security</th>
<th>Social Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>70.81%</td>
<td>85.16%</td>
</tr>
<tr>
<td>2004</td>
<td>75.26%</td>
<td>85.25%</td>
</tr>
<tr>
<td>2005</td>
<td>69.49%</td>
<td>83.48%</td>
</tr>
<tr>
<td>2006</td>
<td>75.37%</td>
<td>83.07%</td>
</tr>
<tr>
<td>2007</td>
<td>72.44%</td>
<td>84.45%</td>
</tr>
<tr>
<td>2008</td>
<td>74.57%</td>
<td>81.33%</td>
</tr>
<tr>
<td>2009</td>
<td>63.56%</td>
<td>76.39%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>71.64%</strong></td>
<td><strong>82.73%</strong></td>
</tr>
</tbody>
</table>

---

397 Public Pension Plan Database, CENTER FOR RETIREMENT RESEARCH AT BOSTON COLLEGE available at http://pubplans.bc.edu/pls/htmlbf?p=198:3:3062121679734452::NO::: (last accessed 3/7/12).
**1-year Investment Return:** One-year investment return on the total portfolio of pension investments.

**Actuarial Assets:** Current market value of assets and portion unrealized gains and losses.

**Actuarial Accrued Liability:** Present value of future benefits earned for accrued service.

**Bonds:** Percentage of investments in all fixed income assets.

**Employee Contribution Rates:** Employee contribution rates expressed as a percentage of payroll.

**Employer Contribution Rates:** Employer contribution rates expressed as a percentage of payroll.

**Equities:** Percentage of investments in all equities.

**Members:** Total number of members in the pension plan.

**Salary:** Average salary of classroom teachers.

**Teachers:** Number of public elementary and secondary school teachers.

**Unfunded Actuarial Accrued Liability (UAAL):** Difference between the actuarial accrued liability and actuarial assets.

### TABLE 5. DEFINITION OF KEY VARIABLES USED IN THE REGRESSION

### TABLE 6. MEANS AND STANDARD DEVIATIONS FOR ALL VARIABLES IN THE REGRESSION

<table>
<thead>
<tr>
<th></th>
<th>All States</th>
<th>Std. Deviation</th>
<th>Non-Social Security States</th>
<th>Std. Deviation</th>
<th>Social Security States</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uaal</td>
<td>5,200,558.07</td>
<td>7,646,885.37</td>
<td>3,359,228.44</td>
<td>5,514,811.08</td>
<td>5,830,306.50</td>
<td>8,164,526.91</td>
</tr>
<tr>
<td>S.S. or Non-S.S.</td>
<td>.25</td>
<td>.436</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachers</td>
<td>66,335.58</td>
<td>70,606.32</td>
<td>102,099.52</td>
<td>105,380.23</td>
<td>54,104.05</td>
<td>48,338.75</td>
</tr>
<tr>
<td>Salary</td>
<td>46,604.35</td>
<td>8,099.40</td>
<td>46,129.10</td>
<td>9,076.36</td>
<td>46,766.89</td>
<td>7,748.77</td>
</tr>
<tr>
<td>Employee Contr. Rates</td>
<td>5.72%</td>
<td>2.79%</td>
<td>8.33%</td>
<td>1.74%</td>
<td>4.82%</td>
<td>2.50%</td>
</tr>
<tr>
<td>Employer Rates</td>
<td>8.47%</td>
<td>3.89%</td>
<td>10.88%</td>
<td>4.13%</td>
<td>7.65%</td>
<td>3.44%</td>
</tr>
<tr>
<td>Equities</td>
<td>57.22%</td>
<td>9.18%</td>
<td>58.32%</td>
<td>7.73%</td>
<td>56.85%</td>
<td>9.61%</td>
</tr>
<tr>
<td>Bonds</td>
<td>27.05%</td>
<td>8.05%</td>
<td>27.24%</td>
<td>6.99%</td>
<td>26.98%</td>
<td>8.39%</td>
</tr>
<tr>
<td>ret_1yr</td>
<td>4.25%</td>
<td>12.44%</td>
<td>3.78%</td>
<td>12.31%</td>
<td>4.41%</td>
<td>365.86</td>
</tr>
<tr>
<td>Actliabs</td>
<td>35,044,017.76</td>
<td>34,788,329.18</td>
<td>29,930,064.89</td>
<td>27,124,678.96</td>
<td>36,793,027.66</td>
<td>36,929,745.03</td>
</tr>
<tr>
<td>Members</td>
<td>266273.97</td>
<td>252,665.56</td>
<td>202,571.26</td>
<td>147,066.99</td>
<td>288,060.77</td>
<td>276,661.35</td>
</tr>
<tr>
<td>LogPopulation</td>
<td>6.58</td>
<td>.459</td>
<td>6.75</td>
<td>.499</td>
<td>6.53</td>
<td>.432</td>
</tr>
</tbody>
</table>
### Table 7. OLS REGRESSION RESULTS FOR THE FULL SAMPLE AND NON-SOCIAL SECURITY VERSUS SOCIAL SECURITY STATES

<table>
<thead>
<tr>
<th></th>
<th>All States</th>
<th>Non-Social Security States</th>
<th>Social Security States</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unstandardized</td>
<td>Standardized</td>
<td>Unstandardized</td>
</tr>
<tr>
<td></td>
<td>Beta</td>
<td>Std. Error</td>
<td>Beta</td>
</tr>
<tr>
<td>Unaal</td>
<td>50,084,742.56</td>
<td>8,954,085.52</td>
<td>43,054,163.55</td>
</tr>
<tr>
<td>S.S. or Non-S.S.**</td>
<td>-2,931,998.84</td>
<td>995,195.59</td>
<td>-.167</td>
</tr>
<tr>
<td>Teachers*</td>
<td>26.017</td>
<td>8.53</td>
<td>.24</td>
</tr>
<tr>
<td>Salary**</td>
<td>-.91927</td>
<td>41.36</td>
<td>-.097</td>
</tr>
<tr>
<td>Employee Contr. Rates</td>
<td>127,523.02</td>
<td>139,045.44</td>
<td>.047</td>
</tr>
<tr>
<td>Equities**</td>
<td>-233,669.06</td>
<td>39,600.88</td>
<td>-.281</td>
</tr>
<tr>
<td>Bonds**</td>
<td>-205,603.34</td>
<td>47,086.77</td>
<td>-.216</td>
</tr>
<tr>
<td>ret_lyr</td>
<td>28,844.58</td>
<td>25,706.65</td>
<td>.808</td>
</tr>
<tr>
<td>Actliabs**</td>
<td>.178</td>
<td>.020</td>
<td>-.476</td>
</tr>
<tr>
<td>Members**</td>
<td>-14.42</td>
<td>2.638</td>
<td>.047</td>
</tr>
<tr>
<td>LogPopulation**</td>
<td>-3,916,186</td>
<td>1,216,688.47</td>
<td>-.235</td>
</tr>
</tbody>
</table>

*Significant at .05  
** Significant at .01
<table>
<thead>
<tr>
<th>State</th>
<th>Employee Contribution</th>
<th>Employer Contribution</th>
<th>COLA</th>
<th>Age and Service Requirements</th>
<th>Calculation of Retirement Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska</td>
<td>N/A</td>
<td>Set contribution rate at 12.56%</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>California</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Pensionable compensation cap at $113,700. Benefit factor decreased from 2.5% at age 62 or higher to 2% for at 62 with a maximum factor of 2.5% at age 67.</td>
</tr>
<tr>
<td>Colorado</td>
<td>Increased contribution rate from 8% to 10.5%</td>
<td>Decreased rate from 13.66% to 11.16%</td>
<td>Reduced COLA to the lessor of 2% or inflation for 2010 and limits the COLA to 2% in future years unless the system experiences a negative investment return, then the COLA will be the lesser of inflation</td>
<td>Higher age requirement for members with less than five years of service</td>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>State</th>
<th>N/A</th>
<th>N/A</th>
<th>from the preceding 3 years or 2%</th>
<th>For retirements after October 1, 2011 the minimum COLA will be reduced from 2.5% to 2%</th>
<th>Increase in age and service requirement from age 60 and 25 years of service to age 63 and 25 years of service</th>
<th>A higher benefit reduction factor for early retirement from 3% to 6%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecticut</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illinois</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td>Post-retirement increases will be the lesser of 3% or 50% of CPI</td>
<td>Increase normal retirement age at 62 for 5 years of service, 60 for 10 years of service, and 55 for 35 years of service</td>
<td>N/A</td>
</tr>
<tr>
<td>Kentucky</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td>Reduced COLA capped at 5% to 1.5%</td>
<td>Increased regular retirement to 25 years of service from 20</td>
<td>Established a sliding scale of multipliers ranging from 1.1% for 10 years of services or less to 2% for 30 years or more of services</td>
</tr>
<tr>
<td>Louisiana</td>
<td>Contribution rate increase from 7.5% to 8%</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>For all new hires, the final average compensation will be calculated using the five highest consecutive years instead of three years.</td>
</tr>
<tr>
<td>Maine</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Increased</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>State</td>
<td>Change in Retirement Age</td>
<td>Change in Benefit Factor</td>
<td>Actuarial Reduction for Early Retirement</td>
<td>Other Changes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------</td>
<td>--------------------------</td>
<td>----------------------------------------</td>
<td>---------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Massachusetts</td>
<td>Reduced rate for those who join the system on or after April 20, 2012 by 3%</td>
<td>N/A</td>
<td>Increased minimum retirement age from 55 to 60</td>
<td>Increased in benefit factor range from 1.5% to 2.5%, changes to 1.65% to 2.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missouri</td>
<td>N/A</td>
<td>N/A</td>
<td>Increased the standard retirement age for new hires to 67</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nevada</td>
<td>For new hires, the state may retain contributions that exceed the actuarially-required rate by no more than 2%</td>
<td>N/A</td>
<td>Increased age requirement of age 60 with 10 years of service to age 62</td>
<td>Increased actuarial reduction for early retirement from 4% to 6% for new hires. For new hires, the average final compensation benefit will exclude increases in compensation to 10% per year for the 60-month period that begins 24 months before the 36 months used in calculation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State</td>
<td>Pension Reform Actions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ohio</td>
<td>Increase member contributions by 4%, phased in by 1% per year beginning 2013.</td>
<td>N/A</td>
<td>Skips the COLA for 2014 fiscal year for current retirees. A 2&amp; COLA will resume. New Retirees will not receive a COLA until the fifth anniversary of retirement.</td>
<td>Increases age and service requirements for retirement.</td>
<td>New Final Average Salary calculation of the average of the five highest years. New formula is 2.2% for all years of service.</td>
<td></td>
</tr>
<tr>
<td>Texas</td>
<td>Increased the contribution requirement from 6% to 6.45%</td>
<td>N/A</td>
<td>N/A</td>
<td>Increased minimum service requirement from five years to 10</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>Event</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>--------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 1935 | The Social Security Act (the Act) of 1935. This Act provided for unemployment insurance, old-age insurance and means-tested welfare programs.  

400 H.R. Res. 6635, 76th Cong. (1939) (enacted).  
403 Medicare is created, and employees covered for Social Security under a Section 218 Agreement are automatically covered for Medicare beginning July 1, 1966.  
408 Id.  
411 Authorized all states the option to extend social security and Medicare coverage to police officers and firefighters who participate in a public retirement system.  

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408 Id.  
411 Authorized all states the option to extend social security and Medicare coverage to police officers and firefighters who participate in a public retirement system.  

FIGURE 3
1-YEAR INVESTMENT RETURN
FIGURE 4
EMPLOYEE AND EMPLOYER CONTRIBUTION RATES

Employee Contribution Rate  Employer Contribution Rate

8.26%  5.11%  10.96%  9.27%

Non Social Security  Social Security