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FROM DEFINED BENEFIT TO DEFINED CONTRIBUTION

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From Defined Benefit to Defined Contribution

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ABSTRACT

State pension liabilities across the United States have surged to unprecedented levels in recent years. Historically, periods with higher levels of unfunded state pension liabilities have been associated with slower economic growth and restructuring of pension programs. Program restructuring takes many forms, and it ranges from benefit cuts to changes in eligibility requirements, to contribution rate increases—a more subtle form of restructuring involves adjusting the discount rate and actuarial assumptions built into defined pension benefit programs.) Many different state pension reform proposals have been proposed in the academic literature, and some states have engaged in radical reforms that shift public pensions from defined benefit to hybrid or defined contribution plans. The common rationale for reform is that defined benefit plans are proving costly to taxpayers, and the costs cannot be carried forward during stagnant economic times. In addition to their high total costs—as evidenced by total contribution rates that exceed 20 percent per dollar in most public programs—defined benefit programs are less predictable when it comes to future funding costs and outlays. Despite the need for state-level reform, defenders of defined benefit programs assert that the programs simply need tweaks to be sustained; proponents resist radical reform because they are concerned about capital flight and the transition costs associated with shifting from defined benefit plans. This paper explores the current state of public pensions across the United States and addresses transition cost and capital flight concerns. Further, it examines defined benefit programs vis-à-vis defined contribution plans, using a number of case studies to illustrate the challenges many states face.

Introduction

Weak financial market performance, poor management, and demographic changes promise to reshape the structure of public pensions across the United States in years to come. The effect of the 2008-09 financial crisis on defined benefit plan health is not yet fully known,¹ but 2009 funding ratios for state and local pensions were at 78 percent, down from nearly 100 percent one decade ago.² Mainstream media outlets, such as the *New York Times Magazine*, predict the next major economic crisis will likely involve public pensions, and politicians in many underfunded states have been scrambling to raise contributions, cut benefits, and tighten eligibility standards.³

Thanks to questionable accounting methods and optimistic actuarial assumptions, above-average stock market returns in the future will do little to offset the current funding gap, because the policy makers who control public pensions have already assumed superb rates of return for these pension funds. Moreover, even if a period of high market returns occurred, the demographic trends in the United States, combined with the incentive for politicians to provide excessive benefits during seemingly healthy periods, are working against pension solvency.

In the United States today, public pension systems—which pay out more than \$175 billion per year in benefits to 7.7 million retirees—are supported by a system in which 4.5 workers support one retiree.⁴ By 2050, the ratio of workers per retiree will have declined to 2.1 workers per retiree. If the system does not change, benefits will have to be cut by more than 50 percent or mandatory taxes for pension participants more than doubled. To say the defined

¹ Defined benefit plans are pension plans in which an employer promises a specified monthly benefit on retirement this is predetermined by a formula based on the employee's earning history, length of service, and age.

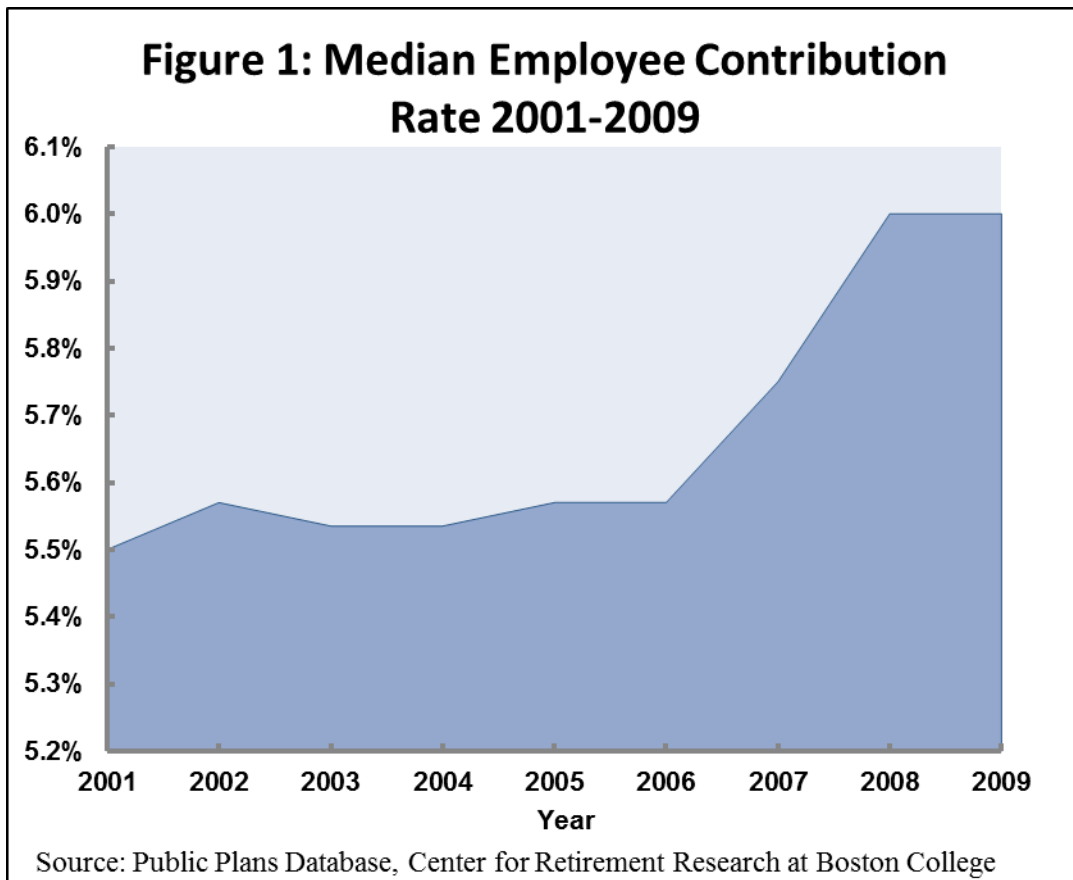
² Funding ratios indicate the ratio of a pension plan's assets to its liabilities.

³ Roger Lowenstein, "The Next Crisis: Public Pension Funds," *New York Times Magazine*, June 25, 2010.

⁴ Renee Haltom, "Fuzzy Math: Public Pensions are Underfunded—How Bad Is It?" *Richmond Federal Reserve Region Focus*: 1-4, 2010.

benefit public pension model in America is in crisis and on its last legs is an understatement: the system has failed, and it will support future participants through a series of broken promises, pay cuts, and taxpayer bailouts.

For years, employers have been asked to contribute to public pension funds at higher and higher rates. In some municipalities, the employer contribution rate alone now exceeds 20 percent of every dollar of salary paid. The rise in employer contributions, a cost largely passed on to taxpayers, has been accompanied by rising employee contributions, too. Combined with employee contribution rates, most public plans require contribution rates that exceed 20 percent of earnings. As Figure 1 below indicates, employees in participating public plans across the United States are also expected to contribute more to their pension plans.



The story of America’s public pension crisis is a story of gradual benefit erosions and tax increases. Financial and budget crises, such as those the United States is currently experiencing, accelerate the deterioration of public pensions. Even without these difficulties, pension viability is on the wane. The “new normal” of watered down plans and higher taxes—the gradual result of too many benefits being promised and too little revenue coming in—has stuck. The days of low contribution rates and high benefits are gone. Many plans have already reached the precipice of insolvency; others are not far behind. Yet, many reform ideas are based on hopes and dreams of higher market returns or higher tax rates.

Abnormally high market returns seem unlikely given current macroeconomic conditions. Moreover, most public pension plans have already based estimates on high market returns. Increasing contribution rates also seem unlikely to stick because new state workers—workers who had nothing to do with the massive pension liabilities already on the books—are unlikely to accept steady increases in pension taxes while simultaneously learning that their retirement benefits will be far lower than those allotted to the current generation of retirees. New employees will demand greater accountability and reform. Many will recommend that their states go the route that Georgia, Michigan, and Utah have taken, with a defined contribution option.

This paper considers three issues. The first section of this paper compares benefits and costs of defined contribution plans vis-à-vis defined benefit plans, focusing on fiscal sustainability of defined benefit public pension plans and the transition costs from defined benefit to defined contribution. After discussing the financial challenges facing defined benefit plans, the second section calls for reform, addressing two major arguments against reform—transition costs and capital flight. The third section presents several state-level case studies. The

case studies help to clarify the viable reform options available. Concluding observations are provided in the final section.

1. The Dynamics of Pension Funding

Defined benefit programs are the primary public sector retirement option for most state employees, and just 30 percent of states offer workers a hybrid or defined contribution option. Because defined contribution plans are, by definition, fully funded, the financing problem primarily confronts defined benefit plans. Like public defined benefit plans, many corporate defined benefit plans suffer from internal challenges. However, because this discussion is first and foremost concerned with the implications of unfunded defined benefit plans for taxpayers, it sets aside—for the moment—an analysis of corporate defined benefit plans.⁵

Funding ratios—the gold standard when evaluating the strength of defined benefit pensions—measure the ratio of a pension or annuity’s assets to its liabilities. When the ratio is above 1 (or 100 percent), the pension is able to cover all payments. When the ratio dips below 1 (or 100 percent), the plan is unable to make all payments promised to plan participants. In other words, when the ratio dips below 100 percent, the sum of all retirement benefits promised to all current and future retirees exceeds the asset value of the defined benefit trust.

Defined benefit plans often have funding ratios above 100 percent, which means they are “overfunded.” During the late 1990s stock market boom, for example, many states’ defined benefit pension plans had funding ratios of 120 percent. Political incentives, however, tend to make high funding ratios a temporary and fleeting phenomenon: Whenever pensions appear to be overfunded, politicians face strong incentives to dip into the funds to provide sweeteners to

⁵ Thanks to the Public Trust Guaranty Program, bankrupt private defined benefit plans have consequences for taxpayers, too. See Charles Blahous, “The ‘Other’ Pension Crisis” (working paper, Mercatus Center at George Mason University, Arlington, VA, 2011).

retirees. Time and again, when public pensions appear healthy, legislators take the opportunity to add sweeteners and fatten up the promises to retirees. For example, New Jersey's state pension plan appeared overfunded in 2001. Legislators immediately boosted pension benefits by 9 percent and reduced the required state-employee contribution rates.⁶ The costs of these extra benefits can be covered in the short run by the healthy, overfunded pensions. In the longer term, however, sweeteners and expansions in programs like the ones that occurred in New Jersey devastate a pension's viability. Elected officials—whose frames of reference tend to be shaped by the relatively short-term focus of the election cycle—often approve new and costly additions to retirement plans in the hope that such handouts will improve their electability.

The aggregate story of funding ratios, while troubling, masks the uglier pattern of decisions regarding individual states' defined benefit pension programs. For example, Kentucky's Retirement System experienced one of the sharpest declines in funding ratios—from 125.8 percent funding in 2001 to 46.7 percent in 2009. The Alabama Employees Retirement System (of which this author is a member) had a 100.2 percent funding ratio in 2001 and a 74.7 percent ratio in 2009. The Illinois Teachers Retirement System has experienced a funding ratio decline from 59.5 percent per in 2001 to 39.1 percent in 2009. Teachers in Illinois are already required to pay 9 percent of each paycheck into the Illinois Teachers Retirement System, and the low funding ratios make additional tax increases—for participants in the short-term but all taxpayers of Illinois longer term—a certainty.⁷

The benefits changes in Illinois are not unique: Time and again, when funding ratios experience significant dips, legislatures cut promised payouts and increase taxes for plan

⁶ Paul Ingrassia, "Trillion-Dollar Pension Crisis Looms Large Over America," *Institutional Investor*, March 10, 2010, <http://www.institutionalinvestor.com/Popups/PrintArticle.aspx?ArticleID=2442415>.

⁷ In fact, Illinois has already increased the retirement age for new employees from 62 to 67 in the wake of the crisis.

participants and the general public. The tax increases are immediately borne by participants, but unfunded liabilities can, at times, become severe enough that all taxpayers of a state must contribute to save the pension system. In Oklahoma, where funding ratios have fallen to 57 percent, lawmakers have eliminated unfunded cost of living adjustments (COLAs) from pension plans and raised the retirement age for new employees from 62 to 65 years of age. In Louisiana, where funding ratios have fallen to 60 percent, Governor Bobby Jindhal is embroiled in a political battle to raise the employee contribution rate from 8 percent to 11 percent for the Louisiana State Employees' Retirement System (LASERS). In New Hampshire, low funding ratios for the New Hampshire Retirement System (NHRS) are causing legislative leadership to push for extensions in employees' years-of-service requirements and to increase employee contribution requirements by another 2 percent.

As mentioned above, many states' public defined benefit programs are not fully funded. Some, such as the Illinois Teachers Retirement System are so under-funded that they function more as pay-as-you-go systems than investment trusts. A defined benefit plan provides employees with a stream of retirement income from the time they retire to the end of their lives. Some plans also have provisions to pay until the employee's spouse dies. The payment formula takes into account years of service and years of highest salary. The current formula for Alabama Employees Retirement System employees, for example, is the following:

$$(\text{Average Final Salary}) \times (\text{Years and Months of Service}) \times (\text{Benefit Factor}) \times (.020125) \div 12$$

Average Final Salary is the average of the three highest-paid years (October to September) from the final ten years of service. If an Alabama retiree has a Final Average Salary of \$90,000 and

twenty-five years of service, the ERS issues monthly checks in the amount of \$3,774 (or \$45,228 per year) from retirement until death.

Most public pension plans require contributions from employers and employees. When the programs are well funded, the contributions are held in a trust and managed by professional investors. When funding ratios drop, as they have in Illinois and many other states, defined benefit plans take on pay-as-you-go characteristics, because money paid in is immediately redistributed to current retirees. A pay-as-you-go model can be sustained only so long as young public employee growth and wages multiply faster than the number of public employees retiring and drawing on the state pension. In most cases, the generous public pension benefits packages and sheer number of retirees make it impossible for young employment growth to support pension plans. Tax increases and benefit cuts, therefore, become necessary to improve funding ratios.

According to the Pew Center on the States project, at the end of fiscal year 2009 promises made to public employees exceeded the money set aside to pay for these promises by \$1.26 trillion.⁸ Pew estimates that \$660 billion of the shortfall comes from underfunded pensions, and the remainder from underfunded retiree health and other benefits. The \$1.26 trillion total represents a 26-percent increase in shortfall since 2008. Given slow economic growth, weak stock market performance, and persistently high unemployment, the gap between promise and ability to pay is probably continuing to widen.

A number of economists and policy analysts believe the Pew figures grossly understate the actual unfunded liability problem. The Pew estimates are based on states' own actuarial assumptions. These, in turn, are based on optimistic—usually 8 percent per year—market return

⁸ Pew Center on the States, "The Widening Gap: The Great Recession's Impact on State Pension and Retiree Health Care Costs," April 2011, http://www.pewcenteronthestates.org/initiatives_detail.aspx?initiativeID=85899358839.

assumptions, inappropriate discount rates, and “accounting methods that are incompatible with economic theory.”⁹ When economists work with more realistic accounting and rate-of-return assumptions, unfunded liability figures rise significantly. According to Andrew Biggs, for example, the \$438 billion of state and municipal public pension liabilities in mid-2008, when properly accounted for, actually exceeds \$3 trillion. Biggs’ approach also produced one of the lowest unfunded liability rates (45.7 percent compared to Pew’s 78 percent).¹⁰ Robert Novy-Marx and Joshua Rauh apply higher discount rates and estimate unfunded liabilities of \$3.3 trillion and funding rates of 37.3 percent.¹¹ Courtney Collins and Andrew Rettenmaier survey the various estimates, and they estimate a \$3.1 trillion unfunded liability.¹² Economists are not alone in their skepticism of reported pension liabilities. In May 2011, the non-partisan Congressional Budget Office concluded that state and local pension plans should be based on market valuation of liabilities, rather than Governmental Accounting Standards Board (GASB) accounting because the fair-value approach “provides a more complete and transparent measure of the costs of pension obligations.”¹³

By failing to properly account for assets and liabilities, the GASB approach creates two problems. First, it overstates funding ratios and the overall health of pension plans. In so doing, it promotes excessively generous distribution of benefits during seemingly healthy funding periods and encourages insufficient cuts to shore up plans during weak economic times. In addition to

⁹ Market return rates and discount rates are not the same thing. The predicted market rate of return is the rate being assumed when actuaries forecast the future value of public pensions and a plan’s long-term solvency. The discount rate can be thought of as the risk-free rate being used by officials to calculate a plan’s liabilities. There is tremendous disagreement over which market and discount rates should be applied. See, for example, Andrew Biggs, “An Options Pricing Method for Calculating the Market Price of Public Sector Pension Liabilities,” working paper no. 164, American Enterprise Institute, February 26, 2010.

¹⁰ Ibid.

¹¹ Robert Novy-Marx and Joshua Rauh, “Public Pension Promises: How Big Are They and What Are They Worth?” working paper, December 2009, <http://ssrn.com/abstract=1352608>.

¹² Courtney Collins and Andrew Rettenmaier, “Unfunded Liabilities of State and Local Government Employee Retirement Benefit Plans,” Policy Report No. 329, National Center for Policy Analysis, July 2010.

¹³ Congressional Budget Office, “The Underfunding of State and Local Pension Plans,” *Economic and Budget Issue Brief*, May 2011, <http://www.cbo.gov/ftpdocs/120xx/doc12084/05-04-Pensions.pdf>.

exaggerating the health of plans, GASB accounting standards lead politicians and pension directors to make bad decisions, such as providing generous plan enhancements because they look less costly under GASB standards.¹⁴

While defined benefit programs' funding ratios vary widely, defined contribution programs—which give an employee a certain amount of money in a private account—are, by definition, 100-percent funded. The employee receives the amount contributed (plus or minus market returns) at some future point in time. Defined benefit programs, by contrast, vary in their funding levels. Thus, the ratio of retirees to workers, the promised benefits, and market returns all play a role in defined benefit funding ratios.

Defined contribution plans are individualized and operate more like savings accounts than annuities. The employee and employer both contribute money to the account, but ownership over the account is vested in the employee. Whereas defined benefit plans drop employee and employer contributions into a common investment pool, defined benefit plans allocate these funds to the individual. The employee is responsible for making investment selections, which may grow or shrink throughout the employee's career. At the time of retirement, he is eligible to withdraw money as a lump sum, periodic payment, or annuity. Unlike the defined benefit plans, retirement benefits in defined contribution plans are not guaranteed. Two people retiring with the same average final salary could have vastly different retirement nest-eggs, depending on the amount they voluntarily contribute during working years, the way in which they withdraw retirement earnings, and their overall investment strategies. However, the amount available to the retiree is the amount deposited into his account, plus earnings.

¹⁴ Eileen Norcross, "New GASB Rules Aren't the Right Fix for Pension Crisis" (working paper, Mercatus Center at George Mason University, Arlington, VA, 2011).

The literature on defined benefit versus defined contribution retirement programs is vast.¹⁵ The following subsections summarize the literature and flesh out the differences between the two programs, focusing on four key areas of concern when evaluating the merits and drawbacks of the two systems. First, are there differences in risk and cost between the two retirement systems? Second, does one program give participants greater flexibility than the other? Third, based on actual experience, how satisfied are participants in each system? And, finally, what other factors should public officials consider when deciding between the two systems?

Risk and Cost

Under defined benefit plans, risk is distributed across the entire class of participants. Defined contribution plans, by contrast, expect individuals to bear risk and make their own investment decisions. Defined benefit plans, simply because of their scale and ability to spread investments across more asset classes, offer lower risk to clients than defined contribution plans. While defined contribution investors can secure nearly the same returns as defined benefit participants by diversifying and purchasing index funds, most defined contribution plans lack the scale of defined benefit plans. However, defined contribution plans offer investors a variety of risk options and are, therefore, more likely to offer a level of risk consistent with the person's preferences and risk appetite. Risk-return calculation under defined benefit plans, by contrast, is completely removed from the individual.

Whereas defined contribution plans can allow for individual participants to hedge against inflation, defined benefit plans can leave them vulnerable to significant inflation risks. For

¹⁵ For more on public sector pensions, see *Pensions in the Public Sector*, Olivia Mitchell and Edwin Husted, eds. (Philadelphia: University of Pennsylvania Press, 2001), <http://www.pensionresearchcouncil.org/publications/0-8122-3578-9.php>. Also, Keith Clark, *The Defined Contribution Handbook* (Columbia, MD: Marketplace Books, 2003) provides a nice overview of defined contribution plan characteristics.

example, suppose a defined benefit program participant's pension payout is 50 percent of his final two years of salary. Suppose his year 1 salary is \$100,000 and inflation is 0 percent. Suppose his year 2 salary is \$150,000, but inflation is 100 percent. The individual's retirement income would be $.5 \times \$125,000$, or \$62,500. But, in inflation-adjusted terms, his earnings are just 31.5 percent of his year 1 salary. Under a defined benefit plan, the individual has no opportunity to hedge against inflation. And though many defined benefit plans have cost-of-living increases built in to address these inflation risks, adjustments often fail to keep pace with inflation.

Defined contribution plans—because of the more individualized approach that gives each participant a unique account—have higher administrative expenses than defined benefit plans. Munnell, et al., report that the annual cost of a defined contribution plan is more than double the cost of a defined benefit plan (0.95 percent expenses for defined contribution funds versus 0.43 percent expenses for defined benefit funds in 2009).¹⁶ Some evidence indicates that defined benefit plans have outperformed defined contribution accounts in terms of long-run market returns.¹⁷

Flexibility

Defined benefit plans are far more limited than defined contribution plans when it comes to giving participants freedom of choice and flexibility. For people wanting to leave one plan and join another or move from one state to another, defined contribution plans offer greater flexibility. Most defined benefit plans give participants a zero—or very low—rate of return if the participant terminates in the first ten years of service. By leaving the defined benefit plan early, the participant loses out on the future stream of payments as well as market returns—if any—

¹⁶ Alicia Munnell, Jean-Pierre Aubry, Josh Hurwitz, and Laura Quinby, "A Role for Defined Contribution Plans in the Public Sector," Center for Retirement Research at Boston College, State and Local Pension Plans Number 16, April 2011.

¹⁷ "Defined Benefit vs. 401(k) Investment Returns: The 2006-2008 Update," *Watson Wyatt Insider*, <http://www.watsonwyatt.com/us/pubs/insider/showarticle.asp?ArticleID=22909>.

accrued between the participant's start and departure dates. If, for example, market returns were 6 percent per year but the employee left in year 5 and received nothing but the principal balances, he has incurred a huge opportunity cost. In addition, the transaction costs of exiting defined benefit plans are often substantial in terms of paperwork, time, and cumbersome bureaucratic steps.¹⁸

The formulas used for collecting defined benefit benefits can significantly affect labor productivity and individual behavior. For example, most defined contribution plans encourage work throughout one's career and reward each additional dollar of salary with an employer contribution of some percentage. Defined benefit plans emphasize final-year salaries and encourage participants to chase extra income and earnings late in their careers. Thus, employees who leave defined benefit plans early forgo significant retirement income, and there are strong incentives for defined benefit participants to hang on to their jobs until they are fully vested. Employees whose salaries are lower late in their careers—due to poor health, demotion, or desire for more leisure—are particularly harmed under the defined benefit formula.

In 2008, the state of Georgia recognized the mobility problems created by defined benefit plans and switched to a hybrid plan. The new Georgia program caps future state liabilities. According to Sen. Bill Heath, a sponsor of the bill, Georgia public employee compensation was “high on benefits but low on salary.” As a result, the state had a 21-percent turnover rate among workers in their first five years of state government employment. The shift to a hybrid plan will

¹⁸ Laurence Kotlikoff and David Wise describe the many “kinks” a public employee faces at different points in their career when trying to make decisions within a defined benefit framework. See Laurence Kotlikoff and David Wise, “The Incentive Effects of Private Pension Plans,” *Issues in Pension Economics*, Zvi Bodie, John Shoven, and David Wise, eds. (Chicago: University of Chicago Press, 1987), 283-336.

help reduce pension costs, but it was first and foremost implemented to attract and keep young, productive workers.¹⁹

Satisfaction

The Watson Wyatt Retirement Attitude Survey asks employees to rate the importance of their retirement plans when deciding to take a position with an employer and also surveys employees' satisfaction levels regarding their retirement plans.²⁰ Watson provides the most comprehensive survey data on employee satisfaction. Though it does not attempt to control for the varied factors responsible for these differences, defined contribution plans appear to be far more popular than defined benefit plans when focusing solely on summary statistics. The survey separates respondents into "low-generosity" and "high-generosity" plans. The overall satisfaction rates for low-generosity defined benefit respondents were 44.2 percent, compared to 54.8 percent for low-generosity defined contribution respondents. Satisfaction rates for high-generosity defined benefit respondents measured 60.1 percent, but they rose to 69.1 percent for high-generosity defined contribution participants.

For defined benefit plan respondents, the source of greatest frustration stemmed from the fact that they cannot access funds before retirement. Defined contribution plan respondents were, for their part, most disappointed with the education programs offered by defined contribution plan providers.

¹⁹ Ron Snell, "Pension Reform: Not Easy, But Worth It," National Conference of State Legislatures, July/August 2010.

²⁰ "How Do Retirement Plans Affect Employee Behavior?" Watson Wyatt Insider, April 2005. A summary of the Watson Wyatt Retirement Survey is available at: <http://www.watsonwyatt.com/us/pubs/insider/showarticle.asp?ArticleID=14860>.

Other Factors

Program cost, risk, flexibility, and satisfaction are but some key factors to consider when assessing the merits of defined benefit and defined contribution programs. But, there are other factors—some of which are discussed below—to take into account.

For example, defined contribution plans fare much better than defined benefit plans when future risk to taxpayers is factored into an analysis. Poor market returns for defined benefit plans generally lead to unfunded liabilities and subsequent tax increases for plan participants. At some point, additional tax increases will be met with participant resistance, and all taxpayers may be forced to cover the pension shortfall. Poor market returns for defined contribution plans, by contrast, are fully internalized by the individuals and pose little—if any—risk of tax increases. Employer contribution rates can be pegged at a predictable income percentage, e.g., 10 percent of income, and rising health care costs or excessive outlays for current retirees do not factor into the upward adjustment of that contribution rate.

In states with defined benefit plans, taxpayers are at risk of further taxation any time inflation rises or life spans extend. The defined benefit plans are only as good as their actuarial rules and the incentives of politicians; any unexpected negative shock or short-sighted political decision that compromises the plan results in a dispersal of additional taxes across the population. Defined contribution plans, of course, also present risks to taxpayers: poor returns, inadequate savings, and living beyond one's retirement income are issues the individual participant necessarily internalizes. The risk of taxpayer bailouts does exist for defined contribution plans. One can easily imagine cases in which taxpayers “bail out” underfunded

defined contribution pensioners.²¹ Of course, defined benefit plans also present significant risk to government—and, thus, taxpayer—balance sheets.

Complex eligibility requirements of defined benefit plans are another set of factors to keep in mind. The plans normally have age and years-of-service-related benefit criteria; they tend to base benefits on a certain number of years served, though other formulas apply for participants taking early retirement. Early withdrawal penalties are another area about which participants need to stay informed. Indeed, the benefits programs are exceedingly complex, and they often result in participants not fully understanding how well-positioned they are for retirement.²² Handbooks for most programs exceed fifty pages in length. They are so filled with fine print and footnotes that even a well-trained accountant would have difficulty interpreting all of the rules, exceptions, and clauses associated with a typical program.

2. Making the Transition

Despite difficulties associated with defined benefits programs, the case for defined contribution plans is not clear-cut. People with certain risk profiles may prefer a defined benefit program to a defined contribution plan. People choosing to work in the public sector often decide based on the entire compensation package. Sometimes the total package—including a defined benefit package—is better than any other alternative. Those optimistic about their life expectancy, for example, could fare better under a defined benefit plan than a defined contribution plan. Moreover, in terms of total cost, defined contribution plans are not necessarily

²¹ West Virginia's teacher's retirement plan is a case in point. In 1991, new teachers were shifted from a defined benefit plan to a defined contribution 401(k) plan. Twenty years later, many of the teachers now claim they were fooled by some of the investment options available to them and settled for low-returning annuities. Despite enjoying a 7.5-percent matching contribution from West Virginia, few teachers have managed to accumulate even \$100,000 in retirement income. Several legal cases were brought forward, and the state began offering employees a choice between a defined benefit and defined contribution plan in 2008.

²² Julia Coronado and Steven Sharpe, "Did Pension Plan Accounting Contribute to a Stock Market Bubble?" *Brookings Papers on Economic Activity* 34 (1), 2003, 323–371.

less costly than defined benefit plans. The real benefit of defined contribution, in fact, lies in its political economy: defined contribution plans permit individuals to own their retirements, and they reduce taxpayer uncertainty. Defined benefit plans result in common, distributed ownership, and they are inherently uncertain when it comes to long-term funding. In the political economy sense, then, it does make sense to talk about defined contribution plans as less costly.

Moving away from cost discussions, a more fundamental point presents itself: most defined benefit plans are not sustainable. Many states are already facing a crisis, and some are predicting widespread crisis across the United States in the next ten to twenty years.²³ The defined benefit liability gap, which is a problem now, is only going to get worse in coming decades. In 1970, there were 5.3 workers per retiree in the United States; today there are 4.5 workers per retiree. By 2050, workers per retiree will number just 2.1. These overall numbers mask the more immediate reality facing public pensioners. As states further tighten budgets and undertake austerity measures, the public sector worker-per-retiree ratio could worsen faster than it does for the United States as a whole.

If estimates about the decline in workers per retiree are trustworthy and assume no changes to defined benefit promises, legislatures will have to more than double taxes to support these programs by 2050. Of course, these tax increases will affect both employees and employers. Employers will have to find ways to operate with fewer personnel. Fewer employees will be attracted to public employment when faced with pension taxes that are double current rates, and these employees' savings will be significantly crowded out by mandatory public pension contributions. (A third type of "tax," which can also be thought of as a benefit cut, involves public pension indexation failing to keep pace with actual inflation.)

²³ Joshua Rauh, for instance, believes state pension systems will bankrupt states and force the federal government to make a decision as to whether to bail out states driven to insolvency by their pension programs. See Joshua Rauh, "Are State Public Pensions Sustainable?" *National Tax Journal* 63 (10), 2010.

While it is difficult to imagine public workers and institutions agreeing to a doubling of tax rates, it is equally difficult to imagine pensioners accepting a 50 percent or more cut to benefits between now and 2050. However, the demographic trends and arithmetic of pension benefits and taxes are what they are. In the absence of a shift from defined benefit to defined contribution plans, a combination of benefit cuts and tax increases is inevitable.

When presented with these accounting realities, however, defenders of defined benefit systems refuse to throw out the pension model. Instead, they call for band-aid fixes and shift the argument away from impending insolvency toward “costs.” Some acknowledge the need for reform but say that the time is not right and that transition costs make the case for reform problematic.²⁴ Others focus on the potential losses their states may experience in shifting from a defined benefit model to a defined contribution model. The following subsections briefly address these two arguments.

Overcoming the Transition Costs

Personal finance literature is filled with discussions about the optimal savings rate for retirement.²⁵ Of course, no definite answer exists. Optimal savings depends on a person’s risk preference, lifetime earnings, and lifestyle preferences during working and retirement years. If a household of four begins saving for retirement in their late twenties, a simple rule of saving 10 percent of gross income is more than adequate to support a standard of living in retirement comparable to the standard enjoyed during working years. A shift, therefore, away from current pension tax rates—which exceed 10 percent in nearly all public plans when both employer and employee contributions are accounted for—to a program where 10 percent of pay is deposited

²⁴ Munnell, Aubry, Hurwitz, and Quinby.

²⁵ For further reading, see Roger Ibbotson, James Xiong, et al., “National Savings Rate Guidelines for Individuals,” *Journal of Financial Planning*, April 2007, <http://corporate.morningstar.com/ib/documents/methodologydocuments/ibbassociates/nationalsavingsguidelines.pdf>.

into private accounts would fully fund future private accounts. Employers and employees would enjoy significant tax savings when compared to what they pay into current plans, and individuals would have private accounts to manage as they saw fit. All new employees could immediately enroll in the 10-percent defined contribution program, and their choices limited to a range of highly diversified index funds. Workers fairly new to the public pension system could be treated much like new employees: assets in their accounts could be shifted to 401(k) plans rather seamlessly and all future contributions directed into those accounts. Transition problems would remain, however, for those workers who currently participate in defined benefit plans.

Workers with many years of service and retirees drawing benefits from the system are another matter, however. To fully cover the costs of converting from defined benefit to defined contribution, state governments would have to borrow to make up for the tax revenue no longer directed to the general, defined benefit trust.

The borrowing should be one-time, and it should total the present value of all future payments owed to all retirees who do not transition to the 401(k) system. When Michigan shifted its new public pensioners to a defined contribution program in 1997, for example, the shift helped to cap the state's unfunded liabilities. Because Michigan had a fully funded plan in 1997, the transition was a smooth one. The move, which involved significant political risk, has proven successful and has saved Michigan taxpayers billions of dollars in unfunded liabilities.²⁶

Government borrowing to cover transition costs will make up for the revenue short-fall until a new defined contribution plan is fully phased in. One major problem arises, however, when states issue bonds to support the transition. Specifically, lawmakers must increase taxes or cut future expenditures to support repayment of principal and interest on the bond. While state

²⁶ Richard Dreyfuss, "Estimated Savings from Michigan's 1997 State Employees Pension Plan Reform," Policy Brief, Mackinac Center for Public Policy, June 23, 2011.

governments might seek various possibilities for tax revenue, one possibility for funding the bond would involve cutting future pension benefits paid to young workers participating in the defined benefit plan. If they receive compensation of equal or greater value—namely, control over their own retirement accounts and greater labor mobility—young workers may be willing to buy into the reform. The costs are thereby borne by the group that, from a normative point of view, should be bearing them, thus minimizing inefficiencies that result from new taxes.

A serious problem remains with the “shift to defined contribution plans and borrow” approach described above: Near-term benefits are limited, and reforms may not do enough in the short-term to shore up lingering defined benefit liabilities. If political realities were put aside, ideal reform would involve a combination of phasing in defined contribution plans for new participants and cutting benefits for current retirees. Of course, cutting retiree benefits is often a political non-starter.

To summarize, then, here is an approach to the transition: stop a defined benefit program immediately and pay in the future only those retirement benefits that were accrued at the time of the reform. Current retirees, therefore, would receive full retirement benefits. Current workers, however, would receive benefits based only on covered wages earned prior to the reform. For example, if a person were in his first year of employment and were to work in the state of Alabama until retirement age, he would be entitled to just $(.020125) \times (\text{Average Final Salary}) \times (1)$ at the time of retirement. In other words, the only defined benefit year that would count for him would be the year prior to the reform. Rather than wait for a small stream of defined benefits in retirement, any employee could immediately opt to move his money to a 401 (k) and, in so doing, forgo defined benefits.

For all future years, the individual's retirement would be handled by the 10-percent defined contribution mentioned above. The bond mentioned above would pay off all accrued retirement benefits, which would steadily diminish over time. Taxes to finance the bond could come from young retirees or some other source. Eventually, the state will retire the debt and operate a fully funded defined contribution retirement system.

To address concerns about excessive risk taking or investor inertia, oversight of individual investment accounts may be permissible. The choice set available to investors could be curtailed or a default basket of diversified index funds, such as TIAA-CREF Lifecycle funds, applied to each individual.²⁷

What about Capital Flight?

Capital flight is another area of concern raised whenever serious pension reform is considered. As states relinquish control over their pension programs, proponents argue, socially beneficial investments in the state—investments that create jobs and attract people to the state—will be lost. In Alabama, for example, up to 10 percent of defined benefit funds paid in to the program can be used for Alabama investments. In the recent past, funds have been used to support a Mercedes automobile plant in Tuscaloosa, a 468-hole Robert Trent Jones Golf Trail, and a number of Marriott hotels. According to the Alabama Employees Retirement System, these projects would not have been possible were it not for state-led efforts and the investment dollars Alabama employees provide.²⁸

The argument described above, which can be broadly understood as a capital-flight argument, is problematic. It places a premium on the seen, local, and visible benefits of

²⁷ The TIAA-CREF Lifecycle funds are designed to give investors a diversified portfolio that adjusts as a person moves through his life. For example, the TIAA-CREF 2040 fund gives investors plenty of risk in the plan's early years, but reduces plan risk as investors near the year 2040.

²⁸ Jim Cox, "Could Bronner Build a Hotel in St. Stephens?" *The Advisor* vol. XXXVII—no. 1, July 2011.

investments above the unseen benefits. Money can enter or leave any particular state. If Alabama, or any other state, wishes to attract—and keep— investment, the key is not controlling retirement funds, but promoting sound economic policies. When tax rates and business regulations are low and predictable, states have no problem attracting investment dollars. The migration of people and corporations from high-income-tax states to low-or-no-income-tax states, for example, demonstrates the role policy plays in attracting capital. With more capital, comes a higher rate of economic growth, as well as more overall tax revenue for states struggling to balance their budgets.²⁹

If investment dollars from public pension funds are the key to making or breaking major development initiatives, it is a solid bet that the state’s policy environment is less than ideal for capital formation. The states losing the most entrepreneurs are, without exception, those with excessively burdensome taxes and poor business environments. States like Rhode Island, Mississippi, and Louisiana consistently rank in the bottom 20 percent of states when it comes to the overall quality of the business environment.³⁰ And these states claim that injections from public defined benefit plans are needed to promote economic growth, attract new corporations, and improve the business environment. Their efforts, of course, overlook a critical point. The business environment is improved by implementing wise policy, not by throwing money at investments. As the business environment improves, investment dollars follow.

States seeking to improve their policy environment have a great deal at stake, and nowhere is this more true than in small states. When states with low populations strive to

²⁹ In an October 2010 op-ed for *The Wall Street Journal*, supply-side economist Art Laffer looks at the growth rates for the 11 states that have adopted income taxes in the past 50 years. According to Laffer, the consequences of these new taxes have been “devastating.” Despite the introduction of new taxes, the nine states with the highest income tax rates have gathered 22 percent less tax revenue than the nine states with no income tax. See Art Laffer, “The Bill Gates Income Tax,” *Wall Street Journal*, October 5, 2010.

³⁰ CNBC’s “America’s Top States for Business 2011,” 2011, <http://www.cnbc.com/id/41666602>.

improve their business environments, economic growth is significant. North Dakota and South Dakota are two cases in point. Both states are perceived as having business-friendly legal and regulatory frameworks. The cost of living in these states is fairly low, and taxes are also reasonable. Thanks to their solid business environment, the two states fared well during the 2008 financial crisis, and they are attracting new businesses and experiencing above-average job growth.³¹

North Dakota and South Dakota illustrate the importance of good policy when it comes to attracting investment dollars. Neither state has a large pension fund to support large-scale investment projects or subsidize new corporations. In the absence of these funds, the states have been compelled to grow organically by enacting good policy.

3. Case Studies

To illustrate some states' responses to liability gaps in their public pension programs, this paper reviews a number of case studies. The first two studies focus on reform experiences in Michigan and Utah. Each state faced a serious pension crisis, and each shifted away from defined benefit towards defined contribution plans. After examining these recent transition-to-defined-contribution successes, it turns to Alabama, Illinois, and Kentucky, three states with pension programs facing serious challenges. As will become evident, each program attempts to apply short-term fixes and seeks to remedy pension shortfalls through tax increases and benefit cuts.

Michigan

As mentioned earlier, Michigan was the first state to shift its public-sector pension from a defined benefit to a defined contribution program. State employees hired after 1997 were

³¹ For a discussion of North Dakota's boom, see Joel Kotkin, "Why North Dakota is Booming," *The Wall Street Journal*, March 14, 2011. While North Dakota boasts an unemployment rate below 4%, South Dakota's economy has also fared well since 2008, and unemployment remains at a low 4.7% rate.

automatically enrolled in a defined contribution plan. Under this system, employees' retirement accounts were individualized; the state now makes a mandatory payment plus a matching payment.

Employee contributions to the defined contribution plan are both voluntary and pre-tax. All workers receive a 4-percent state contribution, and they are free to contribute up to 20 percent on a pre-tax basis. The first 3 percent of salary contributed by workers is matched by an additional 3 percent state contribution. In other words, if employees contribute just 3 percent to their 401(k), the Michigan program raises the contribution to the important 10 percent savings level mentioned above.

Michigan's program has been popular among participants, and it has produced enormous cost savings for the state. The program expanded in 2010 to include K–12 teachers in a combined defined benefit/defined contribution program. Since 1997, the shift to a defined contribution plan has reduced future unfunded liabilities in Michigan—a state strapped for revenue and losing productive residents year after year—more than \$4 billion.³² Unlike defined benefit plans, which are frequently underfunded, Michigan's program is fully funded and employees have never missed out on a payment. Members of the Michigan State Employees Retirement System defined benefit plan prior to 1997 are still being paid, but Michigan's reform reduced unfunded liabilities by billions of dollars.

Utah

In 2009, Utah's public employees' pension program was, like that of many states, a defined benefit program. Generous benefits to current retirees, combined with the 2008-09 stock market crash, resulted in a drastic increase in Utah's future liabilities. According to Josh Barro:

³² Dreyfuss, 2011.

Utah was about to drown in red ink. Without reform, the state would see its contributions to government workers' pensions rise by about \$420 million a year—an amount equivalent to roughly 10 percent of Utah's spending from its general and education funds. Moreover, those astronomical pension expenses would continue to grow at 4 percent a year for the next 25 years, just to pay off the losses the fund had incurred in the stock market.³³

Responding to the crisis, Utah's leadership went the route of Michigan and opened up a 401(k) plan to all employees hired after June 2011. Unlike Michigan's reform, which eliminated any defined benefit option, Utah's plan gives new employees a choice between a 401(k) plan and a significantly scaled-down defined benefit plan that caps taxpayer liabilities. Regardless of the plan a new employee chooses, state contributions are capped at 10 percent.

Time will tell how Utah's recent pension reform plays out politically and what returns its participants earn, but Utah's radical response to a serious liability gap is a sharp contrast to the reform attempts underway in struggling states like California, New York, New Jersey, and Illinois.³⁴ While the chief architect of Utah's reform, Sen. Dan Liljenquist, has been gaining recognition for his reforms, Utah still faces an unfunded liability gap somewhere between \$3.6 and \$18.6 billion. The move to a defined contribution program is a giant step in the right direction, but the need for deeper cuts—cuts that target current retirees—may still be needed in the near future.

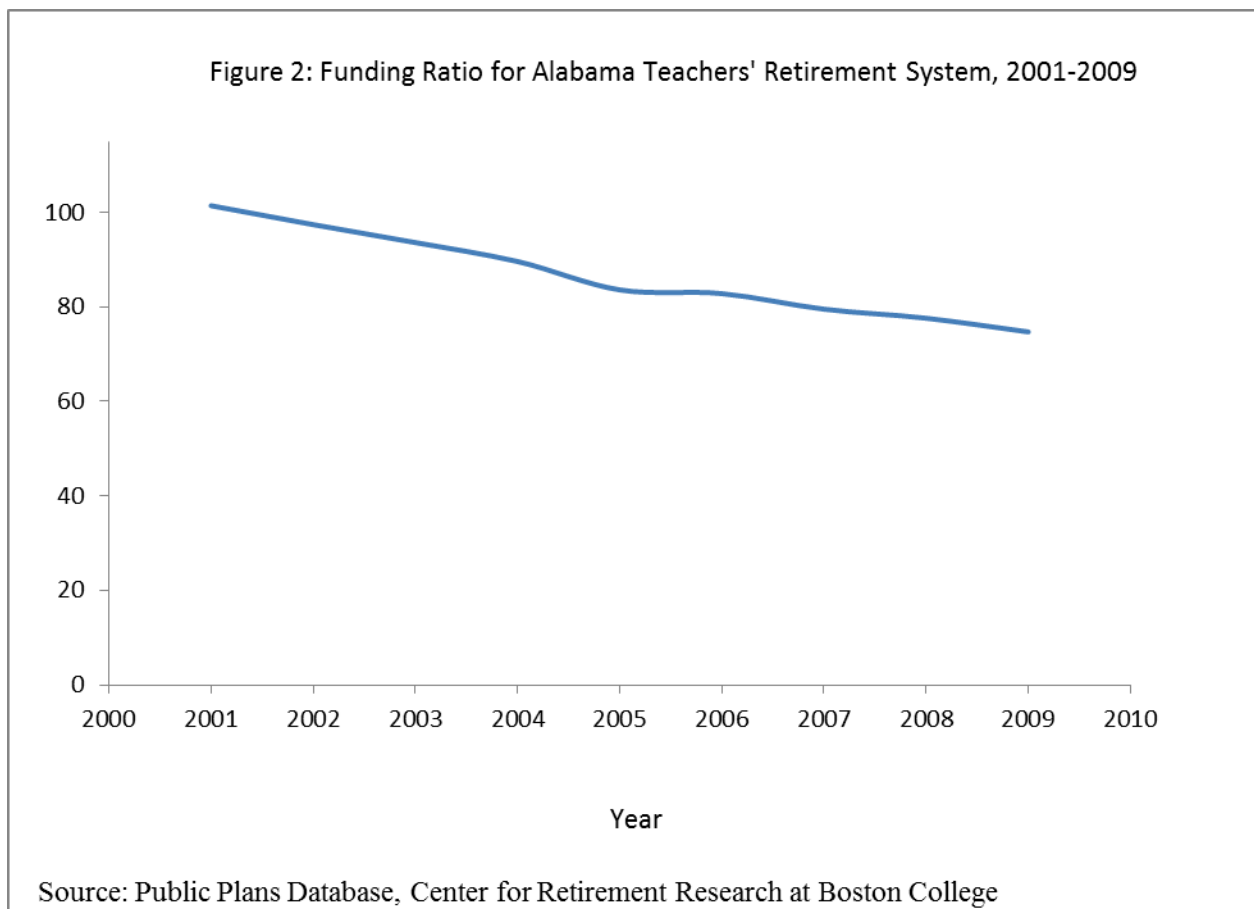
Alabama

As shown in Figure 2, between 2000 and 2009, Alabama's funding ratio declined from 100 percent to 78 percent. Like many other defined benefit plans, Alabama's plan suffered from a combination of higher-than-expected withdrawals and poor market returns. In Alabama's case,

³³ Josh Barro, "Dodging the Pension Disaster," *National Affairs* 7, spring 2011.

³⁴ "The Utah Pension Model," *Wall Street Journal*, January 19, 2011.

a number of bad investments in media stocks resulted in defined benefit returns lagging behind traditional investment benchmarks. In addition, Alabama’s legislature sought to bolster retiree benefits in 2002 to encourage productive, retirement-eligible employees to remain in Alabama by creating the Alabama Deferred Retirement Option Program (DROP). It was originally put in place to discourage fully vested Alabama workers with twenty-five or more years of experience from leaving for other jobs. To discourage people from retiring, leaving the state, and collecting 50 percent of their salary, the DROP program allowed public employees to move the 50 percent of salary money to a deferred account. The program passed the House with a 92–1 vote, and the Alabama Senate approved it unanimously (31–0).

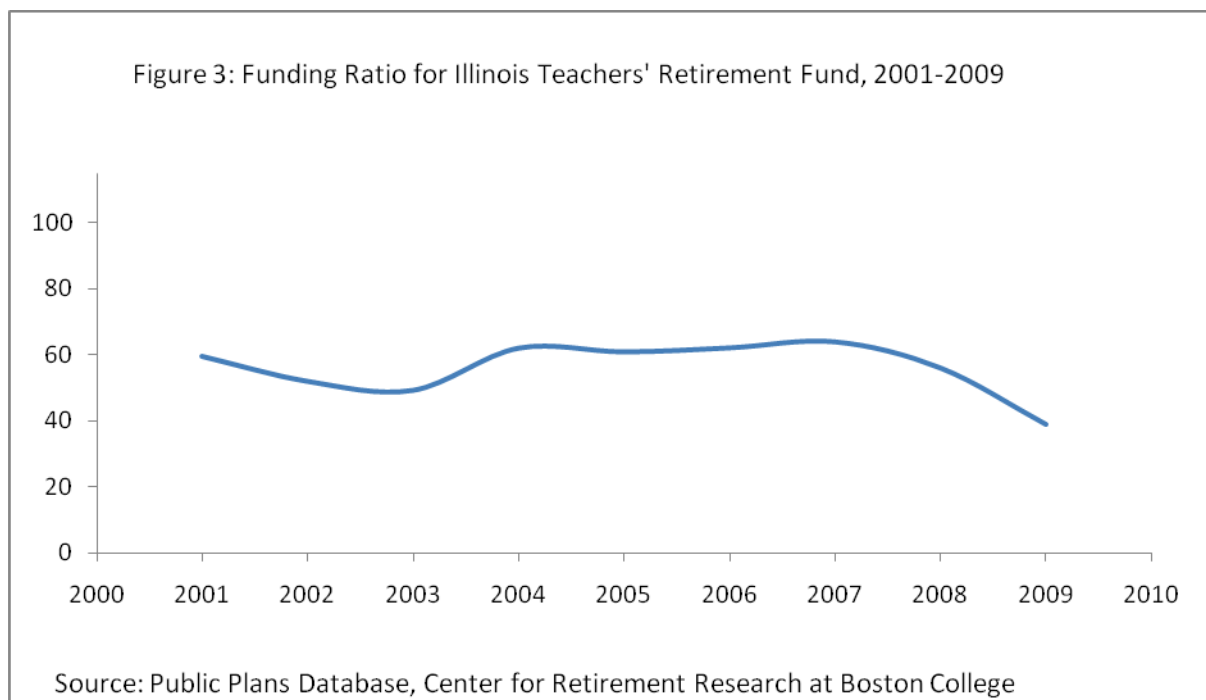


In Alabama's 2011 pension reform initiative, DROP was the first program to be eliminated.³⁵ In response to the funding dip and the state's generally weak budget environment, Alabama's House and Senate passed a bill in spring 2011 that raised employee contribution requirements from 5 percent to 7.25 percent in October 2011 and then to 7.5 percent in October 2012. Obviously, the brain-drain consequences of ending the DROP program and raising the employee contribution rate to 7.5 percent are a significant long-term concern.

Illinois

Illinois' overall fiscal picture is one of the worst in the nation. The state consistently scores among the worst on corruption ratings; significant income tax increases are constantly under consideration; and municipal bonds are poorly rated and require high yields to attract skeptical investors. Among all public pension funds, the Illinois Teachers' Retirement System is arguably the worst. The program is, for all practical purposes, a pay-as-you-go program. Attempts in the last ten years to improve funding ratios have done little to bolster the program (see Figure 3). In fact, the fiscal year 2012 budget authorizes \$4.6 billion of borrowing from the state's general fund to support pension payments owed in fiscal years 2010 and 2011. When debt-service obligations are taken into account, Illinois needed to borrow \$6.2 billion to shore up the Illinois Teachers' Retirement System.

³⁵ The city of Philadelphia continues to be burdened by the DROP program it introduced in 1999. The costs of the program have greatly exceeded expectations, and despite having sensible intentions—to keep productive workers employed, rather than taking early retirement—the program has been a disaster for Philadelphia taxpayers. See Miriam Hill, Allison Steele, and Jeff Shields, “Philadelphia Workers Rush to Get DROP Pension While They Can,” *Philadelphia Inquirer*, August 12, 2010, http://articles.philly.com/2010-08-12/news/24971823_1_drop-pension-pension-payment-retirement.



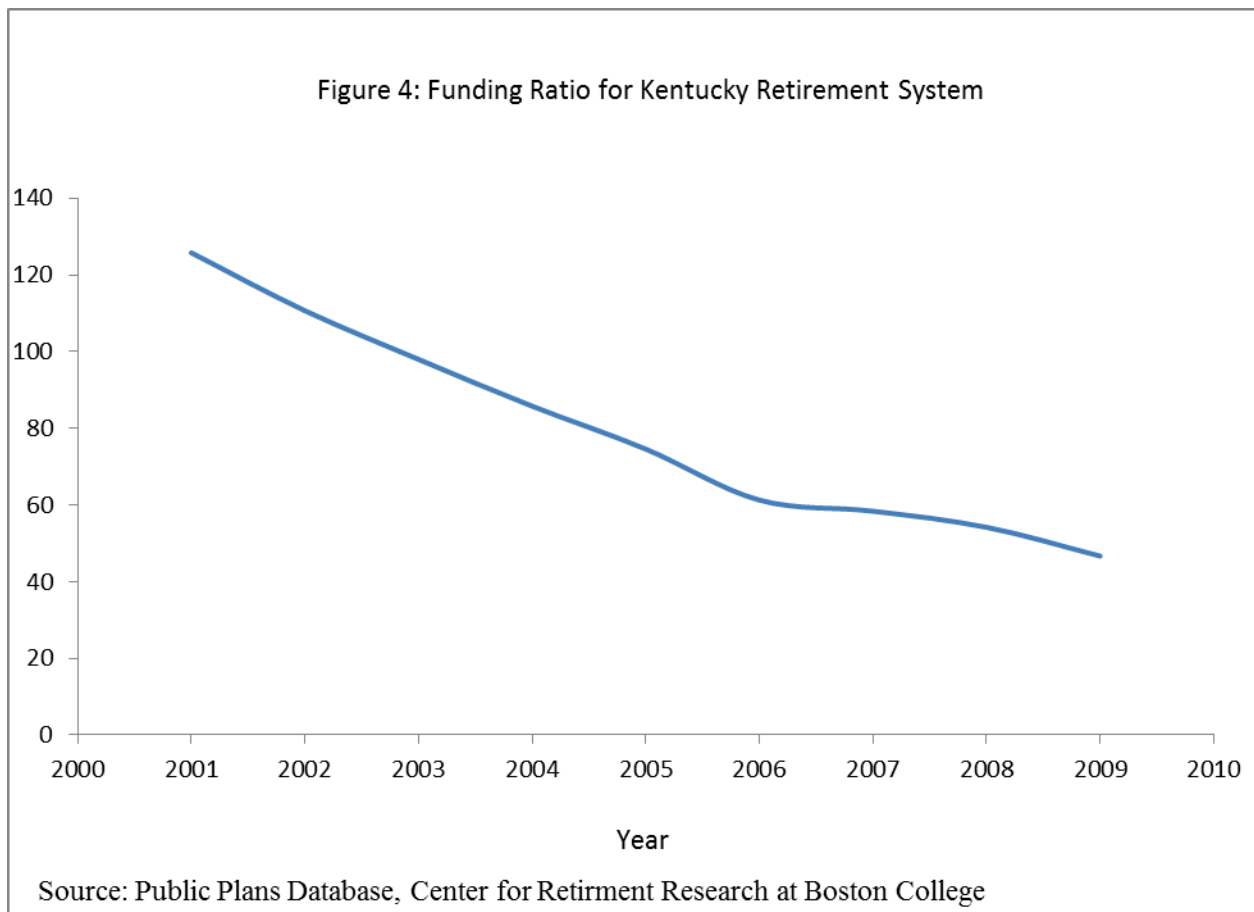
In 2010, Illinois Governor Pat Quinn authorized changes to Illinois' pension program that raised the retirement age to 67 for new workers and capped the maximum pensionable salary at \$106,800, but no major reforms were passed in the 2011 legislative session.³⁶ Rather than reform their shaky pension system during the 2011 session, Illinois' legislators pushed the problem into the future and relied on more general-fund borrowing to delay dealing with the crisis. Worst of all, legislators kicked the strong dose of austerity necessary to improve Illinois' long-term fiscal health down the road. Illinois' reforms only affect new hires. The benefits of these reforms for Illinois' funding ratios in the present are trivial. They will not be fully realized—assuming no further political maneuvers undo them—for thirty years or more.

Kentucky

The Kentucky Retirement System (KRS) has been experiencing a steady and rapid funding decline in recent years, and inadequate pension funding is spilling over into public sector

³⁶ Matt Hopf, "Gov. Quinn to Sign Pension Reform Bill Today," *The State Journal-Register*, April 13, 2010, <http://www.sj-r.com/top-stories/x1173974205/Quinn-wont-commit-on-approving-pension-bill>.

employment generally: cities must pay 35.7 cents to the KRS for every dollar earned by police, firefighters, and hazardous-duty employees; they must pay 18.9 cents for every dollar earned by non-hazardous duty employees. With tight budgets in many rural Kentucky cities, and taxpayers understandably not wanting to accept higher taxes to bail out Kentucky’s pension system, Kentucky’s pension problems have resulted in cities laying off workers and refraining from hiring others.³⁷



³⁷ Scott Wartman, “Pension Costs Blamed for Layoffs,” Cincinnati News, July 17, 2011, <http://news.cincinnati.com/article/20110716/NEWS0108/107170321/Pension-costs-blamed-layoffs>.

Besides the usual suspects—overly generous benefits to current retirees, poor market returns, and rising health care costs—that afflict most defined benefit programs, Kentucky’s problems are complicated by the fact that legislators expanded KRS membership to many “quasi-public” entities during the past ten years. Indeed, in just ten years, KRS participation has grown by nearly 40 percent. While new participants provided a temporary funding surge—observed in the high funding ratios of the early part of the last decade—employer funding ratios for many of these quasi-public entities were insufficient to cover the long-term benefits promised (see Figure 4). Employees of credit unions, laundry-care providers at medical facilities, and advocacy groups gained KRS membership, but the funds going out quickly exceeded those coming in.³⁸

Insights from Case Studies

Several insights can be gleaned from the case studies briefly highlighted in this section. First, the transition from defined benefit to defined contribution plans can be made and, as demonstrated by some states, the transition costs are not insurmountable. Second, sharp declines in funding ratios, occurring in such states as Kentucky, Illinois, and Alabama, are neither necessary nor a sufficient condition for guaranteeing radical reform. If anything, current policies in weak pension states seem to indicate a digging in and retrenchment of sorts, in which legislators seek to raise taxes, limit eligibility, and reduce benefits. The successful reforms observed in Michigan and Utah seem to be the result of good timing, realistic leadership, and taxpayer frustration.

Conclusion

Because legislators work within the election cycle—a relatively short horizon—they tend to downplay the costs of governmental programs and defer meaningful reform. Each generation

³⁸ John Cheves, “State Pension Enrollment Booms as Non-Government Workers Get Benefits,” *Kentucky.com*, July 3, 2011, <http://www.kentucky.com/2011/07/03/1798434/state-pension-enrollment-booms.html>.

of politicians makes the same reform-deferring choices, resulting in an ever-worsening crisis. Procrastination, in other words, has costs.

Resolution of the mounting public pension liability gap in jurisdictions across the United States has been put off for too long. A crisis is looming, and more radical reform measures are becoming necessary because of government indecision, incompetence, and application of patchwork remedies designed to put off the more serious issues.

This paper, after summarizing some challenges inherent in defined benefit plans, argues for a shift from defined benefit public pension plans to defined contribution plans. As the evidence demonstrates, a shift to defined contribution plans is neither a panacea nor is it costless. Nonetheless, it puts the long-term retirement plans of millions of Americans on more solid, fully funded footing. A defined contribution system is one no longer supported by taxpayers, but, rather, by the responsible investment choices of individuals.

Further, this paper has considered the severity of the defined benefit program crisis and offered practical suggestions about how to transition from “here” to “there.” It has discussed some of the more recent pension reform experiments to clarify the costs and consequences of moving forward with the reform that public pensions require. Because the outlook for defined benefit public pension plans is dire, reform is crucial. But, as seen in the case studies above, successful reform along the lines of the Michigan and Utah models is far from guaranteed. Reform that pushes public pension plans towards defined contribution models is necessary for states pursuing long-term solvency and budget sanity, though its successful implementation is by no means inevitable.